

Validation

Scale-Up

iOT

Customized

Convenience

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At Cole-Parmer, you come first. We've been in the industry more than 60 years, so we understand your expectations and challenges. That's why you will only find industry-leading brands you can trust, backed by a team of application experts who will work with you to meet your requirements. Consider us part of your team. We are dedicated to being your one source for fluid handling, biosciences, and test & measurement equipment, plus supplies and consumables. Your 100% satisfaction is our number one goal.



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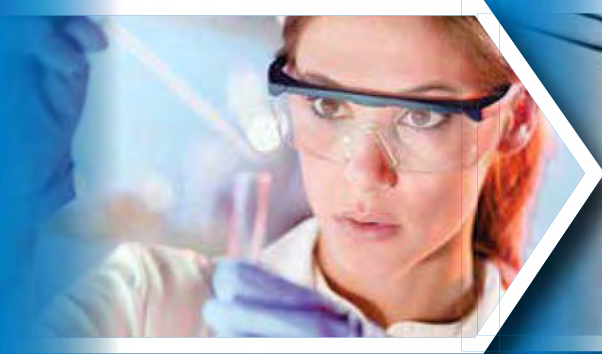
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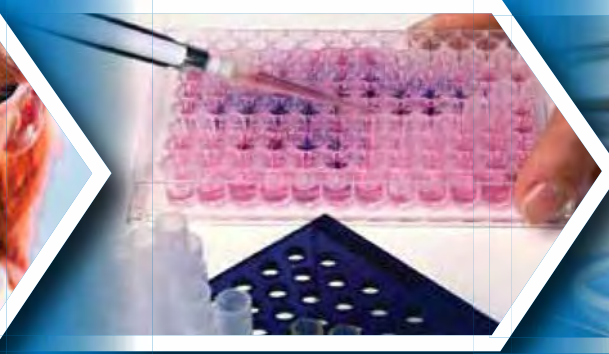
Cole-Parmer Universe of Pharmaceutical Solutions

R&D



- Formulation
- Synthesis
- Clinical trials

Quality



- Validation/regulatory
- Raw material and product testing
- Cell culture

Production



- Transfer
- Processing
- Batch filling

Qualification service (IQ/OQ) with complete documentation support



Lab and process equipment and supplies for the entire workflow—from R&D to fill/finish

Projects



- New lab setup
- Expansion
- Scheduled/preventive maintenance

EHS



- Personal protection
- Product safety
- Environmental testing

Warehouse



- Storage (raw material and finished products)
- Transportation

Pan-India Exceptional Customer Service





We've got you covered!

In the pharmaceutical industry, we realize you operate in most dynamic environments where compliance, accuracy and accountability are critical. Changes in regulations by leading bodies have increased the significance of regulatory compliance management. Cole-Parmer can help you comply with the toughest regulatory demands and the highest industry standards.

Quality standards: Meet ASTM, ISO, EN, USP, CE, FM, OSHA, and IEST*

Regulatory compliance: Meet USFDA, MHRA, and EPA guidelines and data integrity with 21 CFR Part 11 Validation: Documentation support for URS, DQ, IQ, OQ, COA, COC, COS, and SOP

Traceability: Pre-calibrated products and NIST-traceable certification. Re-calibration reports can be provided by NABL-accredited labs.

cGMP and cGAMP: Conform to Good Manufacturing Practices and Good Automated Manufacturing Practices

Lot traceability: Products are individually labelled for lot traceability

IoT in the lab: Secure, real-time remote control and monitoring, and cloud-based data acquisition**

Benefits from our proven and qualified products

- Improve speed to market by faster product development
- Avoid regulatory penalties
- Reduce operation costs by centralising and simplifying procurement
- Reduce risk and gain a competitive advantage

*Some of the regulatory and quality standards are applicable on selected models. Contact us for details. Some tests/certifications are made on request and might incur extra charges.

**Real-time remote monitoring and cloud-based data acquisition is applicable on products equipped with MasterflexLive™, CPLive™, and TraceableLive® products.

Contact our **Application Specialists** to know more.

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Production



Whether you have small laboratory-scale batches or full production runs, it's a complex task. We can help by providing products and solutions you can trust.

- Full understanding of your application is our focus
- Flexible supplies per your batch size requirement
- Application expertise to help you with technical challenges
- Proficiency in providing custom solutions

Stirrers

Freezers

Safety Cabinets

Overhead Mixers

Masterflex® Pumps

Carboys

Tanks

Sensors

Tubing

pH Meters

Media Bottles

PET Bottles

Pilot



Research



Cole-Parmer can offer you varied **scalable solutions.**

Contact us with your requirement and to find the right fit for your application.



Flow and direction—all in your control— with Ismatec® Reglo ICC Pump

Customer: A world leader in biological solutions, focused on industrial enzymes and micro-organisms.

Challenge: The customer is into developing oil splitting enzymes that can be used to extract the low-density oil and hydrocarbons present in the effluent water discharge. The untreated waters could have significant environmental impacts and wastage of oil. The customer was required to dose minimalistic volume of methanol into their barrels at regulated intervals of time, during their research phase. Accuracy and lack of automated program were other challenges, along with the slow flow rate, with their existing syringe pump.

Solution: Customer approached us for a syringe pump with slow flow rates. Rather we offered Ismatec Reglo ICC 4-channel pump system along with tubing of ID as low as 0.51mm for repeatable results.

Benefit to the Customer: The multi-channel peristaltic pump allowed the customer to individually control the flow and direction of each channel from the intuitive keypad or via computer, which expanded the benchtop pumping capabilities with a single compact unit. Plus, independent channel calibration minimized tube-to-tube differences, resulting in high calibration accuracy.

Story Credits: Pavithra Manayil, Application Specialist



No more delays and inaccuracy—when you use Masterflex® B/T® Pump

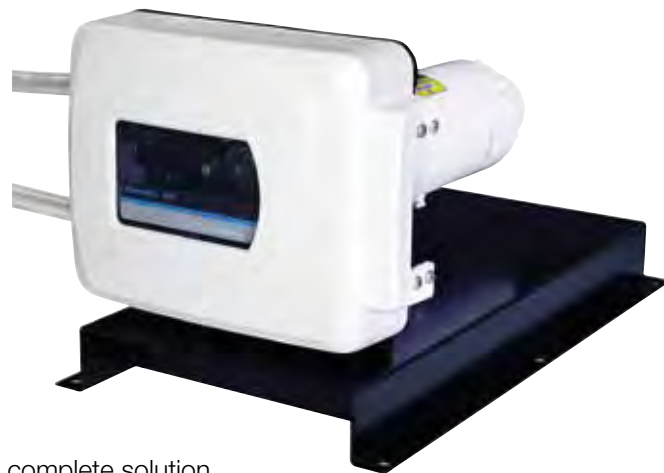
Customer: One of the leaders in the oncology market with products spanning across APIs, and formulations.

Challenge: Customer required to transfer bulk media in an automated method and wanted to use a feed pump to their TFF cassette membrane filtration systems. Manual transfer delays the whole process and violates their protocol for accurate dispensing. Tubing changeover was cumbersome with the existing process. They were looking for an automated process solution from a reliable partner.

Solution: We suggested a modular format for convenient placement of the pump with right tubing that takes care of their total flow requirement. Also, customer was looking forward to end-to-end support. We offered B/T pump, a high flow rate (30L/min) feed pump, giving them a complete solution with desired flow rates with programmable dispensing for repetitive filling. The tubing offers excellent pump life and meets all regulatory requirements. The system is IP56 rated which protects from water spray in washdown and harsh environments.

Benefit to the Customer: Customer is able to meet his high flow rate requirement with a single product and saved cost.

Story Credits: Rajesh V., Regional Service Manager



*These are success stories of some of our eminent customers. Names are not disclosed for privacy.



Thank You, Valued Pharma Customers!

Thank you for your partnership and positive feedback. With over 60 years of serving you, we are committed to providing innovative, quality products, exceptional service and unique solutions. Dedicated to your success, we look forward to working with you for many more years.

“We in Biosimilars use a wide range of products from Cole-Parmer for over 5 years. The performance of the instruments are very good and company’s after-sales support is excellent.”

— Jayant Sircar

Deputy Manager – Biosimilars, Biocon Ltd.

“This is a humble note of appreciation for the outstanding service assistance provided by Cole-Parmer on the pump issue which we expressed. The telephonic assistance provided by you was very impressive. The ability to approach and provide the solution quickly exceeded my expectations. Thank you for your service assistance.”

— Vishnu J

Deputy Manager – Projects – Process Engineering, HLL Biotech Ltd.

“Cole-Parmer is one of the best experiences amongst various suppliers we’ve been working with. Besides quality, what matters is convenience— which is always a priority at Cole-Parmer. A perfect 10 for the staff—from placing the order to service within timeline.”

— K.V. Kasi Subbarao

Quality Control, Aurobindo Pharma Ltd.

“Cole-Parmer has proved to be an excellent vendor for our supplies and more than that it has proved to be good business partner for mutual growth. Products and service requirements are immediately taken care of. Your product catalog is very handy and easy-to-surf. My recommendation to everyone is to prefer Cole-Parmer first.”

Leading pharma company from Vadodara

“I have used various Cole-Parmer services/products from last 12 years for applications ranging from regular to complex in nature. Even for applications that need utmost precision, they provided a perfect and clear-cut solution in every aspect. Technical input on products and any products supplied thereafter are quite excellent. I am fully satisfied with services/products of team Cole-Parmer.”

Leading Pharma company from Ahmedabad

“Cole-Parmer products are very good, as well as service and support from the team.”

— Prakash Chavatiya

Production Manager, Meril Life Sciences Pvt. Ltd.

“Service is very good and prompt.”

— N.V. Ramakrishnan

Faculty Head, SDS Life Sciences Pvt. Ltd.

“Products, services and support are good.”

Leading biopharma company from Pune

“Good and prompt service against our enquiries.”

Leading drug manufacturing company from Hyderabad

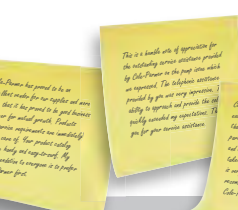
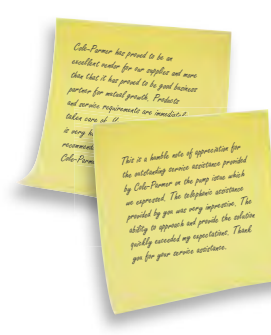
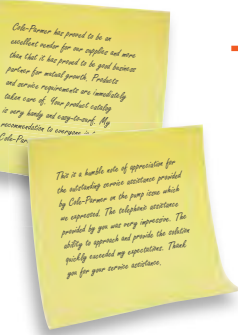
“Best quality products all the time.”

— Raja Sekhar Ambati

Scientist-III, Chemical Engineering, RiconPharma LLC

“Very good product range under one roof, adequately available for the end user.”

Leading pharma company from Baddi





Look Inside for these NEW Products!

Cole-Parmer® Microfiber Wipers

Ultraclean and highly sorbent wipers for critical environment

See page 43



Cole-Parmer® Autoclavable Safety Goggles

Sturdy, comfortable ergonomic frame with replaceable lenses

See page 41



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Advanced performance fabrics that look and feel luxurious

See page 48



Cole-Parmer® Cleanroom Supplies

Designed for controlled environments from Class 100 to Class 100,000 cleanrooms

See pages 39–45



Cole-Parmer® Sterile Latex Gloves

Optimized for pharmaceutical manufacturing

See pages 54–55



Cole-Parmer® ThinTouch PRO™ Nitrile Gloves

Advanced composition with higher breakthrough time

See page 53



Cole-Parmer® Petri Dishes

Excellent optical quality promotes healthy cells and reproducible results

See page 11



Cole-Parmer® Vacuum Filtration Assemblies

Ideal for large-volume sample separation and purification

See page 20



Media Bottles

Mix, store, and transport culture media, chemicals, and solvents

See page 6



Cole-Parmer® Serological Pipettes

Achieve quick and accurate fluid dispensing for all applications

See page 11



Cole-Parmer® Centrifuge Tubes

Store or centrifuge your samples with leakproof, autoclavable and freezable tubes

See page 35



Cole-Parmer® Pipettors

Combine single handed pipetting with fast, precise filling and dispensing

See page 31



Cole-Parmer® Bottletop Dispensers

Clean, safe, and precise dispensing

See page 34



Cole-Parmer® PET bottles

Reduce risk of cross-contamination with disposable media bottles

See page 5



VapLock™ Closed System

Minimize chemical vapor exposure

See pages 241–246



Cole-Parmer® Polystat® Cooling/Heating Circulating Baths

Get excellent cooling across range of temperature

See pages 276–277



Cole-Parmer® Ultrasonic Processors

Process samples without damaging cells

See page 217



Cole-Parmer® Ultrasonic Cleaners

Quicker cleaning and degassing of samples

See page 304



Water Purification Systems

Get pure and ultrapure water for your experiments and lab work

See page 269



Cole-Parmer® LabGEN® Homogenisers

Process any laboratory sample in seconds

See page 288





More NEW Products!

Jenway® 74 Series Spectrophotometers with CPLive™ Connectivity

Safely and securely store and share data

See page 214



Stuart® Automatic Digital Melting Point Apparatus

Icon driven interface with video image of the melt curve

See page 306



Stuart® Refrigerated Shaking Incubator

An incubator shaker with ability to operate below ambient (-15° C)

See pages 309-311



Cole-Parmer® StableTemp™ -86° C ULT Freezers

Minimal temperature loss when open

See page 222



Digi-Sense™ Data Loggers with TraceableLive™ Wireless Technology

Get alerts before losing valuable samples

See page 310



Sysbel® Safety Cabinets

Reduce fire risk and protect workers

See pages 302-303



Kinesis® D2 Lamps

Fully traceable and certified with long life time

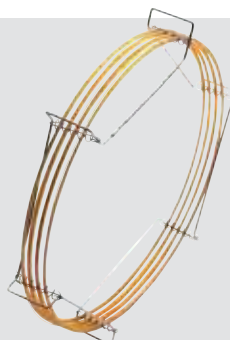
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SGEfort™ GC Capillary Columns

Unique combination of performance, robustness and reproducibility

See pages 235-238



Stuart® Digital Stirring Hot Plates

Compact design with highest chemical resistance

See page 293



Single to Multiparameter Water Analysis Products

Comprehensive range of unique compliant products

See pages 249-262



Masterflex® Cloud-Enabled Drives featuring MasterflexLive™

Real-time remote pump control and monitoring

See pages 71–73



High-Viscosity Sanitary Drum Pumps

No clogs, even with viscous fluids

See page 165



Masterflex® L/S® Cytoflow™ Pump Heads

Maximise cell viability

See pages 86–87



Sanitary In-Line Static Mixers

Designed for mixing viscous solutions in ultra critical sanitary applications

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Masterflex® Drives Powering Quattroflow™ Pumps

Specifically designed to move delicate biological fluids

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Process Illumination and Viewing Solutions

Engineered to suit custom requirements

See page 184



Masterflex® L/S® Variable-Speed Console Drives

Compact and cost-effective for general fluid transfer applications

See page 81



Sterile Product Transfer Systems

Efficient aseptic product transfer for biopharma processes

See page 196



LinkTech™ All-Plastic Quick-Disconnect Fittings

Disconnect fittings quickly with large plastic thumb-latch

See page 173



PendoTECH Process Control Systems

Sensors, monitors and systems for downstream process

See page 200



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Terms of Payment: Terms of payment are subject to change in our sole discretion, based on payment history, credit approval, and order value. You agree to pay all costs and expenses associated with collection of your account if it becomes delinquent, including court costs, expenses, and reasonable attorneys' fees. **Order Placement:** All orders must be placed through **Cole-Parmer India Pvt. Ltd.** Orders which are in writing, once placed, shall not be revoked or cancelled. So also the goods, once dispatched against the confirmed order, shall not be returned and the company shall not accept such returned goods.

Compliance: All dealers and customers must comply with the local and central statutory requirements, such as obtaining the required licenses, road permits, statutory licenses, etc., while placing the order as well as when the goods are purchased, stored, and used. As a supplier of "Dual Use" scientific products—those having both civilian and military applications—Cole-Parmer must comply with United States export laws. In fulfilling our lawful duties, we may require additional information in the processing of your order.

Shipments: Order to be placed either on Ex-Godown Bhiwandi or FOR destination basis. If the order is on Ex-Godown basis, please provide the forwarder's details on the P.O. We accept flexible delivery options by road or air, through courier or to your transporter.

Availability: All efforts will be made to make the goods available on time. Company, however, does not take any responsibility nor is liable for damages, delayed deliveries or non-deliveries of the goods on the stipulated dates.

Claims and Insurance: Your order is filled, checked, rechecked, and packed with the utmost care and forwarded at the customer's risk. If the customer wants the goods to be insured, upon customer request the company will insure such goods in transit and the premium cost will be borne by the customer. If damage has occurred with uninsured items, keep the carton and all of the packing materials. Please report the details immediately to the carrier and then contact our Inside Sales Department.

Return of Items: Items dispatched, if deemed to be not as per the specifications or of the quality required, must be returned to the place of invoice immediately and in any case not later than four weeks from the date of receipt. All returned merchandise must be in unused, resalable condition, and must not be contaminated with hazardous materials. Some products are subject to restocking charge.

Best-in-Class Service

Our exceptional service extends to our warehouse operations. We make sure to get you products when you need them—rely on our fast, dependable service.

Many Products In Stock

We maintain a large inventory of—or have immediate access to—pump systems, assorted tubing and fittings, critical consumables and essential lab instrumentation, and essential lab instrumentation. This ensures we have the products ready to go out the door as soon as you order.



All sales by Cole-Parmer are made subject to Cole-Parmer's Standard Terms and Conditions of Sale which are posted on the company's website at ColeParmer.in, and which shall be controlling in the event of any conflict between these Terms and Conditions and the terms and conditions set forth in any document issued by the Buyer. Any provisions contained in any document issued by Buyer are expressly rejected. Cole-Parmer's failure to object to terms contained in any subsequent communication or document from Buyer will not be a waiver or modification of these Terms and Conditions.

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- Most of the products are guaranteed in stock
- Save more when you buy more



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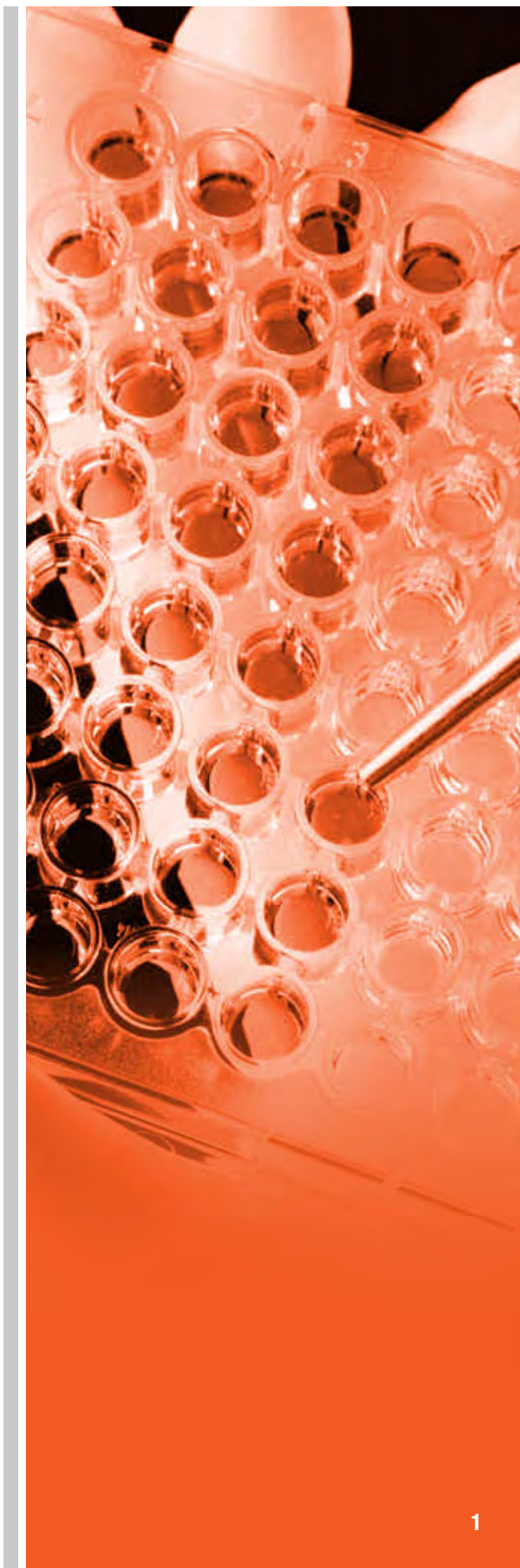
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| Cylinders | 15-16 |
| Lab Filtration | 17-21 |
| Labware | 22-29 |
| Pipette & Tips | 30-34 |
| Tubes & Vials | 35-37 |



Get the confidence.
Request **FREE** samples* today!

*T&C apply

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Sterile Sampling Bags, LDPE

Keep samples safe—easy-seal bags hold solids and liquids

- Quick and easy sealing—flip bag around wire/tape and bend to seal
- No more poking—puncture-proof tabs keep wire intact even after extensive use

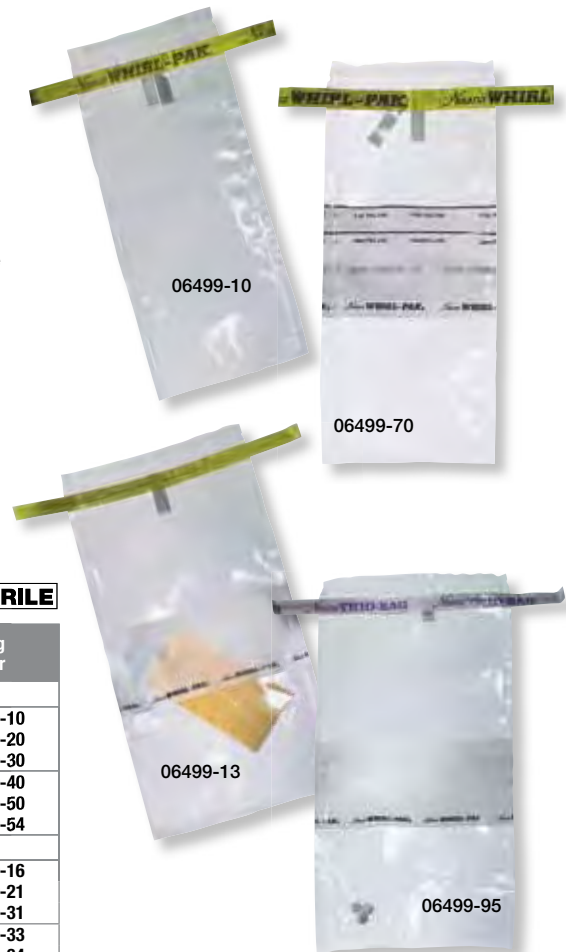
Sampling Bags are available with or without a white labeling area.

"Speci-Sponge" Bags are designed to sample surfaces and equipment for *Listeria*, *Salmonella*, and other food-borne pathogens; contain a 1½" x 3" (3.8 x 7.6 cm) sponge that is free of bactericides and noninhibitory; with white labeling area.

Sodium Thiosulfate Bags are EPA-compliant for potable water collection; contain a nontoxic, nonnutritive 10-mg active ingredient tablet of sodium thiosulfate to neutralize the chlorine at the point of collection; with white labeling area.

High-Temperature Bag is for hot fill samples with a temperature up to 215°F (102°C). The FDA-compliant film is a blend of low-density polyethylene and nylon that will hold liquids, solids, sauces, gravies, and other samples having a high temperature. Bag is self standing and does not need a rack or special holder to keep it upright, making sample collection safe and easy. With white labeling area.

Caution: Do not put bag in boiling water.



STERILE

| Capacity oz (mL) | Size (W x L) | Thickness (mil) | Qty/pk | Catalog number |
|---|-----------------------------|--------------------|--------|---------------------|
| Sampling bags without white labeling area | | | | |
| 4 (118) | 3" x 7¼" (7.6 x 18.4 cm) | 2.25 | 500 | JB-06499-10 |
| 18 (532) | 4½" x 9" (11.4 x 22.9 cm) | 2.5 | 500 | JB-06499-20 |
| 24 (710) | 6" x 9" (15.2 x 22.9 cm) | 3.0 | 500 | JB-06499-30 |
| 36 (1065) | 5" x 15" (12.7 x 38.1 cm) | 3.0 | 500 | JB-06499-40 |
| 42 (1242) | 6" x 15" (15.2 x 38.1 cm) | 3.0 | 500 | JB-06499-50 |
| 69 (2041) | 7½" x 15" (19.1 x 38.1 cm) | 3.0 | 500 | JB-06499-54 |
| Standup sampling bags with white labeling area | | | | |
| 4 (118) | 3" x 7¼" (7.6 x 18.4 cm) | 2.5 | 500 | JB-06499-16 |
| 18 (532) | 4½" x 9" (11.4 x 22.9 cm) | 3.0 | 500 | JB-06499-21 |
| 24 (710) | 6" x 9" (15.2 x 22.9 cm) | 3.0 | 500 | JB-06499-31 |
| 36 (1065) | 5" x 15" (12.7 x 38.1 cm) | 4.0 | 250 | JB-06499-33 |
| 42 (1242) | 6" x 15" (15.2 x 38.1 cm) | 4.0 | 250 | JB-06499-34 |
| 69 (2041) | 7½" x 15" (19.1 x 38.1 cm) | 4.0 | 250 | JB-06499-35 |
| Sampling bags with white labeling area | | | | |
| 2 (58) | 3" x 5" (7.6 x 12.7 cm) | 2.5 | 500 | JB-06499-60 |
| 4 (118) | 3" x 7¼" (7.6 x 18.4 cm) | 2.25 | 500 | JB-06499-70 |
| 7 (207) | 3¾" x 7" (9.5 x 17.8 cm) | 2.5 | 500 | JB-06499-72 |
| 13 (384) | 5¼" x 7½" (13.3 x 19.1 cm) | 2.5 | 500 | JB-06499-74 |
| 18 (532) | 4½" x 9" (11.4 x 22.9 cm) | 2.5 | 500 | JB-06499-80 |
| 24 (710) | 6" x 9" (15.2 x 22.9 cm) | 3.0 | 500 | JB-06499-85 |
| 27 (798) | 5" x 12" (12.7 x 30.5 cm) | 3.0 | 500 | JB-06499-87 |
| 69 (2041) | 7½" x 15" (19.1 x 38.1 cm) | 3.0 | 500 | JB-06499-89 |
| 92 (2721) | 10" x 15" (25.4 x 38.1 cm) | 4.0 | 250 | JB-06499-94 |
| 123 (3637) | 10" x 20" (25.4 x 50.8 cm) | 4.0 | 250 | JB-06499-98 |
| 184 (5441) | 15" x 20" (38.1 x 50.8 cm) | 4.0 | 100 | JB-06499-99 |
| "Speci-Sponge" bags for surface sampling with sponge | | | | |
| 18 (532) | 4½" x 9" (11.4 x 22.9 cm) | 2.5 | 100 | JB-06499-13 |
| 18 (532) | 4" x 9" (10.2 x 22.9 cm) | 2.5 | 100 | JB-06499-52† |
| 55 (1627) | 7½" x 11¾" (19.1 x 29.8 cm) | 4.0 | 100 | JB-06499-14 |
| Sodium thiosulfate bags for water sampling with tablet | | | | |
| 3¾ (100) | 3" x 7¼" (7.6 x 18.4 cm) | 2.5 | 100 | JB-06499-90 |
| 10½ (300) | 4½" x 9" (11.4 x 22.9 cm) | 2.5 | 100 | JB-06499-95 |
| High-temperature bag | | | | |
| 18 (532) | 4½" x 9" (11.4 x 22.9 cm) | 3.0 | 500 | JB-06498-16 |

†Model 06499-52 has a sterile glove.

Accessories

JB-66203-10 Carrying rack for 2- and 4-oz bags. Double-grid design keeps bags upright and has 15 compartments. Vinyl coated, autoclavable

JB-66203-00 Carrying rack for 18-oz bags. Double-grid design keeps bags upright. Rack has 20 compartments. Vinyl coated, autoclavable

JB-06498-12 Water scoop, 18" (45.7 cm) L coated handle. Two alligator clips hold a variety of bag sizes



Standup bags stay upright



Water scoop holds bag open for easy filling



Rack

PYREX® Brand 1000 Griffin Low-Form Beakers

Stand up to thermal shock

- Uniform wall thickness offers optimal balance of thermal shock resistance and mechanical strength
- Know how much is left and how much is gone—double graduation scale indicates approximate content (on 250- to 400-mL sizes only)
- No mystery liquids—extra-large marking spot for easy identification
- Reference: ASTM E-960



| Capacity mL (oz) | Graduation range (mL) | Graduation interval (mL) | Qty/pk | Catalog number |
|---|-----------------------|--------------------------|--------|----------------|
| 10 (1/4) | — | — | 12 | JB-34502-01 |
| 20 (2/5) | 5 to 15 | 5 | | JB-34502-02 |
| 30 (1) | 5 to 25 | 10 | | JB-34502-03 |
| 50 (1 3/4) | 10 to 40 | 10 | | JB-34502-04 |
| 100 (3) | 20 to 80 | 10 | 12 | JB-34502-05 |
| 150 (5) | 20 to 140 | 10 | | JB-34502-06 |
| 250 (8) | 25 to 200 | 25 | | JB-34502-07 |
| 400 (13) | 25 to 325 | 25 | | JB-34502-08 |
| 600 (20) | 50 to 500 | 50 | 6 | JB-34502-09 |
| 800 (27) | 50 to 750 | 50 | 6 | JB-34502-10 |
| 1000 (32) | 50 to 1000 | 50 | 6 | JB-34502-11 |
| 2000 (64) | 200 to 2000 | 100 | 4 | JB-34502-13 |
| 3000 (96) | 250 to 2500 | 125 | 1 | JB-34502-14 |
| 4000 (128) | 500 to 3500 | 250 | 1 | JB-34502-15 |
| 10 (1/4) | — | — | 48 | JB-34502-21 |
| 20 (2/5) | 5 to 15 | 5 | | JB-34502-22 |
| 30 (1) | 5 to 25 | 10 | | JB-34502-23 |
| 50 (1 3/4) | 10 to 40 | 10 | | JB-34502-24 |
| 100 (3) | 20 to 80 | 10 | 48 | JB-34502-25 |
| 150 (5) | 20 to 140 | 10 | | JB-34502-26 |
| 250 (8) | 25 to 200 | 25 | | JB-34502-27 |
| 400 (13) | 25 to 325 | 25 | | JB-34502-28 |
| 600 (20) | 50 to 500 | 50 | 36 | JB-34502-29 |
| 800 (27) | 50 to 750 | 50 | 24 | JB-34502-30 |
| 1000 (32) | 50 to 1000 | 50 | 24 | JB-34502-31 |
| 2000 (64) | 200 to 2000 | 100 | 8 | JB-34502-33 |
| 3000 (96) | 250 to 2500 | 125 | 6 | JB-34502-34 |
| 4000 (128) | 500 to 3500 | 250 | 6 | JB-34502-35 |
| Starter set contains one each of 50 mL, 100 mL, 250 mL, 600 mL, 1000 mL | | | 5 | JB-34502-90 |

Cole-Parmer® elements™ Griffin Low-Form Graduated Beakers, Glass

Suitable for all lab procedures

NEW

- Easy-read graduations and marking area
- Withstands wide temperature range -50 to 550°C
- Graduated tolerances from ±0.02 to ±0.05 depending on size
- Autoclavable

Borosilicate 3.3 glass beakers with pour spout provide excellent general use at an economical price.

elements™
Cole-Parmer®



| Capacity mL (oz) | Graduation range (mL) | Graduation interval (mL) | Qty/pk | Catalog number |
|------------------|-----------------------|--------------------------|--------|----------------|
| 10 (1/4) | — | 10 | 12 | JB-34502-20 |
| 20 (2/5) | 5 to 20 | 5 | | JB-34502-36 |
| 25 (7/8) | 5 to 25 | 5 | | JB-34502-37 |
| 30 (1) | 10 to 30 | 5 | | JB-34502-38 |
| 50 (1 3/4) | 10 to 50 | 10 | 12 | JB-34502-39 |
| 100 (3) | 20 to 100 | 10 | | JB-34502-40 |
| 150 (5) | 25 to 150 | 12.5 | | JB-34502-41 |
| 200 (6) | 50 to 200 | 25 | | JB-34502-42 |
| 250 (8) | 50 to 250 | 25 | 8 | JB-34502-43 |
| 300 (10) | 50 to 300 | 25 | | JB-34502-44 |
| 400 (13) | 100 to 400 | 50 | | JB-34502-45 |
| 500 (16) | 100 to 500 | 50 | | JB-34502-46 |
| 600 (20) | 100 to 600 | 50 | 6 | JB-34502-47 |
| 800 (27) | 200 to 800 | 100 | | JB-34502-48 |
| 1000 (32) | 200 to 1000 | 100 | | JB-34502-49 |
| 1500 (51) | 300 to 1500 | 100 | | JB-34502-50 |
| 2000 (64) | 400 to 2000 | 200 | 2 | JB-34502-51 |
| 3000 (96) | 500 to 2500 | 250 | | JB-34502-52 |
| 4000 (128) | 500 to 3500 | 250 | | JB-34502-53 |
| 5000 (160) | 500 to 4500 | 500 | | JB-34502-54 |

Cole-Parmer® Class A Griffin Low-Form Beakers, Glass

Easy readings and exceptional durability

- Double-scale graduations for easy measuring while pouring in or out
- Meet ASTM E960 specifications for Class A borosilicate glass beakers
- Stand up to temperatures of 445°F (230°C) for long-term, or 752°F (400°C) for short-term
- Autoclavable



Cole-Parmer®

| Capacity mL (oz) | Graduation interval (mL) | Qty/pk | Catalog number |
|------------------|--------------------------|--------|----------------|
| 10 (1/4) | — | 12 | JB-34503-42† |
| 25 (7/8) | 5 | 12 | JB-34503-44 |
| 50 (1 1/4) | 10 | 12 | JB-34503-46 |
| 100 (3) | 10 | 12 | JB-34503-48 |
| 150 (5) | 20 | 12 | JB-34503-50 |
| 250 (8) | 25 | 12 | JB-34503-52 |
| 400 (13) | 25 | 12 | JB-34503-54 |
| 600 (20) | 50 | 6 | JB-34503-56 |
| 1000 (32) | 50 | 6 | JB-34503-58 |
| 2000 (64) | 100 | 4 | JB-34503-60 |
| 3000 (96) | 125 | 1 | JB-34503-62 |
| 5000 (160) | 250 | 1 | JB-34503-64 |

†The 10-mL beaker does not have graduations.

Disposable Griffin Low-Form Beakers, PP

Molded-in graduations won't wear off

- No need to convert volumes—graduated in mL and oz
- Won't stick together—stacking rib for easier separation
- Autoclavable



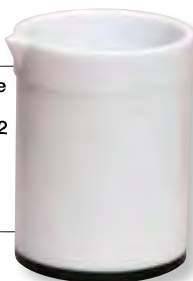
| Capacity mL (oz) | Graduations (mL) | Qty/pk | Catalog number |
|------------------|------------------|--------|----------------|
| 15 (0.5) | 5 | 100 | JB-06006-12 |
| 15 (0.5) | 5 | 1000 | JB-06006-15 |
| 30 (1) | 5 | 100 | JB-06006-22 |
| 30 (1) | 5 | 1000 | JB-06006-25 |
| 50 (1.7) | 5 | 100 | JB-06006-32 |
| 50 (1.7) | 5 | 1000 | JB-06006-35 |
| 100 (3.5) | 5 | 100 | JB-06006-42 |
| 100 (3.5) | 5 | 1000 | JB-06006-45 |
| 150 (5) | 5 | 100 | JB-06006-52 |
| 150 (5) | 5 | 1000 | JB-06006-55 |
| 250 (8) | 10 | 50 | JB-06006-63 |
| 250 (8) | 10 | 500 | JB-06006-65 |
| 400 (13) | 25 | 50 | JB-06006-72 |
| 400 (13) | 25 | 500 | JB-06006-75 |
| 600 (20) | 25 | 25 | JB-06006-83 |
| 600 (20) | 25 | 500 | JB-06006-85 |

Cole-Parmer® Broad-Spout Beakers, PTFE

Stand up to the harshest chemicals

- Pour easily with broad spout
- Heatable beakers can be used on hot plates to 518°F (270°C)
- Autoclavable

Heatable beaker 06300-02 has a PTFE carbon base.



| Capacity mL (oz) | Beaker | | Optional cover | |
|--|--------|----------------|----------------|----------------|
| | Qty/pk | Catalog number | Qty/pk | Catalog number |
| Heatable beakers with PTFE-carbon base, for use on hot plates | | | | |
| 100 (3) | 1 | JB-06300-02 | 1 | JB-06300-87 |
| 250 (8) | 1 | JB-06300-04 | 1 | JB-06300-91 |
| 400 (13) | 1 | JB-06300-06 | 1 | JB-06300-93 |
| Beakers | | | | |
| 1 (0.03) | 2 | JB-06300-62 | 2 | JB-06300-79 |
| 5 (1.17) | 2 | JB-06300-64 | 2 | JB-06300-81 |
| 10 (0.3) | 2 | JB-06300-66 | 2 | JB-06300-81 |
| 25 (0.8) | 2 | JB-06300-68 | 2 | JB-06300-83 |
| 50 (1.6) | 1 | JB-06300-74 | 1 | JB-06300-85 |
| 100 (3) | 1 | JB-06300-76 | 1 | JB-06300-87 |
| 150 (5) | 1 | JB-06300-78 | 1 | JB-06300-89 |
| 250 (8) | 1 | JB-06300-82 | 1 | JB-06300-91 |
| 400 (13) | 1 | JB-06300-84 | 1 | JB-06300-93 |
| 500 (16) | 1 | JB-06300-86 | 1 | JB-06300-93 |
| 600 (20) | 1 | JB-06300-88 | 1 | JB-06300-95 |
| 1000 (32) | 1 | JB-06300-92 | 1 | JB-06300-95 |
| 2000 (64) | 1 | JB-06300-94 | 1 | JB-06300-97 |
| 5000 (170) | 1 | JB-06300-96 | 1 | JB-06300-99 |

Cole-Parmer® Tri-Corner Beakers, PP

Easy pouring from three sides

- Easily mix on stirrer—flat bottom keeps stir bars centered
- Accurate to ±5%; molded graduations
- Withstand temperatures to 250°F (121°C)
- Autoclavable



| Capacity mL (oz) | Graduations (mL) | Qty/pk | Catalog number |
|--------------------|------------------|--------|----------------|
| 50 (1.5) | 10 | 100 | JB-06020-01 |
| 100 (3.5) | 10 | | JB-06020-03 |
| 250 (8) | 20 | | JB-06020-05 |
| 400 (13) | 40 | 100 | JB-06020-07 |
| 800 (26) | 50 | | JB-06020-09 |
| 1000 (32) | 50 | | JB-06020-11 |
| Five of each above | — | 30 | JB-06010-07 |

Cole-Parmer® elements™ Graduated Beakers, PP

NEW

Molded-in graduations will not wear off

- Graduated in mL and oz for easy conversion
- Stacking ribs provide easy separation so beakers will not stick together
- Accurate to ±2.5%
- Withstands temperatures from 5 to 248°F (-15 to 150°C)



| Capacity mL (oz) | Graduations (mL) | Qty/pk | Catalog number |
|------------------|------------------|--------|----------------|
| 15 (½) | 5 | 100 | JB-06200-02 |
| 30 (1) | 5 | | JB-06200-04 |
| 50 (1¼) | 5 | 100 | JB-06200-06 |
| 100 (3½) | 5 | | JB-06200-08 |
| 150 (5) | 5 | | JB-06200-10 |
| 250 (8) | 10 | 50 | JB-06200-12 |
| 400 (13) | 25 | | JB-06200-14 |
| 600 (20) | 25 | 25 | JB-06200-16 |

Cole-Parmer® elements™ Graduated Beakers with Handle, PP

Molded-in handle for easy transport and pouring of contents

NEW

- Molded-in graduations will not wear off
- Withstands temperatures from 5 to 248°F (-15 to 150°C)



| Capacity mL (oz) | Graduations (mL) | Qty/pk | Catalog number |
|------------------|------------------|--------|----------------|
| 250 (8) | 50 | 5 | JB-06200-18 |
| 500 (16) | 50 | 5 | JB-06200-19 |
| 1000 (32) | 50 | 5 | JB-06200-20 |
| 2000 (64) | 100 | 4 | JB-06200-21 |
| 3000 (96) | 50 | 5 | JB-06200-22 |
| 5000 (160) | 100 | 5 | JB-06200-23 |

Cole-Parmer® Media Bottles, PET

Sterile and disposable—reduces risk of cross-contamination

- Softer, shock-resistant, and pliable PET material ensures comfortable grip
- Supplied with HDPE screw caps—free of heavy metals
- Graduated, individually packed, and EB sterilized
- Temperature range of -60 to 60°C

NEW



Cole-Parmer®

STERILE

| Capacity | Cap color | Sterile | Qty/cs | Catalog number |
|----------|-----------|---------|--------|--------------------|
| 250 mL | White | Yes | 100 | JB-15977-17 |
| 500 mL | White | Yes | 100 | JB-15977-18 |
| 1000 mL | White | Yes | 48 | JB-15977-19 |

Cole-Parmer® Solution Bottles, PS

Ideal for storing, transferring and media preparation

- Unique, stable design prevents accidental tip over
- Molded indents and graduation make handling and reading liquid levels easy
- Heavy-wall polystyrene (PS) construction with wide mouth for efficient pour out
- Polypropylene (PP) cap features edge knurls for easy screw
- Gamma sterilized; individually packaged in easy-open pack

NEW



Cole-Parmer®

STERILE

| Capacity | Cap color | Sterile | Qty/cs | Catalog number |
|----------|-----------|---------|--------|--------------------|
| 150 mL | Green | Yes | 24 | JB-15971-46 |
| 250 mL | Green | Yes | 24 | JB-15971-47 |
| 500 mL | Green | Yes | 24 | JB-15971-48 |
| 1000 mL | Green | Yes | 24 | JB-15971-49 |
| 2000 mL | Green | Yes | 12 | JB-15971-50 |

Argos Technologies® Reservoirs

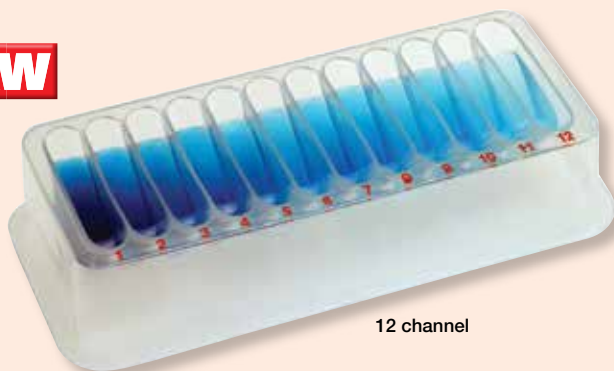
V-shaped design minimizes reagent waste

- Ideal for repetitive liquid transfer with multichannel pipettors
- Certified RNase-, DNase-, and pyrogen-free
- Sterile, individually wrapped basins are best suited for sterile applications
- V-shaped bottom makes multichannel pipetting easier

Single-Chamber Reservoirs are made of white polystyrene (PS) and constructed with low cross bars at each end for added stiffness and strength. Feature graduations on inner wall and pour spouts on every corner.

12-Chamber Reservoir is designed for serial dilutions or pipetting different reagents using a 12-channel pipettor. Each numbered chamber holds up to 3 mL. Chemical-resistant polypropylene (PP) construction.

NEW



12 channel



50 mL

25 mL

100 mL

Argos®
TECHNOLOGIES

| Capacity | Packaging | Sterile | Qty/cs | Catalog number |
|--------------------|----------------------|---------|--------|--------------------|
| 25 mL | Individually wrapped | Yes | 50 | JB-04395-23 |
| | Bulk | Yes | 100 | JB-04395-24 |
| | Bulk | No | 100 | JB-04395-25 |
| 50 mL | Individually wrapped | Yes | 50 | JB-04395-26 |
| | Bulk | Yes | 100 | JB-04395-27 |
| | Bulk | No | 100 | JB-04395-28 |
| 100 mL | Individually wrapped | Yes | 50 | JB-04395-29 |
| | Bulk | Yes | 100 | JB-04395-30 |
| | Bulk | No | 100 | JB-04395-31 |
| 12 channels x 3 mL | Bulk | No | 50 | JB-04395-32 |
| | Individually wrapped | Yes | 20 | JB-04395-33 |

Media Bottles

Easy, drip-free pouring

- Stop worrying about not knowing volume—bottles have permanent white graduations and marking spot
- Ideal for storage as well as mixing and sampling
- Use up to 840°F (450°C)
- Autoclavable bottle and PP lid
- GL45 thread size



| Capacity mL (oz) | Graduation range (mL) | Graduation interval (mL) | Qty/ cs | Catalog number |
|------------------|-----------------------|--------------------------|---------|--------------------|
| 100 (3) | 20 to 80 | 10 | 10 | JB-15957-04 |
| 250 (8) | 50 to 200 | 25 | 10 | JB-15957-05 |
| 500 (16) | 100 to 400 | 50 | 10 | JB-15957-06 |
| 1000 (32) | 100 to 900 | 50 | 10 | JB-15957-07 |
| 2000 (64) | 400 to 1800 | 100 | 4 | JB-15957-08 |
| 5000 (160) | 500 to 4500 | 250 | 1 | JB-15957-09 |
| 10,000 (320) | 2000 to 9000 | 500 | 1 | JB-15957-10 |

Accessories

JB-15961-73 Replacement cap, PP, blue. Pack of 10

JB-34523-13 Replacement pouring ring, PP, clear. Pack of 10

Amber Media Bottles

Stop UV light from affecting samples

- Tinted glass blocks more than 99% of UV light below 400 nm
- Permanent graduations will not wear off
- Dripless pouring with included pouring ring
- Autoclavable lid and bottle
- GL45 thread size



| Capacity mL (oz) | Graduation range (mL) | Graduation interval (mL) | Qty/ cs | Catalog number |
|------------------|-----------------------|--------------------------|---------|--------------------|
| 500 (16.9) | 100 to 400 | 50 | 1 | JB-34523-20 |
| 1000 (33.8) | 100 to 900 | 50 | 1 | JB-34523-22 |
| 2000 (67.6) | 400 to 1800 | 100 | 1 | JB-34523-24 |
| 5000 (169.0) | 500 to 4500 | 250 | 1 | JB-34523-26 |

Accessories

JB-34523-11 Replacement cap, PP, blue. Pack of 10

JB-34523-13 Replacement pouring ring, PP, clear. Pack of 10

KimCote® Safety-Coated Media Bottles

No more cleaning up broken glass

- Plastic coating prevents shattering for safer transport
- Easy pouring, wide opening
- Permanent, white graduations and marking spot
- Autoclavable bottle and cap
- GL45 thread size



| Capacity mL (oz) | Graduation range (mL) | Graduation interval (mL) | Qty/ cs | Catalog number |
|------------------|-----------------------|--------------------------|---------|--------------------|
| 100 (3) | 20 to 80 | 10 | 4 | JB-34523-15 |
| 250 (8) | 50 to 200 | 25 | 4 | JB-34523-17 |
| 500 (16) | 100 to 400 | 50 | 4 | JB-34523-19 |
| 1000 (32) | 100 to 900 | 50 | 4 | JB-34523-21 |
| 2000 (64) | 400 to 1800 | 100 | 4 | JB-34523-23 |
| 5000 (160) | 1000 to 4000 | 250 | 1 | JB-34523-25 |
| 10000 (320) | 2000 to 8000 | 500 | 1 | JB-34523-27 |

Vacuum Desiccators, Glass

Detachable 2 mm stopcock valve, borosilicate glass

- Maximum vacuum of 20" Hg
- Recessed base to hold desiccant



These durable desiccators feature a detachable 2 mm stopcock valve. Valve stem accepts 1/16" ID flexible tubing. For long-term storage, use at room temperature; use intermittently at up to 940°F (523°C). Desiccators include a solid glass lid with removable collar valve and a metal plate.

| Plate dia (mm) | Total height (mm) | Catalog number |
|----------------|-------------------|--------------------|
| 150 | 255 | JB-06536-11 |
| 200 | 310 | JB-06536-21 |
| 250 | 330 | JB-06536-31 |

Scienceware® Wash Bottles, LDPE

No leaking while dispensing

- One-piece polyallomer (PA) cap/delivery tube eliminates leaks
- Precise delivery with needle-thin stream



| Capacity mL (oz) | Qty/pk | Catalog number |
|------------------|--------|----------------|
| 125 (4) | 12 | JB-06053-21 |
| 250 (8) | | JB-06053-41 |
| 500 (16) | | JB-06053-61 |
| 1000 (32) | | JB-06053-81 |

Thermo Scientific™ Nalgene™ Economy Wash Bottles, LDPE

Eliminate pesky leaks

- One-piece molded PP closure and stem eliminate leaks
- Easily cut stem to increase flow



| Capacity mL (oz) | Cap size | Qty/pk | Catalog number |
|------------------|----------|--------|----------------|
| 125 (4) | 24 mm | 6 | JB-62304-20 |
| 250 (8) | 24 mm | | JB-62304-30 |
| 500 (16) | 28 mm | | JB-62304-40 |
| 1000 (32) | 38-430 | 4 | JB-62304-50 |

Cole-Parmer® Trigger Spray Bottle, HDPE

Get the stream you need

- Adjusts from fine mist to powerful stream
- Polypropylene cap and spray assembly with stainless steel bearings



| Capacity, mL (oz) | Qty/pk | Catalog number |
|-------------------|--------|----------------|
| 650 (22) | 4 | JB-06091-05 |

Scienceware® Safety-Labeled Wash Bottles, LDPE

Keep solutions close at hand with easy identification

- Quickly identify contents by large lettering and color-coded caps
- These 500-mL bottles include a leakproof polyallomer (PA) cap and nozzle
- Assortment pack allows for easy ordering—includes one each of water, acetone, ethanol, isopropanol, methanol, and toluene†



| Labeled chemical | Cap color | Qty/pk | Catalog number |
|--|-----------|-------------|----------------|
| Water | Blue | 6 | JB-06256-30 |
| Distilled water | Blue | | JB-06256-20 |
| Deionized water | Blue | | JB-06256-14 |
| Acetone | Red | | JB-06256-40 |
| Methanol | Green | 6 | JB-06256-50 |
| Isopropanol | Yellow | | JB-06256-60 |
| Toluene† | Red | | JB-06256-70 |
| 70% ethanol | Natural | | JB-06256-13 |
| 100% ethanol | Natural | JB-06256-81 | |
| Bleach | Blue | 6 | JB-06256-90 |
| Methyl ethyl ketone | Green | | JB-06256-10 |
| Soap | Blue | | JB-06256-11 |
| Assortment pack for water, acetone, ethanol, isopropanol, methanol, and toluene† | — | 6 | JB-06256-00 |

†Not recommended for long-term storage of toluene.

Thermo Scientific™ Nalgene™ Unitary Wash Bottles, LDPE

Fill up faster with wide-mouth design

- No need to shake or tip to dispense sample
- Increase flow by trimming tip
- One-piece leakproof design with PP screw closure



| Capacity, mL (oz) | Cap size | Qty/pk | Catalog number |
|-------------------|----------|--------|----------------|
| 125 (4) | 24 mm | 6 | JB-06050-20 |
| 250 (8) | 38 mm | 4 | JB-06050-30 |
| 500 (16) | 38 mm | 4 | JB-06050-50 |
| 750 (24) | 38 mm | 4 | JB-06050-70 |
| 1000 (32) | 43 mm | 2 | JB-06050-90 |

JB-63000-04 Replacement caps, PP, 24 mm. Pack of 12

JB-63000-10 Replacement caps, PP, 43 mm. Pack of 12



Save Big!
On bulk orders



Demanding research needs all the support it can get.

Cole-Parmer can support your complete discovery needs.

Cell / Tissue Culture

Optimize the cultivation of cells and tissues in your lab with plasticware from Cole-Parmer. Wide range available.

See pages 9–11



Lab Filtration Products

Ideal for both small- and large-volume sample preparation and purification for varied applications.

See pages 17–21



Labware

Wide range of the quality labware you need for your daily research—loops, labels and markers, Parafilm®, scoops, spatulas, tapes, and much more.

See pages 22–29



Pipettes and Tips

Use Cole-Parmer range of pipettes and tips to avoid any loss of expensive media, without compromising on comfort or accuracy.

See pages 31–34



Storage Bottles

From disposable bottles, solution bottles, to wash bottles and reservoirs, we have the range you need for storing, transferring, and media preparation.

See pages 5–7



Bioprocess | Cell & Tissue Culture
Drug Discovery | Filtration
Genomics & Proteomics | Microbiology



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Request **FREE** samples* today!
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Cole-Parmer® Cell and Tissue Culture Plates

Extremely smooth surface and raised well rims reduce evaporation

- Optically clear plates allow for easy visualization of cell growth
- Condensation rings and a one-way fitting lid reduce cross-contamination
- Gamma sterilized and nonpyrogenic
- Treated surface allows for consistent and superior cell attachment and growth
- Individually packaged in peel-to-open paper/plastic blister pack

NEW



Cole-Parmer®

STERILE

| Number of wells | Sterile | Qty/cs | Nontreated | Surface treated |
|-----------------|---------|--------|-------------|-----------------|
| | | | Cat. no. | Cat. no. |
| 6 | Yes | 100 | JB-15972-60 | JB-01927-70 |
| 12 | | | JB-15972-61 | JB-01927-72 |
| 24 | | | JB-15972-62 | JB-01927-74 |
| 96 | | | JB-15972-63 | JB-01927-78 |

Cole-Parmer® Cell and Tissue Culture Flasks

Optimize the cultivation of cells and tissues in your lab

- Innovative angled neck design offers easy pipetting and cell scraper access
- Select from nontreated and surface-treated flasks with growth areas ranging from 12.5 to 300 cm²
- Gamma sterilized; certified DNase-, RNase-free and nonpyrogenic

Two different cap styles can be used in both open and closed systems. Plug sealing caps are standard polyethylene caps providing liquid and gas shear seal. Vented polyethylene caps contain a 0.22 µm hydrophobic filter to allow gas exchange and minimize risk of cross-contamination.

NEW



Cole-Parmer®

STERILE

| Surface area (cm ²) | Cap type | Sterile | Qty/cs | Nontreated | Surface treated |
|---------------------------------|---------------|---------|--------|-------------|-----------------|
| | | | | Cat. no. | Cat. no. |
| 12.5 | Plug seal cap | Yes | 200 | JB-15971-12 | JB-15971-22 |
| | Vented cap | | | JB-15971-13 | JB-15971-23 |
| 25.0 | Plug seal cap | Yes | 200 | JB-15971-14 | JB-15971-24 |
| | Vented cap | | | JB-15971-15 | JB-15971-25 |
| 75.0 | Plug seal cap | Yes | 100 | JB-15971-16 | JB-15971-26 |
| | Vented cap | | | JB-15971-17 | JB-15971-27 |
| 175.0 | Plug seal cap | Yes | 40 | JB-15971-18 | JB-15971-28 |
| | Vented cap | | | JB-15971-19 | JB-15971-29 |
| 300.0 | Plug seal cap | Yes | 18 | JB-15971-20 | JB-15971-30 |
| | Vented cap | | | JB-15971-21 | JB-15971-31 |

Facing downtime due to procurement challenges?

Flexible procurement solutions and **uninterrupted supplies** when you buy from Cole-Parmer.

022-6139-4444 | info@coleparmer.in



Argos Technologies® Cell Strainers

Secure single-cell suspensions

- Pair directly with your 50-mL centrifuge tubes
- Extended tab makes for easy handling
- Choose from 40, 70, or 100 µm mesh diameters
- Ready to use—each strainer is individually packaged and gamma sterilized

NEW



Argos
TECHNOLOGIES

STERILE

| Mesh dia (µm) | Color | Sterile | Qty/cs | Catalog number |
|---------------|--------|---------|--------|--------------------|
| 40 | Blue | Yes | 50 | JB-04396-00 |
| 70 | White | | | JB-04396-01 |
| 100 | Yellow | | | JB-04396-02 |

Cole-Parmer® 96-Well Deep-Well Plates

Excellent for assays, sample storage, and mixing

- Certified free of RNase, DNase, endotoxins, and human DNA
- Notched corners to facilitate orientation
- Compatible with most automated liquid handling systems

Deep-well plates made of polypropylene (PP) can be autoclaved at 121°C for 20 minutes. Raised rims provide efficient sealing to minimize the risk of cross-contamination. Round U-shaped wells reduce sample loss while pipetting. Available gamma sterilized.

Use with sealing films and pads (order separately in table) to lessen sample evaporation and contamination.



NEW

Cole-Parmer

| Description | Sterile | Qty/cs | Catalog number |
|-------------------------------------|---------|--------|--------------------|
| 96-well deep-well plate, PP, 1.6 mL | No | 50 | JB-16344-90 |
| | Yes | | JB-16344-91 |
| 96-well deep-well plate, PP, 2.2 mL | No | 50 | JB-16344-92 |
| | Yes | | JB-16344-93 |
| Sealing film, PP | No | 1000 | JB-16344-94 |
| | Yes | | JB-16344-95 |
| Sealing pad, silica gel | No | 100 | JB-16344-96 |
| | Yes | | JB-16344-97 |

Argos Technologies® Cell Spreader

Spread bacterial cultures evenly

- Apply cultures over an entire petri dish or plate with L-shaped spreader
- Reduce the risk of damaging the agar—smooth spreading surface with slight upward return

NEW



Argos
TECHNOLOGIES

STERILE

| Packaging | Sterile | Qty/cs | Catalog number |
|----------------------|---------|--------|--------------------|
| Bulk (50 bags of 10) | Yes | 500 | JB-04396-51 |
| Individually wrapped | | 100 | JB-04396-52 |

Argos Technologies® Cell Scrapers

Harvest cells from flasks, dishes, and plates

- Pivot blade horizontally or vertically to suit your needs
- Access the entire cell culture surface, including difficult-to-reach places, with the swivel blade
- Prevent slippage during use and cell damage—handle features a ribbed-grip design and TPE blade won't hurt cells
- Sterilized by gamma irradiation and packaged individually

NEW

Argos
TECHNOLOGIES



STERILE

| Total length | Blade width | Sterile | Qty/cs | Catalog number |
|--------------|-------------|---------|--------|--------------------|
| 25 cm | 2 cm | Yes | 100 | JB-04396-53 |
| 39 cm | 3 cm | | | JB-04396-54 |

Argos Technologies® Aspirating Serological Pipettes, PS

Provides rapid fluid dispensing

- Made from transparent medical-grade polystyrene (PS) sterilized by gamma irradiation
- Tested for endotoxins, cytotoxicity, and are guaranteed nonhemolytic
- Certified DNase-, RNase-free, and nonpyrogenic

Plastic serological pipettes are supplied without graduations and filter plugs for vacuum aspirating and free-flowing applications. They are ideal for tissue culture applications when aspirating larger volumes from dishes, flasks, or roller bottles. Individually wrapped.

NEW



Argos
TECHNOLOGIES

STERILE

| Volume (mL) | Sterile | Qty/cs | Catalog number |
|-------------|---------|--------|--------------------|
| 2 | Yes | 500 | JB-04395-08 |
| 5 | | 200 | JB-04395-09 |
| 10 | | 200 | JB-04395-10 |

Cole-Parmer® Cell and Tissue Dishes

Excellent optical quality promotes healthy cells and reproducible results

- Dishes with 7 different diameters with nontreated or surface-treated surface
- Flat bottom with uniform wall thickness ensures stability
- Rim on upper side of the lid mates with the dish brim for easy and secure stacking
- Gamma sterilized and nonpyrogenic



NEW

Cole-Parmer

STERILE

| Diameter (mm) | Sterile | Qty/cs | Nontreated | Surface treated |
|---------------|---------|--------|--------------------|--------------------|
| | | | Catalog number | Catalog number |
| 35 | Yes | 960 | JB-15971-32 | JB-15971-39 |
| 60 | | 600 | JB-15971-33 | JB-15971-40 |
| 70 | | 600 | JB-15971-34 | JB-15971-41 |
| 90 | | 500 | JB-15971-35 | JB-15971-42 |
| 100 | | 300 | JB-15971-36 | JB-15971-43 |
| 150 | | 100 | JB-15971-37 | JB-15971-44 |
| 150 | | 120 | JB-15971-38 | JB-15971-45 |

Cole-Parmer® Serological Pipettes, PS

Achieve quick and accurate fluid dispensing for all applications

- Color-coded TD rings for easy identification

These serological pipettes are made from transparent bio-compatible polystyrene (PS). Unique filter plug eliminates lint fibres and ensures the plug stays in place to prevent overfilling. Each lot is tested for endotoxins and cytotoxicity, and guaranteed nonhemolytic—ideal for your tissue culture applications. The highly legible permanent graduations prevent ambiguity and guarantee precise dispensing to $\pm 2\%$. Generous negative graduations provide additional pipetting volume.

The individually wrapped pipettes are supplied in a fiber-free paper/plastic combination that is easy to open. The dispenser box allows you to remove pipettes without opening the top. Universal stacking design requires less laboratory space and each box is color-coded for quick recognition.



NEW

Cole-Parmer

STERILE

| Volume (mL) | Graduations (mL) | Sterile | Color ring | Qty/cs | Catalog number |
|-------------|------------------------|---------|------------|--------|--------------------|
| 1 | $\frac{1}{100}$ (0.01) | Yes | Yellow | 500 | JB-13002-12 |
| 1 | $\frac{1}{10}$ (0.1) | Yes | Red | 500 | JB-13002-14 |
| 2 | $\frac{1}{100}$ (0.01) | Yes | White | 500 | JB-13002-15 |
| 5 | $\frac{1}{10}$ (0.1) | Yes | Blue | 200 | JB-13002-16 |
| 10 | $\frac{1}{10}$ (0.1) | Yes | Orange | 200 | JB-13002-17 |
| 25 | $\frac{2}{10}$ (0.2) | Yes | Green | 150 | JB-13002-19 |
| 50 | $\frac{5}{10}$ (0.5) | Yes | Purple | 100 | JB-13002-20 |



Covers sold separately



Covers sold separately



Covers sold separately

High-Form Crucibles and Covers, Porcelain

Effortless cleaning with glazed surfaces

High-Form Crucibles are glazed inside and out except for outside bottom and rim. **Covers** are glazed inside and out except for rim. **Autoclavable.**

| Capacity (mL) | Top outside dia (mm) | Height (mm) | Crucibles | | | |
|---------------|----------------------|-------------|-----------|----------------|--------|----------------|
| | | | Qty/pk | Catalog number | Qty/cs | Catalog number |
| 1.3 | 15 | 15 | 6 | JB-17803-00 | 24 | JB-17803-20 |
| 5 | 24 | 20 | 12 | JB-17803-02 | 72 | JB-17803-22 |
| 10 | 31 | 26 | 12 | JB-17803-04 | 72 | JB-17803-24 |
| 15 | 35 | 29 | 12 | JB-17803-06 | 72 | JB-17803-26 |
| 30 | 43 | 37 | 12 | JB-17803-08 | 36 | JB-17803-28 |
| 40 | 50 | 40 | 12 | JB-17803-10 | 36 | JB-17803-30 |
| 50 | 53 | 43 | 12 | JB-17803-12 | 24 | JB-17803-32 |
| 100 | 65 | 54 | 6 | JB-17803-14 | 24 | JB-17803-34 |
| 250 | 88 | 72 | 6 | JB-17803-16 | 36 | JB-17803-36 |

| Fits crucible catalog number | Inside rim dia (mm) | Covers | | | |
|------------------------------|---------------------|--------|----------------|--------|----------------|
| | | Qty/pk | Catalog number | Qty/cs | Catalog number |
| 17803-02 and -22 | 26 | 12 | JB-17811-00 | 72 | JB-17811-20 |
| 17803-04 and -24 | 34 | | JB-17811-02 | | JB-17811-22 |
| 17803-06 and -24 | 38 | | JB-17811-04 | | JB-17811-24 |
| 17803-08 and -24 | 45 | | JB-17811-06 | | JB-17811-26 |
| 17803-10 and -24 | 54 | 6 | JB-17811-08 | 72 | JB-17811-28 |
| 17803-12 and -24 | 66 | | JB-17811-10 | 60 | JB-17811-30 |
| 17803-14 and -24 | 90 | | JB-17811-14 | 36 | JB-17811-34 |

Wide-Form Crucibles and Covers, Porcelain

Easier sample placement with wider mouth

Wide-Form Crucibles are glazed inside and out except for outside bottom and rim. **Covers** are glazed inside and out except for rim. **Autoclavable.** Case quantities available at ColeParmer.in

| Capacity (mL) | Top outside dia (mm) | Height (mm) | Crucibles | | Covers | |
|---------------|----------------------|-------------|-----------|----------------|--------|----------------|
| | | | Qty/pk | Catalog number | Qty/cs | Catalog number |
| 8 | 32 | 20 | 12 | JB-17804-02 | 12 | JB-17811-02 |
| 17 | 41 | 26 | 12 | JB-17804-04 | 12 | JB-17811-06 |
| 30 | 50 | 31 | 12 | JB-17804-06 | 6 | JB-17811-08 |
| 50 | 61 | 37 | 12 | JB-17804-08 | 6 | JB-17811-10 |
| 100 | 76 | 46 | 12 | JB-17804-10 | 6 | JB-17811-12 |
| 150 | 84 | 52 | 1 | JB-17804-12 | 6 | JB-17811-14 |
| 250 | 102 | 60 | 1 | JB-17804-14 | 6 | JB-17811-16 |

Cole-Parmer® Crucibles, Quartz

Won't crack under extreme conditions

- Get low expansion, excellent dimensional stability, and thermal shock resistance
- Withstand temperatures up to 1922°F (1050°C)
- Crucible and lid sold separately



| Capacity (mL) | Top outside dia (mm) | Height (mm) | Crucibles | Covers |
|---------------|----------------------|-------------|----------------|----------------|
| | | | Catalog number | Catalog number |
| 15 | 41 | 25 | JB-34526-30 | JB-34528-30 |
| 25 | 47 | 28 | JB-34526-32 | JB-34528-32 |
| 50 | 57 | 37 | JB-34526-34 | JB-34528-34 |
| 80 | 67 | 45 | JB-34526-36 | JB-34528-36 |
| 100 | 70 | 48 | JB-34526-38 | JB-34528-38 |
| 150 | 82 | 51 | JB-34526-40 | JB-34528-40 |

Crucible and Cover, Quartz

Stand up to the heat

- Withstands temperatures to 1922°F (1050°C)
- Ensure chemical purity for subsequent analysis



| Description | Capacity (mL) | OD x H (mm) | Catalog number |
|--------------------|---------------|-------------|--------------------|
| Crucible and cover | 50 | 49 x 50 | JB-34526-50 |
| Crucible only | | | JB-34526-52 |

JB-34526-54 Replacement quartz crucible cover

High-Form Crucibles and Covers, High Alumina

Won't give into chemicals

- Highly resistant to chemicals, alkalines, and fluxes
- Stands up to the heat—up to 3182°F (1750°C)
- Inactive in hydrogen and carbonaceous atmosphere



| Capacity (mL) | Top outside dia (mm) | Height (mm) | Crucibles | | Covers | |
|---------------|----------------------|-------------|--------------------|--------------------|--------------------|--------------------|
| | | | Catalog number | Catalog number | Catalog number | Catalog number |
| 10 | 29 | 31 | JB-17804-01 | JB-17804-11 | JB-17804-13 | JB-17804-15 |
| 20 | 38 | 35 | JB-17804-03 | JB-17804-13 | JB-17804-13 | JB-17804-15 |
| 50 | 48 | 47 | JB-17804-05 | JB-17804-17 | JB-17804-17 | JB-17804-19 |
| 100 | 58 | 61 | JB-17804-07 | JB-17804-17 | JB-17804-17 | JB-17804-19 |
| 250 | 76 | 93 | JB-17804-09 | JB-17804-19 | JB-17804-19 | JB-17804-19 |

Cole-Parmer® High-Form Crucibles and Lids, Nickel

Get more strength—seamless

- Constructed from one piece of 24 gauge (0.025") nickel
- Polished inside and out
- Withstand temperatures to 1472°F (800°C)



| Capacity (mL) | Top outside dia(mm) | Bottom outside dia (mm) | Height (mm) | Crucibles | | Covers | |
|---------------|---------------------|-------------------------|-------------|--------------------|--------------------|--------------------|--------------------|
| | | | | Catalog number | Catalog number | Catalog number | Catalog number |
| 15 | 31 | 26 | 31 | JB-07281-50 | JB-07281-60 | JB-07281-62 | JB-07281-64 |
| 25 | 35 | 28 | 35 | JB-07281-52 | JB-07281-62 | JB-07281-64 | JB-07281-66 |
| 50 | 45 | 34 | 45 | JB-07281-54 | JB-07281-64 | JB-07281-66 | JB-07281-68 |
| 100 | 56 | 47 | 56 | JB-07281-56 | JB-07281-66 | JB-07281-68 | JB-07281-70 |

Crucibles and Lids, Platinum

Don't oxidize with acids or salts

- Withstands temperatures to 2192°F (1700°C)

High temperature strength and high melting point, while prohibiting contamination at high temperatures up to 2192°F (1200°C).



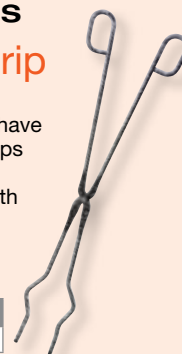
| Capacity (mL) | Top ID (mm) | Height (mm) | Crucibles | | Covers | |
|--------------------------------|-------------|-------------|--------------------|--------------------|--------------------|--------------------|
| | | | Catalog number | Catalog number | Catalog number | Catalog number |
| Standard-form crucibles | | | | | | |
| 10 | 25 | 28 | JB-17830-15 | JB-17831-15 | JB-17831-15 | JB-17831-15 |
| 15 | 30 | 31 | JB-17830-25 | JB-17831-25 | JB-17831-25 | JB-17831-25 |
| 20 | 33 | 35 | JB-17830-35 | JB-17831-35 | JB-17831-35 | JB-17831-35 |
| 25 | 36 | 34 | JB-17830-45 | JB-17831-45 | JB-17831-45 | JB-17831-45 |
| 30 | 40 | 36 | JB-17830-55 | JB-17831-55 | JB-17831-55 | JB-17831-55 |
| 40 | 42 | 42 | JB-17830-65 | JB-17831-65 | JB-17831-65 | JB-17831-65 |
| 50 | 45 | 44 | JB-17830-75 | JB-17831-75 | JB-17831-75 | JB-17831-75 |
| Wide-form crucibles | | | | | | |
| 50 | 53 | 29 | JB-17830-82 | JB-17831-82 | JB-17831-82 | JB-17831-82 |
| 75 | 65 | 30 | JB-17830-86 | JB-17831-86 | JB-17831-86 | JB-17831-86 |
| 100 | 70 | 33 | JB-17830-88 | JB-17831-88 | JB-17831-88 | JB-17831-88 |
| 150 | 77 | 41 | JB-17830-90 | JB-17831-90 | JB-17831-90 | JB-17831-90 |

†Platinum pricing may fluctuate with platinum market.

Crucible Tongs

Get a better grip

Nickel-plated steel tongs have positive-grip corrugated tips for safely handling dishes in muffle furnaces. Use with crucibles and dishes 1½" (3.8 cm) in diameter or wider.



| Length | Catalog number |
|---------------|--------------------|
| 20" (50.8 cm) | JB-06443-50 |

Cole-Parmer® Microcentrifuge Tubes

Stays closed, even during boiling

- Withstand temperatures from –80 to 121°C
- Free of RNase, DNase, endotoxins, and pyrogens

NEW



Graduated microcentrifuge tubes feature an attached snap-cap and frosted writing surface. Manufactured from FDA-compliant resin. Supplied in double safety self-standing bulk bags.



| Capacity (mL) | Max RCF (x g) | Qty/cs | Catalog number |
|---------------|---------------|----------------------|--------------------|
| 0.5 | 20,000 | 1000/pk; 10 pk/cs | JB-15977-83 |
| 1.7 | 20,000 | 1000/pk; 10 pk/cs | JB-15977-84 |
| 2.0 | 20,000 | 500/pk; 10 pk/cs | JB-15977-85 |

Test Tube Support System

One rack, virtually limitless versatility

- Rotate cubes to accommodate different size tubes
- Consists of four cubes and tray
- Autoclavable polypropylene



| Compatible tube sizes | Catalog number |
|---|--------------------|
| 15- and 50-mL conical; 12 x 75 mm, 13 x 100 mm, 16 x 125 mm, and 17 x 100 mm culture; and 1.5- and 2.0-mL microcentrifuge | JB-06733-00 |

QUALITY HAS A NAME DWK Life Sciences

Think of volumetric glass
and plasticware. Think
DWK Life Sciences.

Extensive volumetric range with outstanding
characteristics. **For most accurate results.**

- DWK Volumetric range is available in Class A with individual certificate, batch certificate, and USP
- The volumetric range is available in Class A - Duran® borosilicate glass 3.3, PP and PMP
- Azlon® PMP / PP Volumetric range is available in Class A according to ISO standard



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**DURAN
WHEATON
KIMBLE**

Excellence in your hands

**Cole-Parmer® elements™
Graduated Cylinders, Glass**

NEW

Hexagonal base prevents cylinder from tipping over

- Durable borosilicate 3.3 glass
- Easy-read graduations
- Withstands wide temperature range -50 to 550°C
- Graduated tolerances from ±0.1 to ±20 depending on size
- Autoclavable



| Capacity (mL) | Graduations (mL) | Tolerance (mL) | Qty/pk | Catalog number |
|---------------|------------------|----------------|--------|----------------|
| 5 | 0.1 | ±0.1 | 2 | JB-34502-68 |
| 10 | 0.2 | ±0.2 | | JB-34502-69 |
| 25 | 0.5 | ±0.5 | 1 | JB-34502-70 |
| 50 | 1 | ±1 | | JB-34502-71 |
| 100 | 1 | ±1 | | JB-34502-72 |
| 250 | 2 | ±2 | | JB-34502-73 |
| 500 | 5 | ±5 | 1 | JB-34502-74 |
| 1000 | 10 | ±10 | | JB-34502-75 |
| 2000 | 20 | ±20 | | JB-34502-76 |

**Cole-Parmer® elements™
Graduated Cylinders, PP**

NEW

Molded one piece for enhanced durability

- Wide hexagonal base provides stability
- Accurate to ±2.5%
- Molded-in graduations will not wear off
- Bulk packed for greater savings

Featuring pour spouts, molded-in graduations, and heat resistance from -15 to 150°C, these translucent polypropylene (PP) cylinders are excellent for general use in the lab.



| Capacity mL (oz) | Graduation interval (mL) | Tolerance (± mL) | Qty/pk | Catalog number |
|------------------|--------------------------|------------------|--------|----------------|
| 50 (1.7) | 1 | ±2.5% | 10 | JB-06200-24 |
| 100 (3.5) | 1 | | | JB-06200-25 |
| 250 (8) | 5 | | | JB-06200-26 |

**Cole-Parmer® Serialized Class A
Graduated Cylinders, Glass**

Feel more confident about your aliquots—meet ISO 9000 requirements

- Easy-to-read single white metric scale
- Autoclavable

Choose cylinders with a report of traceability to NIST standards or with a report of calibration and traceability. Models with report of calibration and traceability feature fused-in serial numbers. All cylinders support ISO 9000 requirements and are calibrated in accordance with ASTM E 542. Cylinders meet ASTM E 694 specifications and accuracy requirements of ASTM 1272. Cylinder glass meets ASTM E 438.



34300-27 calibrated "To Contain"

34300-15 calibrated "To Deliver"

| Capacity (mL) | Graduations (mL) | Tolerance (mL) | With report of traceability | | With reports of calibration and traceability | |
|--|------------------|----------------|-----------------------------|-------------|--|-------------|
| | | | Qty/pk | Cat. no. | Qty/pk | Cat. no. |
| Cylinders calibrated "To Contain" | | | | | | |
| 10 | 0.1 | ±0.10 | 1 | JB-34300-17 | 1 | — |
| 25 | 0.2 | ±0.17 | | JB-34300-19 | | JB-34300-20 |
| 50 | 1 | ±0.25 | | JB-34300-21 | | JB-34300-22 |
| 100 | 1 | ±0.40 | | JB-34300-23 | | JB-34300-24 |
| 250 | 2 | ±0.80 | 1 | JB-34300-25 | 1 | JB-34300-26 |
| 500 | 5 | ±1.30 | | JB-34300-27 | | JB-34300-28 |
| 1000 | 10 | ±3.0 | | JB-34300-29 | | JB-34300-30 |
| 2000 | 20 | ±5.0 | | JB-34300-31 | | JB-34300-32 |
| Cylinders calibrated "To Deliver" | | | | | | |
| 10 | 0.1 | ±0.10 | 1 | JB-34300-01 | 1 | — |
| 25 | 0.2 | ±0.17 | | JB-34300-03 | | JB-34300-04 |
| 50 | 1 | ±0.25 | | JB-34300-05 | | JB-34300-06 |
| 100 | 1 | ±0.40 | | JB-34300-07 | | JB-34300-08 |
| 250 | 2 | ±0.80 | 1 | JB-34300-09 | 1 | JB-34300-10 |
| 500 | 5 | ±1.3 | | JB-34300-11 | | JB-34300-12 |
| 1000 | 10 | ±3.0 | | JB-34300-15 | | JB-34300-16 |
| 2000 | 20 | ±5.0 | | JB-34300-13 | | JB-34300-14 |

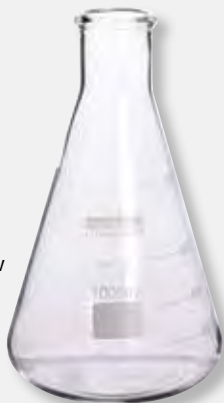
Cole-Parmer® elements™ Erlenmeyer Flasks, Glass

NEW

Economical option for everyday lab use

- Easy-read graduations and marking area
- Withstands wide temperature range –50 to 550°C; autoclavable
- Graduated tolerances to ±0.05

Made with durable borosilicate 3.3 glass and featuring a heavy-duty rim with narrow-mouth opening, there are very few applications these flasks cannot handle.



| Capacity mL (oz) | Graduation range (mL) | Graduation interval (mL) | Qty/ pk | Catalog number |
|------------------|-----------------------|--------------------------|---------|--------------------|
| 25 (7/8) | 10 to 25 | 5 | 24 | JB-34502-55 |
| 50 (1 3/4) | 20 to 50 | 10 | 12 | JB-34502-56 |
| 100 (3) | 40 to 100 | 20 | | JB-34502-57 |
| 125 (4) | 50 to 125 | 20 | | JB-34502-58 |
| 250 (8) | 100 to 250 | 50 | | JB-34502-59 |
| 300 (10) | 100 to 300 | 50 | 8 | JB-34502-60 |
| 500 (16) | 200 to 500 | 100 | | JB-34502-61 |
| 1000 (32) | 400 to 1000 | 100 | 6 | JB-34502-62 |
| 2000 (64) | 800 to 2000 | 400 | 1 | JB-34502-63 |
| 3000 (96) | 1000 to 3000 | 500 | | JB-34502-64 |
| 4000 (128) | 2000 to 4000 | 500 | | JB-34502-65 |
| 5000 (160) | 2000 to 5000 | 500 | | JB-34502-66 |
| 6000 (192) | 3000 to 6000 | 500 | | JB-34502-67 |

Cole-Parmer® Class A Erlenmeyer Flasks, Glass

Don't break the bank

- Easy-reading, white enamel graduations
- Stands up to the heat—752°F (400°C) for short-term exposure and 445°F (230°C) for long-term exposure
- Class A borosilicate glass meets ASTM E 1404, DIN 12380 specifications
- Autoclavable



| Capacity (mL) | Stopper no. | Graduation range (mL) | Graduation (mL) | Qty/ pk | Catalog number |
|---------------|-------------|-----------------------|-----------------|---------|--------------------|
| 100 | 5 | 50 to 100 | 25 | 12 | JB-34506-10 |
| 250 | 6 | 50 to 200 | 25 | 12 | JB-34506-12 |
| 500 | 7 | 100 to 500 | 50 | 6 | JB-34506-14 |
| 1000 | 9 | 250 to 1000 | 50 | 6 | JB-34506-16 |
| 2000 | 10 | 600 to 1900 | 100 | 1 | JB-34506-18 |
| 3000 | 10 | 1000 to 3000 | 500 | 1 | JB-34506-20 |

Cole-Parmer® elements™ Volumetric Flasks, Glass

Quality borosilicate 3.3 glass

NEW

- White easy-read marking for volume
- Calibrated "To Contain" (IN) by DIN at 20°C
- Withstands wide temperature range –50 to 550°C; autoclavable
- Tight tolerances from ±0.015 to ±1.2 depending on size
- With glass pennyhead stoppers



| Capacity (mL) | Tolerance (mL) | Qty/ pk | Catalog number |
|---------------|----------------|---------|--------------------|
| 2 | ±0.015 | 10 | JB-34502-77 |
| 5 | ±0.02 | | JB-34502-78 |
| 10 | ±0.025 | 2 | JB-34502-79 |
| 20 | ±0.030 | | JB-34502-80 |
| 25 | ±0.04 | | JB-34502-81 |
| 50 | ±0.05 | | JB-34502-82 |
| 100 | ±0.1 | 2 | JB-34502-83 |
| 200 | ±0.15 | | JB-34502-84 |
| 250 | ±0.15 | | JB-34502-85 |
| 500 | ±0.2 | | JB-34502-86 |
| 1000 | ±0.4 | 1 | JB-34502-87 |
| 2000 | ±0.6 | | JB-34502-88 |
| 5000 | ±1.2 | | JB-34502-89 |

Cole-Parmer® Graduated Cylinders, PP and PMP

Built to last—molded graduations won't wear off

- For very good chemical resistance, choose polypropylene (PP) version
- Choose transparent polymethylpentene (PMP) for good chemical and heat resistance
- Meet ISO Standard 6706 and calibrated "to contain"
- Autoclavable



| Capacity (mL) | Graduations (mL) | Polypropylene (PP) cylinders | Polymethylpentene (PMP) cylinders |
|---------------|------------------|------------------------------|-----------------------------------|
| | | Catalog number | Catalog number |
| 10 | 0.2 | JB-06137-70 | JB-06137-50 |
| 25 | 0.5 | JB-06137-72 | JB-06137-52 |
| 50 | 1.0 | JB-06137-74 | JB-06137-54 |
| 100 | 1.0 | JB-06137-76 | JB-06137-56 |
| 250 | 2.0 | JB-06137-78 | JB-06137-58 |
| 500 | 5.0 | JB-06137-80 | JB-06137-60 |
| 1000 | 10.0 | JB-06137-82 | JB-06137-62 |
| 2000 | 20.0 | JB-06137-84 | JB-06137-64 |

Selecting a Filter

1. Determine the particle size to be retained or filtered. Membranes will retain all particles equal to, and larger than their designated pore size.
2. Assess the chemical compatibility of the membrane filter with the liquid or gas to be filtered. Consider the chemical resistance properties of all the parts that will contact the filtrate.
3. Depending on the procedure performed, the membrane color or surface pattern may be important.
4. Also consider hydrophilic or hydrophobic membranes, temperature, flow rate, throughput, and sterilization needs.

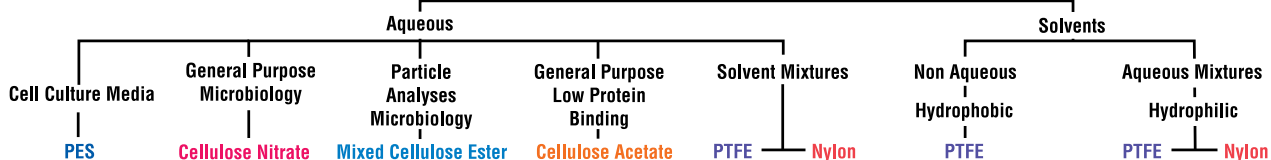
Filtration Types

Use this guide to determine the optimal type of filtration for your particle sizes. Each type of filtration is designed to separate differing ranges of microparticles and particles:

Ultrafiltration is best with particles of roughly 10,000 to 1,000,000 MW. **Microfiltration** is best with particle sizes of roughly 0.1 to 10 μm . **Macrofiltration** is best with particle sizes greater than 50 μm .

| Type of filtration | Ultrafiltration | Microfiltration | Macrofiltration |
|-----------------------------|---|---|---|
| Units | Dalton (MW) | Microns (μm) | 50 μm or greater, visible to the human eye |
| Particle examples and sizes | Trypsin (24,000) Serum albumin (67,000) Gamma globulin (169,000) Viruses (600,000 to 30,000) Endotoxins (500,000 to 12,000) | Mycoplasma (0.08 to 0.4) Proteins (0.0005 to 0.5) Fungi (0.7 to 3) Yeasts (0.6 to 4) Bacteria (0.3 to 12) | Spores Pollen Human hair Sands |

Chemical Compatibility for Membrane Selection



Membrane Materials

Cellulose Nitrate (CN) membrane is the most popular membrane used in analytical and laboratory filtration. CN membrane has excellent wetting properties and gives fastest flow rates with aqueous solutions.

Cellulose Acetate membrane is a mixture of cellulose triacetate and diacetate that creates a strong membrane in both lateral and longitudinal directions. In addition, the membrane has a low static charge, a very low aqueous extractability, and good solvent resistance to low molecular weight alcohols.

Mixed Cellulose Ester membrane provides a more uniform and smoother surface compared to pure nitrocellulose membrane. This membrane is typically used to count or analyze particles contained in liquids or captured from aerosols.

Nylon membrane is strong, inherently hydrophilic, and compatible with a broad range of aqueous solutions including alcohols and solvents used in HPLC work.

Polyethersulfone (PES) membrane is hydrophilic and low protein binding. No external wetting agents are required, resulting in low extractables. PES membrane generally offers fast flow rate and better chemical resistance than cellulose acetate membranes.

PTFE membrane is strong, highly porous, and inert to most chemically aggressive solvents, strong acids, and bases. Chemical and thermal limitations are imposed by the backing material.

Terms to Know

Bubble Point: the amount of air pressure that is required to force liquid from the largest wetted pore of the membrane.

Hydrophilic: or “water-loving”, refers to a filter’s ability to naturally absorb water.

Hydrophobic: or “water-hating”, refers to a filter’s ability to naturally repel water.

Molecular Weight Cut Off (MWCO): lowest molecular weight solute that is 90% retained by the membrane. For rapid filtration where some sample loss is acceptable, a membrane with MWCO the same as the molecular weight of the solute can be used. When loss of material of interest is undesirable, the membrane MWCO should be less than the molecular weight of the compound.

Pore Size (absolute): the point at which a particle of defined size will be retained with 100% efficiency under specified conditions.

Prewet: membranes that are inherently hydrophobic need to be specially wetted before use with aqueous filtrations. This can be done by using approximately 5 mL of chromatography-grade methanol, acetone, or compatible fluid with low viscosity (>0.6 cp) and rinsing with approximately 25 mL of water.

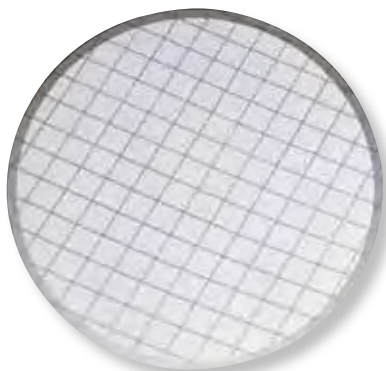
Throughput: refers to dirt handling capacity before membrane clogs.

Cole-Parmer® Sterile Gridded Cellulose Nitrate Membranes

Identify colonies easily

- Sterilised by EtO and individually wrapped

Sterile hydrophilic membranes do not contain any extractable to inhibit or stimulate growth of bacteria, do not affect pH of the medium, and are suitable for both aqueous and protein filtration. Membranes may be exposed to temperatures up to 55°C (131°F). Additional variations are available; call us for details.



| Pore size | Diameter | Surface | Qty/pk | Catalog number |
|-----------|----------|---------|--------|--------------------|
| 0.2 µm | 47 mm | Gridded | 100 | JB-15945-38 |
| 0.45 µm | | | | JB-15945-39 |

Request **FREE** samples*!

Call us today

*T&C apply

Cole-Parmer® Nylon Membranes

No prewetting required

- Inherently hydrophilic and compatible with many aqueous and organic solvents and solutions

Suitable for HPLC sample preparation, sterilising biological solutions or buffers, and vacuum degassing. Membranes may be exposed to temperatures up to 75°C (167°F), and can withstand up to five autoclave cycles at 121°C for 30 minutes. Additional variations are available; call us for details.



| Pore size | Bubble point | Flow H ₂ O | Quantity | Catalog number |
|--------------|--------------|-----------------------|----------|--------------------|
| 25 mm | | | | |
| 0.2 µm | ≥3.6 bar | 0.025 L/min | 100/pk | JB-15945-24 |
| 0.45 µm | ≥2.1 bar | 0.030 L/min | | JB-15945-25 |
| 47 mm | | | | |
| 0.2 µm | ≥3.6 bar | 0.025 L/min | 100/pk | JB-15945-26 |
| 0.45 µm | ≥2.1 bar | 0.030 L/min | | JB-15945-27 |
| 0.8 µm | ≥1.1 bar | 0.130 L/min | | JB-15945-28 |

Cole-Parmer® Glass Fiber Filters

No bonding agent to contaminate

- 100% borosilicate glass and 100% free of bonding agents

These filters offer fine particle retention, a high flow rate, good loading capacity, and may be exposed to temperatures up to 500°C (932°F). Additional variations are available; call us for details.

Grade GF/1F Filters are ideal for high-efficiency general-purpose lab filtration, gravimetric analysis of airborne particulates, high volume air samples, and stack sampling and absorption method of air pollution monitoring.

Grade GF/3F Filters are used in liquid scintillation counting (LSC) technique, as a standard filter in the collection of suspended solids from potable water and natural wastes, and cell harvesting.



| Grade | Retention | Thickness | Binder | 47-mm dia discs | | 203 x 254 mm (8" x 10") sheets | |
|-------|-----------|-----------------|--------|-----------------|--------------------|--------------------------------|--------------------|
| | | | | Qty/pk | Catalog number | Qty/pk | Catalog number |
| GF/1F | 1.6 µm | 0.25 to 0.30 mm | None | 100 | JB-15945-44 | 100 | JB-15945-46 |
| GF/3F | 1.2 µm | 0.25 to 0.30 mm | None | 100 | JB-15945-45 | — | — |

Note: Other diameter and pore sizes can be supplied on request. Sterile membrane filters can be supplied on request.

Cole-Parmer® Chromatography Filters

Maximise sample recovery

- Bidirectional flow with female luer lock on one side and a male luer slip on the other
- Withstand pressure up to 7 bar (100 psi)
- Batch test certificate included with each pack

Nylon Chromatography Filters are most often used in HPLC and other analytical applications for either aqueous or organic mobile phase separation. Filters do not contain any adhesive, detergent, or surfactants so they have low extractables—great for research applications. Maximum use temperature is 50°C (122°F).

PES Chromatography Filters are naturally low protein binding and sample absorbing, and have a wide chemical compatibility for both aqueous and organic solvent filtration. Recommended for filtering critical biological sampling, tissue culture media, additives, serum and buffers. Maximum use temperature is 50°C (122°F).

PTFE Chromatography Filters stand up to the most aggressive solvent, acid, and base samples and are ideal for filtration of highly aggressive colloidal solutions. These filters can be used under extreme chemical or temperature conditions and are ideal for analytical and research applications where non-aqueous/organic solvent filtration is required. Maximum use temperature is 60°C (140°F).

PVDF Chromatography Filters are both low protein binding and possess high flow rates, and offer great chemical compatibility—making them ideal for solutions that are difficult to filter. Best suited for applications requiring sterilisation and clarification of biological solutions, and preparing HPLC solutions and aqueous samples. Maximum use temperature is 60°C (140°F).



 Cole-Parmer®



| Membrane material | Pore size | Membrane diameter | Filtration volume | Retention volume | Effective filtration area | Housing material | Sterile | Qty/pk | Catalog number |
|-------------------|-------------|-------------------|-------------------|------------------|---------------------------|------------------|---------|--------|----------------|
| Nylon | 0.20 µm | 13 mm | 1 to 10 mL | <20 µL | 0.8 cm ² | PP | No | 100 | JB-15945-10 |
| | 0.45 µm | | | | | | | | JB-15945-11 |
| | 0.20 µm | 25 mm | 10 to 100 mL | <50 µL | 3.9 cm ² | PP | No | 100 | JB-15945-12 |
| | 0.45 µm | | | | | | | | JB-15945-13 |
| | 0.20 µm | 33 mm | 30 to 150 mL | <80 µL | 4.6 cm ² | PP | No | 50 | JB-15945-14 |
| | | | | | | | | | 0.45 µm |
| PES | 0.20 µm | 25 mm | 10 to 100 mL | <50 µL | 3.9 cm ² | PP | Yes | 50 | JB-15945-52 |
| | 0.45 µm | | | | | | | | JB-15945-53 |
| PTFE | 0.20 µm | 13 mm | 1 to 10 mL | <20 µL | 0.8 cm ² | PP | No | 100 | JB-15945-40 |
| | 0.45 µm | | | | | | | | JB-15945-41 |
| | 0.20 µm | 25 mm | 10 to 100 mL | <50 µL | 3.9 cm ² | PP | No | 100 | JB-15945-42 |
| | 0.45 µm | | | | | | | | JB-15945-43 |
| PVDF | 0.20 µm | 13 mm | 1 to 10 mL | <20 µL | 0.8 cm ² | PP | No | 100 | JB-15945-16 |
| | 0.45 µm | | | | | | | | JB-15945-17 |
| | 0.20 µm | 25 mm | 10 to 100 mL | <50 µL | 3.9 cm ² | PP | No | 100 | JB-15945-18 |
| | 0.45 µm | | | | | | | | JB-15945-19 |
| | 0.20 µm | 33 mm | 30 to 150 mL | <80 µL | 4.6 cm ² | PP | No | 50 | JB-15945-20 |
| 0.45 µm | JB-15945-21 | | | | | | | | |

Note: Other diameter and pore sizes can be supplied on request. Sterile chromatography filters can be supplied on request.

Cole-Parmer® Sterile Air Vent Filter

Protect your culture from airbourne contaminants

- Stepped hose barb connections accept 1/8" to 1/4" inner diameter tubing

This venting disc filter has a hydrophobic PTFE membrane and PP housing—making it ideal for venting and degassing fermentation tanks and culture vessels, drying or sterilising gases, and cleaning analytical solvents and reagents. Filter can withstand up to 30 autoclave cycles at 121°C for 20 minutes or 3 cycles at 134°C for 30 minutes.



| Membrane material | Pore size | Diameter | Filtration area | Connections | Qty/pk | Catalog number |
|-------------------|-----------|----------|----------------------|-----------------|--------|----------------|
| PTFE | 0.2 µm | 50 mm | 16.2 cm ² | 1/8" to 1/4" ID | 10 | JB-15945-22 |
| | | | | | 1 | JB-15945-23 |



 Cole-Parmer®

Cole-Parmer® Vacuum Filtration Assemblies

Ideal for large-volume sample separation and purification

- Engraved graduations ensure veracity
- Hose connector design can fit multiple hose diameters
- Bottle has a wide mouth for efficient and stable pour out
- Nonpyrogenic; gamma sterilized
- Packaged in easy peel-to-open plastic bag, and receiver bottle cap is individually wrapped
- Each unit is individually labelled for lot traceability

Save Big!

On bulk orders

NEW



Cole-Parmer®

STERILE

| Membrane material | Volume (mL) | Pore size (µm) | Qty/cs | Catalog number |
|-------------------|-------------|----------------|--------|--------------------|
| PVDF | 150 | 0.22 | 12 | JB-15971-59 |
| | | 0.45 | 12 | JB-15971-63 |
| | 250 | 0.22 | 12 | JB-15971-60 |
| | | 0.45 | 12 | JB-15971-64 |
| | 500 | 0.22 | 12 | JB-15971-61 |
| | | 0.45 | 12 | JB-15971-65 |
| | 1000 | 0.22 | 12 | JB-15971-62 |
| | | 0.45 | 12 | JB-15971-66 |
| PES | 150 | 0.22 | 12 | JB-15971-67 |
| | | 0.45 | 12 | JB-15971-68 |
| | 250 | 0.22 | 12 | JB-15971-69 |
| | | 0.45 | 12 | JB-15971-70 |
| | 500 | 0.22 | 12 | JB-15971-71 |
| | | 0.45 | 12 | JB-15971-72 |
| | 1000 | 0.22 | 12 | JB-15971-73 |
| | | 0.45 | 12 | JB-15971-74 |
| MCE | 150 | 0.22 | 12 | JB-15971-75 |
| | | 0.45 | 12 | JB-15971-76 |
| | 250 | 0.22 | 12 | JB-15971-77 |
| | | 0.45 | 12 | JB-15971-78 |
| | 500 | 0.22 | 12 | JB-15971-79 |
| | | 0.45 | 12 | JB-15971-80 |
| | 1000 | 0.22 | 12 | JB-15971-81 |
| | | 0.45 | 12 | JB-15971-82 |

Glass and Stainless Steel Microanalysis Filter Holders

Perfect for small to medium volumes of liquid

- Standard size for microbiology and particulate analysis
- Available with sintered glass, stainless steel, or PTFE support

The glass filter holders feature borosilicate glass funnel and base, silicone rubber stopper, and anodized aluminum clamp. The 90-mm holders are ideal for large-volume viscous samples or those with a heavy particle or bio burden that would clog a 47-mm filter.



Sintered glass filter holder 06644-84

Model 06645-98 is for sterility testing of antibiotics and pharmaceuticals; it features a silicone funnel cover and tubing, glass stopcock, stainless steel injector needle, and 13-mm holder.

Model 06644-80 features an unbreakable 304 stainless steel funnel/base/support and a PTFE gasket—the entire holder can be flame sterilized to sanitize between samplings. Set pins and a locking nut on the funnel prevent twisting and tearing of the membrane.



All-stainless-steel filter holder 06644-80

| Membrane size | Support | Filtration area | Funnel size | Stopper size | Catalog number |
|--|-----------------|---------------------|-------------|--------------|---------------------|
| Standard glass filter holders | | | | | |
| 13 mm | Sintered glass | 1.2 cm ² | 100 mL | No. 5 | JB-06644-81 |
| | | | 500 mL | | JB-06644-82 |
| | | | 1000 mL | | JB-06644-83 |
| | | | 13/100 mL† | | JB-06644-84† |
| 25 mm | Sintered glass | 2.1 cm ² | 15 mL | No. 5 | JB-06645-13 |
| | | | 150 mL | | JB-06645-23 |
| | | | 300 mL | | JB-06645-25 |
| 25 mm | Stainless steel | 2.1 cm ² | 15 mL | No. 5 | JB-06645-95 |
| | | | 150 mL | | JB-06645-96 |
| | | | 300 mL | | JB-06645-31 |
| | | | 100 mL | | JB-06644-88 |
| 47 mm | Sintered glass | 9.6 cm ² | 300 mL | No. 8 | JB-06644-85 |
| | | | 500 mL | | JB-06644-91 |
| | | | 1000 mL | | JB-06644-94 |
| | | | 100 mL | | JB-06644-89 |
| 47 mm | Stainless steel | 9.6 cm ² | 300 mL | No. 8 | JB-06644-86 |
| | | | 500 mL | | JB-06644-92 |
| | | | 1000 mL | | JB-06644-95 |
| | | | 100 mL | | JB-06644-90 |
| 47 mm | PTFE | 9.6 cm ² | 300 mL | No. 8 | JB-06644-87 |
| | | | 500 mL | | JB-06644-93 |
| | | | 1000 mL | | JB-06644-96 |
| | | | 100 mL | | JB-06644-97 |
| 90 mm | Sintered glass | 43 cm ² | 1000 mL | No. 8 | JB-06644-97 |
| 90 mm | Stainless steel | 43 cm ² | 1000 mL | No. 8 | JB-06644-98 |
| Glass sterility test filter holder (use with sterility test manifold—go to ColeParmer.in) | | | | | |
| 47 mm | Sintered glass | 9.6 cm ² | 300 mL | No. 8 | JB-06645-98 |
| All-stainless-steel filter holder with SS funnel and base | | | | | |
| 47 mm | Stainless steel | 9.3 cm ² | 500 mL | No. 8 | JB-06644-80 |

†Model 06644-84 has a two-part funnel connected by a ground-glass joint.

Filtration Assemblies

No more membrane tearing

These filtration assemblies are designed for HPLC, particulate, and microbiological contamination filtrations. Sintered glass support provides even, flat support structure for membrane filters.

What's included: a coarse fritted glass support base, a graduated glass funnel with 300- or 1000-mL capacity, an anodized aluminum clamp, and a no. 8 silicone stopper with $\frac{3}{16}$ " hole. Order filtering flasks separately below.



Filtration assembly 34509-00 with filtering flask 34509-32 (order separately below)

| Diameter | Capacity | Catalog number |
|----------|----------|--------------------|
| 47 mm | 300 mL | JB-34509-00 |
| 90 mm | 1000 mL | JB-34509-10 |

JB-34509-38 Replacement funnel; 47-mm diameter, 300-mL capacity

JB-34509-40 Replacement funnel; 90-mm diameter, 1000-mL capacity

Filtering Flasks

Attach a $\frac{3}{8}$ " ID vacuum hose to the sidearm of the flask via the no. 2 hose connector. Insert a funnel into the neck of the flask through a no. 8 rubber stopper joint.

| Dimensions | Capacity | Catalog number |
|----------------------|----------|--------------------|
| 135 mm OD x 225 mm H | 1000 mL | JB-34509-32 |
| 168 mm OD x 292 mm H | 2000 mL | JB-34509-34 |
| 208 mm OD x 370 mm H | 4000 mL | JB-34509-36 |

Go to ColeParmer.in for our full offering of vacuum filtration holders.

Vacuum Filtration Holders

Optimize your vacuum filtration process

- Model 02923-20 meets EPA specifications for Hazardous Waste Toxicity Test
- Autoclavable
- Supplied with an aluminum clamp and a silicone rubber stopper

No. 5 stoppers fit standard 125-mL flasks; no. 8 stoppers fit 1-L flasks. Order no. 8B stopper 02924-02 separately at right to fit filter holders 02920-00 and 02921-00 to manifolds above.

Filter holder 02923-10 is ideal for sterility testing of antibiotics and pharmaceuticals by bacteria retentive method described in USP XXI. This model includes silicone funnel cover, borosilicate stopcock, silicone tubing for connection to sterile buffer, and SS vent needle with 13-mm SS filter holder. Model 02923-20 with sintered-glass membrane support meets EPA specifications for use in the Hazardous Waste Toxicity Test. Holder 02923-00, with stainless steel (SS) membrane support, provides ultraclean filtrate—screen does not shed particles.



Filter holder 02923-10 shown with stainless steel manifold 02924-20

| Membrane size | Filtration area | Membrane support | Includes stopper | Funnel size | Catalog number |
|---------------------|----------------------|------------------|------------------|-------------|--------------------|
| 25 mm [†] | 1.1 cm ² | Sintered glass | No. 5 | 100 mL | JB-02920-00 |
| 25 mm | 2.1 cm ² | | No. 5 | 15 mL | JB-02921-00 |
| 47 mm [†] | 9.6 cm ² | Sintered glass | No. 8 | 300 mL | JB-02923-10 |
| 47 mm ^{††} | 9.6 cm ² | | No. 8 | 300 mL | JB-02923-20 |
| 90 mm | 38.5 cm ² | | No. 8 | 1000 mL | JB-02923-30 |
| 47 mm | 9.6 cm ² | SS | No. 8 | 300 mL | JB-02923-00 |

[†]Concentrates filtration area to 13 mm². ^{††}Sterility test holder with funnel assembly for specialized testing. ^{†††}Meets EPA specifications for Hazardous Waste Toxicity Test.

JB-02924-02 Perforated silicone rubber stopper, no. 8B

JB-02923-50 Replacement rubber stopper, no. 8

Vacuum Filtration Manifolds

Significantly reduce process time compared to gravity methods

- Connect three or six filter holders to one vacuum source



Filter holder is not included.

Stainless Steel Manifolds have two- or three-way PTFE valves for each branch to provide individual control of vacuum and air venting. Branches accept no. 8 stoppers. Hose barb accepts $\frac{3}{8}$ " ID vacuum tubing. Autoclavable.

PVC Manifolds have branches with two-way PTFE valves for independent control of vacuum. Hose barb accepts $\frac{1}{4}$ " ID tubing. Branches accept no. 8 stoppers. Sanitize with ethanol or formaldehyde; do not autoclave. Max temperature is 140°F (60°C).

| Valve type | No. of branches | Dimensions (L x W x H) | | Catalog number |
|----------------------------------|-----------------|--|--------------------|--------------------|
| | | in. | cm | |
| Stainless steel manifolds | | | | |
| 2-way | 3 | 18 x 4 $\frac{3}{4}$ x 7 | 45.7 x 12.1 x 17.8 | JB-02924-20 |
| | 6 | 28 $\frac{1}{2}$ x 4 $\frac{3}{4}$ x 7 | 72.4 x 12.1 x 17.8 | JB-02924-30 |
| 3-way | 3 | 18 x 4 $\frac{3}{4}$ x 7 | 45.7 x 12.1 x 17.8 | JB-02924-85 |
| | 6 | 28 $\frac{1}{2}$ x 4 $\frac{3}{4}$ x 7 | 72.4 x 12.1 x 17.8 | JB-02924-95 |
| PVC manifolds | | | | |
| 2-way | 3 | 17 $\frac{3}{4}$ x 4 $\frac{3}{4}$ x 7 | 45.1 x 12.1 x 17.8 | JB-02924-40 |
| | 6 | 34 $\frac{1}{2}$ x 4 $\frac{3}{4}$ x 7 | 87.6 x 12.1 x 17.8 | JB-02924-50 |

General-Purpose Tweezers and Forceps, Stainless Steel (SS) and Plastic

Get a more precise grip

SS Tweezers, straight tips and finger serrations.



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 7" | 12 | JB-07288-04 |

SS Straight: Thick, Flat Strong Tips, serrated tips and grips. Style OOD.



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 4 3/4" | 1 | JB-07287-03 |

SS Self-Locking Tweezers, straight narrow tips.



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 4 1/4" | 12 | JB-07288-01 |

SS Tweezers, smooth spade tips.



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 4 1/4" | 12 | JB-07288-07 |

SS Solder Utility Tweezers, curved tips and finger serrations.



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 7" | 12 | JB-07288-03 |

SS Tweezers, curved serrated tips.



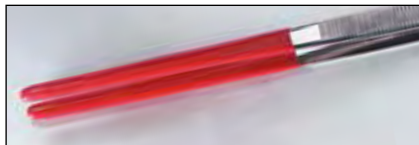
| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 4 1/4" | 12 | JB-07288-05 |

SS Forceps, straight serrated tips.



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 6" | 1 | JB-07288-12 |
| 12" | 1 | JB-07288-14 |

SS Forceps, plastic-coated rounded tips.



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 12" | 1 | JB-07288-10 |

PTFE-Covered Nickel-Plated Forged Steel Forceps are heat and chemical resistant. **Autoclavable.**



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 4 1/4" | 2 | JB-06440-00 |

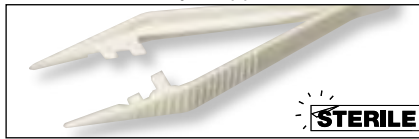
*Quantity discount does not apply.

Reinforced Nylon Forceps have corrugated handles, serrated blades, and rounded tips. **Autoclavable.** Sterile—individually wrapped.



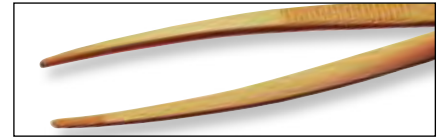
| Sterile | Length | Qty/ pk | Catalog number |
|---------|--------|---------|----------------|
| No | 4 7/8" | 100 | JB-06443-15 |
| Yes | 4 7/8" | 100 | JB-06443-26 |

Nylon Forceps feature corrugated handles and serrated blades. **Autoclavable.** Sterile—individually wrapped.



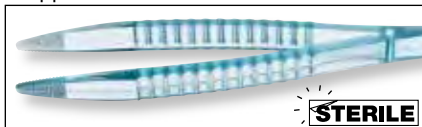
| Sterile | Length | Qty/ pk | Catalog number |
|---------|--------|---------|----------------|
| No | 4 1/4" | 100 | JB-06443-25 |
| Yes | 4 1/4" | 70 | JB-06443-27 |

PA (Polyamide) Tweezers, rounded tips.



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 7" | 1 | JB-06446-20 |

Polystyrene Disposable Sterile Forceps feature corrugated handles and rounded serrated tips. Sterile—come individually wrapped.



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 4 7/8" | 100 | JB-06443-20 |

Plastic Curved: Smooth Rounded Tips 2AB



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 4 1/2" | 12 | JB-07290-06 |

Plastic Curved: Very Fine and Smooth Tips 7-STD



| Length | Qty/ pk | Catalog number |
|--------|---------|----------------|
| 4 1/2" | 12 | JB-07290-08 |

Parafilm® Wrap and Dispensers

Molds to most surfaces

- Colorless, moisture-proof plastic film
- Seal beakers and flasks; wider size covers trays and basins



Parafilm wrap 06720-25 shown with cutter/dispenser 06720-34

| Width | Length | Packing | Catalog number |
|--------|---------|---------------------|--------------------|
| 508 mm | 15 m/rl | Mailing tube | JB-06720-25 |
| 102 mm | 38 m/rl | Paper dispenser box | JB-06720-40 |
| 51 mm | 76 m/rl | | JB-06720-50 |

JB-06720-34 Parafilm cutter/dispenser, clear acrylic

Aluminium Foil

All-purpose wrapping

- For freezer storage, wrapping, sealing, autoclaving, lining, and weighing or transferring samples
- Packaged in a dispenser box with serrated cutting strip
- Autoclavable



| Thickness | Width | Length | Catalog number |
|------------|--------|--------|--------------------|
| Standard | 457 mm | 152 m | JB-06275-00 |
| Heavy-duty | 457 mm | 152 m | JB-06275-05 |

Inoculation Loops and Needles

A. Platinum Calibrated Loops

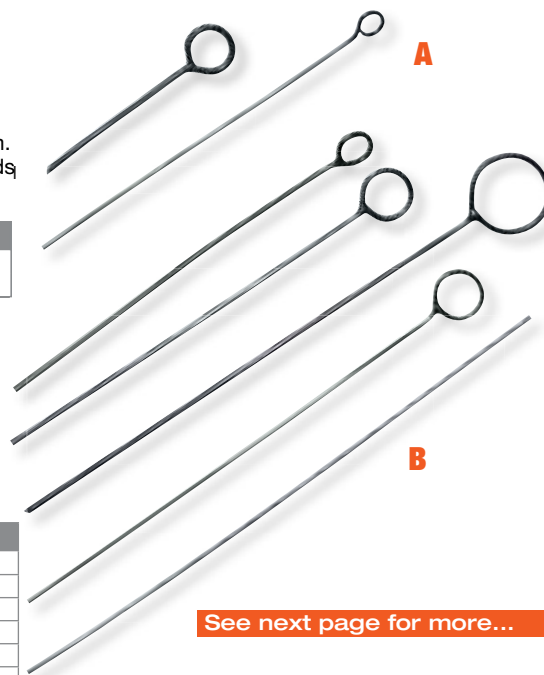
Ideal for milk cultures. The 1- μ L loops are made of B&S platinum wire with 15% iridium. The 10- μ L loops are calibrated to American Public Health Association (APHA) standards and made of B&S platinum wire with 5% rhodium.

| Contained volume | Inside dia | B&S gauge | Length | Catalog number |
|------------------|------------|-----------|--------|--------------------|
| 1 μ L | 1.45 mm | 26 | 70 mm | JB-01850-00 |
| 10 μ L | 4 mm | 19 | 25 mm | JB-01850-02 |

B. Platinum Loops and Needles

Use for transferring bacterial cultures. Loops and needles are made of B&S platinum wire with 15% iridium added for rigidity, permitting a thinner wire for delicate work. Loops are fused to form a "perfect circle" with an inside tolerance of ± 0.02 mm to ensure accurate delivery.

| Description | Inside dia | B&S gauge | Length | Catalog number |
|-------------|------------|--------------------|--------|--------------------|
| Loop | 2 mm | 24 | 45 mm | JB-01850-04 |
| | 3 mm | | | JB-01850-06 |
| | 5 mm | | | JB-01850-08 |
| | 3 mm | JB-01850-10 | | |
| | 3 mm | 26 | | JB-01850-12 |
| Needle | — | — | 70 mm | JB-01850-14 |



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Inoculation Loops and Needles (continued)

C. Inoculating Loops

These loops are manufactured to very close tolerance levels and can be used for semi-quantitative counting of bacteria. Calibrated loops meet APHA standards. Made of 26-gauge wire. Order insulated loop and needle holder for individual loop separately below ("E").

| Description | Loop length | Contained volume | Catalog number |
|-------------------------------------|-------------|------------------|----------------|
| Calibrated inoculating loops | | | |
| No handle | 3" | 1 µL | JB-14203-31 |
| 6" (15.2 cm) insulated handle | 1¾" | 1 µL | JB-14203-25 |
| | | 10 µL | JB-14203-26 |
| Inoculating loops | | | |
| No handle | 2 mm | — | JB-14203-27 |
| | 3 mm | — | JB-14203-28 |
| | 4 mm | — | JB-14203-29 |
| | 5 mm | — | JB-14203-30 |

D. Inoculating Loops and Needles with Handles

Ideal for use in semi-quantitative procedures, these loops and needles are 2¾" (7.0 cm) L with 6" (15.2 cm) or 8" (20.3 cm) handle. The 24 gauge is the most durable; the 25 gauge is for general use; and 26 gauge is designed for rapid cooling. Choose from insulated or noninsulated aluminum handles.

| Description | Inside dia. | Handle length and type | B&S wire gauge | Qty/pk | Catalog number |
|-------------|-------------|----------------------------|----------------|--------|----------------|
| Loop | 2 mm | 8" (20.3 cm), insulated | 26 | 6 | JB-14203-24 |
| | 3 mm | 8" (20.3 cm), insulated | 26 | 6 | JB-14203-23 |
| | 3 mm | 6" (15.2 cm), noninsulated | 24 | 12 | JB-14203-20 |
| | 3 mm | 8" (20.3 cm), noninsulated | 25 | 12 | JB-14203-22 |
| | 4 mm | 8" (20.3 cm), noninsulated | 24 | 12 | JB-14203-21 |
| Needle | — | 6" (15.2 cm), noninsulated | 24 | 12 | JB-14203-32 |
| | — | 8" (20.3 cm), insulated | 24 | 6 | JB-14203-33 |

E. Insulated Brass Loop and Needle Holder

Holder is constructed of durable, heat-resistant brass with insulating sleeve. Works with all gauges of Oxford and Nichrome V loops and needles.

JB-14203-34 Insulated brass holder. Measures 8" (20.3 cm) L

F. Inoculating Needle and Loop

Prevent the risk of cross-contamination with these sterile, disposable needles and loops. Color coded for easy identification. **Box of 960** (32 per bag, 30 bags per box).



| Description | Color | Dimensions | Catalog number |
|-------------|--------|--------------------|----------------|
| Needle | White | 9"L | JB-06231-11 |
| 1 µL loop | Blue | 9"L x 1 mm ID loop | JB-06231-21 |
| 10 µL loop | Yellow | 9"L x 4 mm ID loop | JB-06231-31 |

G. Combination Inoculating Needle/Loop

Flexible polystyrene inoculating device has needle on one end, loop on the other. Color coded for easy identification. **Case of 1000** (20 per bag, 50 bags per case).



| Description | Capacity | Color | Dimensions | Catalog number |
|-------------|----------|-------|---------------------|----------------|
| Needle/loop | 10 µL | Blue | 7¾"L x 4 mm ID loop | JB-14200-00 |
| Needle/loop | 1 µL | Clear | 7¾"L x 1 mm ID loop | JB-14200-01 |

Wait, there's more!

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Microtube Labels

Keep your tubes organized

- Precut, peel-off labels are ideal for microcentrifuge tubes and other laboratory equipment
- Scuff- and smear-resistant

Labels are made of chemically inert polyester that strongly adheres to all plastics and other materials. Withstand steam autoclaving, boiling water baths, freezer temperatures, organic solvents, and caustic agents without peeling or falling off.

Note: Do not apply to moist or siliconised tubes.

Teeny Tough-Tags™ Labels are precut to fit perfectly around 0.2-mL PCR microtubes.

| Color | Label size (W x H) | Qty/rl | Catalog number |
|-------|--|--------|----------------|
| White | 1 ³ / ₁₆ " x 9 ⁹ / ₃₂ " (2.0 x 0.7 cm) | 1500 | JB-62205-20 |

Tough-Tags™ Labels are available in a variety of colors to code your different applications.

| Color | Qty/rl | Small | | Large | |
|-------------------------|--------|-----------------------------|----------------|---------------------------------|----------------|
| | | Size (W x H) | Catalog number | Size (W x H) | Catalog number |
| Clear White Red | 1000 | 1" x 1/2" (2.5 x 1.3 cm) | JB-62205-00 | 1 1/4" x 1/2" (3.2 x 1.3 cm) | JB-62205-10 |
| | | | JB-62205-01 | | JB-62205-11 |
| | | | JB-62205-02 | | JB-62205-12 |
| Yellow Green Blue | 1000 | 1" x 1/2" (2.5 x 1.3 cm) | JB-62205-03 | 1 1/4" x 1/2" (3.2 x 1.3 cm) | JB-62205-13 |
| | | | JB-62205-04 | | JB-62205-14 |
| | | | JB-62205-05 | | JB-62205-15 |



62205-00 through 62205-05

Search

Go to ColeParmer.in

For detailed temperature and application compatibility guide for tags, enter the product Catalog number into the "Search" box, then click on "More info."

Cleanroom Labels

Clean, double bagged, and heat sealed

These polypropylene labels are ESD-safe and virtually free of particulates, leechables, and outgasses. With a service temperature of -20 to 176°F (-29 to 80°C), labels accept ink from cleanroom pens, thermal transfer, or direct thermal printers. Each roll of 1000 labels is wound on a 3" ID polyethylene core.

Compliance:
ISO Class 4



Removable labels leave no adhesive residue

| Adhesive | Dimensions (W x H) | Thickness | Catalog number |
|-----------|------------------------|---------------|----------------|
| Removable | 2" x 2" (5.1 x 5.1 cm) | 3.0 mil ±0.03 | JB-86375-10 |
| | 3" x 2" (7.6 x 5.1 cm) | | JB-86375-15 |

Industrial Marker

Resists most chemicals, steam, and heat

- Permanent black ink
- Stands heat up to 500°F (260°C)

| Tip | Qty/pk | Catalog number |
|------|--------|----------------|
| Fine | 12 | JB-09969-00 |



Cole-Parmer® Lab Markers

Won't bleed

- Write on cold, wet surfaces
- Permanent on plastic; washes off glass, metal, and porcelain

 Cole-Parmer®

| Color | Qty/pk | Catalog number |
|-------|--------|----------------|
| Black | 10 | JB-09964-00 |
| Blue | 10 | JB-09964-10 |
| Green | 10 | JB-09964-15 |
| Red | 10 | JB-09964-20 |



Permanent Paint Markers

Will not dry out

- Unique tip design eliminates drying out
- Writes on any surface

| Color | Qty/pk | Catalog number |
|--------|--------|----------------|
| Blue | 12 | JB-09964-60 |
| Black | | JB-09964-61 |
| White | | JB-09964-62 |
| Yellow | 12 | JB-09964-63 |
| Orange | | JB-09964-64 |
| Red | | JB-09964-65 |
| Green | | JB-09964-66 |



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Polystyrene Slide Holders

Protect your slides

Safeguard your 75 x 25 mm microscope slides with these compact, durable holders. Both are foam lined with numbered indexes on cover and bottom for easy identification. Cover and bottom are grooved for secure stacking.



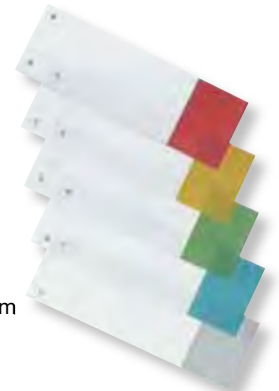
| Color | 25-slide holders | 100-slide holders |
|-------|--------------------|--------------------|
| | Catalog number | Catalog number |
| White | JB-48581-10 | JB-48580-10 |
| Blue | JB-48581-12 | JB-48580-12 |

Superfrost® Plus and Colorfrost® Plus Adhesion Slides

Eliminate tissue loss

- No need for adhesives—tissue sections and cells electrostatically adhere to the glass
- Ideal for frozen sections

White Superfrost slides provide a chemically resistant marking surface. Colored marking surfaces of Colorfrost slides ensure easy labeling and identification. Slides measure 75 x 25 mm and are 1-mm thick. Available in one gross (144 slides).



| Description | Color | Catalog number |
|-----------------|--------|--------------------|
| Superfrost Plus | White | JB-48512-00 |
| Colorfrost Plus | Blue | JB-48512-02 |
| Colorfrost Plus | Green | JB-48512-04 |
| Colorfrost Plus | Yellow | JB-48512-06 |
| Colorfrost Plus | Pink | JB-48512-08 |

Slide Tray and Cover

Catalog and identify slides easily

- Store and protect up to one hundred 75 x 25 mm slides
- Tray measures 14¼"L x 1½"W x 3⅞"H (36.2 x 3.8 x 9.8 cm)



| Description | Capacity | Catalog number |
|----------------------|----------|--------------------|
| Slide tray | 100 | JB-48580-25 |
| Cover for slide tray | — | JB-48580-30 |

Plastic Cover Slips

Save money

- Unbreakable and reusable
- Cover slips are square and made from flexible vinyl
- Packaged as a box of 1000, divided into 10 boxes of 100 covers each



| Size | Thickness | Qty/pk | Catalog number |
|-------------------|-------------------|--------|--------------------|
| Square 22 x 22 mm | 0.007" (0.157 mm) | 1000 | JB-48510-20 |

Immersion Oil

Type A immersion oil has a viscosity of 150 cSt and a refractive index of 1.5239. Use with compound microscopes that have a 100x immersion objective.



| Quantity | Catalog number |
|----------|--------------------|
| 15 mL | JB-48401-95 |

Cole-Parmer® Slides

Won't stick or scratch

- Easy to write on
- Measure 75 x 25 mm and 1-mm thick



| Type | Qty/pk | Cat. no. | Qty/pk | Cat. no. |
|-----------------|--------------|--------------------|------------|--------------------|
| Plain | One | JB-48500-00 | One | JB-48500-20 |
| Frosted | gross | JB-48501-00 | case | JB-48501-20 |
| Pink Colorfrost | (144 slides) | JB-48503-02 | (10 gross) | JB-48503-22 |

Clipped-Corner Slides

Easily keep sample from edge

- Easy to write on
- Slides are 75 x 25 mm and 1-mm thick



| Description | Qty/pk | Catalog number |
|-------------|------------------------|--------------------|
| Plain | One gross (144 slides) | JB-48520-01 |
| Frosted | | JB-48520-03 |
| Superfrost | | JB-48520-05 |

Cole-Parmer® Cover Glass

Protect samples

- Choose from two thicknesses: no. 1 (0.13 to 0.17 mm) or no. 1.5 (0.16 to 0.19 mm)



| Size | Thickness | Approx pcs/bx | Cat. no. |
|--------------------------|-----------|---------------|--------------------|
| Square (22 x 22 mm) | No. 1 | 156 | JB-48510-00 |
| | No. 1.5 | 138 | JB-48510-10 |
| Rectangular (22 x 40 mm) | No. 1 | 87 | JB-48511-00 |
| | No. 1.5 | 76 | JB-48511-10 |
| Rectangular (24 x 60 mm) | No. 1 | 54 | JB-48511-30 |

Lab Spatulas, 304 SS

Eliminate sticking samples

- PTFE-coated for better chemical compatibility and no sticking samples
- FDA compliant for food-contact applications
- Stainless steel rod with one flat, rounded end; ends are 5/8"W x 2"L



| One end is | Overall length | | Qty/ pk | Catalog number |
|------------------------------------|----------------|------|------------|--------------------|
| | in. | cm | | |
| A. Tapered to 1/4" (6.3 mm) | 8 3/4 | 21 | 2 | JB-01019-16 |
| B. Tapered to 1/2" (0.8 mm) | 7 1/4 | 18.4 | 2 | JB-01019-20 |
| C. Squared | 7 1/4 | 18.4 | 2 | JB-01019-18 |

PTFE-Coated Lab Spatulas, Nickel-Plated Stainless Steel

Handle samples easier

- Prevent build-up with PTFE coating
- Won't scratch or mar delicate surfaces



| Description | Length | | Qty/ pk | Catalog number |
|-----------------------------|--------|------|------------|---------------------|
| | in. | cm | | |
| A. Spooned / rounded | 6 1/4 | 15.9 | 1 | JB-06369-10† |
| B. Tapered / rounded | 7 7/8 | 20.0 | 1 | JB-06369-11 |

†Hayman type end

Disposable Spatulas, PP

Reduce cross-contamination

- Each spatula has scoop and spatula ends for better sampling
- Flexible design will not shatter even if exposed to liquid nitrogen
- Autoclavable



STERILE

| Description | Overall length | | Qty/pk | Catalog number |
|------------------------------|----------------|------|--------|--------------------|
| | in. | cm | | |
| A. Blue | 8 3/4 | 22.2 | 300 | JB-06265-18 |
| B. Opaque | 8 3/4 | 22.2 | 300 | JB-06265-12 |
| C. Opaque, antistatic | 5 1/2 | 14.0 | 300 | JB-06265-14 |
| D. Green, large | 12 1/4 | 31.1 | 150 | JB-06265-16 |
| E. Opaque, sterile | 8 3/4 | 22.2 | 100 | JB-06265-20 |

Lab Spatulas, Nickel/Stainless Steel

Get precise sampling of powders or salts

- Easy-to-clean finish
- Choose the right end style for your needs



| End styles | Overall length | | Qty/ pk | Catalog number |
|---------------------------------------|----------------|------|------------|---------------------|
| | in. | cm | | |
| A. Spooned†/flat | 5 3/4 | 14.6 | 3 | JB-06369-09† |
| B. V-shaped/sharpened bent tip | 6 1/4 | 15.9 | 3 | JB-06369-08 |
| C. Spooned†/plastisol handle | 6 1/2 | 16.5 | 3 | JB-06369-03† |
| D. Tapered/rounded | 8 | 20.3 | 3 | JB-06369-06 |
| E. Rounded/rounded | 8 1/4 | 21.0 | 3 | JB-06369-05 |
| F. Tapered/rounded | 7 7/8 | 18.1 | 3 | JB-06369-07 |
| G. Squared/rounded | 7 1/2 | 19.1 | 3 | JB-06369-18 |
| H. Spooned/squared | 8 7/8 | 22.5 | 3 | JB-06369-16 |

†Hayman type end

Single-Use Sterile Spatulas, PS

Save time—no more sterilizing

- Individually sterilized and packaged—gamma irradiated with no Eto residues
- Nontoxic and chemical resistant
- Meet USP Class VI requirements



STERILE

| Description | Overall length | | Qty/ cs | Catalog number |
|-------------------------------|----------------|------|------------|--------------------|
| | in. | cm | | |
| A. Tapered blade/spoon | 9 1/16 | 24.6 | 100 | JB-06265-00 |
| B. Small spoon/spoon | 9 1/16 | 24.6 | 100 | JB-06265-02 |
| C. Round end/spoon | 9 1/16 | 24.6 | 100 | JB-06265-04 |
| D. V-scoop/spoon | 9 1/16 | 24.6 | 100 | JB-06265-06 |
| E. Flat-end/spoon | 9 1/16 | 24.6 | 100 | JB-06265-08 |

Spatulas, PP

No more bent spatulas

- Spatulas retain original shape even after flexing
- Get excellent chemical and heat resistance
- Autoclavable



| Overall length | | Qty/ pk | Catalog number |
|----------------|------|------------|--------------------|
| in. | cm | | |
| 4 1/2 | 11.4 | 10 | JB-06283-10 |
| 6 1/2 | 16.5 | 12 | JB-06283-20 |
| 8 | 20.3 | 12 | JB-06283-30 |

Argos Technologies® Sterile Sampling Scoops, PS

Comfortable, curved handle

- Flat bottom surface helps prevent spillage
- Sterilized by gamma irradiation and packaged individually in sealed easy-open bags



NEW

STERILE

| Capacity mL (oz) | Size (L x W) | | Handle length | | Qty/cs | Catalog number |
|------------------|--------------|------|---------------|------|--------|----------------|
| | in. | cm | in. | cm | | |
| 60 (2) | 3 | 20.3 | 5 | 12.7 | 100 | JB-06260-01 |
| 120 (4) | 3½ | 22.9 | 5 | 12.7 | 100 | JB-06260-02 |

Cole-Parmer® Scoops, ss

Won't corrode—ideal for food-grade sampling

- Choose 304 stainless steel for higher corrosion resistance



| Capacity mL (oz) | Scoop (L x dia) | Qty/pk | Catalog number |
|-----------------------------------|----------------------------|--------|----------------|
| 201 Stainless steel scoops | | | |
| 175 (5.5) | 5½" x 3" (14 x 7.6 cm) | 1 | JB-07205-01 |
| 1550 (52) | 10" x 5¾" (25.4 x 14.6 cm) | 1 | JB-07205-03† |
| 304 Stainless steel scoop | | | |
| 1550 (52) | 7½" x 5¼" (18.1 x 13.3 cm) | 1 | JB-07210-00 |

†Model 07205-03 has a hook on the end for convenient storage.

Scienceware® Sterile Sampling Spoons, PS

Stop washing spoons

- Individually sterilized and bagged in a polyethylene bag
- Ideal for single use



STERILE

| Capacity | Handle length | Qty/cs | Catalog number |
|------------------|---------------|--------|----------------|
| ¼ tsp (1.2 mL) | 6⅛" (15.5 cm) | 200 | JB-06263-10 |
| ½ tsp (2.5 mL) | 5⅞" (14.9 cm) | 200 | JB-06263-20 |
| 1 tsp (4.9 mL) | 5½" (14.0 cm) | 200 | JB-06263-30 |
| 1 tbsp (14.8 mL) | 5¼" (13.3 cm) | 200 | JB-06263-40 |

Cole-Parmer® Double-Ended Spoon Set, 304 ss

Sample from both ends

- Minimize discomfort—solid rounded shafts for more comfortable handling

Set contains three spoons: a 5⅞" (14.9 cm) long spoon with 0.5 mL and 2.0 mL bowls, an 8¼" (21 cm) long spoon with 1.6 mL and 5.0 mL bowls, and an 11⅞" (30.2 cm) long spoon with 2.0 mL and 8.0 mL bowls.

Set contains three spoon sizes



| Qty/set | Catalog number |
|--------------|----------------|
| Three spoons | JB-06261-00 |

Scienceware® Sterile Sampling Scoops, PS

No need to presterilize

- Come sterilized in individual polyethylene bags
- Ideal for single use



STERILE

| Capacity mL (oz) | Scoop (L x W) | | Handle length | | Qty/cs | Catalog number |
|------------------|---------------|-----------|---------------|------|--------|----------------|
| | in. | cm | in. | cm | | |
| 60 (2) | 3 x 1 | 7.6 x 2.5 | 4 | 10.2 | 100 | JB-06260-10 |
| 120 (4) | 3½ x 1 | 8.9 x 2.5 | | | | JB-06260-20 |

Autoclavable Scoops, PP

Eliminate contamination risks

- Autoclavable at 250°F (121°C) to maintain sample integrity
- Rigid, strong design stands up to your needs



| Capacity mL (oz) | Scoop (L x W) | | Qty/pk | Catalog number |
|------------------|---------------|-------------|--------|----------------|
| | in. | cm | | |
| 22 (¾) | 2⅞ x 1⅞ | 6.0 x 2.9 | 12 | JB-06275-15 |
| 60 (2) | 3 x 1½ | 7.6 x 3.8 | 12 | JB-06275-16 |
| 75 (2½) | 3½ x 1½ | 8.9 x 3.8 | 12 | JB-06275-17 |
| 100 (3½) | 3⅞ x 1⅞ | 9.2 x 4.8 | 12 | JB-06275-18 |
| 200 (6¾) | 5 x 2 | 12.7 x 5.1 | 12 | JB-06275-19 |
| 1100 (37) | 8 x 4¾ | 20.3 x 12.1 | 6 | JB-06275-20 |

Cole-Parmer® Write-On Colored Tape and Dispenser

Easily identify samples by color-coding

- Withstands water, oil, and acid
- Easy-write surface accommodates pencil, pen, or permanent marker
- Use in temperatures from -10 to 250°F (-23 to 121°C)
- Optional dispenser for easier tearing



Array of colors and sizes fit conveniently in optional dispenser 06530-11



| Color | Size | RI/pk | Catalog number | Size | RI/pk | Catalog number | Size | RI/pk | Catalog number |
|----------------|-----------------------------------|-------|----------------|-----------------------------------|-------|----------------|-----------------------------------|-------|----------------|
| White | ½" (1.3 cm) W x 14 yd (13 m) L | 6 | JB-06530-21 | ¾" (1.9 cm) W x 14 yd (13 m) L | 4 | JB-06530-31 | 1" (2.5 cm) W x 14 yd (13 m) L | 3 | JB-06530-41 |
| Yellow | | 6 | JB-06530-22 | | 4 | JB-06530-32 | | 3 | JB-06530-42 |
| Green | | 6 | JB-06530-23 | | 4 | JB-06530-33 | | 3 | JB-06530-43 |
| Pink | | 6 | JB-06530-24 | | 4 | JB-06530-34 | | 3 | JB-06530-44 |
| Red | | 6 | JB-06530-25 | | 4 | JB-06530-35 | | 3 | JB-06530-45 |
| Orange | | 6 | JB-06530-26 | | 4 | JB-06530-36 | | 3 | JB-06530-46 |
| Blue | | 6 | JB-06530-27 | | 4 | JB-06530-37 | | 3 | JB-06530-47 |
| Assorted pack† | | 24 | JB-06530-28 | | 16 | JB-06530-38 | | 12 | JB-06530-48 |

†Assorted pack contains each color above.

JB-06530-11 Tape dispenser

Hi-Lo Temperature Fiberglass Tape

Don't worry about temperature

- Ideal for extreme temperature use—withstands temperatures from -385 to 550°F (-232 to 288°C)
- Easily write on textured surface



Cole-Parmer® Color-Coded Adhesive Tape and Dispenser

No scuffing—adheres to most surfaces

- Easily identify labware, pipes, or wiring
- Optional dispenser provides easy tearing of tape



| Color | Size | Catalog number | Size | Catalog number |
|--------|-----------------------------------|----------------|-----------------------------------|----------------|
| White | ¾" (1.9 cm) W x 36 yd (33 m) L | JB-86209-30 | 1" (2.5 cm) W x 36 yd (33 m) L | JB-86209-40 |
| Yellow | | JB-86209-31 | | JB-86209-41 |
| Orange | | JB-86209-32 | | JB-86209-42 |
| Red | | JB-86209-33 | | JB-86209-43 |
| Green | | JB-86209-34 | | JB-86209-44 |
| Blue | | JB-86209-35 | | JB-86209-45 |
| Black | | JB-86209-37 | | JB-86209-47 |

JB-08278-26 Multiple roll dispenser, acrylic. For tapes on a 3" (7.6 cm) dia core

Autoclave Tape

Know your labware is autoclaved

- Dark-colored diagonal mark revealed after autoclaving at 250°F (121°C) for 15 minutes
- Sticks to glass, cloth, or metal
- Leaves no residue



Kapton® Polyimide Tape

Stands up to heat and chemicals

- Silicone adhesive withstands temperatures from -100 to 500°F (-73 to 260°C)
- High tensile strength, good solvent resistance, and excellent dielectric strength for more flexibility
- Meets UL-510 for flame retardant specifications



| Width | Thickness | Length/roll | Catalog number |
|--------------|-----------|----------------|----------------|
| ⅛" (0.3 cm) | 2.5 mil | 36 ft (10.9 m) | JB-08277-78 |
| ¼" (0.6 cm) | | | JB-08277-79 |
| ½" (1.3 cm) | | | JB-08277-80 |
| ¾" (1.9 cm) | 2.5 mil | 36 ft (10.9 m) | JB-08277-81 |
| 1" (2.5 cm) | | | JB-08277-82 |
| 1½" (3.8 cm) | | | JB-08277-83 |

| Width | Length/roll | Catalog number |
|-------------|---------------|----------------|
| ½" (1.3 cm) | 25 ft (7.6 m) | JB-08277-50 |
| 1" (2.5 cm) | | JB-08277-55 |

| Width | Length/roll | Catalog number |
|-------------|--------------|----------------|
| 1" (2.5 cm) | 41 ft (12 m) | JB-08277-62 |

Every Drop Counts!

Pharmaceutical Liquid Handling Solutions from Cole-Parmer

Giving you data confidence throughout the drug discovery, testing and production processes

- No more loss of expensive media and no more compromise on comfort for accuracy, when you use Cole-Parmer liquid handling products
- Increase efficiency and productivity with the widest range for smooth dispensing and precise filling
- A perfect blend of cutting-edge engineering and innovation to deliver highly reproducible results with exceptional comfort



Cole-Parmer Micro-Volume Pipettors (Manual) & Tips

Ergonomic design, light & smooth pipetting, fully autoclavable, UV resistant, superior accuracy and 3-yr warranty; compatible with most tips

See pages 31–32



Cole-Parmer Bottletop Dispensers

Eliminate the loss of expensive reagents and media masses. Use these dispensers to ensure safe, precise and trouble-free dispensing.

See page 34



Cole-Parmer Electronic Pipettors

Combines the control and lightweight features of a manual pipette and adds significantly higher throughput, precision and enhanced comfort.

See page 31



Omega Zen™ Pipette Controllers

Combine single-handed pipetting with fast, precise filling and dispensing. Quick and quiet pump fills a 10-mL pipette in 1.3 seconds.

See page 33



Need a demo?
Get one today!

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Cole-Parmer® Pipettors

Fully autoclavable with enhanced UV resistance

- Ergonomic, comfortable, and light weight with superior accuracy and design
- Soft grip gives ease of operation and reduces fatigue
- Sturdy PVDF tip cone offers a high resistance against chemicals
- Blow-out system prevents critical sample loss
- Reverse pipetting option ensures precise dispensing of viscous liquids
- Calibration stability guarantees accuracy of dispense volume even after multiple autoclaving and pipetting cycles
- Meet DIN EN ISO 8655 standard



Specifications

Calibration: user
Tip ejector: yes
Autoclavable: yes, fully



Cole-Parmer® Electronic Pipettors



Three-point auto-calibration provides uncompromised precision

- Graphical interface reduces the learning curve and makes it very easy to use
- Extremely lightweight—for effortless and pain-free pipetting even after extensive use
- Stores and recalls the three most frequently used modes
- Intelligent sleep mode enhances battery run-time by more than 40%
- Efficient battery delivers 5 hours of continuous use after a 2-hour charge

Cole-Parmer electronic pipette has been developed for a truly effortless and intuitive pipetting experience. Its unique ergonomic design allows for hours of continuous pipetting without any pain. Five different pipetting modes include forward pipetting, reverse pipetting, multi-dispensing, dilution, and mixing. Flexible charging—via the USB charger or optional charging stand for overnight charging.

What's included: Li-ion battery, USB charger, grease, and calibration report supplied by manufacturer.



Pipettor 16344-78 shown on charging stand 16344-81

Specifications

Tip ejector: yes
Autoclavable: lower part



| Volume (µL) | Increments (µL) | Accuracy (±) % | Precision (±) % | Catalog number |
|--|-----------------|----------------|-----------------|--------------------|
| A100-series variable-volume pipettors | | | | |
| 0.1 to 2.5 | 0.1 | 2.5 | 1.60 | JB-15970-60 |
| 0.5 to 10 | 0.1 | 1.0 | 0.80 | JB-15970-61 |
| 5 to 50 | 0.5 | 0.6 | 0.30 | JB-15970-62 |
| 10 to 100 | 1 | 0.8 | 0.15 | JB-15970-63 |
| 20 to 200 | 1 | 0.6 | 0.15 | JB-15970-64 |
| 100 to 1000 | 5 | 0.6 | 0.20 | JB-15970-65 |
| 500 to 5000 | 50 | 0.5 | 0.15 | JB-15970-66 |
| 2000 to 10000 | 100 | 0.6 | 0.20 | JB-15970-67 |
| A200-series fixed-volume pipettors | | | | |
| 5 | — | 1.3 | 1.20 | JB-15970-68 |
| 10 | — | 0.8 | 0.80 | JB-15970-69 |
| 50 | — | 0.5 | 0.30 | JB-15970-70 |
| 100 | — | 0.5 | 0.30 | JB-15970-71 |
| 500 | — | 0.3 | 0.20 | JB-15970-72 |
| 1000 | — | 0.3 | 0.20 | JB-15970-73 |
| 5000 | — | 0.3 | 0.15 | JB-15970-74 |
| 10000 | — | 0.6 | 0.20 | JB-15970-75 |
| A300-series 8-channel pipettors | | | | |
| 0.5 to 10 | 0.1 | 1.5 | 1.50 | JB-15970-76 |
| 5 to 50 | 0.5 | 1.0 | 0.70 | JB-15970-77 |
| 30 to 300 | 1 | 0.8 | 0.25 | JB-15970-78 |
| A300-series 12-channel pipettors | | | | |
| 0.5 to 10 | 0.1 | 1.5 | 1.50 | JB-15970-79 |
| 5 to 50 | 0.5 | 1.0 | 0.70 | JB-15970-80 |
| 30 to 300 | 1 | 0.8 | 0.25 | JB-15970-81 |

Accessories

JB-15977-68 Pipettor stand, holds six pipettors

| Volume (µL) | Increments (µL) | Accuracy | | Precision | | Catalog number |
|---------------------------------|-----------------|----------|--------|-----------|--------|--------------------|
| | | (±) % | (±) µL | (±) % | (±) µL | |
| Single-channel pipettors | | | | | | |
| 0.5 to 10 | 0.01 | 1 | 0.1 | 0.6 | 0.06 | JB-16344-66 |
| 5 to 100 | 0.1 | 0.8 | 0.8 | 0.2 | 0.2 | JB-16344-67 |
| 10 to 200 | 0.1 | 0.6 | 1.2 | 0.2 | 0.4 | JB-16344-68 |
| 50 to 1000 | 1 | 0.6 | 6 | 0.2 | 2 | JB-16344-69 |
| 250 to 5000 | 5 | 0.6 | 30 | 0.2 | 10 | JB-16344-70 |
| 8-channel pipettors | | | | | | |
| 0.5 to 10 | 0.01 | 2 | 0.2 | 1 | 0.1 | JB-16344-71 |
| 2 to 20 | 0.01 | 2 | 0.4 | 1.6 | 0.32 | JB-16344-72 |
| 5 to 100 | 0.1 | 0.8 | 0.8 | 0.3 | 0.3 | JB-16344-73 |
| 10 to 200 | 0.1 | 0.7 | 1.4 | 0.25 | 0.5 | JB-16344-74 |
| 15 to 300 | 0.1 | 0.6 | 1.8 | 0.3 | 0.9 | JB-16344-75 |
| 12-channel pipettors | | | | | | |
| 0.5 to 10 | 0.01 | 2 | 0.2 | 1 | 0.1 | JB-16344-76 |
| 2 to 20 | 0.01 | 2 | 0.4 | 1.6 | 0.32 | JB-16344-77 |
| 5 to 100 | 0.1 | 0.8 | 0.8 | 0.3 | 0.3 | JB-16344-78 |
| 10 to 200 | 0.1 | 0.7 | 1.4 | 0.25 | 0.5 | JB-16344-79 |
| 15 to 300 | 0.1 | 0.6 | 1.8 | 0.3 | 0.9 | JB-16344-80 |

Accessories

JB-16344-81 Charging stand; 240 VAC, 50/60 Hz

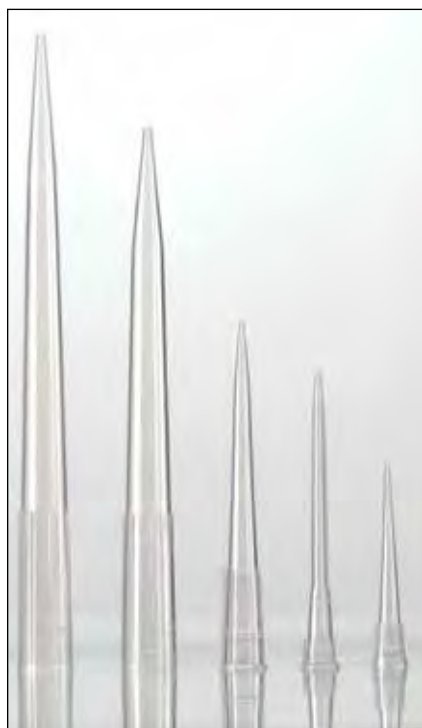
JB-16344-82 Acrylic stand holds one pipettor

Cole-Parmer® Pipette Tips

Compatible with a wide range of pipettors

NEW

- FDA-compliant special medical-grade virgin polypropylene with high transparency
- Sterile tips are free of DNase, RNase, human DNA, and pyrogens
- Tips load and eject easily for reduced hand fatigue
- Nonfilter graduated tips offer a universal fit
- Filter tips prevent carry-over contamination from one sample to other
- Low retention tips allow minimum sample retention and thus help in increasing productivity
- Individually wrapped tips with less than 0.03 EU/mL offer great sterility for critical applications like IVF and microbiology



Nonfilter Tips

| Volume | Sterile | Low retention | Packaging | Qty/cs | Catalog number |
|------------------------------|---------|---------------|--------------|--|--------------------|
| 10 µL | No | No | Bulk | 1000/bg, 40 bg/cs (40000 tips total) | JB-15970-86 |
| | | | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15970-87 |
| | Yes | No | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15970-88 |
| | | | Bulk | 1000/bg, 40 bg/cs (40000 tips total) | JB-15977-47 |
| 10 µL narrow/ 20 µL total | No | No | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15977-48 |
| | | | Bulk | 1000/bg, 40 bg/cs (40000 tips total) | JB-15970-90 |
| | Yes | No | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15970-91 |
| | | | Bulk | 1000/bg, 40 bg/cs (40000 tips total) | JB-15970-92 |
| 200 µL | No | No | Bulk | 1000/bg, 20 bg/cs (20000 tips total) | JB-15977-50 |
| | | | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15977-51 |
| | Yes | No | Bulk | 1000/bg, 20 bg/cs (20000 tips total) | JB-15977-52 |
| | | | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15977-53 |
| 1000 µL | No | No | Bulk | 1000/bg, 10 bg/cs (10000 tips total) | JB-15970-94 |
| | | | Bulk, yellow | 1000/bg, 20 bg/cs (20000 tips total) | JB-15977-45 |
| | Yes | No | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15970-95 |
| | | | Bulk | 1000/bg, 20 bg/cs (20000 tips total) | JB-15970-96 |
| 1250 µL | No | No | Bulk | 1000/bg, 10 bg/cs (10000 tips total) | JB-15977-54 |
| | | | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15970-98 |
| | Yes | No | Bulk | 1000/bg, 10 bg/cs (10000 tips total) | JB-15977-46 |
| | | | Racked | 6 x 96/pk, 10 pk/cs (5760 tips total) | JB-15970-99 |
| 5000 µL | No | No | Bulk | 1000/bg, 10 bg/cs (10000 tips total) | JB-15977-56 |
| | | | Racked | 6 x 96/pk, 10 pk/cs (5760 tips total) | JB-15977-57 |
| | Yes | No | Bulk | 500/bg, 10 bg/cs (5000 tips total) | JB-15971-02 |
| | | | Racked | 6 x 96/pk, 10 pk/cs (5760 tips total) | JB-15971-03 |
| 10000 µL | No | No | Bulk | 500/bg, 10 bg/cs (5000 tips total) | JB-15971-04 |
| | | | Racked | 6 x 96/pk, 10 pk/cs (5760 tips total) | JB-15971-05 |
| 10000 µL | No | No | Bulk | 100/bg, 10 bg/cs (1000 tips total) | JB-15977-60 |
| | | | Bulk | 100/bg, 10 bg/cs (1000 tips total) | JB-15977-61 |

Filter Tips

| Volume | Sterile | Low retention | Packaging | Qty/cs | Catalog number |
|------------------------------|---------|---------------|-----------|--|--------------------|
| 10 µL | Yes | No | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15977-49 |
| | | Yes | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15970-89 |
| 10 µL narrow/ 20 µL total | Yes | No | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15977-52 |
| | | Yes | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15970-93 |
| 200 µL | Yes | No | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15977-55 |
| | | Yes | Racked | 10 x 96/pk, 10 pk/cs (9600 tips total) | JB-15970-97 |
| 1000 µL | Yes | No | Racked | 6 x 96/pk, 10 pk/cs (5760 tips total) | JB-15977-58 |
| | | Yes | Racked | 6 x 96/pk, 10 pk/cs (5760 tips total) | JB-15971-01 |
| 1250 µL | Yes | No | Racked | 6 x 96/pk, 10 pk/cs (5760 tips total) | JB-15977-59 |

Individually Wrapped Sterile Tips

| Volume | Sterile | Low retention | Qty/cs | Catalog number |
|---------|---------|---------------|-----------------------------------|--------------------|
| 200 µL | Yes | No | 400/bx, 5 bx/cs (2000 tips total) | JB-15977-66 |
| 1000 µL | Yes | No | 200/bx, 5 bx/cs (1000 tips total) | JB-15977-67 |

Empty Racks for Tips

| Volume | Qty/cs | Catalog number |
|---------|-----------------------------------|--------------------|
| 10 µL | 10 racks/pk, 10 pk/cs (100 total) | JB-15977-62 |
| 200 µL | 10 racks/pk, 10 pk/cs (100 total) | JB-15977-63 |
| 1000 µL | 6 racks/pk, 10 pk/cs (60 total) | JB-15977-64 |
| 1250 µL | 6 racks/pk, 10 pk/cs (60 total) | JB-15977-65 |

Get the confidence.

Request **FREE** samples* today!

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*T&C apply



Argos Technologies® Omega Zen™ Pipette Controllers

Exceptional control in an ergonomic design

- Easily fine-tune pipetting speed with thumbwheel control and speedometer display
- Accepts glass or plastic serological pipettes, from 1 to 100 mL
- Durable, UV-resistant plastic housing is ideal for use in cleanrooms and fume hoods
- Maintain sterility with removable nosepiece autoclavable at 121°C

Portable, lightweight pipette controller features rounded design with contoured buttons to help prevent hand fatigue after hours of use. Eight speeds from drip dispense to 8.3 mL/second allow for precision and versatility while pipetting. Gravity mode is nonmotorized drop dispensing, in which the speed of the drops being dispensed can be controlled by the dispense trigger.

What's Included: two 0.45 µm sterile filters (one installed), wall-mount holder, rechargeable Li-ion battery, charging desk stand, and 100–240 VAC, 50/60 Hz adapter.

| Housing color | Catalog number |
|---------------|----------------|
| Blue | JB-25300-96 |
| Purple | JB-25300-97 |
| Steel gray | JB-25300-98 |

NEW



Easy-to-read LCD indicates aspirate/dispense speed, gravity mode, and battery charge

Argos
TECHNOLOGIES

Pipettes & Tips

Cole-Parmer® Transfer Pipettes

No more breakage or cross-contamination

- Translucent, shatterproof LDPE is nontoxic and biologically inert
- Nonbinding for cells and proteins to prevent sample loss
- Heat sealable and liquid nitrogen compatible



Cole-Parmer®

| Key | Description | Graduations | | Bulb Draw (µL) | Total capacity | Drops per mL | Length in. (mm) | Qty/pk | Catalog number |
|----------|------------------------------|-------------|---------|----------------|----------------|--------------|-----------------|--------|----------------|
| | | Increments | Maximum | | | | | | |
| A | Exact volume | — | — | 0.25 µL | 0.25 mL | 23 | 4.1 (102) | 500 | JB-06226-07 |
| B | Mini, short stem | — | — | 0.9 µL | 1.2 mL | 25 | 2.5 (6.4) | 500 | JB-06226-30 |
| | | — | — | 0.9 µL | 1.7 mL | 25 | 3.4 (87) | 500 | JB-06226-21 |
| C | Short narrow stem | — | — | 3 µL | 4 mL | 25 | 3.4 (86) | 500 | JB-06226-27 |
| D | Long narrow stem | — | — | 3.3 µL | 4 mL | 22 | 6.125 (155) | 500 | JB-06226-28 |
| E | Large bulb narrow stem | — | — | 8 µL | 15 mL | 19 | 6.125 (155) | 250 | JB-06226-32 |
| F | General purpose | — | — | 1.9 µL | 5 mL | 25 | 6.125 (155) | 500 | JB-06226-25 |
| | | — | — | 3.2 µL | 7.5 mL | 20 | 6.125 (155) | 500 | JB-06226-11 |
| | | — | — | 3.2 µL | 7.5 mL | 20 | 6.125 (155) | 500 | JB-06226-31 |
| | | — | — | 1 mL | 1.5 mL | 50 | 4.1 (104) | 500 | JB-06226-34 |
| G | Small bulb, graduated | — | — | 3.3 mL | 5.8 mL | 50 | 6.18 (157) | 500 | JB-06226-33 |
| | | — | — | 4.6 µL | 8 mL | 20 | 5.875 (152) | 400 | JB-06226-17 |
| | | 0.1 mL | 0.3 mL | 0.8 µL | 1.5 mL | 21 | 4.6 (116) | 500 | JB-06226-13 |
| | | 0.5 mL | 2 mL | 1.9 µL | 5 mL | 25 | 6.125 (155) | 500 | JB-06226-03 |
| H | Large bulb, graduated | 0.25 mL | 1 mL | 2.1 µL | 3 mL | 25 | 5.4 (138) | 500 | JB-06226-23 |
| | | 0.25 mL | 1 mL | 2.1 µL | 3 mL | 25 | 5.5 (140) | 500 | JB-06226-29 |
| | | 0.25 mL | 1 mL | 3.4 µL | 5 mL | 25 | 6.125 (155) | 500 | JB-06226-12 |
| | | 1.0 mL | 2 mL | 3 µL | 6.7 mL | 25 | 5.9 (152) | 500 | JB-06226-26 |
| | | 0.5 mL | 3 mL | 3.2 µL | 7.5 mL | 20 | 6.125 (155) | 500 | JB-06226-01 |
| | | 0.25 mL | 1 mL | 3.4 µL | 5 mL | 25 | 6.125 (155) | 500 | JB-06226-15 |
| I | Large bulb, double graduated | 0.25 mL | 1 mL | 3.4 µL | 5 mL | 25 | 6.125 (155) | 500 | JB-06226-19 |
| J | General purpose, wide bulb | — | — | — | 7 mL | — | 5 (125) | 500 | JB-06226-35 |
| K | General purpose, extra long | — | — | 2.3 µL | 6 mL | 25 | 9 (230) | 500 | JB-06226-22 |
| | | — | — | 7.3 µL | 23 mL | 20 | 12 (300) | 100 | JB-06226-24 |

Cole-Parmer® Electronic Burette

NEW

Better accuracy with digital motor-controlled filling and dispensing

- User-friendly, TFT touch screen-controller lets you perform quick and accurate titrations
- Motor-controlled piston movement helps in eliminating errors
- Three preset dispensing speeds to achieve accurate end points
- Conforms to ISO 8655 standards and GLP compliant

Accuracy of Cole-Parmer E-burette is $\pm 0.2\%$ and able to perform precise titrations within the error limits of "Class A" glass burettes. Controller can store up to 20 results in the memory. Computer connectivity is available through a micro-USB cable for transferring and recording data. Rechargeable, long-life, replaceable batteries are provided in the control panel. Amber-colored window is provided as an accessory for those chemicals/reagents that are sensitive to light.

What's included: E-burette, controller, amber window, telescopic tube, adapter set (28, 32, 36, 40, 45 mm), USB drive for software and driver, mini-USB cable, stylus, Li-ion rechargeable batteries, 230 VAC charging adapter, and calibration certificate.

Cole-Parmer®

Get enhanced functionality with the robust controller and user-friendly touch screen.



| Capacity | Increments | Accuracy | | Power (VAC, Hz) | Catalog number |
|----------|------------|----------|----------------|-----------------|--------------------|
| | | $\pm\%$ | $\pm\text{mL}$ | | |
| 10 mL | 0.005 mL | 0.2 | 0.02 | 230, 50 | JB-15977-89 |
| 25 mL | 0.01 mL | 0.2 | 0.05 | 230, 50 | JB-15977-90 |
| 50 mL | 0.01 mL | 0.2 | 0.1 | 230, 50 | JB-15977-91 |

Cole-Parmer® Burettetop Dispensers

NEW

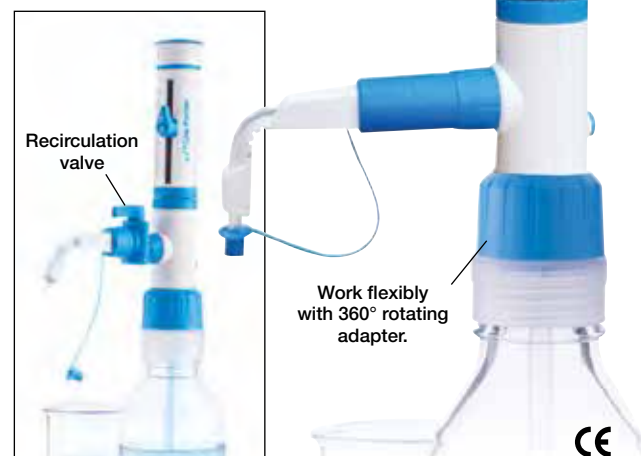
Clean, safe, and precise dispensing at an affordable price

- Set and lock volume for optimized accurate results
- Fully autoclavable and superior chemical compatibility
- Jam resistant with smooth plunger movement

Cole-Parmer's burettop dispenser offers great performance over long period of time. Springless technology allows you to use both organic and inorganic reagents. The PTFE piston with ETP O-ring provides frictionless movement reducing the occurrence of bubbles in your dispenses. Models with recirculation valve help in saving costly reagents by directing the liquid into the bottle for bubble-free dispensing.

What's included: five adapters (28, 32, 36, 40, and 45 mm), telescoping tube, calibration tool, and calibration certificate supplied by the manufacturer.

Cole-Parmer®



| Capacity | Increments | Accuracy | | Recirculation valve | Catalog number |
|----------------|------------|----------|----------------|---------------------|--------------------|
| | | $\pm\%$ | $\pm\text{mL}$ | | |
| 0.25 to 2.5 mL | 0.05 mL | 0.6 | 0.015 | No | JB-15977-71 |
| | | | | Yes | JB-15977-77 |
| 0.5 to 5 mL | 0.1 mL | 0.6 | 0.030 | No | JB-15977-72 |
| | | | | Yes | JB-15977-78 |
| 1 to 10 mL | 0.2 mL | 0.6 | 0.060 | No | JB-15977-73 |
| | | | | Yes | JB-15977-79 |
| 2.5 to 30 mL | 0.5 mL | 0.6 | 0.180 | No | JB-15977-74 |
| | | | | Yes | JB-15977-80 |
| 5 to 60 mL | 1.0 mL | 0.6 | 0.360 | No | JB-15977-75 |
| | | | | Yes | JN-15977-81 |
| 10 to 100 mL | 2.0 mL | 0.6 | 0.600 | No | JB-15977-76 |
| | | | | Yes | JB-15977-82 |

Wait, there's more!

Browse **100,000+** products plus find **Technical Resources** at **ColeParmer.in**

Cole-Parmer® Centrifuge Tubes

Reach centrifugation speeds up to 21000 RCF x g

- Leakproof, autoclavable and freezable
- Both graduations and writing areas are chloroform-resistant



Cole-Parmer®

Disposable polypropylene tubes are autoclavable to 121°C and freezable down to -80°C. The easy-to-read black graduations offer accurate readings to ±2%; 15-mL tubes have 1-mL increments while the 50-mL tubes have 2.5-mL increments. Use frosted writing surface for permanent identification.

The gamma sterilized tubes are nonpyrogenic and certified RNase-, DNase- and pyrogen-free.

Racked tubes are packaged in recyclable chipboard racks. Bagged tubes are packaged in durable and resealable (zip closure) bags. Inner packaging is individually labelled for lot traceability.



| Capacity (mL) | Max RCF (x g) | Bottom | Sterile | Packaging | Qty/cs | Catalog number |
|---------------|---------------|---------------|---------|----------------|--------|--------------------|
| 15 | 21000 | Conical | Yes | Resealable bag | 500 | JB-15971-06 |
| | | | | Paper racks | 500 | JB-15971-07 |
| | | | | Resealable bag | 500 | JB-15971-08 |
| 50 | 21000 | Conical | Yes | Paper racks | 500 | JB-15971-09 |
| | | | | Bulk | 500 | JB-15971-10 |
| | 6000 | Self-standing | No | | | |
| | | | Yes | Resealable bag | 500 | JB-15971-11 |

Cole-Parmer® Easy-Flip™ Centrifuge Tubes

No more lost or dropped caps

- Made from high-grade gamma-resistant polypropylene
- Autoclavable at 121°C and freezable to -80°C
- Leakproof design to avoid cross-contamination



NEW

These conical-bottom centrifuge tubes feature a hinged flip-top cap that permits easy single-handed opening and closing. Chloroform-resistant black graduations and frosted writing area for unique identification.

Sterilized by gamma irradiation. Racked tubes are packed in environment-friendly recyclable chipboard racks. Inner packaging is individually labelled for lot traceability.

Cole-Parmer®



| Capacity (mL) | Max RCF (x g) | Color | Sterile | DNase/RNase free | Packaging | Qty/cs | Catalog number |
|---------------|---------------|---------|---------|------------------|----------------|--------|--------------------|
| 15 | 9400 | Natural | Yes | No | Paper racks | 500 | JB-15971-52 |
| | | | | Yes | Resealable bag | | JB-15971-54 |
| | | | Yes | No | Paper racks | 500 | JB-15971-51 |
| | | | | Yes | Resealable bag | | JB-15971-53 |
| 50 | 9400 | Natural | Yes | No | Paper racks | 500 | JB-15971-56 |
| | | | | Yes | Resealable bag | | JB-15971-58 |
| | | | Yes | No | Paper racks | 500 | JB-15971-55 |
| | | | | Yes | Resealable bag | | JB-15971-57 |

Argos Technologies® Conical Centrifuge Tubes

Safely store in freezers down to -80°C

- Disposable polypropylene tubes are autoclavable to 250°F (121°C)

Easy-to-read black graduations offer accurate reading to ±2%; the 15-mL tubes feature increments of 0.5 mL while the 50-mL tubes have increments of 2.5 mL. Frosted writing surface allows for permanent identification and labelling.

Black color tubes provide a completely opaque barrier, protecting even the most light-sensitive compounds. Ideal for use with fluorescent probes or ethidium bromide. Sterile tubes are nonpyrogenic, and certified RNase-, DNase- and DNA-free. Available in resealable zip-top bags or cardboard racks.

Argos®
TECHNOLOGIES



| Capacity | Max RCF (x g) | Color | Sterile | Packaging | Qty/cs | Catalog number |
|----------|---------------|---------|----------------|-----------------------|--------------------|--------------------|
| 15 | 12000 | Natural | No | Resealable bag, bulk | 500 | JB-24406-50 |
| | | | Yes | Resealable bags of 25 | 500 | JB-04395-42 |
| | | | Yes | Racks of 25 | 500 | JB-04395-43 |
| 50 | 8400 | Black | Yes | Resealable bag | 50 | JB-06344-30 |
| | | | No | Resealable bag, bulk | 500 | JB-24406-51 |
| | 12000 | Natural | Yes | Resealable bags of 25 | 500 | JB-04395-44 |
| | | | Yes | Racks of 25 | 500 | JB-04395-45 |
| 10000 | Black | Yes | Resealable bag | 50 | JB-06344-35 | |

NEW



24406-50

06344-35

Argos Technologies® PolarSafe® Cryogenic Labels

Same label works for cryogenics, ultralow freezers, and incubators



- Inert polyester with a unique adhesive adheres to glass, plasticware, and most metals
- No need to self-laminate
- Available on rolls for individual labeling or on sheets for use with laser printers

PolarSafe labels withstand conventional freezing (-80°C) but can also be used for most cryogenic storage applications (vapor phase nitrogen storage at -196°C). Choose the size, color, and format to suit your labeling needs. The wide range of sizes allows you to label your whole experiment permanently.

The dots are suitable for use on cryotubes, glass vials, and micro-centrifuge tubes. The 3.3 x 1.3 cm strips are ideal for 1.5- and 2-mL tubes; the 2.4 x 1.3 cm strips are good for 0.5- and 1.5-mL tubes; the 6.7 x 2.5 cm strips can be used for racks and boxes; 3.8 x 0.6 cm strips are for microtiter plates, petri dishes, and storage boxes.

| Label size (in., cm) | Color | Qty/pk | Catalog number |
|--|----------|--------|--------------------|
| Dots on rolls | | | |
| 0.37 (0.95) dia | White | 1000 | JB-04396-68 |
| 0.37 (0.95) dia | White | 5000 | JB-04396-69 |
| 0.37 (0.95) dia | Blue | 1000 | JB-04396-86 |
| 0.37 (0.95) dia | Red | 1000 | JB-04396-87 |
| 0.37 (0.95) dia | Green | 1000 | JB-04396-88 |
| 0.37 (0.95) dia | Yellow | 1000 | JB-04396-89 |
| 0.37 (0.95) dia | Purple | 1000 | JB-04396-90 |
| 0.37 (0.95) dia | Assorted | 5000 | JB-04396-85 |
| 0.5 (1.3) dia | White | 1000 | JB-04396-65 |
| 0.75 (1.9) dia | White | 1000 | JB-04396-70 |
| 0.75 (1.9) dia | White | 5000 | JB-04396-71 |
| Dots on sheets for laser printers | | | |
| 0.37 (0.95) dia | White | 3840 | JB-04396-64 |
| 0.5 (1.3) dia | White | 3840 | JB-04396-84 |
| 0.75 (1.9) dia | White | 2160 | JB-04396-72 |
| Strips on rolls | | | |
| 0.78 W x 0.24 H (2.0 x 0.6) | White | 1000 | JB-04396-67 |
| 1.3 W x 0.5 H (3.3 x 1.3) | White | 1000 | JB-04396-66 |
| 1.3 W x 0.5 H (3.3 x 1.3) | Blue | 1000 | JB-04396-79 |
| 1.3 W x 0.5 H (3.3 x 1.3) | Red | 1000 | JB-04396-80 |
| 1.3 W x 0.5 H (3.3 x 1.3) | Green | 1000 | JB-04396-81 |
| 1.3 W x 0.5 H (3.3 x 1.3) | Yellow | 1000 | JB-04396-82 |
| 1.3 W x 0.5 H (3.3 x 1.3) | Purple | 1000 | JB-04396-83 |
| Strips on sheets for laser printers | | | |
| 0.94 W x 0.5 H (2.4 x 1.3) | White | 2380 | JB-04396-75 |
| 1.3 W x 0.5 H (3.3 x 1.3) | White | 1700 | JB-04396-73 |
| 1.3 W x 0.5 H (3.3 x 1.3) | Assorted | 2125 | JB-04396-74 |
| 1.5 W x 0.24 H (3.8 x 0.6) | White | 3120 | JB-04396-77 |
| 1.5 W x 0.24 H (3.8 x 0.6) | Assorted | 3900 | JB-04396-78 |
| 2.6 W x 0.98 H (6.7 x 2.5) | White | 600 | JB-04396-76 |

JB-04396-91 Label dispenser, blue acrylic. Accommodates up to 6 rolls of cryogenic dots or strips

Cole-Parmer® Cryogenic Vials

Reliable long-term storage of your precious samples



Colored cap inserts are not included.

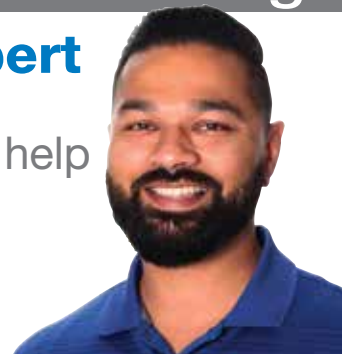
- Temperature range: -196 to 121°C
- Certified DNase-, RNase-free, and nonpyrogenic
- Tight screw-cap closures with silicone gaskets prevent liquid leakage

Freezing vials withstand low temperatures for safe storage and transportation of cells, blood serum, and other specimens. Made of high-quality polypropylene and are gamma resistant. Maximum reservoir capacity is 80% of total volume.

| Style | Volume (mL) | Sterile | Qty/cs | Catalog number |
|---------------|-------------|---------|--------------------|--------------------|
| Conical | 0.5 | No | 810 | JB-15971-83 |
| | | Yes | 5000 | JB-15971-95 |
| | 1.5 | No | 810 | JB-15971-84 |
| | | Yes | 810 | JB-15971-85 |
| | | No | 5000 | JB-15971-96 |
| | | Yes | 810 | JB-15971-86 |
| Self standing | 0.5 | No | 810 | JB-15971-87 |
| | | Yes | 5000 | JB-15971-88 |
| | 1.5 | No | 810 | JB-15971-89 |
| | | Yes | 5000 | JB-15971-98 |
| | | No | 810 | JB-15971-91 |
| | | Yes | 810 | JB-15971-92 |
| 2 | No | 810 | JB-15971-93 | |
| | Yes | 5000 | JB-15972-00 | |
| 5 | Yes | 810 | JB-15971-94 | |
| | Yes | 2500 | JB-15972-01 | |

Need Help Selecting?

Trust our **expert** Application Specialists to help you find the right product.



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Argos Technologies® PolarSafe® EVA Ice Containers

NEW

Mess-free insulation for any cryogenic medium

- Thick, nontoxic EVA material is leakproof and will not "sweat"
- Compatible with ice, dry ice, liquid nitrogen, alcohol, and saline solutions
- Ergonomic handles on bases and lids are glove friendly
- Integral pour spouts make cleanup easy



Ethylene vinyl acetate (EVA) foam buckets and pans are ideally suited to benchtop chilling applications. Container bottom is designed to be nonslip. Lids are included.



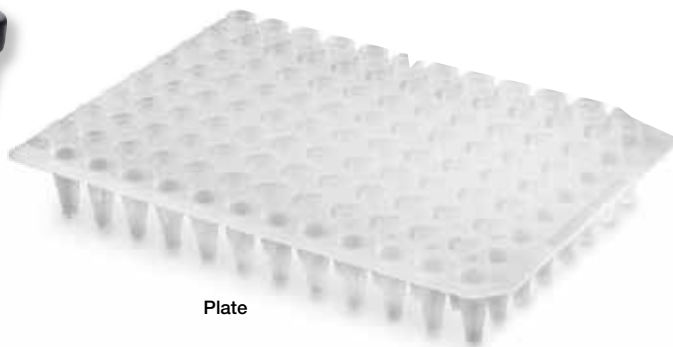
| Capacity | Overall dimensions† | Color | Catalog number |
|-------------------------------------|-----------------------|--------|--------------------|
| Round buckets (OD x H) | | | |
| 2.5 L | 30.6 x 13.8 cm | Blue | JB-04393-88 |
| | | Green | JB-04393-90 |
| | | Purple | JB-04393-93 |
| 4 L | 30.6 x 18.3 cm | Green | JB-04394-02 |
| | | Purple | JB-04394-06 |
| | | Black | JB-04394-09 |
| Rectangular pans (L x W x H) | | | |
| 1 L | 14.6 x 14.6 x 11.5 cm | Green | JB-04393-54 |
| | | Purple | JB-04393-57 |
| | | Black | JB-04393-60 |
| 4 L | 34.7 x 22.7 x 12.9 cm | Blue | JB-04393-64 |
| | | Green | JB-04393-66 |
| | | Purple | JB-04393-69 |
| 9 L | 45.2 x 33.9 x 12.2 cm | Blue | JB-04393-76 |
| | | Green | JB-04393-78 |
| | | Purple | JB-04393-81 |

†Without lid.

Cole-Parmer® PCR Tubes and Plates

Shorten your cycle times

- Ultra-thin walls accelerate heat transfer and cycle times
- Precision molded from 99.9% pure virgin polypropylene— withstand temperatures of –20 to 122°C and are autoclavable
- No sample evaporation with full-length, even insertion cap for a tight fit
- Certified RNase, DNase, and pyrogen free to ensure no degradation of the target or amplified product
- Choose from individual and strip tubes, and 96- and 384-well plates



| Description | Max well volume | Qty/ pk | Catalog number |
|--|-----------------|---------|--------------------|
| Individual PCR tubes | | | |
| Thin-wall with flat caps | 0.5 mL | 10,000 | JB-15972-77 |
| Thin-wall PCR strip tubes | | | |
| Thin-wall 8-tube strips with flat caps | 0.2 mL | 1250 | JB-15972-76 |
| Thin-wall PCR plates | | | |
| 96-well, unskirted | 0.2 mL | 50 | JB-67103-65 |
| 96-well, full skirt | 0.2 mL | | JB-67103-66 |
| 384-well, unskirted | 0.4 mL | | JB-67103-95 |

Tubes & Vials

Argos Technologies® PolarSafe® Fiberboard Cryogenic Storage Boxes and Dividers

Customize to fit your needs

- Snug-fitting lid prevents accidental separation if dropped
- Bottom drain holes allow safe drainage of liquid nitrogen and prevent moisture buildup
- Moisture repellent coating for use in mechanical freezers or liquid nitrogen tanks to –196°C



Storage Boxes

| Description | Vial size | Vials held | Dimensions (L x W x H) | Catalog number |
|-----------------------------|----------------|------------|------------------------|--------------------|
| Boxes with cell dividers | 0.5, 1.5, 2 mL | 25 | 3" x 3" x 2" | JB-06755-71 |
| | 0.5, 1.5, 2 mL | 81 | 5¼" x 5¼" x 2" | JB-06755-72 |
| | 0.5, 1.5 mL | 100 | 5¼" x 5¼" x 2" | JB-06755-73 |
| Boxes without cell dividers | — | — | 3" x 3" x 2" | JB-06755-74 |
| | — | — | 5¼" x 5¼" x 4⅞" | JB-06755-75 |
| | — | — | 5¼" x 5¼" x 2" | JB-06755-76 |
| | — | — | 5¼" x 5¼" x 3" | JB-06755-77 |



Cell Dividers (12/pk)

| For box model(s) | Vial size | Vials held | Dimensions (L x W x H) | Catalog number |
|--------------------|------------------|------------|------------------------|--------------------|
| 06755-74 | 0.5, 1.5, 2 mL | 25 | 2⅝" x 2⅝" x 1¼" | JB-06755-80 |
| 06755-75 | 50 mL | 16 | 5⅝" x 5⅝" x 2¼" | JB-06755-78 |
| | 15 mL | 36 | | JB-06755-79 |
| 06755-76, 06755-77 | 50 mL | 25 | 4⅞" x 4⅞" x 1⅝" | JB-06755-81 |
| | 1.5, 2 mL | 49 | | JB-06755-82 |
| | 1.5, 2 mL | 64 | JB-06755-83 | |
| | 0.5, 1.5, 2.0 mL | 81 | JB-06755-84 | |
| | 0.5, 1.5 mL | 100 | JB-06755-85 | |
| | 0.5, 1.5 mL | 144 | JB-06755-86 | |



The 3Cs of Cleanroom—Decoded

Cleanliness. Compliance. Comfort.

- **Consistent Cleanliness:** From Class 10 to Class 100,000, find highest quality of products to deliver a wide array of disposable and reusable cleanroom products
- **Comprehensive Compliance:** Products are tested to the highest standards and follow cGMPs
- **Comfort:** No more compromise with comfort for protection

Cleanroom environments require separation of the product and operating personnel. Protective instruments and supplies help an organization keep their cleanroom running at peak performance and meet required industry standards. They keep away the contamination generated by operating personnel from the process and the product and, in addition, protect the operator from working environment in the facilities where the process or product is dangerous or harmful.



Cole-Parmer offers you a wide range of cleanroom consumables comprising of ESD products, static control products and antistatic material to ensure full protection and separation.

Cleanroom Apparel

Ideal balance of comfort, protection and efficiency you need for cleanroom, sterile and ESD applications

See pages 39–40



Cleanroom Goggles

Anti-fog, autoclavable, BS.EN 166.2002 compliant

See page 41



Cleanroom Chairs

ESD-protective construction helps prevent damage

See page 41



Cleanroom Gloves

Gamma sterilised latex gloves suitable for use in aseptic and cleanroom environments

See page 42



Cleanroom Wipers

Sterile and nonsterile wipers suited to all your sterilisation and compulsory cleaning needs

See page 43



Other Cleanroom Supplies

Range of supplies to support critical environments like shoes, paper, pens, mops, rollers, etc.

See pages 43–45



Compliance

Get the **confidence** with all documentation/validation **support** for addressing **regulatory compliance**.

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Tyvek® Coveralls

Tear-free, whole body protection

- Rugged fabric resists tears, snags, punctures, and abrasions
- Easy-zip front for quicker donning

Non-woven fabric provides protection against particulates. Tyvek is chemically and biologically inert, low linting, and static-free until laundered.

Compliance: sizing requirements of ANSI/ISEA 101-1996

| Size | Qty | Catalog number |
|---|-----|----------------|
| Coveralls | | |
| Medium | 1 | JB-86225-01 |
| Large | 1 | JB-86225-02 |
| X-large | 1 | JB-86225-03 |
| XX-large | 1 | JB-86225-04 |
| Coveralls with elastic wrists | | |
| Medium | 1 | JB-86225-11 |
| Large | 1 | JB-86225-12 |
| X-large | 1 | JB-86225-13 |
| XX-large | 1 | JB-86225-14 |
| Coveralls with elastic wrists and hood | | |
| Medium | 1 | JB-86225-21 |
| Large | 1 | JB-86225-22 |
| X-large | 1 | JB-86225-23 |
| XX-large | 1 | JB-86225-24 |
| Coveralls with elastic wrists, hood, and boots | | |
| Medium | 1 | JB-86225-35 |
| Large | 1 | JB-86225-36 |
| X-large | 1 | JB-86225-37 |
| XX-large | 1 | JB-86225-38 |



Save Big!

On bulk orders

Sterile Cleanroom Coveralls

Get a secure fit

- Protect arms and legs with elastic wrists and ankles
- Low-linting material with tear resistance

Coveralls feature a sterility assurance of 10⁻⁶, low linting, and a breathable liquid barrier. Special fold design protects against potential contamination during gowning. Manufactured in an ISO-certified facility, clean processed, and individually packaged under cleanroom conditions. Recyclable.

Compliance: ISO Class 4



| Size | Qty/cs | Catalog number |
|----------|--------|----------------|
| Medium | 25 | JB-33684-31 |
| Large | | JB-33684-32 |
| X-large | | JB-33684-33 |
| XX-large | | JB-33684-34 |



Tyvek® Cleanroom Boot Covers

Protect more than your feet

- Extended length for ankle and leg coverage

Pro/Clean® boot covers have PVC soles. Elastic top and ankle make them easy to put on.

Compliance: ISO Class 5

| Size | Qty/cs | Catalog number |
|---------|---------|----------------|
| Medium | 50 pair | JB-33684-35 |
| Large | | JB-33684-36 |
| X-large | | JB-33684-37 |



Coming soon...

Coming soon... Cole-Parmer® Sterile Cleanroom Apparels to protect against foreign contaminants.

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Cleanroom Coveralls

Maintain cleanroom purity

Tyvek® IsoClean™ Coveralls

- Excellent inherent barrier to dry particles, microorganisms, and nonhazardous liquids
- Zipper front, bound seams, and elastic wrists and ankles.

Compliance: ISO Class 5 (formerly Class 100)

| Size | Qty/cs | Catalog number |
|---------|--------|----------------|
| Small | 25 | JB-33684-00 |
| Medium | | JB-33684-03 |
| Large | | JB-33684-05 |
| X-large | | JB-33684-07 |

Pro Clean® Coveralls

- Excellent particulate and light splash protection
- Zipper front, serged seams, and elastic wrists, ankles, and waist

Compliance: ISO Class 6, 7, & 8 (formerly Class 1000; 10,000; 100,000)

| Size | Qty/cs | Catalog number |
|----------|--------|----------------|
| Medium | 25 | JB-33684-26 |
| Large | | JB-33684-27 |
| X-large | | JB-33684-28 |
| XX-large | | JB-33684-29 |



Pro Clean® coverall 33684-27



Kimberly-Clark® Protective Apparel

Ideal balance of comfort, protection, and efficiency

- Safeguard yourself against dry particulates and light liquid sprays
- Easily put on or remove coveralls without tearing

Kimberly-Clark A5 and A10 protective apparel is made of a microforce™ barrier three-layer fabric which includes a middle layer of microporous film with outer layers of abrasion-resistant spunbond polypropylene. This design allows heat and sweat vapours to escape so workers complete the task at hand with less fatigue and heat stress.

All coveralls feature elastic cuffs, wrists, and back for improved fit and comfort. The concealed front zipper measures at least 28" (71 cm) long. Three-thread overlap stitching improves strength and durability. Comfortable and generously cut coveralls are 7½ times less likely to rip out than those made using the typical ANSI-standard design.

Kimtech Pure® A5 Sterile Cleanroom Apparel is clean processed and sterile via unique Clean-Don® technology, offering numerous features to facilitate sterile gowning. An innovative inside-out fold pattern presents the inside of the garment as the package is opened, thus reducing the risk of touching the outside of the apparel. Highly visible blue line along the inside of the garment signals the proper place to grasp while gowning. Integrated thumb loop keeps garment sleeve from rolling back and exposing your arm or wrist.

Suitable for ISO Class 5 or higher cleanrooms. Manufactured in ISO9001:2000 facility, this cleanroom apparel comes in triple-bagged, vacuum-sealed packages and features a sterility indicator as a visual indicator that it has undergone gamma sterilization. Apparel is CE marked and comes under Category III, PPE class. Does not contain any silicone, latex, or BHT preservatives

KleenGuard® A10 Light-Duty Protective Coveralls are breathable, helping keep workers cool and comfortable in a wide range of work situations.

| Description | Size | Qty/cs | Catalog number |
|---|-----------|--------|--------------------|
| Kimtech Pure A5 sterile cleanroom apparel | | | |
| Coverall (individually bagged) | Medium | 25 | JB-15945-64 |
| | Large | 25 | JB-15945-65 |
| | X-large | 25 | JB-15945-66 |
| | XX-large | 25 | JB-15945-67 |
| Boots with side grasp ties and vinyl edge to reduce slipping (25 pairs per bag) | Universal | 100 | JB-15945-68 |
| Integrated hood and mask with stretch fit elastic and pull-down ties (25 per bag) | Universal | 75 | JB-15945-69 |
| KleenGuard A10 light-duty protective apparel | | | |
| Coverall | Large | 25 | JB-33433-01 |
| | X-large | 25 | JB-33433-02 |



MicroGuard CE™ Cleanroom Coveralls

Protect workers in comfort

- Constructed of a soft, nonwoven polypropylene combined with a microporous film
- Enhanced breathability with a soft interior

Bound seams and tunnelized elastic ensure extremely low linting. Clean processed and individually packaged.

Compliance: ISO Class 5

| Description | Qty/cs | Medium | Large | X-Large | XX-Large |
|--|--------|--------------------|--------------------|--------------------|--------------------|
| Coveralls with elastic wrists and ankles | 25 | JB-33683-11 | JB-33683-12 | JB-33683-13 | JB-33683-14 |
| Coveralls with elastic wrists, hood, and boots | 25 | JB-33683-21 | JB-33683-22 | JB-33683-23 | JB-33683-24 |

Cole-Parmer® Autoclavable Safety Goggles

Manufactured for aseptic and cleanroom environments

- Super-soft thermoplastic frame provides utmost comfort
- Easily fit over prescription eyewear
- Toughened, scratch-resistant polycarbonate lens with anti-fogging properties for use in many applications
- Tested to withstand 40 autoclavable cycle at 121°C for 30 minutes

NEW



Cole-Parmer®

Autoclavable safety goggles are sturdy yet lightweight. Upper vents and lower indirect ventilation system prevent naturally displaced eye lashes and eye brows from entering the controlled environment. Replaceable polycarbonate lenses are optically clear, and the anti-fog design ensures nil eyestrain and makes it suitable for long wear. Nonlinting latex-free adjustable silicone support strap for easy donning. Goggles comply with BS.EN 166.2002-Personal eye protection standard. Each piece is individually packaged.

| Description | Qty | Catalog number |
|----------------------------|---------------------------|--------------------|
| Safety goggles, blue frame | 5/bx | JB-15972-19 |
| | 5/bx, 25 bx/cs; 125 total | JB-15972-20 |
| Replaceable lenses | 50/bx | JB-15972-21 |

Cole-Parmer® Antistatic Chairs

Cleanroom certified with ergonomic design

NEW

- ESD-protective construction helps prevent damage to sensitive equipment and circuitry
- Effortless height adjustments ensure comfortable sitting and proper posture over long work hours
- Highly conductive upholstery supports circulation and static discharge
- Stainless steel base, safety gas lift and nylon wheels increase chair stability and wear resistance

Class 100 certified cleanroom chairs are upholstered in special conductive polyurethane (PU) to meet stringent cleanroom and ESD requirements. The chair frame from the back to the base is electrically conductive to ensure static charges are dissipated through to the floor. These durable chairs offer total body support with advanced ergonomic features that reduce fatigue and improve productivity. Adjustable height with back tilt offers individual settings and supports 360° swivel. The chair components are shipped in sealed plastic to prevent contamination during transportation. Product packaging includes manual on unpacking and assembling in cleanroom environment.

| Type | Dimensions (mm) | Seat height (mm) | Volume resistance | Foot ring | Catalog number |
|-------|------------------------------------|------------------------|--|-----------|--------------------|
| Chair | Seat: 440 x 400 Back: 380 x 290 | Adjustable, 440 to 580 | 1 x 10 ⁴ Ω to 1 x 10 ⁹ Ω | Yes | JB-15970-38 |
| Stool | Seat: 330 dia. | Adjustable, 450 to 600 | 1 x 10 ⁴ Ω to 1 x 10 ⁹ Ω | Yes | JB-15970-39 |



Cole-Parmer®

Need Help Selecting?

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Cole-Parmer® ThinTouch™ SteriClean™ Latex Gloves

Certified for use in aseptic and cleanroom environment

- Packed in a certified Class 10 cleanroom environment
- Low protein and low endotoxin levels
- Fully textured for tactile sensitivity and enhanced grip
- Triple packed to enable passage to end-use cleanroom area

Cole-Parmer ThinTouch SteriClean certified pharmaceutical latex gloves provide consistent cleanliness for controlled environments (Class 100) with maximum wearer comfort and exceptional flexibility. The ergonomic design reduces musculoskeletal stress that can be damaging over time. These powder-free gloves are tested for low protein to minimise allergic reactions. Sterilised by gamma irradiation.

The triple packaging assures compliance and integrity during passage to end-use cleanroom area. Gloves are tested for ionic burden and non-volatile residue to ensure that they meet the allowable level as per the designated cleanroom standards. Last-mile packaging (pair pouches) carries comprehensive product information, part number identification, size and lot number details to avoid user errors in glove selection.



Quality standards

- Physical properties:** EN 455-2, ASTM D 3578, ISO-2859
- Protein content:** ASTM D 5712
- Powder content:** ASTM D 6124
- Sterility:** ISO 11137
- Particle count and extractables:** IES-RP-CC005.4
- Chemical protection:** EN 374-1:2003
- Bacteriophage penetration:** ASTM F1671-97B
- Bacteriostasis and fungistasis:** ISO 11737-2

Physical Properties

| Characteristics | Value | Test method |
|------------------------|-----------------------|---------------|
| Freedom from pin holes | AQL: 0.65, Level 3 | ASTM D 5151 |
| Tensile strength | Before aging: >18 Mpa | ASTM D 3578 |
| | After aging: >14 Mpa | |
| Elongation | Before aging: >650 | ASTM D 3578 |
| | After aging: >500 | |
| Thickness | Cuff: 0.11 mm | ASTM D 6319 |
| | Palm: 0.18 mm | |
| | Fingertip: 0.21 mm | |
| Powder content | 2 mg/glove (max) | ASTM D 6124 |
| Protein content | 50 µg/dm ² | ASTM D 5712 |
| SAL | 10 ⁻⁶ | ISO 11137 |
| Endotoxin | <20 | EN 455-3:2015 |



| Size | Length | Qty/cs | Catalog number |
|---------|-------------|---------------------------------|--------------------|
| Small | 30 cm (12") | 1 pair/pouch, 200 pairs/case | JB-15970-82 |
| Medium | | | JB-15970-83 |
| Large | | | JB-15970-84 |
| X-large | 40 cm (16") | 1 pair/pouch, 160 pairs/case | JB-15970-85 |
| Small | | | JB-15970-18 |
| Medium | | | JB-15970-19 |
| Large | | | JB-15970-20 |
| X-large | | | JB-15970-21 |

Get the confidence.

Request **FREE** samples* today!

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*T&C apply



Cole-Parmer® Cleanroom Safety Shoes

Professional safety shoes with comfort, durability and protection

- Upper material: Buffalo embossed leather, thickness: 1.8 to 2.0 mm
- Steel toe: conforms to ISO 20345:2011, Heel energy absorption: 3000 kgs or 20 joules
- Penetration resistance offered by a steel midsole: conforms to ISO 20345:2011 heavy work standards 23 kg/45 cm, 1100 newtons
- Sole: double density polyurethane outsole; highly oil and slip resistant
- Insole: antistatic polyurethane insole, high soft and comfort
- Lining: made of Campela/ air mesh/ fur; with good absorption of sweat, can keep dry and comfortable

NEW



Cole-Parmer®

| Size | Length | Color | Qty/cs | Catalog number |
|------|--------|-------|----------|--------------------|
| 40 | 250 mm | White | 10 pairs | JB-15972-49 |
| 42 | 260 mm | | | JB-15972-50 |
| 44 | 270 mm | | | JB-15972-51 |
| 46 | 280 mm | | | JB-15972-52 |

Cole-Parmer® Microfiber Wipers

Ultraclean and highly absorbent—ideal for critical environments

- Designed for use in Class 10 (ISO Class 4) and higher cleanroom environments
- Ultrasonic sealed edge ensures ultralow fiber release
- Twisted fiber prevents shedding during rigorous wiping
- Laundered and packed in a cleanroom environment

NEW

Cole-Parmer®

Microfiber wipers are continuous 100% polyester and polyamide microdenier filament woven with twisted fibers. Applications include absorbing most liquids, cleaning delicate or scratch-sensitive surfaces, and applying or removing cleaning and disinfecting solutions.

Standards:

- Food testing FDA 21 CFR 177.1630
- Airborne particle count (APC) IEST-RP-CC003.3
- Liquid particle count (LPC) IEST-RP-CC004.3



| Wiper size | Sterile | Qty/case | Catalog number |
|---------------------------|---------|------------------------------|--------------------|
| 9" x 9" (23 x 23 cm) | No | 100 wipers/bag: 14 bags/case | JB-15976-63 |
| | Yes | Total: 1400 wipers | JB-15976-65 |
| 12" x 12" (30 x 30 cm) | No | 100 wipers/bag: 10 bags/case | JB-15976-64 |
| | Yes | Total: 1000 wipers | JB-15976-66 |

Wait, there's more!

Browse **100,000+** products plus find **Technical Resources** at **ColeParmer.in**

Cole-Parmer® Cleanroom Sticky Mat

Quickly and effectively remove dirt from shoes and wheels

- Smooth and durable—made of multilayer LDPE film with adhesive coating
- Easy to use—simply peel away the soiled layer
- Widely used in electronics, medical equipment, computer, pharmaceutical and semiconductor production



Cole-Parmer®

| Size | Colour | Qty/cs | Catalog number |
|------------------------|--------|-----------------------------|----------------|
| 24" x 36" (61 x 91 cm) | Blue | 30 sheets/mat, 10 mats/case | JB-15972-41 |

Cole-Parmer® Cleanroom Pen

Dries quickly and keeps the page clean

- Ergonomically designed and made of environmentally friendly material
- Food-grade German ink has a viscosity lower than the ordinary ball pen
- The ink has strong water resistance, good rotation resistance, and low oil stains
- Designed for controlled environments from Class 100 to Class 100,000 cleanrooms

NEW



Cole-Parmer®

| Tip | Ink | Qty/pk | Catalog number |
|--------|-------|--------|----------------|
| 0.7 mm | Black | 12 | JB-15972-47 |

Cole-Parmer® Cleanroom Paper

Special formula minimises release of particles and fibers

- Composition is 93.1% natural wood pulp and 6.9% resin
- Super low APC, excellent tensile strength, and anti-wrinkle properties
- Can be disinfected by gamma ray, EtO or water vapor
- Suitable for use in Class 100 (ISO Class 5) cleanroom

NEW



Cole-Parmer®

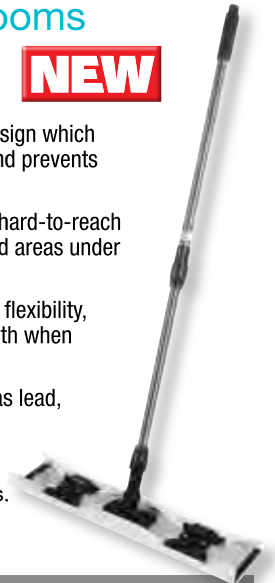
| Size | Weight | Thickness | Qty/cs | Colour | Catalog number |
|------|-------------------------|---------------|-------------------------|--------|----------------|
| A4 | 70 ± 2 g/m ² | 0.1 ± 0.01 mm | 250 sheets/bg, 10 bg/cs | Blue | JB-15972-45 |
| | | | | White | JB-15972-46 |

Cole-Parmer® Cleanroom Mop

Designed for controlled environments from Class 100 to Class 100,000 cleanrooms

- High-density microfiber mop cover with ultra dust absorbency
- Mop head has a unique “butterfly clip” design which improves cleaning performance greatly and prevents scratching
- Universal rotating design lets you access hard-to-reach areas of ceilings, walls, and other confined areas under equipment
- Interlocking handle structure allows more flexibility, stability, and adjustments to the mop length when necessary
- Contains no hazardous substances such as lead, cadmium, mercury, chromium VI, etc.

NEW



Each set contains: 2 flat mop frames, 2 telescopic handles, and 10 mop covers.

Cole-Parmer®

| Description | Mop set |
|----------------------------------|--------------------|
| Catalog number | JB-15972-48 |
| Basic weight (g/m ²) | 230 |
| Thickness (mm) | 0.5 |
| Width (mm) | 210 |
| Length (mm) | 630 |
| Mop handle (mm) | 760 to 1350 |
| Mop frame size (L x W) | 600 x 110 (mm) |

Cole-Parmer® Sticky Roller and Handle

Easily remove dirt particles in your cleanroom environment

- Widely used in cleanrooms, labs, pharmaceuticals, electronic, and semi-conductor industries
- LDPE sheets are coated with acrylic-based adhesive
- Simply peel off dirty sheet to expose a clean sheet—each roller contains 107 sheets
- Double bagged, vacuum packed in bag of 5 rollers

NEW

Order handle separately



Cole-Parmer®

| Description | Packaging | Catalog number |
|---|----------------------------------|----------------|
| Sticky roller, 6" wide, 3" core dia, 107 sheets | 5/bg, 20 bg/cs (100 rolls total) | JB-15972-42 |
| Handle for 6" wide sticky roller | 50/cs | JB-15972-44 |

Cole-Parmer® Cleanroom Polyester Swab

Ideal for cleaning small surface areas

- Cleanroom-laundered, double-layer polyester tip over flexible paddle
- Long polypropylene handle for cleaning hard-to-reach areas
- Thermally bonded head
- Soft and nonabrasive

NEW

Cole-Parmer cleanroom swab is widely recommended for surface sampling and cleaning/validation work. It offers good absorbency while generating low amounts of particles and fibers. Contains no contaminating adhesives.



| Tip length | Total length | Sterile | Qty/cs | Catalog number |
|------------|--------------|---------|--------|--------------------|
| 0.66" | 6.39" | No | 400 | JB-16345-05 |
| | | | 1000 | JB-16345-01 |
| | | | 1500 | JB-16345-03 |
| 0.66" | 6.39" | Yes | 400 | JB-16345-06 |
| | | | 1000 | JB-16345-02 |
| | | | 1500 | JB-16345-04 |

Cleanroom Swabs

Meet your validation requirements

- Ideal for cleaning small surface areas and for cleaning validation

Sealed swab handles are thermo-formed. Swabs with ESD handles eliminate damage from static electricity and are effective in all humidities.

Fabric Swabs have excellent chemical compatibility. Sealed swabs contain low chloride and other ionic contaminants.

Foam Swabs have sealed handles and are constructed from 100 pores per inch reticulated urethane foam—ideal for solvent dispersion and low-viscosity adhesives. Sealed foam swabs are perfect for removal of solvents and fluxes. Cleanfoam® swabs feature low levels of nonvolatile residue, particle generation, and are constructed of open-cell polyurethane foam for excellent solvent capacity.

| Swab tip | Tip description | Handle description | Tip length | Swab length | Compliance | Qty/pk | Catalog number |
|---------------------|--------------------|----------------------|----------------|-----------------|-------------|--------|--------------------|
| Fabric swabs | | | | | | | |
| | Knit polyester | Sealed polypropylene | 0.39" (1 cm) | 2.75" (7 cm) | — | 50 | JB-33676-01 |
| | Knit polyester | Sealed polypropylene | 0.66" (1.7 cm) | 6.39" (16.2 cm) | — | 100 | JB-33676-07 |
| | Knit polyester | Sealed polypropylene | 0.16" (0.4 cm) | 2.76" (7 cm) | ISO Class 3 | 500 | JB-33677-58 |
| | Knit polyester | Sealed polypropylene | 0.27" (0.7 cm) | 6.39" (16.2 cm) | ISO Class 3 | 100 | JB-33677-60 |
| | Knit polyester | Sealed polypropylene | 0.5" (1.3 cm) | 5.00" (12.7 cm) | ISO Class 3 | 100 | JB-33677-62 |
| | Knit polyester | Sealed polypropylene | 0.5" (1.3 cm) | 5.00" (12.7 cm) | — | 100 | JB-33677-63 |
| | Knit polyester | Sealed polypropylene | 1.01" (2.6 cm) | 5.02" (12.8 cm) | — | 20 | JB-33677-64 |
| | Knit polyester | Sealed polypropylene | 1.01" (2.6 cm) | 5.02" (12.8 cm) | — | 20 | JB-33677-65 |
| Foam swabs | | | | | | | |
| | Foam bud | Hardwood | 1.10" (2.8 cm) | 6.06" (15.4 cm) | — | 500 | JB-33676-03 |
| | Cleanfoam | Polypropylene | 0.13" (0.3 cm) | 2.75" (7 cm) | ISO Class 5 | 500 | JB-33677-50 |
| | Flexible cleanfoam | Polypropylene | 0.13" (0.3 cm) | 2.67" (6.8 cm) | ISO Class 5 | 500 | JB-33677-52 |
| | Cleanfoam | Polypropylene | 0.25" (0.6 cm) | 6.37" (16.2 cm) | ISO Class 5 | 500 | JB-33677-55 |
| | Circular foam | Sealed polypropylene | 0.81" (2.1 cm) | 5.20" (13.2 cm) | ISO Class 5 | 100 | JB-33677-56 |
| | Cleanfoam | ESD | 0.14" (0.4 cm) | 3.50" (8.9 cm) | ISO Class 5 | 500 | JB-33677-72 |
| | Cleanfoam | ESD | 0.15" (0.4 cm) | 2.75" (7 cm) | ISO Class 5 | 500 | JB-33677-74 |



Partnering in your EHS Concerns

No more compromise with your safety, comfort, or compliance

PPE Range: Wide spread of products you need for a safe and productive workplace

Standard Operating Procedures (SOPs) & Compliance: Assistance available with complete documentation support to address regulatory compliance concerns

Quality: Stay assured with products of highest quality, tested as per regulatory standards

Bulk Supply: Be it lab or production, we match your buying cycle to provide uninterrupted supplies

Unique Demand or Budget: Dedicated one-to-one technical support is provided along with custom solutions

| | |
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| Latex Gloves | 54-55 |
| Other Gloves | 56-58 |

Compliance

Get the **confidence** with all documentation/validation **support** for addressing **regulatory compliance**.

022-6139-4444 | info@coleparmer.in

Neoprene Apron

Eliminate torn aprons

- Resists acids and oils—neoprene design is made for frequent use
- Provides additional chest protection with wider bib



| Thickness | Size (L x W) | Color | Catalog number |
|-------------|--------------------------------|--------|--------------------|
| Lightweight | 45" x 35" (114.3 x 89.0 cm) | Yellow | JB-86479-03 |

PVC/Nylon Apron

Stop acids and caustics from penetrating

- No break throughs—puncture resistant 20-mil thick design
- Features cotton ties



| Thickness | Size (L x W) | Qty/cs | Catalog number |
|-----------|--------------------------------|--------|--------------------|
| 20 mil | 50" x 35" (127.0 x 89.0 cm) | 12 | JB-81501-11 |

Cryogenic Aprons

Insulate yourself from liquids and cold items

- Withstand temperatures to -256°F (-160°C)
- Stands up to use with LN₂ vapor phase and liquefied natural gas (LNG)
- Breathable nylon on sides, resists most chemicals
- Machine washable
- Waterproof



Adjustable plastic fasteners at waist and neck snap easily into place, even when you're wearing gloves.

| Size (L x W) | Catalog number |
|-----------------------------|--------------------|
| 36" x 24" (91.4 x 60.9 cm) | JB-09113-36 |
| 42" x 24" (106.6 x 60.9 cm) | JB-09113-38 |
| 48" x 24" (121.9 x 60.9 cm) | JB-09113-40 |



Vinyl Aprons

Won't trap contaminants

- Seamless design eliminates areas for contaminants to gather
- No purchasing extra protection—sleeves protect shoulders and arms too
- Heavy weight construction—40-mil PVC garments secure for strength and durability



| Description | Thickness | Size | Catalog number |
|---------------------------------|-----------|----------------------------------|--------------------|
| Coat apron with elastic sleeves | 8 mil | Medium | JB-81620-54 |
| | | Large | JB-81620-56 |
| | | X-large | JB-81620-58 |
| Bib apron | 6 mil | 45"L x 35"W (114.3 x 89.0 cm) | JB-81620-60 |

Frocks

Superior particulate and light barrier protection

IsoClean® Tyvek® Frocks have five snap closures, elastic wrists, and a three-snap adjustable mandarin collar. Serged seams.

| Size | Qty/cs | Catalog number |
|---------|--------|--------------------|
| Medium | 30 | JB-33683-02 |
| Large | | JB-33683-04 |
| X-large | | JB-33683-06 |



Pro/Clean® Frocks have a zipper front and elastic wrists. Serged seams.

| Size | Qty/cs | Catalog number |
|----------|--------|--------------------|
| Small | 30 | JB-33683-40 |
| Medium | | JB-33683-42 |
| Large | | JB-33683-44 |
| X-large | 30 | JB-33683-46 |
| XX-large | | JB-33683-48 |



Cuffed Unisex Lab Coats

Make wearing a lab coat a snap

- Easy to secure with six snaps up front
- Protect wrist and arms with polyester knit cuffs

An inside breast pocket prevents product contamination. Two additional patch-type pockets can be used in less stringent environments. White polyester and cotton blend poplin is easy to care for, looks fresh, and stays wrinkle-free all day. Made in the USA.

Lab coats are also available with your name custom embroidered above the left breast pocket. Royal blue embroidery fashions your name in a roman block font measuring 3/4" (1.9 cm) H. Please specify the name(s) you want embroidered (up to 11 characters) when you place your order.



Personalize your lab coat for a more professional look!

| Description | Size | Length | Catalog number |
|----------------------|-------------------|------------------|--------------------|
| Lab coat | Small (36-38) | 41½" (105 cm) | JB-86351-00 |
| | Medium (38.5-42) | | JB-86351-02 |
| | Large (42.5-46) | | JB-86351-04 |
| | X-large (46.5-50) | | JB-86351-06 |
| Embroidered lab coat | Small (36-38) | 41½" (105 cm) | JB-86351-10 |
| | Medium (38.5-42) | | JB-86351-12 |
| | Large (42.5-46) | | JB-86351-14 |
| | X-large (46.5-50) | | JB-86351-16 |

100% Cotton White Lab Coats

Stop ironing

Coats feature three outside pockets and one inside pocket with side access. Breast pocket includes a pen holder. Belt is sewn down in the back and has accenting darts. Available in men's and women's sizes. Coats are 38" (96.5 cm) long.



| Size | Length | Catalog number |
|--------------------------|------------------|--------------------|
| Men's lab coats | | |
| Small (38) | 38" (96.5 cm) | JB-10510-03 |
| Medium (42) | | JB-10510-04 |
| Large (46) | | JB-10510-05 |
| X-large (48) | | JB-10510-06 |
| Women's lab coats | | |
| Small (8) | 38" (96.5 cm) | JB-10511-03 |
| Medium (12) | | JB-10511-04 |
| Large (16) | | JB-10511-05 |
| X-large (18) | | JB-10511-06 |

Cole-Parmer® Antistatic Disposable Lab Coats

Advanced performance fabrics that look and feel luxurious

- Prevent static discharge with these lint-free, disposable lab coats
- White color; with pockets, standard collar, and button closure

Polypropylene (PP) is recommended for general laboratory use—it is economical, lightweight, and offers the highest level of breathability. Spunbond fabric (SF) provides better durability and protection, with a medium level of breathability.



NEW

Cole-Parmer®

| Size | Material | Qty/cs | Catalog number |
|----------|----------|--|--------------------|
| Small | 40-g PP | 10 coats/bag; 5 bags/case; total of 50 coats | JB-15972-84 |
| Medium | | | JB-15972-85 |
| Large | | | JB-15972-86 |
| X-large | | | JB-15972-87 |
| XX-large | | | JB-15972-88 |
| Small | 60-g SF | 10 coats/bag; 3 bags/case; total of 30 coats | JB-15972-78 |
| Medium | | | JB-15972-79 |
| Large | | | JB-15972-80 |
| X-large | | | JB-15972-81 |
| XX-large | | | JB-15972-82 |

Flame-Resistant Lab Coats

Don't get burned by flames

- Protect yourself when working with flammable chemicals in the lab

Constructed of flame-resistant 100% cotton, these lab coats feature three outside pockets, side vent openings, hemmed sleeve ends, and a lapel collar. Rated to Arc Thermal Protective Value (ATPV) of 7.7 calories/cm² and a Hazard Risk Category level of HRC1. Color is light blue.



| Size | Length | Catalog number |
|---------|--------------------|--------------------|
| Small | 41½" (105.4 cm) | JB-86468-30 |
| Medium | | JB-86468-31 |
| Large | | JB-86468-32 |
| X-large | | JB-86468-33 |

Protecto-Shield® Face Shields

Protect yourself against liquid splashes, sparks, and impacts

- Adjustable ratchet suspension and tension knob for precise sizing and visor positioning
- Splash drip edge redirects splashing or spraying fluids away from you

Lightweight construction provides comfort during lengthy work periods. Shields attach easily and securely to head gear—no snaps, posts, or levers. Sweatband absorbs perspiration. Can be used with earmuffs.

See comparison table below to determine which material (propionate or polycarbonate) is appropriate for your application.



Head gear 81690-00 with shield 81690-20

Compliance: ANSI Z87-1.2010, CSA Z94.3

| Description | Material | CDE |
|--------------|------------|--------------------|
| Head gear | HDPE | JB-81690-00 |
| Face shields | Propionate | JB-81690-10 |
| | PC | JB-81690-20 |

Comparison of Materials

| Resistance | Propionate | PC |
|------------|---------------|---------------|
| Impact | Good | Excellent |
| Water | Good | Excellent |
| Weather | Fair | Good |
| Scratch | Good | Fair |
| Acid | Fair | Good |
| Alkaline | Fair | Good |
| Solvent | Poor | Good |
| Heat | 104°C (220°F) | 138°C (280°F) |

Polypropylene (PP) Shoe Covers

Don't contaminate your facility

- Skid-free version provides greater traction and safety

These shoe covers are made of 100% spunbond PP. The non-woven fabric is available in two styles: regular or skid-free sole.



| Description | Size | Qty/cs | Catalog number |
|----------------|-------------|----------|--------------------|
| Regular sole | Extra large | 150 pair | JB-86227-82 |
| Skid-free sole | Large | | JB-86227-92 |

Polylatex Shoe Covers

Keep your feet dry

- Resist liquid for better protection

This shoe cover is made of durable, water resistant, lint-free blue polylatex. Polylatex offers better protection from liquid and more durability than other materials.



| Size | Qty/cs | Catalog number |
|-------------|----------|--------------------|
| Extra large | 150 pair | JB-86228-12 |

Polypropylene Bouffants

Keep hair in its place

- Lightweight for more comfort

Bouffants keep hair out of your eyes and away from samples. Ideal for food-processing and general-purpose work.



| Size | Qty/bg | Catalog number |
|-------------|--------|--------------------|
| 21" (53 cm) | 100 | JB-81620-11 |
| 24" (61 cm) | | JB-81620-13 |

Arc Flash Protective Suit Kits

Protect yourself to NFPA 70E hazard risk category (HRC) 4

- Rated for 40 cal/cm² Arc Thermal Protective Value (ATPV)
- Be more comfortable with lightweight option



Constructed of Indura Ultra Soft® (88% cotton) for comfort and breathability. Jackets feature 32" (81.3 cm) length, Nomex® wristlets, and hook and pile storm closure. Bib overalls feature 20" (76.2 cm) inseam, integrated heavy duty suspenders, and hook and pile waist straps. Pro-Hood™ is made of Indura Ultra Soft with a 10" x 20" (25.4 x 50.8 cm) anti-fogging lens.

Compliance: Hood meets ASTM F2178 and NFPA 70E standards along with the flammability requirements of ASTM F1506; also CE 0120 certified. Coat and bib overalls meet ASTM 1506 and NFPA 70E standards and are CE 0120 certified.



What's included: arc flash coat, bib overalls, Pro-Hood, hard hat, safety glasses, and a carrying bag.



| Material | Size | Catalog number |
|-----------------|----------|--------------------|
| Standard weight | Medium | JB-86436-80 |
| | Large | JB-86436-81 |
| | X-large | JB-86436-82 |
| | XX-large | JB-86436-83 |
| Lightweight | Medium | JB-86436-84 |
| | Large | JB-86436-85 |
| | X-large | JB-86436-86 |

Earplugs

Protect your hearing

| Photo | ANSI approval/compliance | Plug features | NRR | Size | Cord options | Pairs/bx | Catalog number |
|--|--------------------------|---|-------|---------|--------------|----------|--------------------|
|  TaperFit® 2 | S3.19-1974 | Tapered shape for easy removal. Made of soft polyurethane. Individually wrapped by pairs in poly bags. | 32 dB | Regular | Uncorded | 200 | JB-48491-10 |
|  Yellow Neon | S3.19-1974 | Made of soft foam to provide the highest NRR available. Bright yellow neon color makes monitoring use easy. | 33 dB | Regular | Uncorded | 200 | JB-48491-60 |

VERATTI® 1000 Protective Eyewear

Get better field of view, fashionably

- Telescopic, adjustable temples
- Hard-coat polycarbonate lens for 99.9% UV protection

This sporty, lightweight eyewear features an 8° base spherical wraparound lens, durable one-piece construction, and telescopic adjustable temples.

Compliance: ANSI Z87.1-2010



| Frame color | Lens | Catalog number |
|-------------|-------|--------------------|
| Black | Clear | JB-86052-80 |
| Silver | | JB-86052-82 |

DP4 Face Shield

Won't limit movement

Faceshield curves naturally to fit facial contours—ensuring reliable protection from splash, particles, and flying debris. Headgear includes ratchet suspension to adjust size and tighten at the turn of a knob.

Soft, padded browguard rests comfortably on face. Rugged, polycarbonate shield is impact- and splash-resistant. Item comes fully assembled with headgear and shield included. Replacement shields are sold separately.



Compliance: ANSI Z87.1+ (High impact), CSA Z94.3

| Description | Color | Material | Catalog number |
|----------------------------|-------|---------------|--------------------|
| Head gear with face shield | Clear | Polycarbonate | JB-86478-00 |
| Replacement face shield | Clear | Polycarbonate | JB-86478-10 |

Astrospec Safety Glasses

Won't scratch or fog

- Antifog Uvextreme® coating with additional antiscratch and antistatic properties
- Fits virtually any size face comfortably
- Adjustable temple length and lens inclination
- Astrospec 3000® comes in various colors to express yourself
- Astro OTG® fit over prescription eyeglasses

Compliance: ANSI Z87.1-2010, CSA Z94.3, military V₀



| Description | Frame color | Temple style | Lens | Catalog number |
|-------------------------------|-------------|--------------|-------|--------------------|
| Astrospec 3000 | Black | Spatula | Clear | JB-86321-00 |
| | Blue | Duoflex® | Clear | JB-86321-10 |
| | Patriot† | | | JB-86321-30 |
| Astro OTG® (over the glasses) | Black | Duoflex® | Clear | JB-86322-00 |
| | Blue | | | JB-86322-10 |
| | Patriot† | | | JB-86322-30 |

†Patriot style has a red brow with white and blue temples.


Lens Cleaner Towelettes

No more dirty lenses

Individually wrapped 5" x 7¼" (12.7 x 18.4 cm) towelettes are premoistened with an antifog, antistatic formula for use on plastic, glass, or polycarbonate lenses, face shields, and goggles. Wipe dirt from computer and video monitors as well. Towelette dispenser features a pullout bottom for easy dispensing and a built-in tab for hanging in a convenient location.



| Description | Catalog number |
|-------------------------------|--------------------|
| Lens cleaner (100 towelettes) | JB-86212-00 |



Cole-Parmer Gloves—Optimised for Pharmaceutical Manufacturing

Rely on our extensive line of gloves and experience the joy of quality and assurance

Even the smallest measure towards safety and compliance makes a big difference

Certified as per Regulatory Standards

Tested as per ASTM and EN standards to address regulatory concerns. Test reports available on request.

Factory Audit*

Believe what you see! Visit the factory and stay assured of production process and quality.

*T&C applied

Sampling for Trials and Validation

Test and validate the samples before you make a purchase.



Cole-Parmer® Ultra-Durable Nitrile Gloves

Maximize protection and ensure grip

- Greater thickness for added strength
- Powder free, low particulate, and free from allergic protein
- Ambidextrous with comfort fit for low fatigue

Manufactured using an innovative and exclusive nitrile formulation that provides outstanding chemical and mechanical properties, comfort and dexterity combined with protection and strength. Lightweight, yet safe and durable. Fully textured surface finish offers confident grip and tactility for fine work. Rolled cuff provides added protection at wrist and ensures secure fit.

Quality standards: ASTM D 6124, ASTM D 6319, EN 455-1, EN 455-2, ISO 9001, ISO 2859



Physical Properties

| Characteristics | Value | Test method |
|------------------------|--|--------------------|
| Freedom from pin holes | AQL: 1.5 | EN 455.1 |
| Tensile strength | Before aging: 9.4 N After aging: 9.6 N | EN 455.2 |
| Elongation | Before aging: 520 After aging: 500 | EN 455.2 |
| Thickness | Cuff: 0.11 mm Palm: 0.12 mm Fingertip: 0.15 mm | EN 455.1, EN 455.2 |

| Size | Length | Qty/cs | Catalog number |
|---------|---------------|--|--------------------|
| Small | 9.5" (240 mm) | 10 boxes of 100 (1000 gloves total) | JB-15957-00 |
| Medium | | | JB-15957-01 |
| Large | | | JB-15957-02 |
| X-large | | | JB-15957-03 |

Cole-Parmer® ThinTouch™ Nitrile Gloves

A superior alternative to latex

- Optimised tactile sensitivity for "touch and feel" experience
- Powder free, low particulate, and free from allergic protein
- Double-washed gloves do not foam on wetting
- Ambidextrous with comfort fit

ThinTouch nitrile gloves are manufactured using an advanced elastic thin-film nitrile formulation providing the best comfort and fit. The advanced formulation combined with the sift finish facilitate optimal tactility and grip—delivers a superior user experience of "touch and feel". This makes it the perfect glove for work involving small parts or when the operations require speedy handling.

Textured fingertips enable sure handling, in both wet and dry applications. High elasticity and the inverted beaded cuff assure easy donning and fatigue-free usage. With high strength and excellent protection, these gloves are an ideal choice for use in nearly all laboratory, pharmaceutical, and manufacturing settings.

Quality standards: ASTM D 6124, ASTM D 6319, EN 455-1, EN 455-2, ISO 9001, ISO 2859, ISO 13485



Physical Properties

| Characteristics | Value | Test method |
|------------------------|---|-------------|
| Freedom from pin holes | AQL: 1.5 | EN 455.1 |
| Tensile strength | Before aging: >14 Mpa After aging: >14 Mpa | ASTM D 6319 |
| Elongation | Before aging: >400 After aging: >300 | ASTM D 6319 |
| Thickness | Cuff: 0.06 mm Palm: 0.075 mm Fingertip: 0.13 mm | ASTM D 6319 |

| Size | Length | Qty/cs | Catalog number |
|---------|---------------|--|--------------------|
| Small | 9.5" (240 mm) | 10 boxes of 100 (1000 gloves total) | JB-15954-24 |
| Medium | | | JB-15954-25 |
| Large | | | JB-15954-26 |
| X-large | | | JB-15954-46 |

Safety Glove Sizing Guide



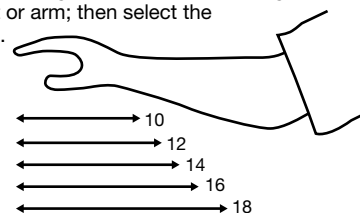
Hand Circumference Method

Measure the circumference of your hand around the palm area with fingers together and hand relaxed. This measurement in inches is closest to your actual glove size. For example, 7" is equal to a size 7 glove. Sizes may vary between different manufacturers and styles. Except where mentioned, gloves are sized according to men's hands. For easy size comparison, see table below.

| Numerical size | 7-8 | 8-9 | 9-10 | 11 |
|----------------|-----|-----|------|----|
| General size | S | M | L | XL |

Length

To determine the correct glove length you need, measure from the tip of the middle finger to where the cuff edge should be on the wrist or arm; then select the proper cuff and length.



Cole-Parmer® ThinTouch PROtect™ Nitrile Gloves

Advanced composition with higher breakthrough time

- Tested for use with 29 chemotherapeutic drugs as per ASTM D6978-05
- 0.65 AQL Level 3
- Higher tensile strength and enhanced chemical resistance
- Exceptional breakthrough times:
 - Carmustine (3.3 mg/mL): 127.5 minutes
 - ThioTEPA (10.0 mg/mL): 240 mins

Use ThinTouch PROtect nitrile gloves for worry-free protection against cytotoxic chemicals, microbes and viruses. Manufactured using a unique formulation, these gloves are subjected to a battery of exhaustive tests and qualified for oncology production and research. Higher tensile strength ensures puncture and tear resistance. Textured fingertip ensures confident grip under wet and dry conditions.

Quality standards: ASTM D 6124, ASTM D 6319, ASTM D6978-05, EN 374, EN 455-1, EN 455-2, EN 455-4



Cole-Parmer®



Physical Properties

| Characteristics | Value | Test method |
|------------------------|--|-------------|
| Freedom from pin holes | AQL: 0.65 | EN 455.1 |
| Tensile strength | Before aging: 6 N/min After aging: 6 N/min | EN 455.2 |
| Elongation | Before aging: >600 After aging: >500 | EN 455.2 |
| Thickness | Cuff: 0.09 mm Palm: 0.12 mm Fingertip: 0.18 mm | ASTM D 6319 |
| Powder content | 2 mg/glove (max) | ASTM D 6124 |

| Size | Length | Qty/cs | Catalog number |
|---------|---------------|--|----------------|
| Small | 9.5" (240 mm) | 10 boxes of 100 (1000 gloves total) | JB-15972-23 |
| Medium | | | JB-15972-24 |
| Large | | | JB-15972-25 |
| X-large | | | JB-15972-26 |
| Small | 12" (300 mm) | 10 boxes of 50 (500 gloves total) | JB-15970-26 |
| Medium | | | JB-15970-27 |
| Large | | | JB-15970-28 |
| X-large | | | JB-15970-29 |

Cole-Parmer® Flock-Lined Nitrile Chemical-Resistant Gloves

Outstanding combination of strength and chemical resistance

- Tough guard for protection from chemicals, acids, caustics, and solvents
- Flock lining keeps hands dry and cool, offering comfort while working long hours
- Textured finish in palms and finger tips ensures a better grip, even in wet conditions

Manufactured using high-performance 18-mil nitrile formulation, these comfortable gloves offer very good abrasion and puncture resistance. Manufactured in an ISO 9001-2008, 13485-2003 certified facility, in compliance with PPE directive 89/686/EEC for protection from chemicals, micro-organisms and mechanical risks.

Quality standards: ASTM D 6319, ASTM D4679(2015), EN 374.1, EN 374-2:2014, EN 420:2003+A1.2009



Cole-Parmer®

Physical Properties

| Characteristics | Value | Test method |
|------------------------|--|-------------|
| Freedom from pin holes | AQL: 1.5 | EN 3674.1 |
| Tensile strength | Before aging: >10 Mpa After aging: >14 Mpa | ASTM D 6319 |
| Elongation | Before aging: >500 After aging: >375 | ASTM D 6319 |
| Thickness | Cuff: 0.36 mm Palm: 0.45 mm Fingertip: 0.50 mm | ASTM D 6319 |

| Size | Length | Qty/cs | Catalog number |
|------------------|--------------|---------------|----------------------------|
| Large X-large | 12" (300 mm) | 50 pairs/case | JB-15986-10 JB-15986-11 |

Have a unique requirement?

One solution doesn't fit all.

022-6139-4444
info@coleparmer.in

Cole-Parmer® G-Series and E-Series Latex Gloves

Optimised for pharmaceutical manufacturing

- Powder free and low protein levels to minimise allergic reactions
- Beaded cuff allows easy donning and prevents roll-down
- AQL of 1.5
- Manufactured under strict GMP
- Each pair is packed in a non-particulate-shedding pouch
- Shelf life of 5 years from the date of manufacture
- Low-particulate last-mile packaging is used to avoid challenging cleanroom integrity

Cole-Parmer premium latex gloves are ergonomically designed and manufactured from quality natural rubber latex for superior tactile sensitivity and comfort. Unlike commercially available medical gloves, these gloves are optimised for pharmaceutical manufacturing. They feature a fully textured finish that enhances operator grip, even when the gloves are wet. This is especially useful in pharmaceutical manufacturing where the operators are required to repeatedly wet the gloves with IPA.

Low-particulate last-mile packaging (pair pouches) carries comprehensive product information, part number identification, size and lot number details to avoid user errors in glove selection—for both sterile and non-sterile gloves.

G-Series Sterile Latex Gloves

- Gamma sterilised to ensure best-in-class performance and assurance
- Best recommended when the process needs the highest sterility assurance and quality. These gloves are treated for ultra-low protein content, lower particulates, superior finish and comfort.

E-Series Sterile Latex Gloves

- EtO sterilised offering a great value for the money
- Recommended when cost effective as well as quality sterile latex gloves are needed

Non-Sterile Latex Gloves

- Ideal for general-purpose use
- Recommended for non-critical applications. Made from best quality raw material at an affordable price.

Request **FREE** samples*!

Call us today

*T&C apply



Pharmaceuticals



Biotechnology



API



Electronics



Cleanroom



Latex



Single-use



ASTM D 5151 | ASTM D 6124

ASTM D 5712 | ASTM D 3578 | EN 455-2

Latex Protein:
Consistently low protein levels for minimising allergic reactions

Manufactured and packed under clean and hygienic environment for highest GMP

In-use performance:
Good elongation and full anatomic shape delivers minimum and lasting comfort in use

Exceptional nonslip grip:
Fully textured for enhanced wet or dry grip

Powder-Free:
Eliminates powder-related complications and sensitivity

Extra comfort:
Beaded cuff for ease of donning

Physical Properties

| Characteristics | Value | Test method |
|------------------------|----------------------|-------------|
| Freedom from pin holes | AQL: 1.5 | ASTM D 5151 |
| Tensile strength | Before aging: 24 Mpa | ASTM D 3578 |
| | After aging: 18 Mpa | |
| Elongation | Before aging: 750 | ASTM D 3578 |
| | After aging: 560 | |

G-Series Sterile Latex Gloves

| Size | 12" (300 mm) L | 14" (350 mm) L | Qty/case | 16" (400 mm) L | 18" (450 mm) L | Qty/case |
|---------|----------------|----------------|---|----------------|----------------|---|
| Small | JB-15977-01 | JB-159 77-05 | 1 walled pair/pouch; 50 pouches/box; 6 boxes/case Total: 300 pairs (600 gloves) | JB-15977-09 | JB-15977-13 | 1 walled pair/pouch; 50 pouches/box; 4 boxes/case Total: 200 pairs (400 gloves) |
| Medium | JB-15977-02 | JB-15977-06 | | JB-15977-10 | JB-15977-14 | |
| Large | JB-15977-03 | JB-15977-07 | | JB-15977-11 | JB-15977-15 | |
| X-large | JB-15977-04 | JB-15977-08 | | JB-15977-12 | JB-15977-16 | |

E-Series Sterile Latex Gloves

| Size | 12" (300 mm) L | 14" (350 mm) L | Qty/case | 16" (400 mm) L | 18" (450 mm) L | Qty/case |
|---------|----------------|----------------|---|----------------|----------------|---|
| Small | JB-15977-20 | JB-15977-28 | 1 walled pair/pouch; 100 pouches/box; 6 boxes/case Total: 600 pairs (1200 gloves) | JB-15977-24 | JB-15977-32 | 1 walled pair/pouch; 50 pouches/box; 4 boxes/case Total: 200 pairs (400 gloves) |
| Medium | JB-15977-21 | JB-15977-29 | | JB-15977-25 | JB-15977-33 | |
| Large | JB-15977-22 | JB-15977-30 | | JB-15977-26 | JB-15977-34 | |
| X-large | JB-15977-23 | JB-15977-31 | | JB-15977-27 | JB-15977-35 | |

Non-Sterile Latex Gloves

| Size | 12" (300 mm) L | 14" (350 mm) L | Qty/case | 16" (400 mm) L | 18" (450 mm) L | Qty/case |
|---------|----------------|----------------|---|----------------|----------------|---|
| Small | JB-15970-48 | JB-15970-30 | 1 walled pair/pouch; 100 pouches/box; 6 boxes/case Total: 600 pairs (1200 gloves) | JB-15945-04 | JB-15970-40 | 1 walled pair/pouch; 50 pouches/box; 4 boxes/case Total: 200 pairs (400 gloves) |
| Medium | JB-15970-49 | JB-15970-31 | | JB-15945-05 | JB-15970-41 | |
| Large | JB-15970-50 | JB-15970-32 | | JB-15945-06 | JB-15970-42 | |
| X-large | JB-15970-51 | JB-15970-33 | | — | JB-15970-43 | |

Contact us for qualification documentation and validation support.

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Kimberly-Clark® KleenGuard® G10 Blue Nitrile Gloves

Comfortable, durable, and provide a great value

- Latex-free gloves reduce the risk of allergic reactions
- More comfortable and economical than standard nitrile gloves

The natural, latex-free rubber used in these gloves reduces the risk of allergic reactions. Additional features include textured fingertips and beaded cuff. These gloves are FDA compliant, and the environmentally friendly packaging provides more value and less waste. Powder-free and ambidextrous.



| Size | Length | Thickness | Qty/cs | Catalog number |
|--------|---------------|-----------|------------------------------|--------------------|
| Small | 9.5" (240 mm) | 2 mil | 10 boxes of 200 (2000 total) | JB-15941-51 |
| Medium | | | | JB-15941-52 |
| Large | | | | JB-15941-53 |

Kimberly-Clark® KleenGuard® G20 Atlantic Green Nitrile Gloves

Protect yourself from chemical splashes

- Maximum touch sensitivity, comfort, and flexibility

Powder-free, latex-free gloves offer chemical splash hand protection. Suitable for chemical handling in nonsterile environments, labs, agriculture, manufacturing, and emergency services. Textured fingertips provide excellent grip. Beaded cuff. Ambidextrous.



| Size | Length | Qty/cs | Catalog number |
|---------|---------------|--------|--------------------|
| X-small | 9.5" (240 mm) | 2500 | JB-15964-95 |
| Small | | 2500 | JB-15964-96 |
| Medium | | 2500 | JB-15964-97 |
| Large | 10" (250 mm) | 2500 | JB-15964-98 |
| X-large | | 2250 | JB-15964-99 |

DON'T RISK IT!

Make sure your gloves are compatible with your materials.
ColeParmer.in/SafetyChemGuide



Kimberly-Clark® Premium Nitrile Gloves

Purple color distinguishes these gloves from latex

- Guard against incidental splash exposure
- Superior tensile strength of 21

These 100% nitrile gloves are soft, latex-free, powder-free, and nonsticky. Low chemical content reduces risk of allergic reactions. Textured fingertips enhance wet or dry grip. Beaded cuff. Ambidextrous.

Compliance: ASTM D 6319, ISO 9002.



| Size | Length | Qty/cs | Catalog number |
|--------|---------------|--------|--------------------|
| Small | 9.5" (240 mm) | 1000 | JB-33466-04 |
| Medium | | | JB-33466-05 |
| Large | | | JB-33466-06 |
| Small | 12" (305 mm) | 500 | JB-33466-07 |
| Medium | | | JB-33466-08 |
| Large | | | JB-33466-09 |

Kimberly-Clark® KleenGuard® G80 Chemical-Resistant Gloves

Neoprene latex blend is resistant to acids, detergents, and caustics

Cotton flock lining makes these gloves easier to put on and remove. Lining also absorbs perspiration making the glove more comfortable. The exclusive glove shape is optimised for the best possible fit on more than forty different dimensions.

| Size | Qty/cs | Catalog number |
|------|----------|--------------------|
| 9 | 144 pair | JB-33466-03 |



Kimberly-Clark® KleenGuard® G60 Cut-Resistant Gloves

For industrial employees who need protection against hand cuts

These cut-resistant gloves provide a high level of cut resistance, while enhancing dexterity, grip, and comfort. The gloves are breathable with a flexible dotted palm for better grip. Ambidextrous.

| Size | Qty/cs | Catalog number |
|------|----------|--------------------|
| 8 | 12 pairs | JB-33466-00 |
| 9 | 12 pairs | JB-33466-01 |



Butyl II Gloves

Stay safe during cleanups

- Non-bulky and non-restrictive for easier handling
- Excellent chemical resistance
- Long, 14" (350 mm) gloves for added protection
- Ideal for use with hazmat suits

Compliance: ASTM F739.

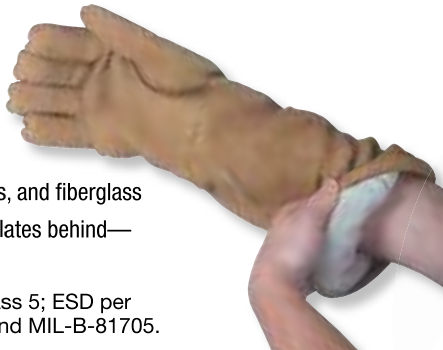


| Size | Description | Catalog number |
|---------|---|--------------------|
| Medium | Smooth gloves, 14-mil thick, 1 pair | JB-86357-01 |
| Large | | JB-86357-02 |
| X-large | | JB-86357-04 |
| Medium | Textured gloves, 14-mil thick, 1 pair | JB-86357-11 |
| Large | | JB-86357-12 |
| X-large | | JB-86357-13 |
| Medium | Heavyweight smooth gloves, 30-mil thick, 1 pair | JB-86357-20 |
| Large | | JB-86357-21 |
| X-large | | JB-86357-22 |

Extreme-Temperature Gloves

Stand up to the heat!

- Withstand dry temperatures from -210 to 1400°F (-134 to 760°C)
- Won't char or leave residue
- Free of PCB, asbestos, and fiberglass
- Will not leave particulates behind—flexible nylon lining



Compliance: ISO Class 5; ESD per DODD-HDBC-263 and MIL-B-81705.

| Description | Size | Length | Qty | Catalog number |
|--|-------|--------------|--------|--------------------|
| Max. temperature 1000°F (537°C) gloves | Large | 14" (350 mm) | 1 pair | JB-33689-20 |
| Max. temperature 1400°F (760°C) gloves | Large | 14" (350 mm) | 1 pair | JB-33689-21 |
| | | 18" (460 mm) | | JB-33689-22 |
| | | 27" (690 mm) | | JB-33689-23 |

High-Temperature Gloves

Won't let you get burned

- Material resistant up to 2000°F (1093°C)
- Asbestos-free, cotton-backed wool liner
- Extra strong with aramid thread throughout
- One size fits all
- Made in USA

Compliance: European EN407 industrial standard.



| Description | Peak temperature† | Qty | Catalog number |
|---------------------------------------|-----------------------------|--------|--------------------|
| Zetex glove, 14"L (350 mm) | 1000°F (538°C) | 1 pair | JB-86364-00 |
| ZetexPlus glove, 14"L (350 mm) | 2000°F (1093°C) | 1 pair | JB-86364-10 |
| Aluminized Zetex glove, 14"L (350 mm) | 1000°F (538°C) radiant heat | 1 pair | JB-86364-20 |

†Peak temperature is dependent on duration, application, and environment.

Thermaprene™ Heat-Resistant, Lined Neoprene Gloves

Don't give up comfort for safety

- Soft thermal liner provides heat resistance and comfort
- Chemical-resistant neoprene coating
- Protects against punctures
- Nonslip grip



| Size | Length | Qty | Catalog number |
|------|--------------|--------|--------------------|
| 8 | 26" (660 mm) | 1 pair | JB-81609-04 |
| 10 | | | JB-81609-06 |

Temp-Tec® Heat-Insulated Neoprene Gloves

Don't wonder when to replace

- Two-tone indicator alerts you when to replace gloves
- Good chemical resistance
- Roughened surface for better gripping
- Withstand temperatures from -100 to 480°F (-73 to 249°C)

Compliance: FDA 21 CFR 177.2600.



Insulated neoprene gloves give you excellent protection from extreme hot or cold.

| Size | Length | Qty | Thickness | Catalog number |
|---------|--------------|--------|-------------|--------------------|
| Medium | 14" (350 mm) | 1 pair | Heavy gauge | JB-40211-30 |
| Large | | | | JB-40211-31 |
| X-large | | | | JB-40211-32 |

Cryo-Glove® Cryogenic Gloves

Keep hands from freezing

- Protect as low as –256°F (–160°C)
- Maximum protection while remaining flexible

Water-Resistant Gloves provide protection in closed systems. A stay-dry lining keeps you warm and comfortable. **Waterproof Gloves** have a nylon exterior and a seamless waterproof lining. Gloves keep you dry and wick moisture away from your hands. **Cryo-Industrial® Gloves** feature a rugged, abrasion-resistant outer shell that protects the glove and provides an excellent grip for heavy-duty applications. Waterproof liner protects against cryogenic splashes while the inner lining wicks moisture from your hands for enhanced comfort.



Note: Do not immerse gloves in liquid nitrogen.



| Description | Size | Length | Qty | Catalog number |
|--|---------|--------------|--------|----------------|
| Water-resistant Cryo-Glove gloves | | | | |
| Wrist | Medium | 12" (300 mm) | 1 pair | JB-09113-02 |
| | Large | | | JB-09113-04 |
| Mid-arm | Medium | 15" (380 mm) | 1 pair | JB-09113-12 |
| | Large | | | JB-09113-14 |
| | X-large | | | JB-09113-16 |
| Elbow | Medium | 19" (480 mm) | 1 pair | JB-09113-22 |
| | Large | | | JB-09113-24 |
| | X-large | | | JB-09113-26 |
| Waterproof Cryo-Glove gloves | | | | |
| Mid-arm | Medium | 15" (380 mm) | 1 pair | JB-09113-30 |
| | Large | | | JB-09113-32 |
| | X-large | | | JB-09113-34 |
| Elbow | Medium | 19" (480 mm) | 1 pair | JB-09113-35 |
| | Large | | | JB-09113-37 |
| | X-large | | | JB-09113-39 |
| Cryo-Industrial heavy-duty gloves | | | | |
| Mid-arm | Medium | 15" (380 mm) | 1 pair | JB-09113-62 |
| | Large | | | JB-09113-64 |
| | X-large | | | JB-09113-66 |

Drybox Gloves

Protect your entire arm

- Shoulder-length, seamless protection

Neoprene Gloves feature high tensile strength and flexibility for work that requires high sensitivity and good dexterity.

Hypalon® Gloves offer outstanding abrasion protection and resistance to ozone or oxidizing chemicals. Natural softness improves worker comfort.

Butyl Gloves allow highest impermeability to water, vapors and gases. They maintain flexibility even at low temperatures and are resistant to oxygenated solvents and most oxidizing chemicals.



| Material | Size | Length | Qty | Thickness | Catalog number |
|----------|------|--------------|--------|-----------|----------------|
| Neoprene | 9¾ | 32" (810 mm) | 1 pair | 15 mil | JB-86569-00 |
| | | | | 30 mil | JB-86569-02 |
| Hypalon | 9¾ | 32" (810 mm) | 1 pair | 15 mil | JB-86569-10 |
| | | | | 30 mil | JB-86569-12 |
| Butyl | 9¾ | 32" (810 mm) | 1 pair | 15 mil | JB-86569-20 |
| | | | | 30 mil | JB-86569-22 |

Insulating Rubber Glove Kits

Don't compromise safety when working with electrical power

- Includes everything you need—insulating rubber gloves, appropriate leather protector, and storage bag
- Protect gloves from cuts, abrasions, and punctures with included leather protector

Tip: In accordance with NFPA 70E, anything over 50 volts requires insulating rubber gloves.

Kits include leather protector, storage bag and insulating rubber gloves



| Class | Length | Max use voltage AC / DC | Size | Color | Catalog number | Color | Catalog number | Color | Catalog number |
|-------|--------------|-------------------------|------|-------|----------------|-------|----------------|--------|----------------|
| 00 | 11" (279 mm) | 500 / 750 | 8 | Red | JB-86435-00 | Black | JB-86435-05 | Yellow | — |
| 00 | 11" (279 mm) | 500 / 750 | 9 | | JB-86435-01 | | JB-86435-06 | | — |
| 00 | 11" (279 mm) | 500 / 750 | 10 | | JB-86435-02 | | JB-86435-07 | | — |
| 00 | 11" (279 mm) | 500 / 750 | 11 | | JB-86435-03 | | JB-86435-08 | | — |
| 00 | 11" (279 mm) | 500 / 750 | 12 | Red | JB-86435-04 | Black | JB-86435-09 | Yellow | — |
| 0 | 11" (279 mm) | 1000 / 1500 | 8 | | JB-86435-10 | | JB-86435-15 | | JB-86435-20 |
| 0 | 11" (279 mm) | 1000 / 1500 | 9 | | JB-86435-11 | | JB-86435-16 | | JB-86435-21 |
| 0 | 11" (279 mm) | 1000 / 1500 | 10 | | JB-86435-12 | | JB-86435-17 | | JB-86435-22 |
| 0 | 11" (279 mm) | 1000 / 1500 | 11 | Red | JB-86435-13 | Black | JB-86435-18 | Yellow | JB-86435-23 |
| 0 | 11" (279 mm) | 1000 / 1500 | 12 | | JB-86435-14 | | JB-86435-19 | | JB-86435-24 |
| 2 | 14" (356 mm) | 17,000 / 25,500 | 8 | | — | | JB-86435-25 | | — |
| 2 | 14" (356 mm) | 17,000 / 25,500 | 9 | | — | | JB-86435-26 | | — |
| 2 | 14" (356 mm) | 17,000 / 25,500 | 10 | Red | — | Black | JB-86435-27 | Yellow | — |
| 2 | 14" (356 mm) | 17,000 / 25,500 | 11 | | — | | JB-86435-28 | | — |
| 2 | 14" (356 mm) | 17,000 / 25,500 | 12 | | — | | JB-86435-29 | | — |

Your Fluid Handling Partner from Research to Fill/Finish

Fluid Handling

Trusted for over 55 years for bioprocessing and pharmaceutical fluid transfer solutions, scalable from development to production

Media Preparation > Fermentation > Harvesting > Purification > Fill/Finish

Leave your performance and compliance worries on us. 100% compliance rate when you pump it up with Masterflex® and Ismatec® Peristaltic Pumps and Tubing

Leading biopharmaceutical companies rely on fluid handling solutions from Cole-Parmer! And that's just the beginning! With more than 100,000 products to optimize your research, scale-up and production, we've worked with multiple customers to guarantee results in their operations.

- **FDA 21 CFR Part 11 and Eu Annex II compliant:** complete data access and management as per FDA 21 CFR Part 11 compliance for new MasterflexLive™
- **100% compliance rate** with customer quality audits
- **99.7% accuracy** on recommended products for customer needs
- **93% satisfaction** rating among biopharmaceutical customers when doing business with Cole-Parmer
- **Certificate of material compliance** available on more than 2,000 products. In addition, we offer product lot control, product documentation, animal-derived ingredient-free documentation, change control notifications, and more to keep you compliant with industry standards

| | |
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development



scale-up

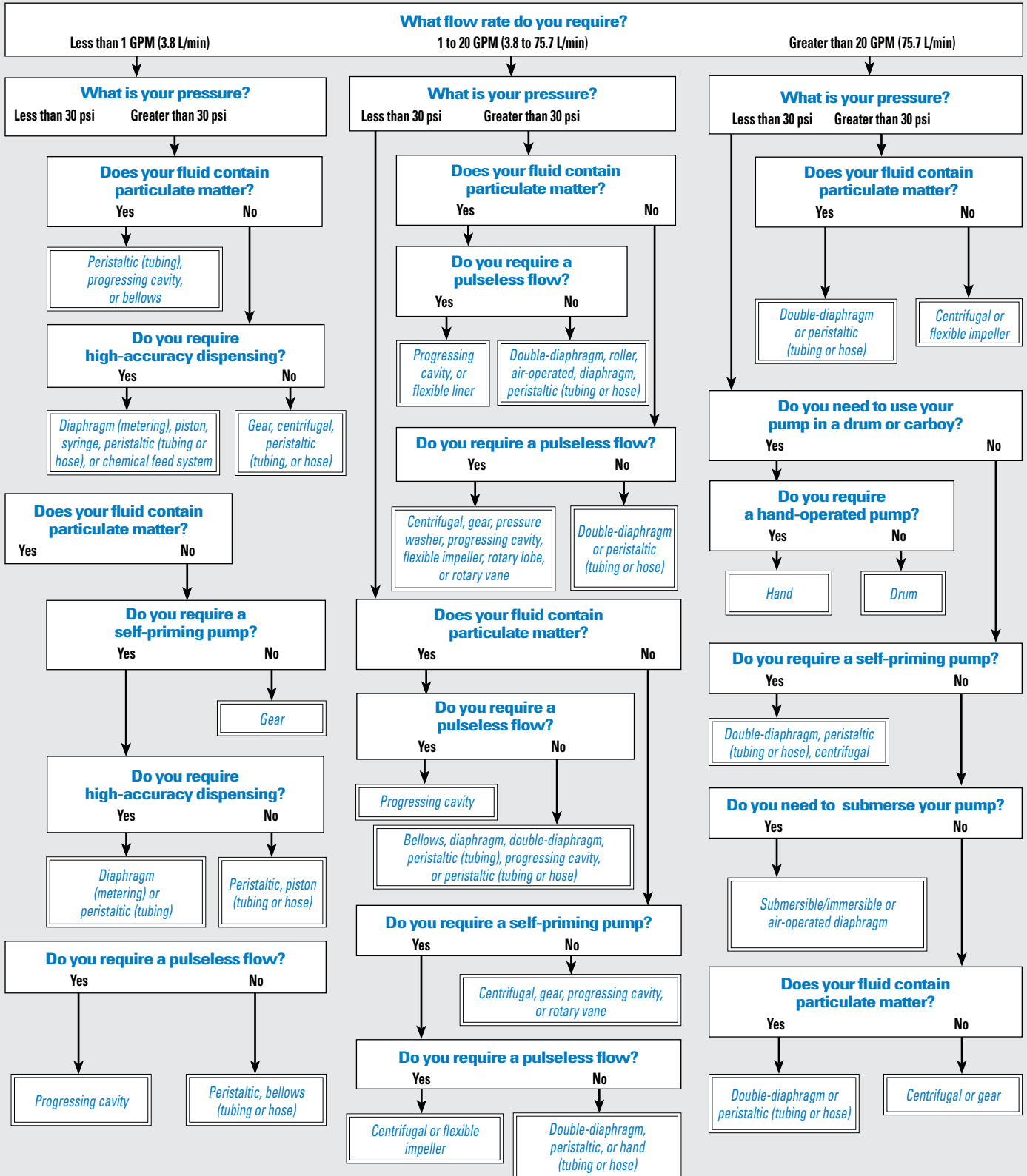


production



Make selecting the right pump easier! Follow the arrows...

Follow the arrows to find the best pump type for your application. This flowchart is intended as a rough guideline—factors such as fluid viscosity, temperature, installation requirements, and chemical compatibility should be considered. Contact your local representative for more help on your specific application.



Guide to Liquid Pumps

Use the guide below to help you select the best type of pump for your application. This information is intended as a general guideline and will not hold true for all pumps within a classification; check individual pump specifications on the given pages for complete details. For types of pumps not included in this catalog, contact Cole-Parmer or your local dealer.

| Pump type | Page(s) | Max flow ranges | | Max pressure | Self-priming | Pulseless flow | Fluid viscosity | Particulate matter | Run dry | Advantages |
|-------------------------|---------|-----------------|-----------------------------|------------------|--------------|----------------|-----------------|--------------------|---------|---|
| | | GPM | L/min | | | | | | | |
| Air-operated diaphragm | 162 | 0.79 | 3 | Up to 87 psi | Excellent | Fair | Medium | Yes | Yes | Low flow, simple operation with one diaphragm. Ideal for OEM or end-use applications. |
| Drum | 164–165 | 3.5 to 63 | 13.2 to 238 | Up to 100 psi | Poor | Excellent | Medium | Yes | No | Economical. No electrical parts |
| Gear | 166–167 | ~0 to 60 | 5×10^{-6} to 227 | Up to 100 psi | Poor | Excellent | Medium | No | No | Pulseless flow at high pressures |
| Hose | 168 | 5.7 to 153 | 21 to 580 | Up to 200 psi | Excellent | Poor | Very heavy | Yes | Yes | Noncontaminating; available in a wide variety of pump materials. |
| Ismatec® peristaltic | 123–130 | 0.007 to 3.4 | 0.026 to 13 | Varies on tubing | Excellent | Fair | Heavy | Yes | Yes | Noncontaminating, high accuracy, available in a wide variety of pump materials |
| Masterflex® peristaltic | 71–121 | 0.010 to 10 | 0.037 to 37 | Up to 125 psi | Excellent | Fair | Heavy | Yes | Yes | Noncontaminating; available in a wide variety of pump materials |
| Piston | 169 | 0.0004 to 0.34 | 0.0015 to 1.3 | Up to 5000 psi | Good | Poor | Medium | No | No | Highest pressure and accuracy; ideal for HPLC applications |
| Syringe | 170 | ~0 to 0.40 | 1×10^{-12} to 1.51 | Up to 100 psi | N/A | Excellent | Light | No | Yes | Low flow rates at high pressures |

Need Help Selecting?

Trust our **expert** Application Specialists to help you find the right product.

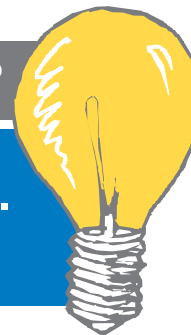
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Have a unique requirement?

One **solution** doesn't fit all.

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Don't Forget...



Fittings



Tubing



Valves

Get Pumped

Any pharma application, any configuration, we have a pump solution for you!

With 2300+ models, over 20 different pumping technologies and more than 10,000 possible configurations, we've the right product for your demanding pharmaceutical fluid handling applications.

Research lab or production facility? Find the right solution—based on more than 55 years of our fluid handling experience.

Choose complete package of pumps along with accessories that address your concerns in fluid transferring right from:

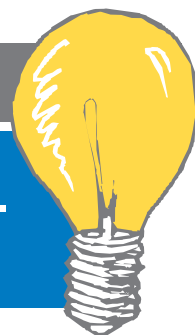
- Meeting required accuracy $\pm 1\%$
- Handling highly viscous solutions
- Pumping delicate live cells
- Complete data access and management as per FDA 21CFR Part 11
- Pumping flammable solutions for areas where electrical precautions are needed for safe operations



Have a unique requirement?

One **solution** doesn't fit all.

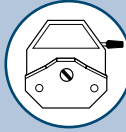
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Selecting Masterflex® Components

10,000+ Combinations

Masterflex pumps allow you to choose each component for your unique demands—change out components as your needs change



WHAT TO CONSIDER:

- Flow rate—Different pump heads have different flow rate capabilities.
- Tubing change frequency—Some pump heads enable rapid tubing changes.
- Desired number of channels—Pump heads are stackable in most cases.
- Chemical compatibility—If chemicals spill, pump head materials become important.
- Accuracy—Standard pump heads offer the most accurate, repeatable flow rates.



WHAT TO CONSIDER:

- Flow rate—Tubing size directly affects flow rate.
- Chemical compatibility
- Tubing life
- Fluid viscosity, presence of solids, back pressure, or suction lift—High-performance tubing is best for these conditions.
- Fluid temperature



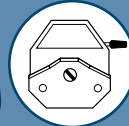
WHAT TO CONSIDER:

- Flow rate—The rpm of the drive directly correlates to flow rate.
- Fixed- or variable-speed—Variable-speed drives enable flow rate adjustment.
- Accuracy of flow rate or dispense volume—Many drives have digital speed control circuitry for highly accurate and repeatable flow rates.
- Remote control or computer interface—Some drives can connect to your process controller or can be operated by a foot switch.
- Environmental protection against hazards—Many drives are sealed against dust and water exposure.



Or choose a
Complete System
Convenient preconfigured systems
include everything you need to get
started

PUMP HEAD



TUBING



DRIVE



Custom OEM Pump Systems

When an off-the-shelf pump just won't cut it, you need a solution custom-built for your requirements

With more than 100 years of combined experience, our design engineers will partner with you to create the exact pump you need. Contact our Application Specialists to get started!

Still not sure what to choose?



Contact us at 022-6139-4444 for help finding the right pump for your application.

Why Masterflex® Peristaltic Pumps?

- 1 Easy**
 - Quick installation
 - Low maintenance
 - Easy tubing changeover
- 2 Durable**
 - Trusted for over 45 years
 - Broad chemical compatibility
- 3 Versatile**
 - From research to process
 - Handles just about any fluid
 - Multichannel capabilities

- 4 Customizable**
 - Configurable systems
 - Many tubing options
 - Easy scale-up
- 5 Accurate**
 - Flow ranges from 0.0001 mL/min to 42 LPM
 - Rigorous design and testing standards
 - Tubing is custom manufactured to precise tolerances



Selecting a Masterflex® Pump: As Easy As . . .

Application Requirements

- What is my required flow rate?
- What chemical am I pumping?
- Do conditions such as viscosity or back pressure play an important role in my decision?

Base a Pump Series on Your Flow Rate

- Use the table below to find the pump series that best fits your flow rate needs

Complete Your System

- L/S and I/P pump series are divided into three components—pump head, tubing, and drive
- Select the three components from the same series or choose a complete preconfigured system

| Masterflex pump series | Features | Flow range | Speed | | Remote control capability | Multichannel capabilities | Page(s) |
|------------------------|--|-----------------------|-------|----------|---------------------------|---------------------------|---------|
| | | | Fixed | Variable | | | |
| C/L® | Compact, low-flow pump that easily fits on benchtop or mounts within a panel | 0.0001 to 43 mL/min | | ✓ | Yes | Yes | 107 |
| L/S® | High-accuracy drives for precise flow control and dispensing | 0.0005 to 7600 mL/min | ✓ | ✓ | Yes | Yes | 75–95 |
| I/P® | Powerful systems that provide better protection from possible hazards such as dust and water | 0.001 to 19 LPM | ✓ | ✓ | Yes | Yes | 96–103 |
| B/T® | Highest flow rates—ideal for large batch fluid transfer with excellent hazard protection | 0.6 to 42 LPM | ✓ | ✓ | Yes | Yes | 105–106 |

More Online: ColeParmer.in/Masterflex

Selecting Your Masterflex® Tubing Pump System

1 Define Your Application Requirements.

- A** What flow rate do I need?
- A** What chemical am I pumping?
- A** Do conditions such as fluid viscosity or back pressure play an important role in my application?

2 Select a Pump Series Based on Your Flow Rate.

- A** C/L® 0.00013 to 45 mL/min
- B** L/S® 0.0005 to 7600 mL/min
- C** I/P® 0.001 to 19 LPM
- D** B/T® 0.6 to 42 LPM

3 Select a Pump Head, Tubing, and Drive.

- A** The L/S® and I/P® pump series are divided into three component categories—pump head, tubing, and drive.
- B** The icons at right appear throughout the Masterflex® section to show you which pump series and what components are listed on those pages.

Help in selecting your Masterflex pump system is available at ColeParmer.in/Masterflex

MASTERFLEX®
Application Solutions

Scan this database of challenging fluid handling applications and the Masterflex® tubing pump systems that are meeting those challenges.

Purchase a complete Masterflex tubing pump system:

To find complete Masterflex tubing pump systems, look for the symbol below with all three components highlighted. This symbol indicates that you may purchase a complete Masterflex system with a single catalog number.



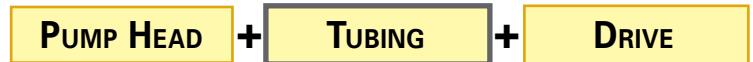
or

Purchase your Masterflex system by components



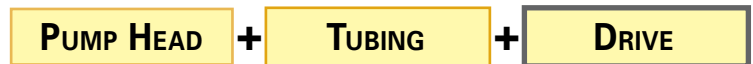
What to Consider:

- Flow rate**—Different pump heads have different flow rate capabilities.
- Tubing change frequency**—Some pump heads enable rapid tubing changes.
- Desired number of channels**—Pump heads are stackable in most cases.
- Chemical compatibility**—If chemicals spill, pump head materials become important.
- Accuracy**—Standard pump heads offer the most accurate, repeatable flow rates.



What to Consider:

- Flow rate**—Tubing size directly affects flow rate.
- Chemical compatibility**
- Tubing life**
- Fluid viscosity, presence of solids, back pressure, or suction lift**—High-performance tubing is best for these conditions.
- Fluid temperature**—Information concerning the temperature range for each tubing formulation can be found on pages 114–116.



What to Consider:

- Flow rate**—The rpm of the drive directly correlates to flow rate.
- Fixed- or variable-speed**—Variable-speed drives enable flow rate adjustment.
- Accuracy of flow rate or dispense volume**—Many drives have digital speed control circuitry for highly accurate and repeatable flow rates.
- Remote control or computer interface**—Some drives can connect to your process controller or can be operated by a foot switch.
- Environmental protection against hazards**—Many drives are sealed against dust and water exposure.

Masterflex® Tubing Pumps—from Concept to Application

Masterflex® tubing pump systems are made to exact specifications using a proven process developed over more than 55 years. This is key to our promise to deliver solutions you trust.

Customer Input

Before we create any Masterflex® tubing pump, we define the unique needs of our customers.

Concept

This is where we put our over 50 years of experience in developing more than 5,000 products to work. It's where we consider all the possibilities, including specific applications, product adaptability, and costs.

Engineering

Once a product is conceptualized, proven procedures are maintained to control and verify its design to ensure that specified requirements are met.

Testing

The appearance of the following regulatory agency icons are your assurance that those products meet applicable standards for safety and reliability:



Production

Masterflex pumps are manufactured in a facility whose quality management system is registered to ISO 9001:2008.

Customer/Application Services

Our partnership with you doesn't end with the sale. We are available for follow-up, technical support, and service to ensure you are completely happy with your product. Our maintenance staff is available to quickly handle repairs and can help you identify replacement parts.

Finally, our expert Application Specialists can help you with product selection and maintenance, and offer you continuous support.



Customer Input



Engineering



Prototyping



Testing



Customer/
Application
Services



Cole-Parmer®
scientific experts



Markets Served

- Biotechnology
- Pharmaceutical
- Chemical
- Food & Beverage
- Cosmetics
- Industrial
- Research & Development
- Printing
- Water/Wastewater
- Manufacturing
- Semiconductors
- Textiles
- Education
- Environmental and more...

OEM Design Capabilities

Our Original Equipment Manufacturer (OEM) team has more than 100 years of combined experience in custom designing fluid handling solutions. We provide thousands of quality products for scientific, technical, and industrial applications worldwide. When you require a product that is different from the products we advertise, or you need a feature from one of our products to meet your specific system requirement, we offer our OEM services.

Capabilities

We are known as an industry leader in the design, engineering, and manufacturing of peristaltic tubing and hose pumps, diaphragm metering pumps, vacuum/pressure pumps, flowmeters, and mixers.

Markets and applications

We specialize in the following markets: medical, semiconductor, wastewater treatment, food and beverage, biotechnology, filtration, pharmaceutical, environmental, printing, and metal finishing. Our products are used as irrigation and cooling pumps for medical devices, auto-analyzer pumps, pumping inks onto electric cable insulation, high-purity filtration systems, and many more specialized needs.

Work directly with our expert OEM engineers

Our first objective is defining your needs. We will discuss the project in detail—engineering staff to engineering staff. Once we jointly define your requirements, we will work with you through the entire design and manufacturing process.

After-sale technical support is a key service we provide

Our partnership doesn't end with product delivery. We are always available for follow-up service and technical support. We want to ensure that you remain completely satisfied with your final product.

Technical Info

High-quality products conform to these standards:

- ISO 9001:2008 Quality Management
- ETL Safety
- UL Safety
- cUL Safety, Canada
- CE – Electrical emissions
- EN61010 Safety, EU

Innovative pump solutions for your applications

Our custom design group provides win-win solutions for your product design.

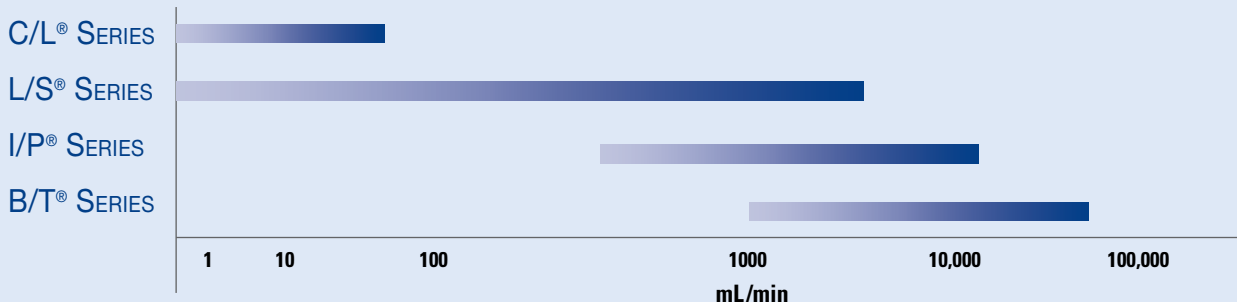


Flow Performance

From volumes less than a teardrop to flow rates more than a fire hose, we can provide a custom solution for your specific fluid transfer needs.

Flow rates: less than 10 $\mu\text{L}/\text{min}$ to more than 400 LPM

Pressure performance: up to 10.2 bar



Pharmaceutical & Biotech



Application Examples

- Harvesting cell media
- Manufacturing IV bag dispensing
- Spiral ultrafiltration
- Fermentation control
- Dissolution testers
- Cosmetic dispensing

| Features | Benefits |
|--------------------------------|--|
| Wide range of tubing materials | Compatible with many laboratory chemicals. |
| Noncontaminating | Fluid media only contacts inside of tubing. |
| Easy cleanup | Just change the tubing to clean the pump |
| Multichannel capability | Use up to 32 channels simultaneously on one drive. |
| Sanitary connections on tubing | Quick tubing connections within sanitary systems. |
| Handles viscous materials | Dispense agars and suspensions. |
| Runs dry | Use as a low-flow aspirator or air/vacuum pump. |
| Modular design | Mix and match pump heads, tubing, and drives. |
| OEM packages | Design into your lab dispensers or analytical equipment. |



Bioprocess Pump

- Accurately pump nutrient media from a bulk source into bio-bag sterile containers
- Silicone tubing for easy flow monitoring and biocompatibility; can be sterilized by gamma irradiation
- Flow rates: 0.28 to 1700 mL/min with L/S® 24 tubing
- Monitor flow rate, volume, batch count, cumulative volume, copy number, and rpm
- Easy calibration—store one value per tubing size
- Easy-Load® II pump head for fast tubing changes
- Drive is IP66 and NEMA 4X rated—easily cleaned or washed down after use

Pump products shown

- JB-77200-62 L/S® Easy-Load® II Pump Head**
- JB-96410-24 L/S 24 Platinum-Cured Silicone Tubing**
- JB-07575-10 L/S Digital Process Drive**



Fermentation Pump

- Pump media into or out of fermenters
- Meter additives, antifoam agents, and acid/base for pH control
- Noncontaminating; easy sterilization and cleanup
- Remote control of speed, direction, and start/stop
- Quick, easy tubing changes between samples
- Platinum-cured silicone tubing ensures excellent biocompatibility

Pump products shown

- JB-77200-52 L/S Easy-Load II Pump Head**
- JB-96410-16 L/S 16 Platinum-Cured Silicone Tubing**
- JB-07522-20 L/S Digital Standard Drive**



Process Filtration Pump

- Pump media and other fluids through sanitary process filters
- Noncontaminating; facilitates application of single-use tubing and assemblies
- Remote control of speed, direction, and start/stop
- Quick, easy tubing changes between applications
- I/P 88 pump tubing offers flow up to 17 LPM and pressure up to 2.5 bar (35 psi)
- Sanitary tube set with premolded ends simplifies connections
- Drive is IP66 and NEMA 4X rated—easily cleaned or washed down after use

Pump products shown

- JB-77600-62 I/P® High-Performance Pump Head**
- JB-96102-88 I/P 88 PharMed® BPT Tubing**
- JB-77420-10 I/P Digital Process Drive**



Bulk Media Transfer Pump

- Modular format for convenient component placement; controller can be wall mounted
- IP56 rated controller and drive are protected from water spray in washdown environments
- Program dispense volume for repetitive filling protocols
- Flow rates up to 17.7 LPM with B/T 87 PerfectPosition™ PumpTubing
- Rapid-Load® pump head makes tubing changes quick and easy
- PharmaPure® tubing offers excellent pump life and meets EP, FDA, and USP classifications

Pump products shown

- JB-06437-91 B/T® 91 PharmaPure® Pump Tubing**
- JB-77111-77 B/T Digital Variable-Speed Modular Pump**

Research & Development



Application Examples

- Acid/base dispensing
- Aspiration of tissue culture media
- Circulation of cell suspension in fermentation
- Chromatography
- Coolant circulation in low temp baths
- Desiccator air circulation
- Distilled water transfer
- Dispensing agar into petri dishes
- Electrophoresis
- Elutriation
- Filtration pumps
- Flow injection analysis
- Gas sampling system
- Gel column pump
- Injection metering pump
- Liquid-phase chemiluminescence
- Magnetic particle separation
- Nutrient supply for cultures
- pH acid/base metering
- Spectrophotometer pump
- Sterilized media dispensing
- Transfer pump-circulating baths
- Toxicology assays (salt solutions)

| Features | Benefits |
|--------------------------------|---|
| Modular design | Mix/match pump heads, tubing, and drives for many applications. |
| Noncontaminating | Fluid media only contacts inside of tubing. |
| Adjustable occlusion | Over-occlude for priming and pressure; reduce for longer tubing life. |
| Reversible | Operate in both directions without disconnecting tubing. |
| Wide range of tubing materials | Compatible with numerous laboratory chemicals. |
| Multichannel capability | Use up to 32 channels simultaneously on one drive. |
| Easy cleanup | Simply change the tubing to clean the pump. |
| Runs dry | Use as a low-flow aspirator or air/vacuum pump. |
| Easily sterilized | Sterilize tubing via ethylene oxide, gamma radiation, or autoclave. |
| High-accuracy dispenser | Calibrate digital drives for accuracies up to $\pm 0.5\%$. |
| Low cell disruption | Circulate cell tissue with minimal damage (low shear). |
| Remote control | Interface with PC or other analytical instruments. |
| Self-priming | Generates vacuum up to 660 mm Hg (26" Hg). |
| Handles viscous materials | Dispense agars and suspensions. |
| OEM packages | Design into your lab dispensers or analytical equipment. |



Electrophoresis Circulation/Cooling Pump

- Modular format permits convenient placement of components; drive can be placed in a hood or safety cabinet with controller outside
- Simple drive controls with separate speed control and on/off/reverse switch; turn pump on or off while maintaining speed settings
- Reversible motor for pumping in either direction
- Dual-channel head lets you pump two channels simultaneously
- Silicone tubing lets you make low-pressure connections in seconds
- Drive and L/S 16 tubing deliver a flow range of 4.8 to 480 mL/min

Pump products shown

- JB-77202-50 L/S® Easy-Load® II Dual-Channel Pump Head**
- JB-96400-16 L/S 16 Peroxide-Cured Silicone Pump Tubing**
- JB-07557-00 L/S Precision Modular Drive**



Analyzer Feed Pump

- Perfect for low-flow analytical applications
- Connects easily to flow cells in spectrophotometers, refractometers, and other instruments
- Highly accurate—multiple rollers, continuous circulation, and reduced pulsation
- Compact size permits flexible placement on benchtop
- Silicone tubing offers clarity for visually monitoring fluid flow and excellent biocompatibility.

Pump products shown

- JB-95590-42 2.06 mm ID Platinum-Cured Silicone Microbore Pump Tubing**
- JB-77122-14 C/L® Single-Channel Pump**

Acid-Base Dispensing Pump

- Remote programming and control via PC work station
- Control functions include dispensing onto or off of a balance for gravimetric measurements
- Highly accurate; easy to program and calibrate
- Program each pump
- Tygon® E-LFL tubing is clear for visually monitoring fluid flow



Pump products shown

- JB-77200-30 L/S Easy-Load II Pump Head with Open-Head Sensor**
- JB-06440-16 L/S 16 Tygon® E-LFL Pump Tubing**
- JB-07551-60 L/S Cloud-Enabled Digital Drive with MasterflexLive™**

Research & Development (continued)



Chromatography Pump

- Low-pressure, low-volume flow for gravity-feed columns
- Dual-channel pump feeds two columns simultaneously
- Clarity of Tygon® tubing permits visual monitoring of flow
- Start/stop pump remotely
- Variable-speed pump accepts multiple tubing sizes for wide flow range
- Multi-roller pump is nonsiphoning; eliminating risk of backflow

Pump products shown

- JB-06460-34 1.42 mm ID Tygon® E-Lab Microbore Pump tubing**
- JB-77120-42 C/L Dual-Channel Pump**



Agar Dispensing Pump

- Dispenses samples of agar from 0.005 to 381 mL
- No valves to clog
- Miniflex pump head ensures low pulsation and accurate performance
- Silicone tubing is recommended for purity and is easily sterilized

Pump products shown

- JB-96410-14 L/S 14 Platinum-Cured Silicone Pump Tubing**
- JB-77922-10 L/S Media Digital Dispensing System with Miniflex® Pump Head**



Ultrafiltration Pump

- Transfers fluid through a filtration system at flow rates up to 13 LPM
- Maintains purity of raw materials/chemical solutions and sanitary integrity applications
- Allows for end product separations/harvesting
- Used in the QC/QA analysis labs for buffer and nutrient media filtration
- Ultra-low spallation PharmaPure® tubing ensures minimum particle entrapment; excellent biocompatibility and long life

Pump products shown

- JB-77601-60 I/P® Easy-Load Pump Head**
- JB-06435-73 I/P 73 PharmaPure® Pump Tubing**
- JB-77410-10 I/P Brushless Process Drive**



Lab/Filling Station Pump

- Simple controls for routine transfer applications
- Reversible motor lets you prime or purge tubing
- Transfer chemicals at flow rates up to 2300 mL/min (36 GPH)
- Easy-Load® II pump head for quick changes between processes
- Substitute tubing based on compatibility with various chemicals

Pump products shown

- JB-77200-60 L/S Easy-Load II Pump Head**
- JB-06509-18 L/S 18 Tygon® E-Lab Pump Tubing**
- JB-07528-10 L/S Precision Variable-Speed Drive**
- JB-07528-80 Handheld Remote Controller**

What's New with **Masterflex®** Peristaltic Pumps?

Masterflex Open-Head Interlock Sensor Technology

Add an extra level of protection
for operators

Available integrated into select L/S® and I/P® drives or as a retrofit system, the open-head interlock sensors add an extra level of protection for operators who maintain pumps. When paired with an open-head sensor equipped pump head, the drive automatically shuts down when the pump head is opened, eliminating exposure to the moving rollers connected to the drive shaft.

Look for drives with open-head sensor technology



Masterflex Cloud-Enabled Drives Featuring MasterflexLive™

Real-time remote pump control
and monitoring

- Secure, cloud-enabled platform for control and monitoring of select L/S® and I/P® pumps
- Get real-time control of all pump parameters, including speed, flow rate, dispense volume, and more
- Push notifications alert you to operating conditions and error messages
- Monitor and adjust critical processes running 24/7—no need to be onsite
- “Hands-free” operation lets you control pumps operating inside cleanrooms, glove boxes or isolation chambers
- Access from your PC, tablet or smartphone (iOS and Android compatible)
- Internet connection via standard Ethernet (RJ45) jack on rear of driveSecure, cloud-enabled platform for control and monitoring of select L/S and I/P pumps

For more information, visit ColeParmer.in/MasterflexLive



Find even more at ColeParmer.in/Masterflex



Masterflex® Cloud-Enabled Drives Featuring MasterflexLive™

Real-time remote pump control and monitoring

- Secure, cloud-enabled platform for control and monitoring of select L/S® and I/P® pumps
- Get real-time control of all pump parameters, including speed, flow rate, dispense volume, and more
- Push notifications alert you to operating conditions and error messages
- Monitor and adjust critical processes running 24/7—no need to be onsite
- “Hands-free” operation lets you control pumps operating inside cleanrooms, glove boxes or isolation chambers
- Access from your PC, tablet or smart-phone (iOS and Android compatible)
- Internet connection via standard Ethernet (RJ45) jack on rear of drive



| rpm | Flow range (mL/min) | Speed control (resolution) | Open-head sensor | Pump heads accepted | Motor size | IP rating | Power (50/60 Hz) | Catalog number |
|---|---------------------|----------------------------|------------------|---------------------|----------------|-----------|------------------|--------------------|
| L/S cloud-enabled digital drive | | | | | | | | |
| 0.02 to 100 | 0.001 to 588 | ±0.1% | Yes | 4 | 1/10 hp (75 W) | IP33 | 90 to 260 VAC | JB-07551-60 |
| 0.1 to 600 | 0.006 to 3400 | | | 2 | | | | JB-07551-50 |
| L/S cloud-enabled digital process drive with 316 stainless steel housing | | | | | | | | |
| 0.1 to 600 | 0.006 to 3400 | ±0.1% | Yes | 2 | 1/10 hp (75 W) | IP66 | 90 to 260 VAC | JB-07575-70 |
| L/S cloud-enabled digital process drive with powder-coat steel housing | | | | | | | | |
| 0.1 to 600 | 0.006 to 3400 | ±0.1% | Yes | 2 | 1/10 hp (75 W) | IP66 | 90 to 260 VAC | JB-07575-72 |
| I/P cloud-enabled digital process drive with 316 stainless steel housing | | | | | | | | |
| 0.1 to 650 | 0.6 to 26,000 | ±0.1% | Yes | 2 | 3/8 hp (280 W) | IP66 | 90 to 260 VAC | JB-77420-50 |
| I/P cloud-enabled digital process drive with powder-coat steel housing | | | | | | | | |
| 0.1 to 650 | 0.6 to 26,000 | ±0.1% | Yes | 2 | 3/8 hp (280 W) | IP66 | 90 to 260 VAC | JB-77420-60 |

Monitor and control your pumps via the cloud.

24/7 remote access from anywhere

Choose from standard or premium options to meet your pump remote control and monitoring needs.

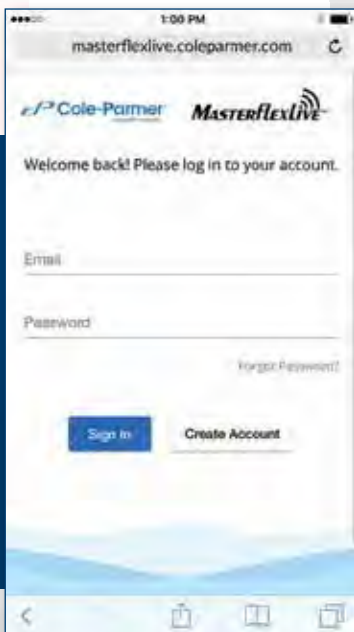
Standard (free) subscription: Get the latest cloud-based technology with secure pump connectivity for remote control and monitoring.

Premium* subscription: When enhanced security and data control is critical to your operation, select a premium subscription account for complete data access and management. Meets requirements for 21 CFR compliance.

| Features | | |
|---|--|---|
| Monitor pump status | | |
| Receive alerts & notifications by text or email | | |
| Emergency start/stop | | |
| Adjust all parameters (start/stop, tubing size, flow rate, dispense volume) | | |
| Set up, save, and delete programs | | |
| Manage up to 3 user level settings for security | | |
| Data access, management, and enhanced security | | |
| - Log and time stamp all operating parameters | | |
| - Export record of all pump activity | | |
| - IQ/OQ documentation | | |
| Meet 21 CFR Part 11 and EU Annex 11 compliance | | ✓ |

*Requires a monthly subscription.

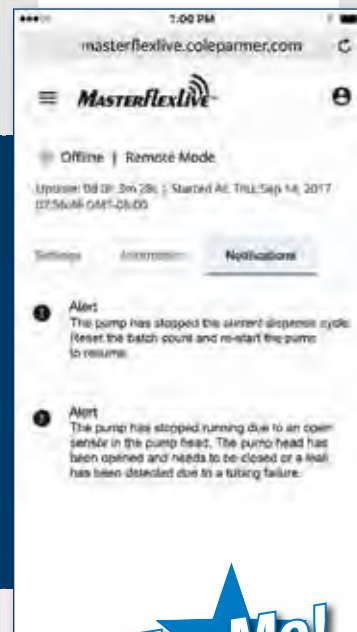
Create an account



Manage & control pump parameters



Get alerts & notifications



For more information, go to
ColeParmer.in/MasterflexLive

Try Me!
Call us
for free demo

Masterflex® Drives with Advanced Networking and Communication

Faster, less expensive automation integration—no gateways or adapters needed

- Native Ethernet/IP or Profibus communication—no additional hardware or firmware required
- Includes .EDS or GSD standard text files for upload
- Bluetooth Low Energy (BLE) connectivity and iOS-based mobile app permit local pump monitoring and control
- Cloud-based remote pump monitoring capability provides operational status and alerts
- Compatible with most of today's advanced automation control systems, such as Allen-Bradley®, Siemens®, Emerson®, and Honeywell®

| rpm | Speed control (resolution) | Open-head sensor | Pump heads accepted | Motor size | IP rating | Power (50/60 Hz) | With Ethernet/IP | With Profibus |
|--|----------------------------|------------------|---------------------|----------------|-----------|------------------|--------------------|--------------------|
| | | | | | | | Catalog number | Catalog number |
| L/S network-compatible digital drive | | | | | | | | |
| 0.1 to 600 | ±0.1% | Yes | 2 | 1/10 hp (75 W) | IP33 | 90 to 260 VAC | JB-07551-40 | JB-07551-42 |
| L/S network-compatible digital process drive with 316 stainless steel housing | | | | | | | | |
| 0.1 to 600 | ±0.1% | Yes | 2 | 1/10 hp (75 W) | IP66 | 90 to 260 VAC | JB-07575-50 | JB-07575-52 |
| L/S network-compatible digital process drive with powder-coat steel housing | | | | | | | | |
| 0.1 to 600 | ±0.1% | Yes | 2 | 1/10 hp (75 W) | IP66 | 90 to 260 VAC | JB-07575-60 | JB-07575-62 |
| I/P network-compatible digital process drive with 316 stainless steel housing | | | | | | | | |
| 0.1 to 650 | ±0.1% | Yes | 2 | 3/8 hp (280 W) | IP66 | 90 to 260 VAC | JB-77420-30 | JB-77420-32 |
| I/P network-compatible digital process drive with powder-coat steel housing | | | | | | | | |
| 0.1 to 650 | ±0.1% | Yes | 2 | 3/8 hp (280 W) | IP66 | 90 to 260 VAC | JB-77420-40 | JB-77420-42 |

Masterflex® L/S® Computer-Compatible Digital Drives

Automate your process by interfacing drives with a computer

- Flow rate: 0.001 to 3400 mL/min with L/S tubing
- Interface drive to your PC via DB9 serial or USB connector
- Graphical LCD shows four operating modes: continuous run, time dispense, copy dispense, and volume dispense. View pump performance continually
- Antidrip function ensures dispensing accuracy
- Remote control capabilities via DB25 female connector on drive
- Models equipped with open-head sensor stop drive motor when pump head is opened—pair with an open-head sensor equipped pump head

FEATURES

- ✓ Flow rates: 0.001 to 3400 mL/min
- ✓ Variable speed from 0.02 to 600 rpm
- ✓ Programmable, reversible motor accepts up to four pump heads
- ✓ Remote functionality



Drive 07551-20 shown with L/S Easy-Load II pump head 77200-62

Drives offer analog remote control options and simple programming—ideal for automated process applications. Precise PWM speed control ($\pm 0.1\%$) maximizes accuracy and efficiency while the brushless motor gives you quiet, maintenance-free reliability.

What's included: 6-ft (1.8-m) line cord with IEC 320/EE22 socket. Shipped with country-specific plug/cord set; please specify ultimate destination when ordering.



| rpm | Speed control (resolution) | Open-head sensor | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) (25.4 x 21.6 x 21.6 cm) | Power (50/60 Hz) | | Catalog number |
|-------------|---|------------------|---------------------|-----------------------------|-----------|---|------------------|-----------------------------------|----------------|
| | | | | | | | VAC | Amps | |
| 0.1 to 600 | $\pm 0.1\%$ (0.1 rpm at 600 rpm; 0.01 rpm at 100 rpm) | No | 2 | $\frac{1}{10}$ hp (75 W) | IP33 | | 90 to 260 VAC | 2.2 at 115 VAC, 1.1 at 230 VAC | JB-07551-20 |
| Yes | | JB-07551-28 | | | | | | | |
| 0.02 to 100 | No | 4 | JB-07551-30 | | | | | | |
| | Yes | | JB-07551-38 | | | | | | |

Accessories

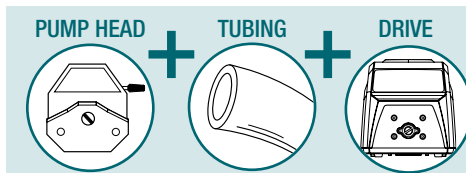
- JB-07523-92 Foot switch**, momentary start/stop; 6-ft (1.8-m) cable
- JB-07523-94 DB25 male connector**. Use to create your own cable
- JB-07523-95 Cable assembly**, DB25 male connector and 25-ft (7.9-m) cable with stripped wire ends for remote control

- JB-07523-98 Tilt bail**, use to securely elevate front of drive
- JB-07523-97 Handheld remote controller**, DB9; for on/off control; route tubing through handle for filling and dispensing applications
- JB-17050-01 NIST-traceable calibration** with data for peristaltic pump drive

Wait!

There's More...

See pages 85–92 for L/S pump heads and pages 93–95 for L/S tubing.



Choose a convenient Complete System
One catalog number includes all 3!

| System | Flow range | What's included | | | Power | Catalog number |
|--------|---------------------|--------------------------|--|--|--------------------------|----------------|
| | | Pump head | Tubing | Drive | | |
| | 0.08 to 480 mL/min | Easy-Load® 3 77800-60 | C-Flex® ULTRA L/S 16 tubing 06434-16 10 ft (3 m) | Computer-compatible drive 07551-20 0.1 to 600 rpm | 115/230 VAC, 50/60 Hz | JB-77924-55 |
| | 0.28 to 1700 mL/min | Easy-Load II 77200-62 | C-Flex® ULTRA L/S 24 tubing 06434-24 10 ft (3 m) | | | JB-77924-65 |

Masterflex® L/S® Digital Console Process Drives

Transfer, dispense, and meter in lab, process and washdown environments

- IP66 and NEMA 4X rated. Sealed housing and sealed keypad are protected from dust, water, and chemicals in the washdown environment—simply hose down to clean.
- Flow rate: 0.001 to 3400 mL/min with L/S tubing depending on drive rpm and tubing size
- Graphical LCD shows six different parameters: motor rpm, flow rate, dispense volume, cumulative volume, dispense interval time, and copy number.
- Brushless, maintenance-free motor with ±0.1% speed control accuracy and a 6000 to 1 turndown ratio
- Dispense by: volume—volume, copy, or time with programmable delay interval.
- Remote control capabilities via waterproof connection
- Models equipped with open-head sensor stop drive motor when pump head is opened—pair with an open-head sensor equipped pump head

FEATURES

- ✓ Flow rates: 0.001 to 3400 mL/min
- ✓ IP66 and NEMA 4X rated
- ✓ Programmable, reversible motor accepts two or four pump heads and offers remote functionality



Drive 07575-38 shown with L/S Easy-Load II pump head 77200-32

What's included: 6-ft (1.8-m) line cord—features IEC 320/CEE 22 connector coupler; watertight cord connection. Please specify destination country when ordering; drive is shipped with country-specific plug/cord set.



| rpm | Speed control (resolution) | Open-head sensor | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power | Catalog number |
|---|----------------------------|------------------|---------------------|-------------|-----------|--|-------------------------|----------------|
| Digital process drive with 316 stainless steel housing | | | | | | | | |
| 0.1 to 600 | ±0.1% | No | 2 | ¼ hp (75 W) | IP66 | 12" x 9" x 9½" (30.5 x 22.9 x 23.6 cm) | 90 to 260 VAC, 50/60 Hz | JB-07575-30 |
| 0.02 to 100 | | Yes | | | | | | JB-07575-38 |
| | | No | 4 | | | | | JB-07575-35 |
| Digital process drive with powder-coat steel housing | | | | | | | | |
| 0.1 to 600 | ±0.1% | No | 2 | ¼ hp (75 W) | IP66 | 12" x 9" x 9½" (30.5 x 22.9 x 23.6 cm) | 90 to 260 VAC, 50/60 Hz | JB-07575-40 |
| 0.02 to 100 | | Yes | | | | | | JB-07575-48 |
| | | No | 4 | | | | | JB-07575-45 |

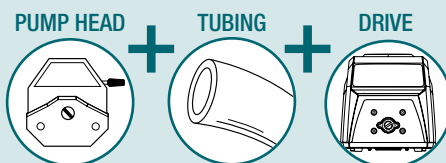
Accessories

JB-07575-84 Washdown foot switch, momentary start/stop; 6-ft (1.8-m) cable

JB-07575-80 Cable assembly for remote control; 31-pin round connector and 25-ft (7.9-m) cable with stripped wire ends

JB-17050-01 NIST-traceable calibration with data for peristaltic pump drive

Choose a convenient Complete System
One catalog number includes all 3!



| System | Flow range | What's included | | | Power | Catalog number |
|--------|---------------------|------------------------|--|--|-------------------------|----------------|
| | | Pump head | Tubing | Drive | | |
| | 0.28 to 1700 mL/min | Easy-Load® II 77200-62 | C-Flex® ULTRA L/S 24 tubing 06434-24 10 ft (3 m) | Digital console process drive with 316 SS housing 07575-30 0.1 to 600 rpm | 90 to 260 VAC, 50/60 Hz | JB-77975-25 |
| | 0.28 to 1700 mL/min | Easy-Load II 77200-62 | C-Flex ULTRA L/S 24 tubing 06434-24 10 ft (3 m) | Digital console process drive with powder-coat steel housing 07575-40 0.1 to 600 rpm | 90 to 260 VAC, 50/60 Hz | JB-77975-45 |

Masterflex® L/S® Variable-Speed Digital Drives

Versatile, worry-free operation

- Brushless, maintenance-free motor provides $\pm 0.1\%$ speed control accuracy with 6000:1 turndown ratio
- Bright graphical LCD offers easy programming, four operating modes, and seven languages
- Get more accurate dispensing with preprogrammed calibration
- Drives accept all L/S pump heads for more pumping versatility
- Models equipped with open-head sensor stop drive motor when pump head is opened—pair with an open-head sensor equipped pump head
- Operate remotely via DB25 female connector

FEATURES

- ✓ Flow rates: 0.001 to 3400 mL/min
- ✓ Variable speed from 0.02 to 600 rpm
- ✓ Programmable, reversible motor accepts up to four pump heads
- ✓ Ensure dispensing accuracy with antidrip function
- ✓ Hands-free dispensing via time interval dispense cycles

Four operating modes for more functionality: continuous run, time dispense, copy dispense, and volume dispense



L/S® Drives

MASTERFLEX®

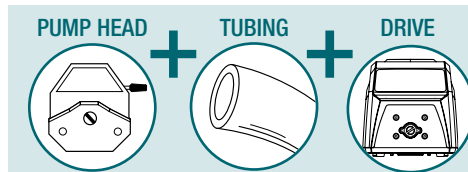
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| rpm | Speed control (resolution) | Open-head sensor | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power | Catalog number |
|-------------|---|------------------|---------------------|-------------------|-----------|--|----------------------------|----------------|
| 0.1 to 600 | $\pm 0.1\%$ (0.1 rpm at 600 rpm; 0.01 rpm at 100 rpm) | No | 2 | 1/10 hp (75 W) | IP33 | 10" x 8.5" x 8.5" (25.4 x 21.6 x 21.6 cm) | 90 to 260 VAC, 50/60 Hz | JB-07522-20 |
| | | Yes | | | | | | JB-07522-28 |
| 0.02 to 100 | $\pm 0.1\%$ (0.1 rpm at 600 rpm; 0.01 rpm at 100 rpm) | No | 4 | 1/10 hp (75 W) | IP33 | 10" x 8.5" x 8.5" (25.4 x 21.6 x 21.6 cm) | 90 to 260 VAC, 50/60 Hz | JB-07522-30 |
| | | Yes | | | | | | JB-07522-38 |

JB-07523-92 Foot switch, momentary start/stop; 6-ft (1.8-m) cable
JB-07523-94 DB25 male connector. Use to create your own cable
JB-07523-95 Cable assembly for remote control; DB25 male connector and 25 ft (7.9 m) cable with stripped wire ends

JB-07523-97 Handheld remote controller; route tubing through handle for dispensing into containers
JB-17050-01 NIST-traceable calibration with data for peristaltic pump drive



Choose a convenient
Complete System
One catalog number includes all 3!

| System | Flow range | What's included | | | Power | Catalog number |
|--------|---------------------|--------------------------|---|---|----------------------------|----------------|
| | | Pump head | Tubing | Drive | | |
| | 0.08 to 480 mL/min | Easy-Load® 3 77800-60 | C-Flex® ULTRA L/S 16 tubing 06434-16 10 ft (3 m) | Digital drive 07522-20 0.1 to 600 rpm | 90 to 260 VAC, 50/60 Hz | JB-77921-65 |
| | 0.28 to 1700 mL/min | Easy-Load II 77200-62 | C-Flex ULTRA L/S 24 tubing 06434-24 10 ft (3 m) | | | JB-77921-75 |

Need a demo?

Get one today!

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Masterflex® L/S® Digital Modular Dispensing Drives

Three dispensing modes and precision low-maintenance motor

- Graphical LCD shows four operating modes: continuous run, timed dispense, copy dispense, volume dispense
- Dispense by mL—volume in mL of each dispense, 0.001 to 9999 mL; Copy—1 to 9999 dispense cycles; or SEC—time interval between each dispense cycle (1 to 9999 secs)
- Antidrip function ensures dispense accuracy
- Brushless, maintenance-free motor offers ±0.1% speed control accuracy and a 6000 to 1 turndown ratio
- Remote control capabilities: speed, direction, start/stop/prime, and tach output

What's included: 6-ft (1.8-m) cable to connect drive and controller and 6-ft (1.8-m) line cord with IEC 320/CEE22 socket. Shipped with country-specific plug/cord set; please specify destination when ordering.

A. Modular Drive with Benchtop Controller

- Stackable, splash-resistant ABS plastic controller housing is IP33 rated; drive housing is epoxy finished steel, IP33 rated
- Remote control via a DB25 female connector on back of controller

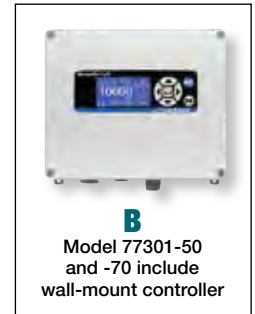
B. Washdown Modular Drive with Wall-Mount Controller

- Wall-mount controller housing is powder-coated aluminum, IP66 / NEMA4X rated for washdown; powder-coated steel drive housing is IP66 / NEMA4X rated for washdown
- Remote control via weather-resistant connection on controller



FEATURES

- ✓ Flow rates: 0.001 to 3400 mL/min depending on drive rpm and tubing size
- ✓ Variable speed
- ✓ Programmable, reversible motor accepts up to two pump heads and offers remote functionality



| rpm | Speed control | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power (50/60 Hz) | | Catalog number |
|---|---------------|---------------------|----------------|-----------|---|------------------|-----------------------------------|--------------------|
| | | | | | | VAC | Amps | |
| A. Digital modular drive with benchtop controller | | | | | | | | |
| 0.1 to 600 | ±0.1% | 2 | 1/10 hp (75 W) | IP33 | Controller: 10½" x 8¼" x 5" (26.7 x 21 x 12.7 cm) Drive: 10½" x 3 13/16" x 4 5/8" (26.7 x 9.7 x 11.7 cm) | 90 to 260 | 2.2 at 115 VAC, 1.1 at 230 VAC | JB-77301-40 |
| 0.02 to 100 | | 4 | | | | | | JB-77301-60 |
| B. Digital washdown modular drive with washdown, wall-mount controller | | | | | | | | |
| 0.1 to 600 | ±0.1% | 2 | 1/10 hp (75 W) | IP66 | Controller: 9" x 11¾" x 4½" (23 x 30 x 11.4 cm) Drive: 15 5/16" x 7" x 6" (39.5 x 17.8 x 15.2 cm) | 90 to 260 | 2.2 at 115 VAC, 1.1 at 230 VAC | JB-77301-50 |
| 0.02 to 100 | | 4 | | | | | | JB-77301-70 |

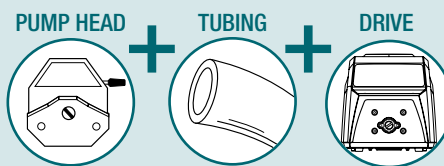
JB-07523-95 Cable assembly, for benchtop modular drives 77301-40 and -60; DB25 male connector and 25-ft (7.9-m) cable with stripped wire ends for remote control

JB-77301-82 Extension cable, 9 ft (2.7 m) extends distance between motor and controller

JB-07575-80 Remote control cable for washdown modular drives 77301-50 and -70; wire to controller/PLC; 25-ft (8.3-m) length

JB-17050-01 NIST-traceable calibration for peristaltic pump drive

Choose a convenient Complete System
One catalog number includes all 3!



| System | Flow range | What's included | | | Power | Catalog number |
|--------|---------------------|------------------------|--|--|-------------------------|--------------------|
| | | Pump head | Tubing | Drive | | |
| | 0.28 to 1700 mL/min | Easy-Load® II 77200-62 | C-Flex® ULTRA L/S 24 tubing 06434-24 10 ft (3 m) | Digital modular drive 77301-40 0.1 to 600 rpm | 90 to 260 VAC, 50/60 Hz | JB-77923-80 |
| | 0.28 to 1700 mL/min | Easy-Load II 77200-62 | C-Flex ULTRA L/S 24 tubing 06434-24 10 ft (3 m) | Digital washdown modular drive 77301-50 0.1 to 600 rpm | 90 to 260 VAC, 50/60 Hz | JB-77923-90 |

Masterflex® L/S® Precision Variable-Speed Console Drives

Don't lose control of your metering applications—digital display gives you repeatable control

- Accurate and repeatable settings with 3-digit LED display of rpm
- Pump fluid in either direction with reversible motor—perfect for purging tubing
- Save space and increase productivity by stacking 2 or 4 pump heads on the same drive to create a multichannel pump system
- Two ways to control speed, direction, and start/stop—use either the membrane keypad or remote control capabilities
- Customize for your application—drives accept nine pump head types: Standard, Easy-Load®, Easy-Load® II, Easy-Load® 3, Multichannel, High-Performance, Cartridge, PTFE-Tubing, and PTFE-Diaphragm

FEATURES

- ✓ Flow rates: 0.06 to 3400 mL/min
- ✓ Variable speed from 1 to 600 rpm
- ✓ Reversible motor accepts up to four pump heads

Stack up to 4 heads to maximize productivity in less space



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| rpm | Speed control (resolution) | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power (50/60 Hz) | | Catalog number |
|----------|--|---------------------|----------------|-----------|--|------------------|----------------|----------------|
| | | | | | | VAC | Amps | |
| 6 to 600 | ±0.25% (1 rpm at 600 rpm; 0.1 rpm at 100 rpm) | 2 | 1/10 hp (75 W) | IP33 | 10" x 8.5" x 8.5" (25.4 x 21.6 x 21.6 cm) | 90 to 260 | 1.2 at 230 VAC | JB-07528-10 |
| 3 to 300 | | 2 | | | | | | JB-07528-20 |
| 1 to 100 | | 4 | | | | | | JB-07528-30 |

JB-07595-45 Connector, DB9 male. Use for 4 to 20 mA remote control

JB-07595-47 Cable assembly, DB9 male connector and 25-ft (7.9-m) cable with stripped wire terminal ends. Use for remote control

JB-77595-35 Foot switch, DB9 male

JB-07528-80 Handheld remote controller; for remote control of start/stop, route tubing through handle for dispensing into containers

JB-17050-01 NIST-traceable calibration with data for peristaltic pump drive

Masterflex® L/S® Precision Console Process Drives

Stand up to process and washdown applications—simply hose down to clean

- IP66 and NEMA 4X rated; sealed housing and sealed membrane keypad
- Available with either a 316 SS or a powder-coat steel housing
- Three-digit LED display shows motor rpm—confirm speed setting at a glance
- Open-head sensor stops drive motor when pump head is opened—pair with an open-head sensor equipped pump head
- Remote control capabilities via a watertight connector on back of drive

FEATURES

- ✓ Flow rates: 0.06 to 3400 mL/min
- ✓ Variable speed from 1 to 600 rpm
- ✓ Stack up to four pump heads for increased flow rates

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NEW



Drive 07528-40 shown with L/S Easy-Load II pump head 77200-32

Accurate console drives have powerful motors, speed display, and ±0.25% speed control for precise flow regulation—ideal for metering applications. Separate speed and power (on/off) control lets you maintain speed setting while turning pump on/off. Remote speed control requires cable assembly 77300-32.

What's included: 6-ft (1.8-m) line cord with IEC 320/GEE22 socket. Shipped with country-specific plug/cord set; please specify ultimate destination when ordering.

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| rpm | Speed control (resolution) | Open-head sensor | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power | Catalog number |
|--|----------------------------|------------------|---------------------|----------------|-----------|---|----------------------------|----------------|
| Precision process drives with 316 stainless steel housing | | | | | | | | |
| 6 to 600 | ±0.25% | Yes | 2 | 1/10 hp (75 W) | IP66 | 12" x 9" x 9 9/16" (30.5 x 22.9 x 23.6 cm) | 90 to 260 VAC, 50/60 Hz | JB-07528-40 |
| 1 to 100 | | | 4 | | | | | JB-07528-45 |
| Precision process drives with powder-coat steel housing | | | | | | | | |
| 6 to 600 | ±0.25% | Yes | 2 | 1/10 hp (75 W) | IP66 | 12" x 9" x 9 9/16" (30.5 x 22.9 x 23.6 cm) | 90 to 260 VAC, 50/60 Hz | JB-07528-50 |
| 1 to 100 | | | 4 | | | | | JB-07528-55 |

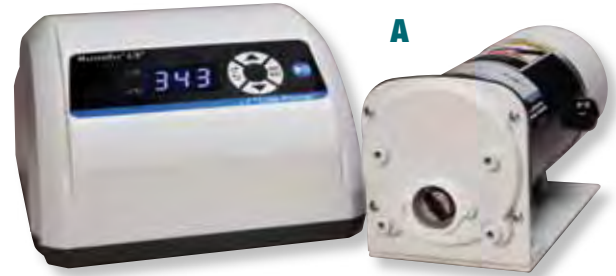
JB-77300-32 Cable assembly, for precision process drives; 18-pin round connector and 25-ft (7.9 m) cable with stripped wire ends

JB-17050-01 NIST-traceable calibration for peristaltic pump drive

Masterflex® L/S® Precision Variable-Speed Modular Drives

Place where convenient—ideal for limited spaces, hoods, or isolation chambers

- Easy up-front control of speed, direction, and start/stop
- Reversible motor—purge tubing before or after pumping; pump fluid in either direction
- Three-digit LED display shows motor rpm—confirm speed setting at a glance
- Remote control capabilities: speed, direction, and start/stop
- ±0.25% speed control for precise flow regulation—ideal for metering applications



A. Modular Drives with Benchtop Controller

- Splash-resistant ABS plastic controller housing is IP33 rated; drive housing is epoxy finished steel, IP33 rated
- Remote control capabilities via a DB9 female connector on back of controller

B. Washdown Modular Drives with Wall-Mount Controller

- Wall-mount controller housing is powder-coated aluminum, IP66 / NEMA 4X rated for washdown; powder-coated steel drive housing is IP66 / NEMA 4X rated for washdown
- Remote control capabilities via weather-resistant connection on controller



B
Models 07557-60 and -70 include wall-mount controller



| rpm | Speed control (resolution) | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power (50/60 Hz) | | Catalog number |
|---|--|---------------------|----------------|-----------|---|------------------|-----------------------------------|--------------------|
| | | | | | | VAC | Amps | |
| A. Precision modular drives with benchtop controller | | | | | | | | |
| 6 to 600 | ±0.25% (1 rpm at 600 rpm; 0.1 rpm at 100 rpm) | 2 | 1/10 hp (75 W) | IP33 | Controller: 10 1/2" x 8 1/4" x 5" Drive: 10 3/4" x 4 3/8" x 4 1/2" | 90 to 260 | 2.2 at 115 VAC, 1.1 at 230 VAC | JB-07557-00 |
| 1 to 100 | | 4 | | | | | | JB-07557-10 |
| B. Precision washdown modular drives with washdown wall-mount controller | | | | | | | | |
| 6 to 600 | ±0.25% (1 rpm at 600 rpm; 0.1 rpm at 100 rpm) | 2 | 1/10 hp (75 W) | IP66 | Controller: 9" x 11 3/4" x 4 1/2" Drive: 15 5/16" x 7" x 6" | 90 to 260 | 2.2 at 115 VAC, 1.1 at 230 VAC | JB-07557-60 |
| 1 to 100 | | 4 | | | | | | JB-07557-70 |

JB-07557-51 Extension cable, 9 ft (2.7 m); extend distance between motor and controller

JB-07595-47 Cable assembly, for benchtop modular drives; DB9 male connector and 25 ft (7.9 m) cable with stripped wire terminal ends. Use for remote control

JB-77300-32 Cable assembly, for washdown modular drives; 18-pin round connector and 25 ft (7.9 m) cable with stripped wire terminal ends. Use for remote control

Masterflex® L/S® Variable-Speed Economy Modular Drives

Versatile with a wide flow range and simple controls

- Separate motor and controller are connected via a 6-ft (1.9 m) cable—place components where convenient or where space allows
- Single-turn speed control and on/off switch with green power indicator—maintain speed setting while turning pump on and off
- The 1/10-hp reversible motor has soft start and back EMF for ±2% speed control
- Painted steel housing is IP33 rated for protection from vertically falling water

A perfect upgrade from a fixed-speed drive, these variable-speed drives offer a wider rpm range, ±2% speed regulation, and ETL and CE listings. For added versatility, drives accept all L/S pump heads.

What's included: 1.8-m line cord—IEC 320/CEE22 socket.



FEATURES

- ✓ Flow rates: 0.06 to 3400 mL/min
- ✓ Variable speed—1 to 100 or 6 to 600 rpm
- ✓ Convenient modular design



| rpm | Speed control (resolution) | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power (50/60 Hz) | | Catalog number |
|----------|----------------------------|---------------------|----------------|---------------------------------|---|------------------|----------------|--------------------|
| | | | | | | VAC | Amps | |
| 6 to 600 | ±2% | 2 | 1/10 hp (75 W) | Controller: IP33 Motor: IP21 | Controller: 8" x 6.4" x 3.4" (20.4 x 16.4 x 8.7 cm) Motor: 7.8" x 3.8" x 4.5" (19.8 x 9.7 x 11.5 cm) | 190 to 260 | 1.2 at 230 VAC | JB-07559-05 |
| 1 to 100 | | | | | | | | 4 |

JB-17050-01 NIST-traceable calibration with data for peristaltic pump drive

Masterflex® L/S® Variable-Speed Console Drives

Compact and cost effective

- Compact, cost-effective for general fluid transfer applications
- Flow range: 0.42 to 2900 mL/min
- Simple operation with single-turn speed control
- Separate power switch enables you to maintain speed setting when turning drive on/off; front-panel LED indicates power on
- Reversible motor lets you easily prime/purge tubing and pump in either direction
- Remote control of start/stop via DB9 connector on back of drive

Drives accept nine different pump head types: Standard, Easy-Load®, Easy-Load II, Easy-Load 3, Multichannel, High-Performance, Cartridge, PTFE tubing, and PTFE-diaphragm. Drives 07555-00 and -05 are not recommended for use with the PTFE-tubing and PTFE-diaphragm pump heads.

What's included: 6-ft (1.8 m) line cord with IEC 320/CEE22 socket. Shipped with country-specific cord/plug set; please specify ultimate destination when ordering.



Shown with L/S Easy-Load II pump head 77200-60

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Flow Rates in mL/min (flow rates in parentheses can only be obtained with the High-Performance pump head—see page 85)

| rpm | Precision pump tubing | | | | | | High-performance precision pump tubing | | | |
|-----------|---|------------|------------|------------|------------|------------|---|-----------------------|-----------------------|------------------------|
| | L/S 13 | L/S 14 | L/S 16 | L/S 25 | L/S 17 | L/S 18 | L/S 15 | L/S 24 | L/S 35 | L/S 36 |
| | Standard [†] , Easy-Load®, Easy-Load® II, Easy-Load® 3 | | | | | | Multichannel [‡] , Standard, Easy-Load II, Easy-Load 3, High-Performance | | | |
| | Cartridge, Multichannel | | | Cartridge | | | Easy-Load | | | |
| 20 to 600 | 1.2 to 36 | 4.2 to 130 | 16 to 480 | 34 to 1000 | 56 to 1700 | 76 to 2300 | 34 to 1000 | 56 to 1700 | 76 to 2300 | 96 to 2900 |
| 7 to 200 | 0.42 to 12 | 1.4 to 43 | 5.6 to 160 | 12 to 330 | 20 to 570 | 27 to 770 | 12 to 330 (13 to 370) | 20 to 570 (21 to 600) | 27 to 770 (30 to 870) | 34 to 970 (41 to 1130) |

[†]The Standard pump head is not available for L/S 25. [‡]Multichannel head is not available for L/S 36.

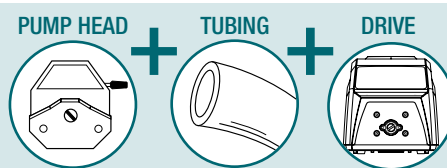


| rpm | Speed control (resolution) | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power (50/60 Hz) | | Catalog number |
|-----------|----------------------------|---------------------|-------------|-----------|--|------------------|------|----------------|
| | | | | | | VAC | Amps | |
| 20 to 600 | ±5% | 1 | ½ hp (37 W) | IP22 | 9.1" x 7.2" x 5.3" (23 x 18.3 x 13.4 cm) | 180 to 260 | 0.8 | JB-07555-05 |
| 7 to 200 | | 2 | | | | 180 to 260 | 0.8 | JB-07555-15 |

JB-77595-35 Foot switch, DB9 male, 6-ft (1.8 m) cable

JB-07528-80 Handheld remote controller; for control of start/stop, route tubing through handle for dispensing into containers

JB-17050-01 NIST-traceable calibration for peristaltic pump drive



Choose a convenient Complete System
One catalog number includes all 3!

| System | Flow range | What's included | | | Power | Catalog number |
|--------|-------------------|------------------------|--|--------------------------------------|--------------------------|----------------|
| | | Pump head | Tubing | Drive | | |
| | 16 to 480 mL/min | Easy-Load® II 77200-60 | C-Flex® ULTRA L/S 16 tubing 06434-16 10 ft (3 m) | Console drive 07555-05 20 to 600 rpm | 180 to 260 VAC, 50/60 Hz | JB-77910-45 |
| | 56 to 1700 mL/min | Easy-Load II 77200-62 | C-Flex ULTRA L/S 24 tubing 06434-24 10 ft (3 m) | Console drive 07555-05 20 to 600 rpm | 180 to 260 VAC, 50/60 Hz | JB-77910-55 |

Masterflex® L/S® High-Pressure Pumps Pump at pressures up to 125 psi (8.5 bar)

NEW

- Three-digit LED display shows motor rpm—confirm speed setting at a glance
- High-performance pump head offers automatic occlusion—optimized when pump head is closed and latched—load tubing in 15 seconds or less
- Pump at pressures up to 125 psi (8.5 bar) with included L/S 16HP tubing—ideal for feed, filtration, and metering applications
- Models equipped with open-head sensor stop the drive motor when pump head is opened



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| System | Flow range | What's included | | | Power | Catalog number |
|--------|------------------|--|---|---|----------------------------|----------------|
| | | Pump head | Tubing | Drive | | |
| | 0.9 to 90 mL/min | High-Performance 77252-72 | PharMed BPT L/S 16HP high-pressure tubing 05664-16 8 ft (2.4 m) | Precision console drive with ABS plastic housing 07528-30 1 to 100 rpm | 90 to 260 VAC, 50/60 Hz | JB-77914-20 |
| | 0.9 to 90 mL/min | High-Performance (open-head sensor) 77252-62 | | Precision process drive with powder-coat steel housing 07528-55 1 to 100 rpm | | JB-77914-25 |
| | 0.9 to 90 mL/min | | | Precision process drive with stainless steel housing 07528-45 1 to 100 rpm | | JB-77914-27 |

Masterflex® L/S® Compact Variable-Speed Pumps

Make low-flow pumping easy!

- No confusing menus—easy-to-use speed controller and reversing switch get you pumping quicker
- Easy-loading Miniflex™ pump head with automatic tubing retention keeps tubing in place
- Easier on the budget—complete system accepts continuous tubing, no need to buy special tubing sets
- Dual-channel model delivers synchronous flow from two separate channels

These easy-to-use complete pumps offer a wide occlusion angle, which prevents fluid backflow up to the rated pressure of the tubing. Prime or flush tubing quickly by depressing the MAX button. Self-lubricating thermoplastic polyester rollers are low friction and low wearing for smooth operation and long life.

What's included: L/S Miniflex pump head and dual-voltage (115/230 VAC) benchtop power supply.

Flow Rates in mL/min

| rpm | Precision pump tubing | | | |
|------------------------------|-----------------------|-----------|-----------|-----------|
| | L/S 13 | L/S 14 | L/S 16 | L/S 25† |
| Single-channel pump 77240-20 | | | | |
| 35 to 200 | 1.8 to 10 | 6.3 to 36 | 21 to 118 | 40 to 220 |
| Dual-channel pump 77240-30 | | | | |
| 35 to 200 | 1.8 to 10 | 6.3 to 36 | 21 to 118 | — |

†Recommended for use with silicone or C-Flex® formulations only.

FEATURES

- ✓ Flow rates: 1.8 to 220 mL/min
- ✓ Remote start/stop via contact closure on back of pump
- ✓ Stack for smaller overall footprint

Try Me!

Call us
for free demo



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Specifications

Speed control (repeatability): ±5%
Reversible motor: yes

Dimensions (L x W x H):
8 5/8" x 5 1/4" x 4 1/2"
(22 x 13.3 x 11.4 cm)

| Number of channels | rpm | IP rating | Power (50/60 Hz) | Catalog number |
|--------------------|-----------|-----------|------------------|----------------|
| 1 | 35 to 200 | IP22 | 90 to 260 VAC | JB-77240-20 |
| 2 | | | | JB-77240-30 |

JB-77200-07 Replacement power supply, dual-voltage 115/230 VAC

JB-17050-01 NIST-traceable calibration with data for peristaltic pump drive

Masterflex® L/S® Digital Miniflex® Pumps

Small footprint, yet delivers accurate flow over a wide range

- Flow range of 0.004 to 315 mL/min (depending on tubing size)
- Tubing calibration function ensures accuracy
- Open-head sensor stops drive when pump head is opened
- Remote control via 25-pin connector on back of drive
- Automatic tubing retention makes tube loading quick and easy

Compact, stackable pump with durable ABS housing is easy to wipe down. The Miniflex pump head features a wide occlusion angle that prevents fluid backflow up to the rated pressure of the tubing. Self-lubricating thermoplastic polyester rollers are low friction and long wearing for smooth operation and long life.

Flow Rates (mL/min) at 0.1 to 300 rpm

| Pump model | Precision pump tubing | | | |
|------------|-----------------------|-------------|-------------|-------------|
| | L/S 13 | L/S 14 | L/S 16 | L/S 25 |
| 07525-20 | 0.004 to 12 | 0.014 to 42 | 0.05 to 162 | 0.11 to 315 |
| 07525-40 | 0.004 to 12 | 0.014 to 42 | 0.05 to 162 | — |

| Number of channels | rpm | Speed control (repeatability) | Reversible motor | IP rating | Dimensions (L x W x H) (23.9 x 14.0 x 15.7 cm) | Power (50/60 Hz) | | Catalog number |
|--------------------|------------|-------------------------------|------------------|-----------|---|------------------|------------------|--------------------|
| | | | | | | VAC | Amps | |
| 1 | 0.1 to 300 | ±0.1% | Yes | IP33 | | 90 to 260 | 0.34 at 115 VAC, | JB-07525-20 |
| 2 | | | | | | | 0.2 at 230 VAC | |

JB-07523-92 Foot switch, momentary start/stop; DB25 male; 6-ft (1.8-m) cable
JB-07523-95 Cable assembly, DB25 male connector and 25-ft (7.9-m) cable with stripped wire ends



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Power supplies are:



JB-07523-97 Handheld remote controller, DB25 male, route tubing through handle for dispensing applications; 6-ft (1.8-m) cable

JB-17050-01 NIST-traceable calibration with data for peristaltic pump drive

Masterflex® L/S® Digital Miniflex® Media Dispensing Pump Systems

Faster and more reliable than pouring media by hand

- Accurately dispense culture media, buffer solutions, diluents, nutrients, additives, and other fluids
- Minimize risk of human error and contamination—copy dispense function lets you easily set repeat dispense volumes, and programmable delay interval pauses pump between cycles
- Extremely flexible—dispense volumes from 0.1 to 9999 mL at flow rates from 0.11 to 315 mL/min
- BioPharm Plus silicone pump tubing offers low spallation, long pumping life, and exceptional flow stability over time

Boost efficiency and ergonomics in your lab's dispensing and filling regimens—these systems offer better accuracy and greater reliability than hand pouring, manual pipetting, or bottle-top dispensers. These complete media dispensing systems will have you filling plates, flasks, vials, and bottles right out of the box.

MASTERFLEX®

ISO9001:2008
CERTIFIED SUPPLIER

Power supplies are:



| Description | Power | Catalog number |
|---|-------------------------|--------------------|
| System with hands-free foot switch, lab stand, support rod, frame clamp, nozzle clamp, and stainless steel nozzle | 90 to 260 VAC, 50/60 Hz | JB-77922-10 |
| System with handheld remote controller | | JB-77922-12 |

JB-96440-25 Additional Masterflex L/S 25 BioPharm Plus silicone pump tubing, 25 ft (7.6 m)



System 77922-10 with foot switch and stand assembly

System 77922-12 with handheld remote controller



Both systems include: L/S digital pump drive with single-channel Miniflex pump head, PTFE tube weight to hold tubing in source container, and 25 ft (7.6 m) of L/S 25 BioPharm Plus silicone tubing.

Masterflex® L/S® Variable-Speed Air-Powered Drive

Use where electrical power is unsafe or unavailable

- 1/3-hp air motor requires little maintenance. Air motor generates less heat than electric motor
- Intrinsically safe when properly grounded for static electricity
- No electric power required
- Wide flow control range (10:1 turndown)
- Compact, portable console package
- ATEX Zone 2 rated: EEx II 3 G C II C T6; NEC Class 1, Division 2, Groups A, B, C, D, T6
- Customize for your application—drives accept nine pump head types: Standard, Easy-Load®, Easy-Load® II, Easy-Load® 3, Multichannel, High-Performance, Cartridge, PTFE-Tubing, and PTFE-Diaphragm

Note: Careful grounding to protect from static electricity is vital for safe operation. Drive meets EU machine directive requirements for CE compliance.

Setup

1. Install 0 to 30 psi pressure gauge, pressure regulator with 5- μ m filter, automatic lubricator, and muffler (all items included).†
2. Connect compressed air line to 1/4" NPT(F) connection on regulator.
3. Mount pump head and load Masterflex L/S pump tubing.
4. Turn on compressed air line.

†Air hose and compressor are not included.



Specifications

| Performance Specifications | |
|----------------------------------|---|
| Flow capacity | 3.6 to 3400 mL/min (0 to 54 GPH) |
| rpm | 60 to 600 |
| Number of heads accepted | 2 |
| Maximum torque | Starting 381 N-cm (540 oz-in) |
| | Running 127 N-cm (180 oz-in) |
| Electrical Specifications | |
| Motor type | Rotary vane air motor |
| Motor size | 250 W (1/3 hp) |
| Speed regulation (repeatability) | $\pm 10\%$ (± 15 rpm @ 60 to 150 rpm; ± 20 rpm @ 150 to 600 rpm) |
| Physical Specifications | |
| Housing material | Painted steel |
| IP rating | IP44 |
| Agency listings | CE |
| Operating temperature | 0 to 40°C (32 to 104°F) |
| Storage temperature | -10 to 65°C (14 to 149°F) |
| Dimensions (L x W x H) | 25.1 x 12.2 x 22.4 cm (9 7/8" x 4 13/16" x 8 13/16") |
| Shipping weight | 6.0 kg (13.2 lb) |

Flow Rates in mL/min (flow rates in parentheses can only be obtained with the High-Performance pump head—see page 85)

| Tubing cross sections | L/S Precision pump tubing | | | | | | L/S High-performance Precision pump tubing | | | |
|----------------------------|---------------------------|-----------|-----------|-------------|-------------|-------------|--|---------------------------|---------------------------|---------------------------|
| | L/S 13 | L/S 14 | L/S 16 | L/S 25 | L/S 17 | L/S 18 | L/S 15 | L/S 24 | L/S 35 | L/S 36 |
| Flow range @ 60 to 600 rpm | 3.6 to 36 | 13 to 130 | 48 to 480 | 100 to 1000 | 170 to 1700 | 230 to 2300 | 100 to 1000 (110 to 1100) | 170 to 1700 (180 to 1800) | 230 to 2300 (260 to 2600) | 290 to 2900 (340 to 3400) |

Note: Flow rates were determined using water at room temperature and with zero back pressure and suction lift. Flow rates in parentheses can be obtained only with the Masterflex L/S High-performance pump head.

FEATURES

- ✓ Flow rates: 3.6 to 3400 mL/min
- ✓ Accept nine pump head types

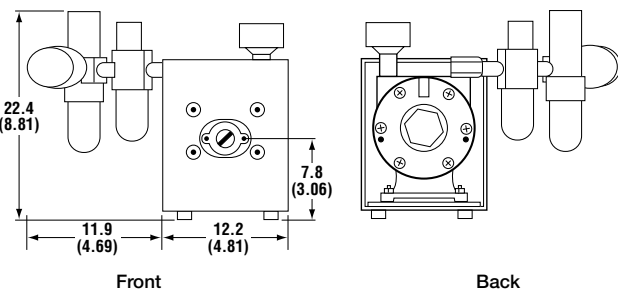


L/S variable-speed air-powered drive 07569-00 with L/S Easy-Load® pump head 07518-42



| Power | rpm | Catalog number |
|--|-----------|--------------------|
| 0.08 to 0.7 m ³ /min (3 to 25 cfm) @ 1.4 to 6.9 bar (20 to 100 psi) | 60 to 600 | JB-07569-00 |

Dimensional Drawings cm (in.)



Masterflex® L/S® High-Performance Pump Heads

All-new design offers faster tubing changes and improved ergonomics

- Simply close the pump head and tubing occlusion is optimal and automatic
- Flow rates up to 3400 mL/min with L/S high-performance precision tubing
- Reinforced nylon housing and occlusion bed with stainless steel rotor/roller assembly
- Models with open-head interlock sensor stop drive motor when pump head is open (when used with sensor-equipped drives)
- Compatible with all L/S drives that accept two or more pump heads

FEATURES

- ✓ Pressures up to 150 psi with L/S high-pressure (HP) pump tubing
- ✓ Automatic tubing occlusion—no need to adjust
- ✓ ATEX Zone 2 rated models available

MASTERFLEX®



What's included: mounting hardware and 15" (38 cm) of pump tubing.

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ATEX
Zone 2
77252-80, 82



| Pump tubing size | mL per rev | Flow rates in mL/min | | Max system pressure psi (bar) | Catalog number | | |
|---|------------|----------------------|-----------------|-------------------------------|--|----------------------------|--|
| | | 0.02 to 100 rpm | 0.1 to 600 rpm | | High-Performance pump head with open-head sensor | High-Performance pump head | ATEX-approved High-Performance pump head |
| High-performance pump heads for Precision pump tubing | | | | | | | |
| L/S 16 | 0.9 | 0.018 to 90 | 0.09 to 614 | 40 (2.7) | JB-77252-60 | JB-77252-70 | JB-77252-80 |
| L/S 25 | 1.9 | 0.038 to 187 | 0.19 to 1278 | 40 (2.7) | | | |
| L/S 17 | 3.0 | 0.06 to 307 | 0.30 to 1883 | 20 (1.4) | | | |
| L/S 18 | 3.8 | 0.076 to 377 | 0.38 to 2812 | 40 (2.7) | | | |
| High-performance pump heads for High-Performance Precision pump tubing | | | | | | | |
| L/S 14HP† | 0.3 | 0.006 to 30 | Not recommended | 150 (10.3) | JB-77252-62 | JB-77252-72 | JB-77252-82 |
| L/S 16HP† | 0.9 | 0.018 to 90 | Not recommended | 125 (8.5) | | | |
| L/S 15HP† | 1.7 | 0.034 to 170 | Not recommended | 100 (6.8) | | | |
| L/S 24HP† | 2.4 | 0.048 to 240 | Not recommended | 80 (5.5) | | | |
| L/S 15 | 1.8 | 0.036 to 180 | 0.18 to 1100 | 40 (2.7) | | | |
| L/S 24 | 3.0 | 0.06 to 300 | 0.30 to 1800 | 40 (2.7) | | | |
| L/S 35 | 4.3 | 0.086 to 430 | 0.43 to 2600 | 35 (2.4) | | | |
| L/S 36 | 5.8 | 0.116 to 580 | 0.58 to 3400 | 20 (1.4) | | | |

†L/S 14HP, L/S 15HP, L/S 16HP and L/S 24HP pump tubing is for use only with the L/S High-Performance pump head mounted on any L/S 100 rpm drive capable of running two or more pump heads. **Note:** High-Performance pump heads are not stackable.

Cole-Parmer® Single-Use Pump Head for Masterflex® L/S® Drives

Get steady, pulseless flow with the convenience of snap-in disposable heads

- Ideal cost-effective solution for single-use or single-campaign fluid transfer
- Disposable—eliminate cross-contamination and cleaning
- Steady, repeatable flow is ideal for dosing applications

Achieving steady pulseless fluid transfer couldn't be easier—simply mount the reusable adapter to your Masterflex L/S drive and snap in a clean disposable pump head. Standard luer connectors enable quick and secure connections to inlet and outlet tubing. Rotary, volumetric pistons produce pulseless flow up to 500 mL/min with high volume and flow rate accuracy. The consistent rate of flow over time from the dual pumping chambers minimizes the need for calibration. **Note:** Max recommended speed is 100 rpm for optimal performance.



Cole-Parmer®

| Description | Single-use pump head kit |
|---------------------------|---|
| Catalog number | JB-07539-20 |
| mL/rev | 5.0 |
| Flow range | 0.5 to 500 mL/min |
| Flow accuracy | ±3% (<2.5 mL); ±1% (>2.5 mL) |
| Max pressure | 36 psi (2.5 bar) |
| Max vacuum | -10 psi (-0.7 bar) |
| Max viscosity | 70 cps |
| Materials of construction | Aluminum adapter; co-polyester pump head with FKM gaskets |
| Connections | Female luer lock |

- JB-07539-30 Single-use disposable pump head. Pack of 1
- JB-07539-32 Single-use disposable pump head. Pack of 3
- JB-07539-34 Single-use disposable pump head. Pack of 6



Kit 07539-20 includes pump head mounting adapter and three single-use pump heads

Shear-Sensitive Pumping with Peristaltic Pumps

Peristaltic pumps have become the gold standard for shear-sensitive pumping applications where damage to cells or agitation of a suspension or colloidal mixture may interfere with the science being performed. Shear-sensitivity concerns are especially common in live-cell circulation within a bioreactor or food and beverage suspensions in manufacturing applications. Inherently, peristaltic pump technology provides gentle pumping action at low speeds, especially when compared to other positive displacement pumps which use tightly machined gears or high-speed impellers to move liquids. However, when it comes to providing the maximum protection to sensitive fluids not all peristaltic pumps are designed equally.



Factors impacting shear sensitivity

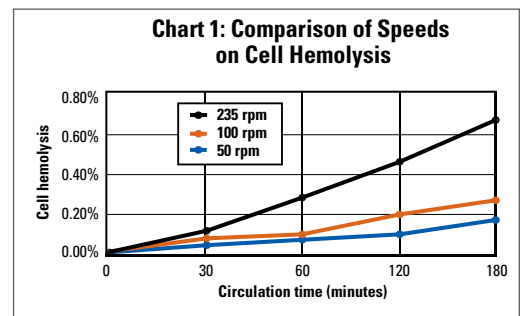
Many methods are available to compare shear forces within pumps. In this case, hemolysis of blood cells was used to evaluate the sensitivity of several pump designs for live cell circulation. In vitro testing was completed using citrated bovine blood circulated through several peristaltic pump systems and settings to establish optimal conditions. All testing was completed in accordance with ASTM F756-13 (Standard Practice for Assessment of Hemolytic Properties of Materials) and FDA 21 CFR Part 58 (Good Laboratory Practice for Nonclinical Laboratory Studies) by an ANSI-ASQ National Accreditation Board (ANAB)-accredited laboratory.

The performance of each pump system was evaluated against its Average Hemolytic Index (a measure of the percentage of hemolysis of the blood cells) for 180 minutes.

1. Pump motor speed

Flow rates in peristaltic pumps are dictated by the rotation speed of the motor, measured in revolutions per minute (rpm). Peristaltic pumps generally present linear flow rates versus rpm with the tubing diameter, number of rollers, and overall occlusion bed size affecting the amount of flow per revolution.

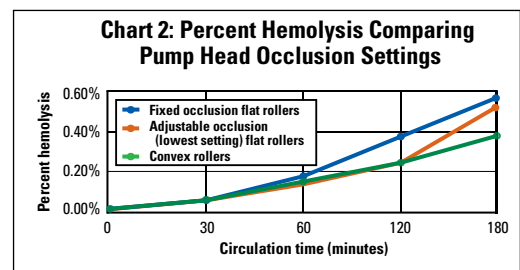
As shown in Chart 1, the motor speed is very dominant in a pump's ability to maintain cell viability during recirculation.



2. Pump head occlusion

In a peristaltic pump head, occlusion refers to the space between the two walls of the tubing as the rollers compress the tubing—full occlusion leaves no space between the walls while partial occlusion does not fully compress the two tubing walls together. In practice, full occlusion generates the highest pressure and flow rates as compared to partial occlusion.

When evaluated for blood cell hemolysis, the pump head occlusion setting was important. Less tubing occlusion allowed space for the blood cells to shift around the force of the roller which decreased the overall percent of hemolysis. Additionally, in longer circulation times the geometry of the occlusion affects the cell viability.



Peristaltic pumps traditionally have flat rollers. The recent introduction of convex rollers has improved performance in shear-sensitive applications. Flat rollers perform best in most applications, delivering superior dispensing accuracy, maximum pressure capabilities, and higher flow rates. However, convex rollers function similarly to adjustable occlusion pump heads in creating space for cells to move during compression of the tubing (Figure 1). The result is improved cell viability during recirculation with convex rollers.

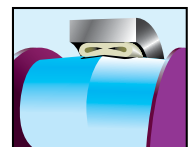


Figure 1:
Convex roller

Chart 2 compares the effect of flat rollers versus convex rollers on pumps running at the same speed. In this case, equipping a pump head with less than full occlusion improves cell viability 10 to 25%.

Comparing Masterflex® Pump Heads and Shear-Sensitive Performance

Masterflex L/S® Easy-Load® II pump head

The Masterflex Easy-Load II pump head is among the most common peristaltic pump heads on the market, used extensively in perfusion, bioreactor, and cell suspension applications.

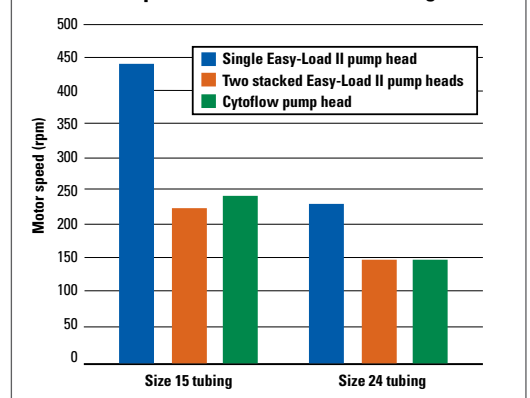
This flat-roller pump head can be optimized for cell viability by minimizing the drive's motor speed needed to achieve the targeted flow rate. This can be done using two effective techniques:

- Use two stacked pumps heads connected with a double-Y tubing assembly.
- Use the largest diameter tubing the process will allow.

Chart 3 shows how using these two techniques can dramatically limit the speed of the pump when targeting a flow rate of 800 mL per minute.

The Masterflex Easy-Load II pump head can be further optimized by choosing the adjustable occlusion model and reducing the occlusion as much as the process conditions will allow.

Chart 3: Motor Speed Needed to Achieve 800 mL/min with Multiple Heads and Different Tubing Sizes



Masterflex L/S Cytoflow™ pump head

The Masterflex Cytoflow pump head (Figure 3) was developed specifically for applications where cell viability is essential. The pump head provides all of the benefits of peristaltic pumps that have made them ideal for use in biopharm and microbiology applications, while adding features that optimize performance for live cell pumping.

The Cytoflow pump head has an extra-large tubing bed and fewer rollers, resulting in high flow rates similar to using two stacked Easy-Load II heads (see Chart 3) but without the inconvenience of introducing a “Y” pattern in the fluid path.

In addition to delivering high flow rates at low motor speeds, the Cytoflow pump head has a convex roller design that furthers its cell viability advantages. This combination makes the Cytoflow pump head the best choice for pump operators looking to minimize the impact on live cells.

Conclusion

Maximizing cell viability with peristaltic pumps requires a multivariate solution with major contributors following this order:

- Pump motor speed: lower rpm minimizes hemolysis
- Occlusion settings: less occlusion minimizes hemolysis
- Occlusion geometry: convex roller design optimizes cell viability during recirculation



Figure 3

Cytoflow 2-Roller Pump Heads



| Pump tubing size | mL per rev | Flow rates in mL/min | | Max system pressure psi (bar) | Catalog number |
|---|------------|----------------------|----------------|-------------------------------|----------------|
| | | 0.02 to 100 rpm | 0.1 to 600 rpm | | |
| For Precision pump tubing | | | | | |
| L/S 16 | 1.7 | 0.03 to 170 | 0.17 to 1000 | 22 (1.5) | JB-77253-00 |
| L/S 25 | 3.9 | 0.08 to 390 | 0.39 to 2300 | 22 (1.5) | |
| L/S 17 | 6.1 | 0.12 to 600 | 0.61 to 3600 | 22 (1.5) | |
| L/S 18 | 8.6 | 0.17 to 850 | 0.86 to 5100 | 22 (1.5) | |
| For High-Performance Precision pump tubing | | | | | |
| L/S 15 | 4.0 | 0.08 to 390 | 0.40 to 2300 | 22 (1.5) | JB-77253-02 |
| L/S 24 | 6.2 | 0.12 to 600 | 0.62 to 3700 | 22 (1.5) | |
| L/S 35 | 9.5 | 0.19 to 930 | 0.95 to 5600 | 22 (1.5) | |
| L/S 36 | 12.8 | 0.26 to 1270 | 1.3 to 7600 | 22 (1.5) | |

Cytoflow 3-Roller Pump Heads

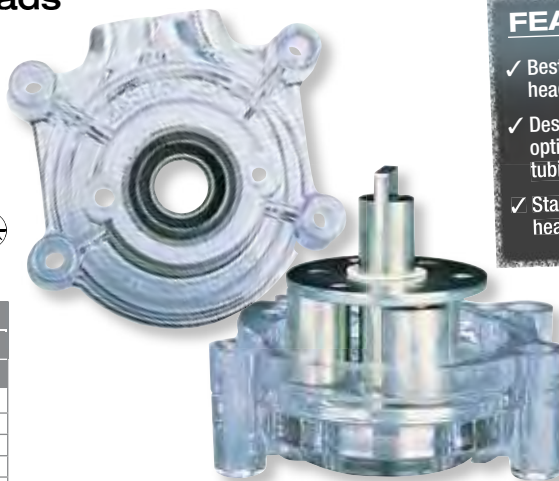


| Pump tubing size | mL per rev | Flow rates in mL/min | | Max system pressure psi (bar) | Catalog number |
|---|------------|----------------------|----------------|-------------------------------|----------------|
| | | 0.02 to 100 rpm | 0.1 to 600 rpm | | |
| For Precision pump tubing | | | | | |
| L/S 16 | 1.6 | 0.03 to 160 | 0.16 to 980 | 22 (1.5) | JB-77253-10 |
| L/S 25 | 3.5 | 0.07 to 340 | 0.35 to 2000 | 22 (1.5) | |
| L/S 17 | 5.6 | 0.11 to 550 | 0.56 to 3300 | 22 (1.5) | |
| L/S 18 | 7.7 | 0.15 to 770 | 0.77 to 4600 | 22 (1.5) | |
| For High-Performance Precision pump tubing | | | | | |
| L/S 15 | 3.5 | 0.07 to 340 | 0.35 to 2000 | 22 (1.5) | JB-77253-12 |
| L/S 24 | 5.7 | 0.11 to 570 | 0.57 to 3400 | 22 (1.5) | |
| L/S 35 | 7.8 | 0.16 to 780 | 0.78 to 4600 | 22 (1.5) | |
| L/S 36 | 9.6 | 0.19 to 950 | 0.96 to 5700 | 22 (1.5) | |

Masterflex® L/S® Standard Pump Heads

Ideal for accurate and repeatable fluid transfer applications

- PC housing allows you to see pump in operation; PPS housing and SS rotors have excellent chemical resistance



FEATURES

- ✓ Best overall pump head performance
- ✓ Designed and optimized for one tubing size
- ✓ Stack up to four heads

| Pump tubing size | mL per rev | Flow rates in mL/min | | Catalog number† | | |
|--|------------|----------------------|--------------|-----------------|-------------|-------------|
| | | 0.02 to 100 rpm | 6 to 600 rpm | PC housing | | PPS housing |
| | | | | CRS rotor | SS rotor | SS rotor |
| A. Standard pump heads for Precision pump tubing | | | | | | |
| L/S 13 | 0.06 | 0.001 to 6 | 0.36 to 36 | JB-07013-20 | JB-07013-21 | JB-07013-52 |
| L/S 14 | 0.21 | 0.004 to 21 | 1.3 to 130 | JB-07014-20 | JB-07014-21 | JB-07014-52 |
| L/S 16 | 0.8 | 0.016 to 80 | 4.8 to 480 | JB-07016-20 | JB-07016-21 | JB-07016-52 |
| L/S 17 | 2.8 | 0.059 to 280 | 17 to 1700 | JB-07017-20 | JB-07017-21 | JB-07017-52 |
| L/S 18 | 3.8 | 0.077 to 380 | 23 to 2300 | JB-07018-20 | JB-07018-21 | JB-07018-52 |
| B. Standard pump heads for High-Performance Precision pump tubing | | | | | | |
| L/S 15 | 1.7 | 0.033 to 170 | 10 to 1000 | JB-07015-20 | JB-07015-21 | JB-07015-52 |
| L/S 24 | 2.8 | 0.057 to 280 | 17 to 1700 | JB-07024-20 | JB-07024-21 | JB-07024-52 |
| L/S 35 | 3.8 | 0.077 to 380 | 23 to 2300 | JB-07035-20 | JB-07035-21 | — |
| L/S 36 | 4.8 | 0.096 to 480 | 29 to 2900 | JB-07036-30 | JB-07036-31 | — |

†PC = polycarbonate PPS = polyphenylene sulfide
CRS = cold-rolled steel SS = stainless steel

‡Maximum system pressure = L/S 13, L/S 14, L/S 15, L/S 16, L/S 24: 40 psi (2.7 bar); L/S 17, L/S 36: 20 psi (1.4 bar); L/S 18: 15 psi (1.0 bar); L/S 35: 35 psi (2.4 bar)

Mounting Hardware

Stack up to four L/S Standard pump heads on one drive. Hardware is stainless steel.

| Heads to be mounted | Catalog number |
|---|----------------|
| Hardware for Standard Heads L/S 13 to 35 | |
| One | JB-07013-04 |
| Two | JB-07013-05 |
| Three | JB-07013-08 |
| Four | JB-07013-09 |
| Hardware for Standard Heads L/S 36 | |
| One | JB-07036-01 |
| Two | JB-07036-02 |

Masterflex® L/S® Easy-Load® II Pump Heads

Automatic retention holds tubing securely in place

- Reduced pulsation and improved pressure performance and mechanical stability with standard four-roller rotor
- Choice of rotors—economical CRS rotors or SS rotors for better chemical resistance and durability
- Don't let pressure get to you. Choose models with adjustable occlusion—tighten for higher pressure, loosen for longer tubing life
- Models with open-head interlock sensor stop drive motor when pump head is open (when used with sensor-equipped drives)

FEATURES

- ✓ Load tubing easily
- ✓ Accepts several tubing sizes for a wide flow range
- ✓ Stack up to four heads
- ✓ Durable PPS housing



What's included: single-channel mounting hardware and a 15" (38-cm) length of silicone pump tubing. Pump head comes ready to mount to drive.



| Pump tubing size accepted | mL per rev | Flow rates in mL/min | | Max system pressure† psi (bar) | Fixed occlusion | | | Adjustable occlusion |
|--|------------|----------------------|--------------|--------------------------------|-----------------|-------------|--------------------------------|----------------------|
| | | 1 to 100 rpm | 6 to 600 rpm | | CRS‡ rotor | SS‡ rotor | SS‡ rotor and open-head sensor | SS‡ rotor |
| | | | | | Cat. no. | Cat. no. | Cat. no. | Cat. no. |
| A. Easy-Load II pump heads for Precision pump tubing (not shown) | | | | | | | | |
| L/S 13 | 0.06 | 0.06 to 6 | 0.36 to 36 | 40 (2.7) | JB-77200-50 | JB-77200-60 | JB-77200-30 | JB-77201-60 |
| L/S 14 | 0.21 | 0.21 to 21 | 1.3 to 130 | 40 (2.7) | | | | |
| L/S 16 | 0.8 | 0.8 to 80 | 4.8 to 480 | 40 (2.7) | | | | |
| L/S 25 | 1.7 | 1.7 to 170 | 10 to 1000 | 35 (2.4) | | | | |
| L/S 17 | 2.8 | 2.8 to 280 | 17 to 1700 | 20 (1.4) | | | | |
| L/S 18 | 3.8 | 3.8 to 380 | 23 to 2300 | 15 (1.0) | | | | |
| B. Easy-Load II pump heads for High-Performance Precision pump tubing | | | | | | | | |
| L/S 15 | 1.7 | 1.7 to 170 | 10 to 1000 | 40 (2.7) | JB-77200-52 | JB-77200-62 | JB-77200-32 | JB-77201-62 |
| L/S 24 | 2.8 | 2.8 to 280 | 17 to 1700 | 40 (2.7) | | | | |
| L/S 35 | 3.8 | 3.8 to 380 | 23 to 2300 | 35 (2.4) | | | | |
| L/S 36 | 4.8 | 4.8 to 480 | 29 to 2900 | 20 (1.4) | | | | |
| C. Two-channel Easy-Load II pump heads for Precision pump tubing | | | | | | | | |
| L/S 13 | 0.06 | 0.06 to 6 | 0.36 to 36 | 40 (2.7) | JB-77202-50 | JB-77202-60 | — | — |
| L/S 14 | 0.21 | 0.21 to 21 | 1.3 to 130 | 40 (2.7) | | | | |
| L/S 16 | 0.8 | 0.8 to 80 | 4.8 to 480 | 40 (2.7) | | | | |
| L/S 25 | 1.7 | 1.7 to 170 | 10 to 1000 | 35 (2.4) | | | | |

†Actual performance varies depending on pump tubing formulation—values shown are for firm pump tubing. ‡CRS = cold-rolled steel SS = stainless steel

Mounting Hardware. Mount up to four L/S Easy-Load II pump heads on a single drive. Mounting hardware is stainless steel.

| Heads to be mounted | One | Two | Three | Four |
|---------------------|-------------|-------------|-------------|-------------|
| Catalog number | JB-77200-01 | JB-77200-02 | JB-77200-03 | JB-77200-04 |

Masterflex® L/S® Pump Head Adapters for 56C Frame Motors

Customize your pump—mount L/S® pump heads to a 56C frame motor

- Specialty motors are listed below
- 3.7:1 adapter: flow: 0.06 to 3400 mL/min; 18.3:1 adapter: flow 0.06 to 1100 mL/min; depends on rpm, adapter gear ratio, tubing size
- Use 1 or 2 L/S pump heads—pump two fluids simultaneously at equal or different flow rates
- IP56-rated cast-aluminum adapters feature built-in gear box—mounting hardware included
- Adapters accept nine pump head types: Standard, Easy-Load®, Easy-Load® II, Easy-Load® 3, Multichannel, High-Performance, Cartridge, PTFE-Tubing, PTFE-Diaphragm

Adapter 77495-00. Pump head 07518-10 and motor sold separately.



MASTERFLEX®

Calculate Flow Rate

Use the following formula to calculate flow rate—do not exceed 600 rpm pump head speed:

Flow rate = (Motor rpm/adapter gear ratio) x flow per revolution

Flow rates in mL/min (flow rate in parentheses can only be reached with the High-Performance pump head—see page 85)



| Adapter gear ratio | Recommended motor rpm limits | Pump head rpm | Precision pump tubing | | | | | High-performance precision pump tubing | | | | |
|---------------------|------------------------------|-------------------------|---|-------------|------------|-------------|-------------|--|---------------------------|---------------------------|---------------------------|---------------------------|
| | | | L/S 13 | L/S 14 | L/S 16 | L/S 25 | L/S 17 | L/S 18 | L/S 15 | L/S 24 | L/S 35 | L/S 36 |
| | | | Standard†, Easy-Load, Easy-Load II, Easy-Load 3 | | | | | | | | | |
| | | Cartridge, Multichannel | | | Cartridge | | Easy-Load | | | | | |
| Flow per revolution | | 1 | 0.06 | 0.21 | 0.8 | 1.7 | 2.8 | 3.8 | 1.7 (1.8) | 2.8 (3.0) | 3.8 (4.3) | 4.8 (5.8) |
| 3.7:1 | 3.7 to 2220 | 1 to 600 | 0.06 to 36 | 0.21 to 130 | 0.8 to 480 | 1.7 to 1000 | 2.8 to 1700 | 3.8 to 2300 | 1.7 to 1000 (1.8 to 1100) | 2.8 to 1700 (3.0 to 1800) | 3.8 to 2300 (4.3 to 2600) | 4.8 to 2900 (5.8 to 3400) |
| 18.3:1 | 18.3 to 3450 | 1 to 190 | 0.06 to 12 | 0.21 to 40 | 0.8 to 150 | 1.7 to 320 | 2.8 to 540 | 3.8 to 720 | 1.7 to 320 (1.8 to 340) | 2.8 to 540 (3.0 to 580) | 3.8 to 720 (4.3 to 800) | 4.8 to 900 (5.8 to 1100) |

†The Standard pump head is not available for L/S® 25. ‡Multichannel head is not available for L/S® 36. Multichannel and Cartridge heads are available for microbore tubing.

Pump Head Adapters

| Motor type | Adapter gear ratio | Motor size required | Maximum motor rpm | Mounting type | Dimensions L x W x H | Power | Catalog number |
|---------------|--------------------|---------------------------------------|-------------------|----------------|---|--|----------------|
| NEMA Type 56C | 3.7:1 | ¼-hp min; 600 rpm pump head speed max | 2220 | Direct coupled | 5¾" x 6½" x 6½" (14.6 cm x 16.5 cm x 16.5 cm) | Power specifications only apply to the motor selected. | JB-77495-00 |
| | 18.3:1 | | 3450 | | | | JB-77495-20 |

56C Frame Motors

| hp | rpm | Type** | Voltage | Frequency | Phase | Wattage | IP rating | Overall dimensions (L x W x H) | Catalog number |
|------------------|------|--------|-------------|-----------|-------|---------|-----------|---|----------------|
| DC Motors | | | | | | | | | |
| ¼ | 1800 | TENV | 12 VDC | — | — | 225 | IP44 | 10½" x 6½" x 6½" (26.7 x 16.5 x 16.5 cm) | JB-70072-00 |
| ¼ | 1800 | XPRF | 90 VDC | — | — | 248 | IP55 | 13½" x 6½" x 12½" (34.3 x 16.5 x 31.7 cm) | JB-70074-00 |
| ¼ | 1750 | WDN | 90 VDC | — | — | 225 | IP56 | 10¾" x 6½" x 8½" (23.7 x 16.5 x 210.6 cm) | JB-70073-00 |
| AC motors | | | | | | | | | |
| ¼ | 1800 | TEFC | 115/208–230 | 60 Hz | 1 | 246 | IP44 | 11¼" x 8¼" x 8½" (30 x 22.6 x 21.1 cm) | JB-71004-15 |
| ¼ | 1800 | XPRF | 115/208–230 | 60 Hz | 1 | 187 | IP55 | 11¼" x 7¾" x 7¼" (30.2 x 19.6 x 18.1 cm) | JB-71006-05 |
| ¼ | 1800 | WDN | 115/208–230 | 60 Hz | 1 | 250 | IP56 | 10¾" x 9¾" x 8½" (30.2 x 25.1 x 21.6 cm) | JB-71009-15 |

**TENV = totally enclosed, non-ventilating TEFC = totally enclosed, fan-cooled WDN = washdown XPRF = explosion proof

Wait! There's More...
Motors are available from Cole-Parmer too!
Contact your local office or dealer for more information.

Masterflex® L/S® Easy-Load® Pump Heads

Save time with fast tubing changes and reduced maintenance

- No need to remove head to change tubing
- PPS housing offers improved chemical resistance; SS rotor offers increased durability and chemical resistance
- Get four separate pumping channels by mounting up to four heads on one drive
- ATEX Zone 2 approved models rated to EEx II 3 G c II C T6
- Ready to use—include single-channel mounting hardware and 15" (38 cm) of silicone tubing

FEATURES

- ✓ Fixed occlusion averaged for several tubing sizes
- ✓ Stack up to four heads
- ✓ ATEX Zone 2 rated models available



ISO9001:2008 CERTIFIED SUPPLIER ATEX Zone 2 07516-40, -42

MASTERFLEX®

| Pump tubing sizes accepted | mL per rev | Flow rates in mL/min | | Maximum system pressure† psi (bar) | Catalog number‡ | | | |
|--|------------|----------------------|--------------|------------------------------------|-------------------|-------------|-------------------|---------------------------|
| | | 1 to 100 rpm | 6 to 600 rpm | | White PPS housing | | Black PPS housing | ATEX-approved PPS housing |
| | | | | | CRS rotor | SS rotor | SS rotor | SS rotor |
| Easy-Load pump heads for Precision pump tubing | | | | | | | | |
| L/S 13 | 0.06 | 0.06 to 6 | 0.36 to 36 | 40 (2.7) | JB-07516-00 | JB-07516-10 | JB-07518-60 | JB-07516-40 |
| L/S 14 | 0.21 | 0.21 to 21 | 1.3 to 130 | 40 (2.7) | | | | |
| L/S 16 | 0.8 | 0.8 to 80 | 4.8 to 480 | 40 (2.7) | | | | |
| L/S 25 | 1.7 | 1.7 to 170 | 10 to 1000 | 35 (2.4) | | | | |
| L/S 17 | 2.8 | 2.8 to 280 | 17 to 1700 | 20 (1.4) | | | | |
| L/S 18 | 3.8 | 3.8 to 380 | 23 to 2300 | 15 (1.0) | | | | |
| Easy-Load pump heads for High-Performance Precision pump tubing | | | | | | | | |
| L/S 15 | 1.7 | 1.7 to 170 | 10 to 1000 | 40 (2.7) | JB-07516-02 | JB-07516-12 | JB-07518-62 | JB-07516-42 |
| L/S 24 | 2.8 | 2.8 to 280 | 17 to 1700 | 40 (2.7) | | | | |

†PSF = polysulfone PPS = polyphenylene sulfide CRS = cold-rolled steel SS = stainless steel

Mounting Hardware

Stack up to four L/S Easy-Load pump heads on one drive. Order mounting hardware based on number of mounted pump heads. Hardware is stainless steel.

| Heads to be mounted | Catalog number |
|---------------------|----------------|
| One | JB-07013-04 |
| Two | JB-07013-05 |
| Three | JB-07013-08 |
| Four | JB-07013-09 |

Masterflex® L/S® Easy-Load® 3 Pump Heads

No tools or hardware needed

- Mount and stack heads in seconds with twist-lock mounting feature
- CRS rotor is more economical while SS offers greater durability and chemical resistance
- Mount up to four pump heads without tools or hardware when using mounting plate
- Included mounting plate adapts Easy-Load 3 pump heads to L/S drives

FEATURES

- ✓ Same side tubing entry/exit for space-limited applications
- ✓ Automatic tubing retention
- ✓ Stack up to four heads

MASTERFLEX® ISO9001:2008 CERTIFIED SUPPLIER ATEX Zone 2

| Pump tubing sizes accepted | mL per rev | Flow rates in mL/min | | Maximum system pressure† psi (bar) | Catalog number‡ | |
|--|------------|----------------------|--------------|------------------------------------|-----------------|-------------|
| | | 1 to 100 rpm | 6 to 600 rpm | | CRS rotor | SS rotor |
| Easy-Load 3 pump heads for Precision pump tubing | | | | | | |
| L/S 13 | 0.06 | 0.06 to 6 | 0.36 to 36 | 40 (2.7) | JB-77800-50 | JB-77800-60 |
| L/S 14 | 0.22 | 0.22 to 22 | 1.3 to 130 | 40 (2.7) | | |
| L/S 16 | 0.8 | 0.8 to 80 | 4.8 to 480 | 40 (2.7) | | |
| L/S 25 | 1.7 | 1.7 to 170 | 10 to 1000 | 35 (2.4) | | |
| L/S 17 | 2.8 | 2.8 to 280 | 17 to 1700 | 20 (1.4) | | |
| L/S 18 | 3.8 | 3.8 to 380 | 23 to 2300 | 15 (1.0) | | |
| Easy-Load 3 pump heads for High-Performance Precision pump tubing | | | | | | |
| L/S 15 | 1.7 | 1.7 to 170 | 10 to 1000 | 30 (2.0) | JB-77800-52 | JB-77800-62 |
| L/S 24 | 2.8 | 2.8 to 280 | 17 to 1700 | 30 (2.0) | | |
| L/S 35 | 3.8 | 3.8 to 380 | 23 to 2300 | 25 (1.7) | | |
| L/S 36 | 4.8 | 4.8 to 480 | 29 to 2900 | 20 (1.4) | | |
| | | | | | | |

†Actual performance varies depending on pump tubing formulation—values shown are for firm pump tubing.
‡CRS = cold-rolled steel SS = stainless steel



JB-77800-00 Replacement mounting kit, for mounting Easy-Load 3 pump head to Masterflex L/S pump drives. Includes mounting plate and four screws

Masterflex® L/S® Multichannel Pump Heads

Get low-pulsation synchronous flow in multiple channels without cartridges

- Load the tubing, latch the occlusion bed, and run the pump—two-stop tubing gives you optimal tension with no adjustment
- Stackable two, four, or eight-channel heads for up to 24 channels
- Six roller heads deliver low-pulsation flow; three-roller heads offer higher flow rates
- Heads for L/S Precision pump tubing accept two-stop tubing set sizes L/S 13, L/S 14, and L/S 16; heads for L/S High-Performance Precision pump tubing accept two-stop tubing set sizes L/S 15, L/S 24, and L/S 35
- Compatible with L/S drives that accept two or more pump heads; 1/10 hp min



MASTERFLEX®

FEATURES

- ✓ Stackable for up to 24 synchronous flow channels
- ✓ Models for L/S two-stop tubing sets available
- ✓ Durable stainless steel and anodized aluminum construction



Stack heads for even more channels!

What's included: mounting hardware and hex key tool.

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| Number of channels | Number of rollers | Max channels with stacked heads† | | Catalog number |
|--|-------------------|----------------------------------|---------------|----------------|
| | | 100 rpm drive | 600 rpm drive | |
| A. L/S Multichannel pump heads for Precision pump tubing, sizes L/S 13, L/S 14, L/S 16 | | | | |
| 4 | 6 | 24 | 12 | JB-07535-04 |
| 8 | | | | JB-07535-08 |
| B. L/S Multichannel pump heads for High-Performance Precision pump tubing, sizes L/S 15, L/S 24, L/S 35 | | | | |
| 2 | 3 | 12 | 6 | JB-07536-02 |
| 4 | | | | JB-07536-04 |

†Maximum channel capacity depends on drive torque capability and tubing formulation used.

L/S Two-Stop Precision Tubing Sets Ordering Information for 07535- and 07536-series pump heads

| Pump tubing formulation | L/S Precision pump tubing | L/S Precision pump tubing | | | L/S High-Performance Precision pump tubing | | |
|---|---------------------------|---------------------------|------------------------|------------------------|--|------------------------|------------------------|
| | | L/S 13 | L/S 14 | L/S 16 | L/S 15 | L/S 24 | L/S 35 |
| Tygon® E-LFL | | JB-06447-13 pk of 8 | JB-06447-14 pk of 8 | JB-06447-16 pk of 8 | JB-06447-15 pk of 4 | JB-06447-24 pk of 4 | JB-06447-35 pk of 4 |
| Silicone (platinum-cured) | | JB-06421-13 pk of 8 | JB-06421-14 pk of 8 | JB-06421-16 pk of 8 | JB-06421-15 pk of 4 | JB-06421-24 pk of 4 | JB-06421-35 pk of 4 |
| BioPharm Plus Silicone (platinum-cured) | | JB-96116-13 pk of 8 | JB-96116-14 pk of 8 | JB-96116-16 pk of 8 | JB-96116-15 pk of 4 | JB-96116-24 pk of 4 | JB-96116-35 pk of 4 |
| PharMed® BPT | | JB-96114-13 pk of 8 | JB-96114-14 pk of 8 | JB-96114-16 pk of 8 | JB-96114-15 pk of 4 | JB-96114-24 pk of 4 | JB-96114-35 pk of 4 |
| Chem-Durance® Bio | | JB-96117-13 pk of 8 | JB-96117-14 pk of 8 | JB-96117-16 pk of 8 | JB-96117-15 pk of 4 | JB-96117-24 pk of 4 | JB-96117-35 pk of 4 |
| Viton® | | JB-96428-13 pk of 8 | JB-96428-14 pk of 8 | JB-96428-16 pk of 8 | JB-96428-15 pk of 4 | JB-96428-24 pk of 4 | JB-96428-35 pk of 4 |

Flow Rates per Channel in mL/min with L/S Two-Stop Precision Pump Tubing Sets above

| Drive rpm | Precision pump tubing | | | High-Performance Precision pump tubing | | |
|-----------|-----------------------|------------|------------|--|------------|------------|
| | L/S 13 | L/S 14 | L/S 16 | L/S 15 | L/S 24 | L/S 35 |
| 1 to 100 | 0.045 to 4.5 | 0.16 to 16 | 0.47 to 47 | 1.6 to 160 | 2.8 to 280 | 3.8 to 380 |
| 6 to 600 | 0.27 to 27 | 0.96 to 96 | 2.8 to 280 | 10 to 1000 | 17 to 1700 | 23 to 2300 |

Application Solution



Challenge

A pharmaceutical manufacturer needed to dispense volumes of 300 mL in 15 seconds or less repeating three times per minute; and 20 mL in 2 seconds or less repeating 20 times per minute. The desired accuracy target for both applications was ±1.5%. The efficiency of simultaneously pumping multiple channels was critical.

Solution

The manufacturer now uses a Masterflex L/S digital drive with an L/S four-channel pump head 07536-04. Size L/S 15 two-stop silicone tubing (06421-15) met the smaller flow requirement; while size L/S 35 two-stop silicone tubing (06421-35) met the larger flow requirement. Careful calibration of the drive, and the synchronous multichannel flow capability of the pump head enabled the manufacturer to meet the accuracy target.

Masterflex® L/S® PTFE-Tubing Pump Head

Ideal for high-purity fluids and aggressive organic solvents

- Pump fluids at pressures up to 100 psi (6.9 bar)
- Use for applications including filtration, chemical injection, and high-purity sampling
- PTFE tubing is the only wetted part; anodized aluminum and acetal body; stainless steel rotor assembly
- Compatible with L/S drives that accept two or more pump heads (1/10 hp min); For best results, run at 1 to 300 rpm

FEATURES

- ✓ PTFE is the only wetted part—safely transfer aggressive organic solvents
- ✓ Adjustable occlusion for higher pressure or longer tubing life
- ✓ Use with rigid tubing for pressures up to 100 psi (6.9 bar)
- ✓ Not stackable



Note: PTFE-tubing pump head accepts **only** the Masterflex L/S PTFE tubing sets sold below; ordinary PTFE tubing cannot be substituted. Use the connectors to adapt the tubing sets to your system.

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| Flow rates (mL/min at 1 to 300 rpm) | | Maximum continuous pressure | Max suction lift | Avg tubing life (100 rpm, 0 psi) | Number of rollers | Catalog number |
|-------------------------------------|----------------|-----------------------------|------------------|----------------------------------|-------------------|----------------|
| 4-mm OD tubing | 6-mm OD tubing | | | | | |
| 0.06 to 17 | 0.25 to 65 | 100 psi (6.9 bar) | 8 ft (2.4 m) | 500 hours | Six | JB-77390-00 |

PTFE-Tubing Sets include two 15" (38 cm) lengths and cannot be substituted with ordinary PTFE tubing.

JB-77390-50 PTFE-tubing set. 2-mm ID, 4-mm OD. Set of 2

JB-77390-60 PTFE-tubing set. 4-mm ID, 6-mm OD. Set of 2

Compression Fittings adapt tubing sets to your system.

For 4-mm OD PTFE-Tubing Sets

JB-31321-61 Straight connector, 40 psi (2.8 bar) max

JB-06605-53 PTFE extension tubing, 4-mm OD. Pack of 25 ft (7.6 m)

For 6-mm OD PTFE-Tubing Sets

JB-31321-64 Straight connector, 135 psi (9.2 bar) max

JB-06605-54 PTFE extension tubing, 6-mm OD. Pack of 25 ft (7.6 m)

Masterflex® L/S® PTFE-Diaphragm Pump Heads

Ideal for accurate chemical feed/metering and high-purity, high-pressure applications, or both

- Turns a L/S drive into a chemically inert diaphragm pump—PTFE material resists even the most aggressive chemicals
- High metering accuracy—maintain ±2% repeatability
- Self-priming—wet or dry
- Intermittent pressure capabilities: maintains consistent flow performance up to 100 psi (6.9 bar)
- Compatible with L/S drives that accept two or more pump heads; recommended operating speed range is 40 to 400 rpm

FEATURES

- ✓ Designed for demanding chemical compatibility and high-purity applications
- ✓ Maintain ±2% repeatability across varying system pressures and fluid viscosities
- ✓ Maintain a constant flow up to 75 or 100 psi



Check valve increases metering accuracy while maintaining pump prime.

Specifications

Repeatability: ±2%

Max fluid temperature: 149°F (65°C)

Drive requirements: minimum 1/10 hp

Cracking pressure: <1 psi (68 mbar)

Wetted parts: PTFE diaphragm, body, valve seat, and spring; PTFE ball check in 07090-42, borosilicate glass ball check in 07090-62

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| Flow rate at 40 to 400 rpm | | Max pressure, psi (bar) | | Metering pressure range | Max suction lift | | Max dead volume | Intake/discharge ports | Catalog number |
|----------------------------|-------------|-------------------------|--------------|------------------------------|------------------|---------------|-----------------|------------------------|----------------|
| mL/min | GPH | Continuous | Intermittent | | Dry | Wet | | | |
| 80 to 800 | 1.3 to 12.7 | 50 (3.4) | 75 (5.0) | 3 to 50 psi (0.2 to 3.4 bar) | 24" (61 cm) | 16 ft (4.9 m) | 16 mL | 1/4" NPT(M) | JB-07090-42 |
| 10 to 100 | 0.16 to 1.6 | 75 (5.0) | 100 (6.9) | | 10" (25.4 cm) | 10 ft (3 m) | | | |

For high-flow pump head (07090-42)

HL-31320-54 Female pipe adapter with 1/4" NPT(F). Use with 3/8" OD tubing.

HL-06605-35 PTFE tubing, 3/8" OD x 1/4" ID. Pack of 7.6 m (25 ft).

For low-flow pump head (07090-62)

HL-31320-52 Female pipe adapter with 1/8" NPT(F). Use with 1/4" OD tubing.

HL-06605-31 PTFE tubing, 1/4" OD x 5/32" ID. Pack of 7.6 m (25 ft).

For other product accessories, please visit ColeParmer.in

Masterflex® L/S® Spooled Pump Tubing

Save money—buy in bulk

- Reduce scrap—cut only as much as you need
- Ensure that you always have enough tubing on hand

Spooled pump tubing provides continuous lengths of pump tubing on convenient, manageable spools that are easy to transport and require less storage space than the equivalent amount of individual tubing coils.

Nearly any Masterflex pump tubing formulation can be spooled. If the formulation you need is not listed below, call our Application Specialists for a quote or to place a special order.



L/S® Pump Tubing

| Tubing size | Peroxide-cured silicone (96400-series) | | Platinum-cured silicone (96410-series) | | PharMed® BPT (06508-series) | | BioPharm Silicone (96420-series) 121.9 m (400 ft) | C-Flex® (06424-series) 121.9 m (400 ft) |
|-------------|--|--------------------|--|--------------------|-----------------------------|--------------------|--|--|
| | m (ft) | Cat. no. | m (ft) | Cat. no. | m (ft) | Cat. no. | Cat. no. | Cat. no. |
| L/S 13 | 76.2 (250) | JB-96407-13 | 152.4 (500) | JB-96403-13 | — | — | — | JB-06427-13 |
| L/S 14 | 76.2 (250) | JB-96407-14 | 152.4 (500) | JB-96403-14 | 152.4 (500) | JB-95687-14 | JB-96423-14 | JB-06427-14 |
| L/S 16 | 76.2 (250) | JB-96407-16 | 152.4 (500) | JB-96403-16 | 152.4 (500) | JB-95687-16 | JB-96423-16 | JB-06427-16 |
| L/S 25 | 76.2 (250) | JB-96407-25 | 152.4 (500) | JB-96403-25 | — | — | JB-96423-25 | JB-06427-25 |
| L/S 17 | 76.2 (250) | JB-96407-17 | 152.4 (500) | JB-96403-17 | 152.4 (500) | JB-95687-17 | JB-96423-17 | JB-06427-17 |
| L/S 18 | 61.0 (200) | JB-96407-18 | 121.9 (400) | JB-96403-18 | 121.9 (400) | JB-95687-18 | JB-96423-18 | JB-06427-18 |
| L/S 15 | 76.2 (250) | JB-96407-15 | 121.9 (400) | JB-96403-15 | 121.9 (400) | JB-95687-15 | JB-96423-15 | JB-06427-15 |
| L/S 24 | 61.0 (200) | JB-96407-24 | 91.4 (300) | JB-96403-24 | 91.4 (300) | JB-95687-24 | JB-96423-24 | JB-06427-24 |
| L/S 35 | — | — | 91.4 (300) | JB-96403-35 | 91.4 (300) | JB-95687-35 | — | JB-06427-35 |
| L/S 36 | — | — | 30.5 (100) | JB-96403-36 | 30.5 (100) | JB-95687-36 | — | JB-06427-36 |

Masterflex® L/S® Bulk-Packed Pump Tubing

Prevent contamination with individually bagged coils

- Keep tubing sealed until ready to use
- Reduce storage space requirements
- Save money and shipping fees by buying in bulk

Ideal for large-volume pump tubing users, bulk packs contain individually bagged, sealed 7.6-m (25-ft) coils of tubing, all from a single manufacturing lot. Because bulk packs use less packaging, they require less storage space for the same amount of tubing, and are the best choice for storerooms or other areas where space is at a premium.

Most Masterflex pump tubing formulations can be bulk-packed. If the formulation you need is not listed below, call our Application Specialists for a quote or to place a special order.



| Pump tubing size | Number of 7.6-m (25-ft) bags per box | Platinum-cured silicone (96410-series) | C-Flex® (06424-series) |
|------------------|--------------------------------------|--|------------------------|
| | | Catalog number | Catalog number |
| L/S 13 | 20 | JB-96404-13 | JB-06436-13 |
| L/S 14 | 20 | JB-96404-14 | JB-06436-14 |
| L/S 16 | 20 | JB-96404-16 | — |
| L/S 25 | 20 | JB-96404-25 | JB-06436-25 |
| L/S 17 | 20 | JB-96404-17 | JB-06436-17 |
| L/S 18 | 10 | JB-96404-18 | — |
| L/S 15 | 20 | JB-96404-15 | JB-06436-15 |
| L/S 24 | 20 | JB-96404-24 | JB-06436-24 |
| L/S 35 | 10 | JB-96404-35 | JB-06436-35 |
| L/S 36 | 10 | JB-96404-36 | JB-06436-36 |

FREE Masterflex® Tubing Test Kit!

Our FREE Tubing Test Kit is a simple way to test your chemicals against different tubing formulations. Kit contains samples of 19 different pump tubing formulations, formulation descriptions, a selection guide, instructions on how to test your tubing, and complete ordering information. Call today! Request item 00101-10.

Call or go online to request your FREE test kit today!

Masterflex® L/S® Pump Tubing

Ensure optimal performance from your Masterflex pump

L/S® Pump Tubing



Silicone (platinum-cured)

- Low protein binding, fungus resistant, phthalate and latex-free
- Accommodates a wide temperature range

Silicone (peroxide-cured)

- Greater physical compression capability
- Economical, longer tubing life

BioPharm Silicone (platinum-cured)

- Low absorption; excellent biocompatibility
- Very low extractable; weather, ozone, corona, radiation resistant

BioPharm Plus Silicone (platinum-cured)

- Ultra-smooth—minimizes particle entrapment
- Very low extractable—ideal for lab, biotech, and pharmaceutical

Puri-Flex™

- Heat sealable, weldable, and economical
- Long pump life when compared to silicone or many other TPE tubings

C-Flex®

- Heat sealable, weldable, economical
- Better resistance to pH fluctuations

C-Flex® ULTRA

- Longest life of any C-Flex formulation
- Lowest spallation and reduced residue

PharMed® BPT

- >10,000 hours of tubing life; sealable, weldable
- Ideal for tissue and cell culture work



| Tubing size | L/S 13 | L/S 14 | L/S 16 | L/S 25 | L/S 17 | L/S 18 |
|---------------------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|
| Inner diameter | 0.8 mm (0.03") | 1.6 mm (0.06") | 3.1 mm (0.12") | 4.8 mm (0.19") | 6.4 mm (0.25") | 7.9 mm (0.31") |
| Hose barb size | 1.6 mm (1/16") | 1.6 mm (1/16") | 3.2 mm (1/8") | 4.8 mm (3/16") | 6.4 mm (1/4") | 9.5 mm (3/8") |
| Flow range (approximate)† | 0.06 to 36 mL/min | 0.21 to 130 mL/min | 0.8 to 480 mL/min | 1.7 to 1000 mL/min | 2.8 to 1700 mL/min | 3.8 to 2300 mL/min |

L/S Precision Pump Tubing

| Formulation | Complies with | Qty/pk | ● | ● | ○ | ○ | ○ | ○ |
|---|--|----------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Silicone (platinum-cured) | USP Class V, EP, FDA, REACH, RoHS, ADCF | 7.6 m (25 ft) | JB-96410-13 | JB-96410-14 | JB-96410-16 | JB-96410-25 | JB-96410-17 | JB-96410-18 |
| Silicone (peroxide-cured) | USP Class VI, EP, FDA, 3A, REACH, RoHS, ADCF | 7.6 m (25 ft) | JB-96400-13 | JB-96400-14 | JB-96400-16 | JB-96400-25 | JB-96400-17 | JB-96400-18 |
| BioPharm Silicone (platinum-cured) | USP Class VI, EP, FDA, 3A, REACH, RoHS, ADCF | 7.6 m (25 ft) | JB-96420-13 | JB-96420-14 | JB-96420-16 | JB-96420-25 | JB-96420-17 | JB-96420-18 |
| BioPharm Plus Silicone (platinum-cured) | USP Class VI, EP, FDA, REACH, RoHS, ADCF | 7.6 m (25 ft) | JB-96440-13 | JB-96440-14 | JB-96440-16 | JB-96440-25 | JB-96440-17 | JB-96440-18 |
| Puri-Flex™ | USP Class VI, FDA, 3A, REACH, RoHS, ADCF | 7.6 m (25 ft) | JB-96419-13 | JB-96419-14 | JB-96419-16 | JB-96419-25 | JB-96419-17 | JB-96419-18 |
| C-Flex® | USP Class VI, EP, REACH, RoHS, ADCF | 7.6 m (25 ft) | JB-06424-13 | JB-06424-14 | JB-06424-16 | JB-06424-25 | JB-06424-17 | JB-06424-18 |
| C-Flex® ULTRA | USP Class VI, EP, REACH, RoHS, ADCF | 7.6 m (25 ft) | — | JB-06434-14 | JB-06434-16 | JB-06434-25 | JB-06434-17 | JB-06434-18 |
| PharMed® BPT | USP Class VI, EP, FDA, NSF, REACH, RoHS | 7.6 m (25 ft) | JB-06508-13 | JB-06508-14 | JB-06508-16 | JB-06508-25 | JB-06508-17 | JB-06508-18 |
| PharmaPure® | USP Class VI, EP, FDA, REACH, RoHS | 7.6 m (25 ft) | JB-06435-13 | JB-06435-14 | JB-06435-16 | JB-06435-25 | JB-06435-17 | JB-06435-18 |
| GORE® STA-PURE® Series PCS® | USP Class VI | 35.6 cm (14") | — | JB-96241-14 | JB-96241-16 | JB-96241-25 | JB-96241-17 | JB-96241-18 |
| GORE® STA-PURE® Series PFL® | USP Class VI | 35.6 cm (14") | — | JB-96242-14 | JB-96242-16 | JB-96242-25 | JB-96242-17 | JB-96242-18 |
| Chem-Durance® Bio® | USP Class VI, FDA, REACH, RoHS | 15.2 m (50 ft) | JB-06442-13 | JB-06442-14 | JB-06442-16 | JB-06442-25 | JB-06442-17 | JB-06442-18 |
| Tygon® E-LFL | USP Class VI, EP, FDA, EU Food, REACH, RoHS, ADCF | 7.6 m (25 ft) | JB-06440-13 | JB-06440-14 | JB-06440-16 | JB-06440-25 | JB-06440-17 | JB-06440-18 |
| Tygon E-Food (B-44-4X) | FDA, EU Food, NSF, 3A, REACH, RoHS, ADCF | 15.2 m (50 ft) | JB-06418-13 | JB-06418-14 | JB-06418-16 | JB-06418-25 | JB-06418-17 | JB-06418-18 |
| Tygon E-Lab (E-3603) | USP Class VI, FDA, EU Food, NSF, REACH, RoHS, ADCF | 15.2 m (50 ft) | JB-06509-13 | JB-06509-14 | JB-06509-16 | JB-06509-25 | JB-06509-17 | JB-06509-18 |
| Tygon Fuel & Lubricant (F-4040-A) | REACH, RoHS, ADCF | 15.2 m (50 ft) | JB-06401-13 | JB-06401-14 | JB-06401-16 | JB-06401-25 | JB-06401-17 | JB-06401-18 |
| Tygon Chemical® (2001) | FDA 21 CFR 175.300, REACH, RoHS, ADCF | 15.2 m (50 ft) | JB-06475-13 | JB-06475-14 | JB-06475-16 | JB-06475-25 | JB-06475-17 | JB-06475-18 |
| Norprene® (A-60 G) | NSF, REACH, RoHS | 15.2 m (50 ft) | JB-06404-13 | JB-06404-14 | JB-06404-16 | JB-06404-25 | JB-06404-17 | JB-06404-18 |
| Norprene Food (A 60 F) | FDA, 3A, NSF, REACH, RoHS | 15.2 m (50 ft) | JB-06402-13 | JB-06402-14 | JB-06402-16 | JB-06402-25 | JB-06402-17 | JB-06402-18 |
| Viton® | FDA, ADCF | 7.6 m (25 ft) | JB-96412-13 | JB-96412-14 | JB-96412-16 | JB-96412-25 | JB-96412-17 | JB-96412-18 |

†Determined under the following conditions: Using a 1 to 600 rpm drive; 0 psi at inlet, 0.5 psi at outlet; water temperature at 22°C (72°F).

PharmaPure®

- Nontoxic and nonhemolytic biocompatible
- Long life even under pressure with VERY low spallation

GORE® STA-PURE® PCS

- Long life—even in pressures up to 100 psi
- Excellent flow stability

GORE® STA-PURE® PFL

- Long life—even in pressures up to 100 psi
- Excellent biocompatibility and flow stability

Chem-Durance® Bio

- Excellent chemical compatibility and biocompatibility
- Excellent life and durability under pressure

Tygon® E-LFL

- Longest life of all Tygon formulations
- Broad chemical resistance

Tygon E-Food (B-44-4X)

- Smooth inner surface unaffected by commercial sanitizers
- Nontoxic; will not affect taste or odor

Tygon E-Lab (E-3603)

- Ideal for general transfer use
- Nonaging, nonoxidizing, low gas permeability

Tygon Fuel & Lubricant (F-4040-A)

- Formulated to transport hydrocarbons, petroleum products, and distillates
- Low gas permeability

Tygon Chemical (2001)

- Excellent chemical resistance
- Plasticizer-free with low gas permeability

Norprene® (A-60 G)

- Up to 10,000 hours of tubing life
- Excellent choice for pressure/vacuum applications

Norprene Food (A 60 F)

- Ideal for high-temperature food applications
- Resists heat, ozone, acids, and alkalis

Viton®





- Perfect for applications where FDA and chemical compatibility is needed
- Resists corrosives, solvents, and oils at elevated temperatures

FEATURES

- ✓ Custom extruded to fit Masterflex pumps
- ✓ Engineered for long life in peristaltic pump applications

L/S High-Performance Precision Pump Tubing

| Tubing size | L/S 15 | L/S 24 | L/S 35 | L/S 36 |
|---------------------------------------|---|---|---|---|
| Inner diameter | 4.8 mm (0.19") | 6.4 mm (0.25") | 7.9 mm (0.31") | 9.7 mm (0.38") |
| Hose barb size | 4.8 mm (3/16") | 6.4 mm (1/4") | 9.5 mm (3/8") | 9.5 mm (3/8") |
| Flow range (approximate) [†] | 1.7 to 1000 mL/min (1.8 to 1100 mL/min) | 2.8 to 1700 mL/min (3.0 to 1800 mL/min) | 3.8 to 2300 mL/min (4.3 to 2600 mL/min) | 4.8 to 2900 mL/min (5.8 to 3400 mL/min) |

| Formulation | Complies with | Qty/pk |  |  |  |  |
|---|--|----------------|--|---|--|--|
| Silicone (platinum-cured) | USP Class V, EP, FDA, REACH, RoHS, ADFC | 7.6 m (25 ft) | JB-96410-15 | JB-96410-24 | JB-96410-35 | JB-96410-36 |
| Silicone (peroxide-cured) | USP Class VI, EP, FDA, 3A, REACH, RoHS, ADFC | 7.6 m (25 ft) | JB-96400-15 | JB-96400-24 | JB-96400-35 | JB-96400-36 |
| BioPharm Silicone (platinum-cured) | USP Class VI, EP, FDA, 3A, REACH, RoHS, ADFC | 7.6 m (25 ft) | JB-96420-15 | JB-96420-24 | JB-96420-35 | JB-96420-36 |
| BioPharm Plus Silicone (platinum-cured) | USP Class VI, EP, FDA, REACH, RoHS, ADFC | 7.6 m (25 ft) | JB-96440-15 | JB-96440-24 | JB-96440-35 | JB-96440-36 |
| Puri-Flex™ | USP Class VI, FDA, 3A, REACH, RoHS, ADFC | 7.6 m (25 ft) | JB-96419-15 | JB-96419-24 | JB-96419-35 | JB-96419-36 |
| C-Flex® | USP Class VI, EP, REACH, RoHS, ADFC | 7.6 m (25 ft) | JB-06424-15 | JB-06424-24 | JB-06424-35 | JB-06424-36 |
| C-Flex® ULTRA | USP Class VI, EP, REACH, RoHS, ADFC | 7.6 m (25 ft) | JB-06434-15 | JB-06434-24 | JB-06434-35 | JB-06434-36 |
| PharMed® BPT | USP Class VI, EP, FDA, NSF, REACH, RoHS | 7.6 m (25 ft) | JB-06508-15 | JB-06508-24 | JB-06508-35 | JB-06508-36 |
| PharmaPure® ² | USP Class VI, EP, FDA, REACH, RoHS | 7.6 m (25 ft) | JB-06435-15 | JB-06435-24 | — | — |
| GORE® STA-PURE® Series PCS ² | USP Class VI | 35.6 cm (14") | JB-96241-15 | JB-96241-24 | JB-96241-35 | JB-96241-36 |
| GORE® STA-PURE® Series PFL ² | USP Class VI | 35.6 cm (14") | JB-96242-15 | JB-96242-24 | JB-96242-35 | JB-96242-36 |
| Chem-Durance® Bio ² | USP Class VI, FDA, REACH, RoHS | 15.2 m (50 ft) | JB-06442-15 | JB-06442-24 | JB-06442-35 | JB-06442-36 |
| Tygon® E-LFL | USP Class VI, EP, FDA, EU Food, REACH, RoHS, ADFC | 7.6 m (25 ft) | JB-06440-15 | JB-06440-24 | JB-06440-35 | JB-06440-36 |
| Tygon E-Food (B-44-4X) | FDA, EU Food, NSF, 3A, REACH, RoHS, ADFC | 15.2 m (50 ft) | JB-06418-15 | JB-06418-24 | JB-06418-35 | JB-06418-36 |
| Tygon E-Lab (E-3603) | USP Class VI, FDA, EU Food, NSF, REACH, RoHS, ADFC | 15.2 m (50 ft) | JB-06509-15 | JB-06509-24 | JB-06509-35 | JB-06509-36 |
| Tygon Fuel & Lubricant (F-4040-A) | REACH, RoHS, ADFC | 15.2 m (50 ft) | JB-06401-15 | JB-06401-24 | JB-06401-35 | JB-06401-36 |
| Tygon Chemical ¹ (2001) | FDA 21 CFR 175.300, REACH, RoHS, ADFC | 15.2 m (50 ft) | JB-06475-15 | JB-06475-24 | — | — |
| Norprene® (A-60 G) | NSF, REACH, RoHS | 15.2 m (50 ft) | JB-06404-15 | JB-06404-24 | JB-06404-35 | JB-06404-36 |
| Norprene Food (A 60 F) | FDA, 3A, NSF, REACH, RoHS | 15.2 m (50 ft) | JB-06402-15 | JB-06402-24 | JB-06402-35 | JB-06402-36 |
| Viton® | FDA, ADFC | 7.6 m (25 ft) | JB-96412-15 | JB-96412-24 | JB-96412-35 | JB-96412-36 |

[†]Not compatible with Easy-Load 3, Multi-Cartridge, or High-Performance pump heads.

Masterflex® I/P® Digital Console Process Drives

Maintenance-free drives built for process applications

- Graphical LCD shows four operating modes: continuous run, timed dispense, copy dispense, volume dispense
- Dispense by volume, copy, or time with programmable delay interval
- Models equipped with open-head sensor stop drive motor when pump head is opened—pair with an open-head sensor equipped pump head

Models 77420-10 and -18 feature a 316 stainless steel housing with an anodized aluminum base. Ideal for pharmaceutical, dairy, biotech, and food and beverage applications.

Models 77420-20 and -28 feature a powder-coated steel housing with anodized aluminum base. Use in process, manufacturing, and water-treatment applications where stainless steel is not a critical requirement.

What's included: 6-ft (1.8-m) line cord with IEC 320/CEE22 socket. Shipped with country-specific plug/cord set; please specify ultimate destination when ordering.



FEATURES

- ✓ Flow rates: 0.0006 to 19 LPM
- ✓ Accuracy of ±0.1% speed control
- ✓ Four-line graphical display
- ✓ Reversible motor
- ✓ IP66-rated for easy washdown
- ✓ Accept up to 2 pump heads

77420-10 shown with I/P High-Performance pump head 77600-62

MASTERFLEX®

ISO9001:2008
CERTIFIED SUPPLIER



| rpm | Speed control (resolution) | Open-head sensor | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power | Catalog number |
|---|----------------------------|------------------|---------------------|--------------|-----------|---|-------------------------|----------------|
| Digital process drive with 316 stainless steel housing | | | | | | | | |
| 0.1 to 650 | ±0.1% | No | 2 | ¾ hp (280 W) | IP66 | 16 ¹ / ₁₆ " x 11 ¹ / ₈ " x 12 ⁷ / ₈ " | 90 to 260 VAC, 50/60 Hz | JB-77420-10 |
| | | Yes | | | | | | JB-77420-18 |
| Digital process drive with powder-coat steel housing | | | | | | | | |
| 0.1 to 650 | ±0.1% | No | 2 | ¾ hp (280 W) | IP66 | 16 ¹ / ₁₆ " x 11 ¹ / ₈ " x 12 ⁷ / ₈ " | 90 to 260 VAC, 50/60 Hz | JB-77420-20 |
| | | Yes | | | | | | JB-77420-28 |

Accessories

JB-07575-84 Washdown foot switch, momentary start/stop; 6-ft (1.8-m) cable

JB-07575-80 Cable assembly, 31-pin round connector and 25-ft (7.9-m) cable with stripped wire ends for remote control

JB-17050-01 NIST-traceable calibration for peristaltic pump drive

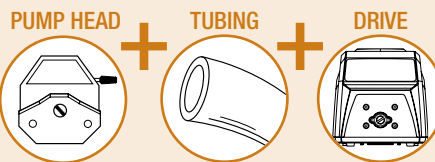
Wait!

There's More...

See page 101 for I/P pump heads and pages 102–103 for I/P tubing.

Choose a convenient Complete System

One catalog number includes all 3!



| System | Flow range | What's included | | | Power | Catalog number |
|--------|------------------|---------------------|--|--|-------------------------|----------------|
| | | Pump head | Tubing | Drive | | |
| | 0.001 to 8.0 LPM | Easy-Load® 77602-10 | C-Flex® ULTRA I/P 73 tubing 06434-73 10 ft (3 m) | Digital process drive with 316 SS housing 77420-10 0.1 to 650 rpm | 90 to 260 VAC, 50/60 Hz | JB-77964-20 |
| | 0.001 to 8.0 LPM | Easy-Load 77602-10 | C-Flex® ULTRA I/P 73 tubing 06434-73 10 ft (3 m) | Digital process drive with powder-coat steel housing 77420-20 0.1 to 650 rpm | 90 to 260 VAC, 50/60 Hz | JB-77964-30 |

Masterflex® I/P® Variable-Speed Modular Digital Dispensing Drives

Get precise digital dispensing with virtually no maintenance

- Graphical LCD shows four operating modes: continuous run, timed dispense, copy dispense, and volume dispense
- Programmable dispense interval lets you set the delay between dispense cycles for convenient, automated dispensing by time or by volume
- Brushless motor gives you quiet, maintenance-free reliability
- 1.8-m cable connects drive and controller; optional extension cable is available

A. Modular Drive with Benchtop Controller

- Splash-resistant ABS plastic controller housing is IP33 rated; drive housing is epoxy finished steel, IP33 rated
- Remote control capabilities via a DB25 female connector on controller

B. Washdown Modular Drive with Wall-Mount Controller

- Wall-mount controller housing is powder-coated aluminum, IP66 / NEMA 4X rated for washdown; powder-coated steel drive housing is IP66 / NEMA 4X rated for washdown
- Remote control capabilities via weather-resistant connection on controller



A.
07594-00

FEATURES

- ✓ Flow rates: 0.0006 to 19 LPM
- ✓ Accuracy of ±0.1% speed control
- ✓ Four-line graphical display
- ✓ Antidrip, reversible motor
- ✓ Remote control capabilities
- ✓ Accept up to 2 pump heads



B.
Model 07594-10 includes wall-mount controller

What's included: 1.8-m line cord with IEC 320/CEE22 socket. Specify ultimate destination when ordering.



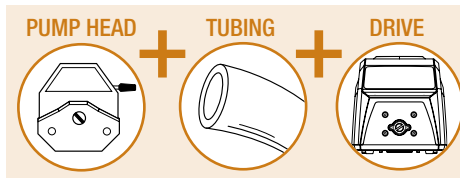
| rpm | Speed control (resolution) | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power (50/60 Hz) | | Catalog number |
|--|----------------------------|---------------------|--------------|-----------|--|------------------|--------------------------------|--------------------|
| | | | | | | VAC | Amps | |
| A. Digital modular dispensing drive with benchtop controller | | | | | | | | |
| 0.1 to 650 | ±0.1% (0.1 rpm at 650 rpm) | 2 | ¾ hp (280 W) | IP33 | Controller: 10½" x 8¼" x 5" Drive: 15¼" x 7" x 6" | 90 to 260 | 4.5 at 115 VAC, 2.5 at 230 VAC | JB-07594-00 |
| B. Digital washdown modular dispensing drive with wall-mount controller | | | | | | | | |
| 0.1 to 650 | ±0.1% (0.1 rpm at 650 rpm) | 2 | ¾ hp (280 W) | IP66 | Controller: 9" x 11¼" x 4½" Drive: 15¼" x 7" x 6" | 90 to 260 | 4.5 at 115 VAC, 2.5 at 230 VAC | JB-07594-10 |

JB-77301-82 Extension cable, 9 ft (2.7 m); extend distance between motor and controller

JB-07523-95 Cable assembly for benchtop drive 07594-00; DB25 male connector and 25-ft (7.9-m) cable with stripped wire ends for remote control

JB-07575-80 Cable assembly for washdown drive 07594-10; 31-pin round connector and 25-ft (7.9-m) cable with stripped wire ends for remote control

JB-17050-01 NIST-traceable calibration for peristaltic pump drive



Choose a convenient Complete System

One catalog number includes all 3!

| System | Flow range | What's included | | | Power | Catalog number |
|--------|----------------|---------------------|--|---|-------------------------|--------------------|
| | | Pump head | Tubing | Drive | | |
| | 0.001 to 8 LPM | Easy-Load® 77602-10 | C-Flex® ULTRA I/P 73 tubing 06434-73 10 ft (3 m) | Digital dispensing drive 07594-00 0.1 to 650 rpm | 90 to 260 VAC, 50/60 Hz | JB-77970-40 |
| | 0.001 to 8 LPM | Easy-Load® 77602-10 | C-Flex ULTRA I/P 73 tubing 06434-73 10 ft (3 m) | Digital washdown dispensing drive 07594-10 0.1 to 650 rpm | 90 to 260 VAC, 50/60 Hz | JB-77970-50 |

Application Solution

Challenge

A customer is pouring hot wax into containers that hold from 50 grams to 3 pounds. Another peristaltic pump was used to pump the wax, but it was slow. The customer needs to put the containers on a conveyor belt and wants to operate the pump with a remote control feature so that the operator does not get too close to the wax. Intervals of 1 to 2 seconds between filling sessions is required, so this needs to be controlled by the pump as well.

Solution

The larger I/P pump system 77970-50 fulfills the customer's needs to accurately dispense wax into a range of container capacities in quick succession with time-controlled intervals. Plus, the option to remotely control the pump allows the operator to be a safe distance away.

Masterflex® I/P® Precision Variable-Speed Modular Drives

Place motor and controller where convenient with modular design

- Easy control of speed, direction, and start/stop with membrane keypad
- Ideal for metering and critical transfer applications
- 6-ft (1.8-m) cable connects drive and controller; optional extension cable is available

A. Modular Drive with Benchtop Controller

- Splash-resistant ABS plastic controller housing is IP33 rated; drive housing is epoxy finished steel, IP33 rated
- Remote control via DB9 female connector on controller

B. Washdown Modular Drive with Wall-Mount Controller

- Wall-mount controller housing is powder-coated aluminum, IP66 / NEMA 4X rated for washdown; powder-coated steel drive housing is IP66 / NEMA 4X rated for washdown
- Remote control via weather-resistant connection on controller

What's included: 6-ft (1.8-m) line cord with IEC 320/CEE22 socket. These models are shipped with country-specific plug/cord set; please specify ultimate destination when ordering.



A.
07591-20



B.
Model 07591-30
includes wall-mount controller.

FEATURES

- ✓ Flow rates: 0.036 to 19 LPM
- ✓ Accuracy of ±0.25% speed control
- ✓ LED display
- ✓ Reversible motor
- ✓ Remote control capabilities
- ✓ Accept up to 2 pump heads



| rpm | Speed control (resolution) | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power (50/60 Hz) | | Catalog number |
|---|----------------------------|---------------------|----------------|-----------|---|------------------|-----------------------------------|--------------------|
| | | | | | | VAC | Amps | |
| A. Precision modular drive with benchtop controller | | | | | | | | |
| 6 to 650 | ±0.25% (1 rpm at 650 rpm) | 2† | 1/5 hp (149 W) | IP33 | Controller: 10 3/8" x 8 3/8" x 5 1/2" Drive: 13 7/8" x 5 1/2" x 6 1/8" | 90 to 260 | 4.4 at 115 VAC, 2.2 at 230 VAC | JB-07591-20 |
| B. Precision washdown modular drive with wall-mount controller | | | | | | | | |
| 6 to 650 | ±0.25% (1 rpm at 650 rpm) | 2† | 1/5 hp (149 W) | IP66 | Controller: 10 1/8" x 11" x 4 3/4" Drive: 14 1/4" x 7" x 6 1/2" | 90 to 260 | 4.4 at 115 VAC, 2.2 at 230 VAC | JB-07591-30 |

†Drive accepts two pump heads when loaded with silicone or C-Flex® tubing.

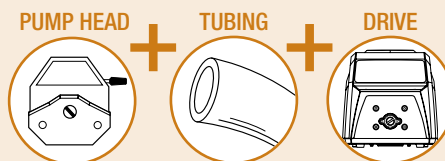
JB-07557-51 Extension cable, 9 ft (2.7 m); extend distance between motor and controller

JB-07595-47 Cable assembly for benchtop drive 07591-20; DB9 male connector and 25-ft (7.9-m) cable with stripped wire terminal ends. Use for remote control

JB-77300-32 Cable assembly for washdown drive 07591-30; 18-pin round connector and 25-ft (7.9-m) cable with stripped wire terminal ends. Use for remote control

JB-17050-01 NIST-traceable calibration for peristaltic pump drive

Choose a convenient Complete System
One catalog number includes all 3!



| System | Flow range | What's included | | | Power | Catalog number |
|--------|---------------|---------------------|--|--|-------------------------|--------------------|
| | | Pump head | Tubing | Drive | | |
| | 0.06 to 8 LPM | Easy-Load® 77602-10 | C-Flex® ULTRA I/P 73 tubing 06434-73 10 ft (3 m) | Modular drive 07591-20 6 to 650 rpm | 90 to 260 VAC, 50/60 Hz | JB-77962-20 |
| | 0.06 to 8 LPM | Easy-Load 77601-10 | C-Flex ULTRA I/P 73 tubing 06434-73 10 ft (3 m) | Washdown modular drive 07591-30 6 to 650 rpm | 90 to 260 VAC, 50/60 Hz | JB-77962-30 |

Masterflex® I/P® Precision Process Drives

Powerful, low-maintenance drives keep you pumping

- Don't worry about moisture, chemicals, or dust—IP55-rated nonchip epoxy-coated steel housing
- Goes where you need it—compact and light enough to carry with one hand, powerful enough to drive two pump heads
- Get up to speed quickly—easy to adjust speed knob and LED display for improved repeatability

FEATURES

- ✓ Flow rates: 0.2 to 19 LPM
- ✓ Accuracy of ±0.25% speed control
- ✓ LED display
- ✓ Reversible motor and remote control capabilities
- ✓ Accept up to 2 pump heads



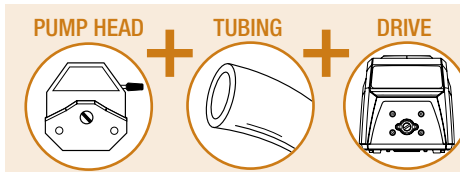
I/P® Drives



| Motor speed (rpm) | Speed control (repeatability) | Pump heads accepted | Motor size | Dimensions | Power (50/60 Hz) | | Catalog number |
|--|-------------------------------|---------------------|------------------|---|------------------|--------------------------------|--------------------|
| | | | | | VAC | Amps | |
| Variable-speed brushless process drive | | | | | | | |
| 33 to 650 | ±0.25% (2% of max rpm) | 2 | 1/2 hp (0.25 kW) | 14"L x 10"W x 9"H (35.6 x 25.4 x 22.9 cm) | 90 to 260 | 4.5 at 115 VAC, 2.6 at 230 VAC | JB-77410-10 |
| Variable-speed brushless process drive with remote input/output | | | | | | | |
| 33 to 650 | ±0.25% (2% of max rpm) | 2 | 1/2 hp (0.25 kW) | 14"L x 10"W x 9"H (35.6 x 25.4 x 22.9 cm) | 90 to 260 | 4.5 at 115 VAC, 2.6 at 230 VAC | JB-77411-00 |

JB-07595-43 Washdown foot switch for model 77411-00

JB-77300-32 Remote cable kit. Required for model 77411-00 to operate the remote inputs and outputs



Choose a convenient Complete System
One catalog number includes all 3!

| System | Flow range | What's included | | | Power | Catalog number |
|--------|---------------|---------------------------|--|--|-------------------------|--------------------|
| | | Pump head | Tubing | Drive | | |
| | 0.4 to 8 LPM | Easy-Load® 77602-10 | C-Flex® ULTRA I/P 73 tubing 06434-73 10 ft (3 m) | Brushless process drive 77410-10 33 to 650 rpm | 90 to 260 VAC, 50/60 Hz | JB-77963-10 |
| | 0.7 to 17 LPM | High-Performance 77600-62 | Tygon® E-LFL I/P 88 tubing 06440-88 3 ft (1 m) | Brushless process drive 77410-10 33 to 650 rpm | 90 to 260 VAC, 50/60 Hz | JB-77963-20 |

Service that doesn't end with sales.

We install, commission, provide IQ/OQ certification, and repair virtually all of our products.

022-6139-4444 | info@coleparmer.in



Masterflex® I/P® Variable-Speed Air-Powered Drive

Use where electricity is unsafe or unavailable

- Wide flow range and maximum flexibility with variable-speed drives
- Easily adjust motor speed by using included regulator
- Smooth-start motor requires very little maintenance and generates less heat than electric motors
- Pump up to 19 LPM (5 GPM) with High-Performance pump head or up to 26 LPM (6.9 GPM) with two Standard or Easy-Load® heads
- ATEX Zone 2 approved; rated to EEXII 3 G c IIC T6; NEC Class 1, Division 2, Groups A, B, C, D, T6
- Accept all I/P pump heads

Note: Careful grounding to protect from static electricity is vital for safe operation. Drive meets EU machine directive requirements for CE compliance.

What's included: regulator with 5-mm air filter and 1/4" NPT(F) connection, automatic lubricator, 0 to 30 psi pressure gauge, and muffler.

FEATURES

- ✓ Flow rates: 0.06 to 26 LPM
- ✓ Accept up to 2 pump heads



MASTERFLEX®

ISO9001:2008
CERTIFIED SUPPLIER

CE

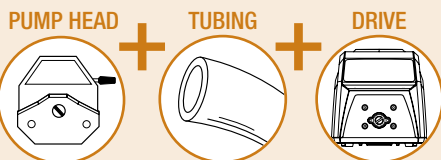
ATEX
Zone 2



| rpm | Speed control | Pump heads accepted | Motor size | IP rating | Dimensions (L x W x H) | Power | Catalog number |
|------------|---------------|---------------------|----------------|-----------|---|--|----------------|
| 100 to 650 | ±10% | 2† | 3/4 hp (560 W) | IP34 | 11 1/8" x 8 1/2" x 9" (28.2 x 21.6 x 22.9 cm) | 3 to 25 cfm (0.08 to 0.7 m³/min) at 20 to 100 psi (1.4 to 6.9 bar) | JB-07589-30 |

†Drive accepts two pump heads when loaded with silicone or C-Flex® tubing.

Choose a convenient Complete System
One catalog number includes all 3!



| System | Flow range | What's included | | | Power | Catalog number |
|--------|--------------|--------------------------------|--|---|--|----------------|
| | | Pump head | Tubing | Drive | | |
| | 1.2 to 8 LPM | Easy-Load® 77602-10 | C-Flex® ULTRA I/P 73 tubing 06434-73 10-ft (3 m) | Air-powered drive 07589-30 100 to 650 rpm | 3 to 25 cfm (0.08 to 0.7 m³/min) at 20 to 100 psi (1.4 to 6.9 bar) | JB-77980-00 |
| | | ATEX-rated Easy-Load® 77602-80 | — | | | JB-77980-10 |

Flow Rates in mL/min (flow rates in parentheses can only be obtained with the High-Performance pump head—see page 85)

| Tubing cross sections | I/P Precision pump tubing sizes | | | I/P High-performance Precision pump tubing sizes† | | |
|-----------------------------|---------------------------------|-------------------------------|------------------------------|---|--------------------------------|--------------------------------|
| | I/P 26 | I/P 73 | I/P 82 | I/P 70 | I/P 88 | I/P 89 |
| Flow range @ 100 to 650 rpm | 0.6 to 4 LPM (0.2 to 1.1 GPM) | 1.2 to 8 LPM (0.3 to 2.1 GPM) | 2 to 13 LPM (0.5 to 3.5 GPM) | 1.2 to 8 LPM (0.3 to 2.1 GPM) | 2.5 to 17 LPM (0.5 to 4.5 GPM) | 2.6 to 19 LPM (0.7 to 5.0 GPM) |

†Use high-performance Precision tubing with High-Performance pump head only.

Masterflex® I/P® High-Performance Pump Heads

Get higher flow rates and pressure

- Easily transfer viscous fluids
- Pump up to 19 LPM for higher volume processing
- Durable design for longer life—made of stainless steel rollers, bearings, rotor plates, and rotor shaft. Occlusion bed is made of thermoset polyester
- Compatible with I/P drives that accept two or more pump heads; pump head is not stackable



I/P® Pump Heads



| Pump tubing sizes accepted | mL per rev | Flow rates (LPM) at 20 to 650 rpm | Maximum system psi (bar) | Catalog number† | |
|----------------------------|------------|-----------------------------------|--------------------------|------------------------------------|---|
| | | | | Polyester and SS housing, SS rotor | ATEX-approved; polyester and SS housing, SS rotor |
| I/P 70 | 12.3 | 0.26 to 8 | 40 (2.7) | JB-77600-62 | JB-77600-82 |
| I/P 88 | 26.2 | 0.4 to 17 | 35 (2.4) | | |
| I/P 89 | 29.2 | 0.52 to 19 | 20 (1.4) | | |

†SS = stainless steel

FEATURES

- ✓ Easy to load tubing
- ✓ Adjustable tubing retention
- ✓ “C”-shaped design—tubing enters/exits the same side
- ✓ ATEX Zone 2 rated model available

Masterflex® I/P® Easy-Load® Pump Heads

Minimize downtime with faster tubing changes

- Optimize pressure capabilities and tubing life with adjustable occlusion
- Less maintenance and quieter operation with included tang boot
- No more loose pump heads—five-screw mounting for more secure attachment
- Adjust flow rate to your needs—can pump from 0.01 to 13 LPM
- PPS housing with CRS or SS rotor available. CRS rotors have sealed bearings; SS rotors have PTFE-sealed bearings
- Model with open-head interlock sensor stops drive motor when pump head is open (when used with sensor-equipped drives)

FEATURES

- ✓ Load tubing without removing pump head from drive
- ✓ Automatic tubing retention
- ✓ Stack up to two pump heads
- ✓ ATEX Zone 2 rated model available



| Pump tubing sizes accepted | mL per rev | Flow rates (LPM) at indicated rpm | | | Maximum system psi (bar) | Catalog number† | | | | |
|----------------------------|------------|-----------------------------------|------|-----------|--------------------------|-------------------|-------------|-------------------------------|-------------------|----------------------------|
| | | 100 | 540 | 20 to 650 | | White PPS housing | | | Black PPS housing | ATEX-approved; PPS housing |
| | | | | | | CRS rotor | SS rotor | SS rotor and open-head sensor | SS rotor | SS rotor |
| I/P 26 | 6.15 | 0.6 | 3.2 | 0.12 to 4 | 40 (2.7) | JB-77602-00 | JB-77602-10 | JB-77602-30 | JB-77601-60 | JB-77602-80 |
| I/P 73 | 12.3 | 1.2 | 6.8 | 0.2 to 8 | | | | | | |
| I/P 82 | 20.0 | 2.0 | 11.0 | 0.4 to 13 | 20 (1.4) | | | | | |

†PPS = polyphenylene sulfide CRS = cold-rolled steel SS = stainless steel

JB-77601-96 Dual-channel mounting hardware for two pump heads, stainless steel

Service that doesn't end with sales.

We install, commission, provide IQ/OQ certification, and repair virtually all of our products.

022-6139-4444 | info@coleparmer.in



Masterflex® I/P® Pump Tubing

Ensure optimal performance from your Masterflex pump

Silicone (platinum-cured)

- Low protein binding, fungus resistant, phthalate and latex-free
- Accommodates a wide temperature range

Silicone (peroxide-cured)

- Greater physical compression capability
- Economical, longer tubing life

BioPharm Silicone (platinum-cured)

- Low absorption; excellent biocompatibility
- Very low extractable; weather, ozone, corona, radiation resistant

BioPharm Plus Silicone (platinum-cured)

- Ultra-smooth—minimizes particle entrapment
- Very low extractable—ideal for lab, biotech, and pharmaceutical

Puri-Flex™

- Heat sealable, weldable, and economical
- Long pump life when compared to silicone or many other TPE tubings

C-Flex®

- Heat sealable, weldable, economical
- Better resistance to pH fluctuations

C-Flex® ULTRA

- Longest life of any C-Flex formulation
- Lowest spallation and reduced residue

FEATURES





















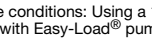
- ✓ Custom extruded to fit Masterflex pumps
- ✓ Engineered for long life in peristaltic pump applications



I/P® Pump Tubing

I/P Precision Pump Tubing

| Tubing size | I/P 26 | I/P 73 | I/P 82 |
|---------------------------|-----------------------------------|-----------------------------------|------------------------------------|
| Inner diameter | 6.4 mm (0.25") | 9.5 mm (0.37") | 12.7 mm (0.5") |
| Hose barb size | 6.4 mm (¼") | 9.5 mm (¾") | 12.7 mm (½") |
| Flow range (approximate)† | 0.01 to 4 LPM 0.002 to 1.1 GPM | 0.01 to 8 LPM 0.002 to 2.1 GPM | 0.02 to 13 LPM 0.005 to 3.5 GPM |

| Formulation | | Complies with | Qty/pk |  |  |  |
|-----------------------------------|---|--|----------------|---|--|--|
| Silicone (platinum cured) |  | USP Class V, EP, FDA, REACH, RoHS, AECF | 7.6 m (25 ft) | JB-96410-26 | JB-96410-73 | JB-96410-82 |
| Silicone (peroxide cured) |  | USP Class VI, EP, FDA, 3A, REACH, RoHS, AECF | 7.6 m (25 ft) | JB-96400-26 | JB-96400-73 | JB-96400-82 |
| BioPharm Silicone (platinum) |  | USP Class VI, EP, FDA, 3A, REACH, RoHS, AECF | 7.6 m (25 ft) | JB-96420-26 | JB-96420-73 | JB-96420-82 |
| BioPharm Plus Silicone (platinum) |  | USP Class VI, EP, FDA, REACH, RoHS, AECF | 7.6 m (25 ft) | JB-96440-26 | JB-96440-73 | JB-96440-82 |
| Puri-Flex™ |  | USP Class VI, FDA, 3A, REACH, RoHS, AECF | 7.6 m (25 ft) | JB-96419-26 | JB-96419-73 | JB-96419-82 |
| C-Flex® |  | USP Class VI, EP, REACH, RoHS, AECF | 7.6 m (25 ft) | JB-06424-26 | JB-06424-73 | JB-06424-82 |
| C-Flex® ULTRA |  | USP Class VI, EP, REACH, RoHS, AECF | 7.6 m (25 ft) | JB-06434-26 | JB-06434-73 | JB-06434-82 |
| PharMed® BPT |  | USP Class VI, EP, FDA, NSF, REACH, RoHS | 7.6 m (25 ft) | JB-06508-26 | JB-06508-73 | JB-06508-82 |
| PharmaPure® † |  | USP Class VI, EP, FDA, REACH, RoHS | 7.6 m (25 ft) | JB-06435-26 | JB-06435-73 | JB-06435-82 |
| GORE® STA-PURE® Series PCS | | USP Class VI | 0.6 m (2 ft) | JB-96241-26 | JB-96241-73 | JB-96241-82 |
| GORE® STA-PURE® Series PFL | | USP Class VI | 0.6 m (2 ft) | JB-96242-26 | JB-96242-73 | JB-96242-82 |
| Chem-Durance® Bio† |  | USP Class VI, FDA, REACH, RoHS | 15.2 m (50 ft) | JB-06442-26 | JB-06442-73 | JB-06442-82 |
| Tygon® E-LFL |  | USP Class VI, EP, FDA, EU Food, REACH, RoHS, AECF | 7.6 m (25 ft) | JB-06440-26 | JB-06440-73 | JB-06440-82 |
| Tygon E-Food (B-44-4X) |  | FDA, EU Food, NSF, 3A, REACH, RoHS, AECF | 15.2 m (50 ft) | JB-06418-26 | JB-06418-73 | JB-06418-82 |
| Tygon E-Lab (E-3603) |  | USP Class VI, FDA, EU Food, NSF, REACH, RoHS, AECF | 15.2 m (50 ft) | JB-06509-26 | JB-06509-73 | JB-06509-82 |
| Tygon Fuel & Lubricant (F-4040-A) |  | REACH, RoHS, AECF | 15.2 m (50 ft) | JB-06401-26 | JB-06401-73 | JB-06401-82 |
| Tygon Chemical (2001) ‡ |  | FDA 21 CFR 175.300, REACH, RoHS, AECF | 15.2 m (50 ft) | JB-06475-26 | JB-06475-73 | JB-06475-82 |
| Norprene® (A 60 G) |  | NSF, REACH, RoHS | 15.2 m (50 ft) | JB-06404-26 | JB-06404-73 | JB-06404-82 |
| Norprene Food (A 60 F) |  | FDA, 3A, NSF, REACH, RoHS | 15.2 m (50 ft) | JB-06402-26 | JB-06402-73 | JB-06402-82 |
| Viton® |  | FDA, AECF | 7.6 m (25 ft) | JB-96412-26 | JB-96412-73 | — |

†Determined under these conditions: Using a 1 to 650 rpm drive; 0 psi at inlet, 0.5 psi at outlet; water temperature at 22°C (72°F).

‡Recommended for use with Easy-Load® pump heads only.

PharMed® BPT

- >10,000 hours of tubing life; sealable, weldable
- Ideal for tissue and cell culture work

PharmaPure®

- Nontoxic and nonhemolytic biocompatible
- Long life even under pressure with VERY low spallation

GORE® STA-PURE® Series PCS

- Consistent flow rate
- Long life—even in pressures up to 100 psi

GORE® STA-PURE® Series PFL

- Long life—even in pressures up to 100 psi
- Excellent biocompatibility and flow stability

Chem-Durance® Bio

- Excellent chemical compatibility and biocompatibility
- Excellent life and durability under pressure

Tygon® E-LFL

- Longest life of all Tygon formulations
- Broad chemical resistance

Tygon E-Food (B-44-4X)

- Smooth inner surface unaffected by commercial sanitizers
- Nontoxic; will not affect taste or odor

Tygon E-Lab (E-3603)

- Ideal for general transfer use
- Nonaging, nonoxidizing, low gas permeability

Tygon Fuel & Lubricant (F-4040-A)

- Formulated to transport hydrocarbons, petroleum products, and distillates
- Low gas permeability

Tygon Chemical (2001)

- Excellent chemical resistance
- Plasticizer-free with low gas permeability

Norprene® (A-60 G)

- Up to 10,000 hours of tubing life
- Excellent choice for pressure/vacuum applications

Norprene Food (A 60 F)




- Ideal for high-temperature food applications
- Resists heat, ozone, acids, and alkalis

Viton®

- Perfect for applications where FDA and chemical compatibility is needed
- Resists corrosives, solvents, and oils at elevated temperatures



I/P High-Performance Precision Pump Tubing

| | | Tubing size | | | |
|-----------------------------------|--|---------------------------|---|---|---|
| | | I/P 70 | I/P 88 | I/P 89 | |
| | | Inner diameter | 9.5 mm (0.37") | 12.7 mm (0.5") | 15.88 mm (0.62") |
| | | Hose barb size | 9.5 mm (3/8") | 12.7 mm (1/2") | 15.88 mm (5/8") |
| | | Flow range (approximate)† | 0.01 to 8 LPM 0.002 to 2.1 GPM | 0.02 to 17 LPM 0.005 to 4.5 GPM | 0.03 to 19 LPM 0.007 to 5.0 GPM |
| Formulation | Complies with | Qty/pk |  |  |  |
| Silicone (platinum cured) | USP Class V, EP, FDA, REACH, RoHS, AOCF | 3 m (10 ft) | JB-96510-70 | JB-96510-88 | JB-96510-89 |
| BioPharm Silicone (platinum) | USP Class VI, EP, FDA, 3A, REACH, RoHS, AOCF | 3 m (10 ft) | JB-96421-70 | JB-96421-88 | JB-96421-89 |
| BioPharm Plus Silicone (platinum) | USP Class VI, EP, FDA, REACH, RoHS, AOCF | 3 m (10 ft) | JB-96441-70 | JB-96441-88 | JB-96441-89 |
| Puri-Flex™ | USP Class VI, FDA, 3A, REACH, RoHS, AOCF | 3 m (10 ft) | JB-96419-70 | JB-96419-88 | JB-96419-89 |
| C-Flex® | USP Class VI, EP, REACH, RoHS, AOCF | 3 m (10 ft) | JB-06424-70 | JB-06424-88 | JB-06424-89 |
| PharMed® BPT | USP Class VI, EP, FDA, NSF, REACH, RoHS | 7.6 m (25 ft) | JB-06508-70 | JB-06508-88 | — |
| GORE® STA-PURE® Series PCS†† | USP Class VI | 0.6 m (2 ft) | — | JB-96241-88 | JB-96241-89 |
| GORE® STA-PURE® Series PFL†† | USP Class VI | 0.6 m (2 ft) | — | JB-96242-88 | JB-96242-89 |
| Chem-Durance® Bio | USP Class VI, FDA, REACH, RoHS | 7.6 m (25 ft) | JB-06442-70 15.2 m (50 ft) | JB-06442-88 | JB-06442-89 |
| Tygon E-LFL | USP Class VI, EP, FDA, EU Food, REACH, RoHS, AOCF | 7.6 m (25 ft) | JB-06440-70 | JB-06440-88 | JB-06440-89 |
| Tygon E-Food (B-44-4X) | FDA, EU Food, NSF, 3A, REACH, RoHS, AOCF | 15.2 m (50 ft) | JB-06418-70 | JB-06418-88 | JB-06418-89 |
| Tygon E-Lab (E-3603) | USP Class VI, FDA, EU Food, NSF, REACH, RoHS, AOCF | 15.2 m (50 ft) | JB-06509-70 | JB-06509-88 | JB-06509-89 |
| Norprene® (A 60 G) | NSF, REACH, RoHS | 7.6 m (25 ft) | JB-06404-70 | JB-06404-88 | JB-06404-89 |
| Norprene Food (A 60 F) | FDA, 3A, NSF, REACH, RoHS | 7.6 m (25 ft) | — | JB-06402-88 | JB-06402-89 |

††Recommended for use with Standard and Easy-Load® pump heads only.

Masterflex® Drives Enhance Worker Protection

You take your safety seriously, and so do we.

You review every step of the process to take care of your staff and to benefit your business. We've added a new option to our Masterflex product line to help enhance protection in your workplace.

Open-Head Interlock Sensor Technology

Available integrated into select L/S® and I/P® drives or as a retrofit system, the open-head interlock sensors add an extra level of protection for operators who maintain pumps. When paired with an open-head sensor equipped pump head, the drive automatically shuts down when the pump head is opened, eliminating exposure to the moving rollers connected to the drive shaft.

Read the article *How Masterflex Pumps with Open Head Sensors Enhance Worker Protection* on our web site at <https://www.coleparmer.in/tech-article/enhanced-worker-safety-open-head-interlock-sensor>

Masterflex products with integrated open-head sensors

- L/S Computer-Compatible Digital Drives [page 75](#)
- L/S Digital Console Process Drives [page 76](#)
- L/S Variable-Speed Digital Drives [page 77](#)
- L/S Precision Console Process Drives [page 79](#)
- L/S High-Pressure Pumps [page 82](#)
- L/S Digital Miniflex® Pumps [page 83](#)
- L/S High-Performance Pump Heads [page 85](#)
- L/S Easy-Load® II Pump Heads [page 88](#)
- I/P Digital Console Process Drives [page 96](#)
- I/P Easy-Load Pump Head [page 101](#)



SAFETY
FIRST

533

DAYS
WITHOUT
INCIDENT

Upgrade your Existing Drives

Use the retrofit system controller to incorporate open-head sensors into pump systems you already have. The system includes a control box that easily connects to your drive and an open-head sensor equipped pump head. If pump head is opened during operation, the interlock control box instantly shuts down the drive.

The retrofit system is compatible with select L/S and I/P drives. Controller 77097-00 includes power cables and a single extension cable to connect one sensor-equipped pump head. Order optional extension cable 77097-20 to connect a second pump head.

- JB-77097-00 Open-head interlock sensor control box
- JB-77097-02 Power cable for hard-wired 115 VAC drives
- JB-77097-20 Optional extension cable, 6 ft (1.8 m)



Masterflex® B/T® Fixed- and Variable-Speed Pumps

Achieve the highest flow rates of any Masterflex pump—up to 42 LPM (11.1 GPM)

Fixed-Speed Pump

- Economical and easy to operate
- Reversible motor: purge before or after pumping, pump fluid in either direction
- IP55-rated motor—wash off dirt and debris

Air-Powered Pump

- Use in locations where electricity is unsafe or impractical
- Includes pressure regulator—control your compressor air to match pump requirements
- 24 cfm (0.68 m³), 100 psi (6.9 bar) minimum air required, supply your own compressor to power pump
- IP56-rated motor protects against dust and strong water jets
- Rated for ATEX Zone 2 EEx II 3 G c IIC T6; NEC Class 1, Division 2, Groups A, B, C, D, T6

Variable-Speed Modular Pump

- Place washdown controller wherever it's convenient
- Controller with 16-ft (4.9-m) cord mounts on pump or wall
- IP56-rated motor protects against dust and strong water jets
- Reversible motor: purge before or after pumping, pump fluid in either direction

Variable-Speed Modular Digital Pump

- High-volume, high-accuracy dispensing
- Dispense by volume or time, or pump continuously
- Separate motor and controller by up to 6 feet (1.8 m) for convenient operation
- IP56-rated controller and motor protect against dust and water

What's included: a Rapid-Load® pump head, 3 ft (1 m) of Tygon® E-LFL B/T 91 pump tubing, and a 6-ft (1.8-m) power cord with European plug.



Fixed-speed pump
77111-37



Variable-speed
modular digital pump
77111-77

FEATURES

- ✓ Flow rates up to 42 LPM
- ✓ Interlock switch shuts off power when pump head is opened
- ✓ Washdown pumps handle the toughest process and production applications, then clean up with ease
- ✓ Gentle peristaltic action is ideal for pumping shear-sensitive or viscous fluids (up to 10,000 cps)
- ✓ Rotor and occlusion bed design allow easier tube loading and prevent "tubing roll" during operation

MASTERFLEX®

Flow Rates in LPM (GPM)

| rpm | PerfectPosition® pump tubing | |
|-----------|------------------------------|-------------------------|
| | B/T 87 | B/T 91 |
| 321 | 18.9 (5.0) | 42 (11.1) |
| 271 | 16.0 (4.2) | 35 (9.4) |
| 35 to 321 | 1.9 to 17.7 (0.5 to 4.7) | 4.0 to 37 (1.06 to 9.8) |
| 12 to 321 | 0.71 to 18.9 (0.19 to 5.0) | 1.4 to 42 (0.4 to 11.1) |

ISO 9001:2008
CERTIFIED SUPPLIER



77111-37, Zone 2
-67, -77, -80 77111-37

Except
77111-37

| Motor type | Motor size | rpm | IP rating | Mounting type | Dimensions (L x W x H) | Power | | Catalog number |
|--------------------------------|----------------|-----------|---------------------------------|---------------|---|---|------|----------------|
| | | | | | | VAC (Hz) | Amps | |
| Fixed-speed | 1 hp (0.75 kW) | 271 | IP55 | Direct-drive | 27" x 15.8" x 15.1" (68.6 x 40 x 38.4 cm) | 220 (50) | 6.3 | JB-77111-37 |
| Variable-speed, air powered | ¾ hp (0.56 kW) | 35 to 321 | IP56 | Direct-drive | 27" x 15.8" x 15.1" (68.6 x 40 x 38.4 cm) | Requires 24 cfm (0.68 m ³) 100 psi (6.9 bar) minimum | | JB-77111-80 |
| Variable-speed modular (±5%) | ½ hp (0.37 kW) | 12 to 321 | Controller: IP56 Drive: IP56 | Direct-drive | 27" x 15.8" x 17.4" (68.6 x 40 x 44.2 cm) | 230 (50/60) | 3.3 | JB-77111-67 |
| Variable-speed digital (±0.3%) | ¾ hp (0.56 kW) | 12 to 321 | | Direct-drive | Controller: 9" x 11" x 4½" (22.9 x 27.9 x 11.4 cm) Drive: 27" x 15¾" x 15" (68.6 x 40.0 x 38.4 cm) | 190 to 260 (50/60) | 5.7 | JB-77111-77 |

JB-77300-32 Remote cable, required for remote control operation of model 77111-77; 25 ft (7.6 m)

JB-77111-90 Bracket for digital controller on model 77111-77

Masterflex® B/T® PerfectPosition® Pump Tubing




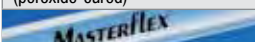
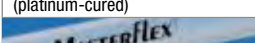
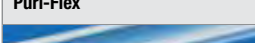
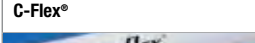

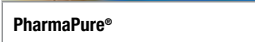





Position more easily—retention marks indicate exact placement

- Optimized for use in B/T pumps to provide the pumping life, flow, and repeatability that you expect

PerfectPosition indicator marks confirm proper loading and ensure optimal performance.



| Tubing size | B/T 87 | B/T 91 |
|---------------------------|------------------------------------|---------------------------------|
| Inner diameter | 12.7 mm (0.5") | 19.0 mm (0.75") |
| Hose barb size | 12.7 mm (½") | 19.0 mm (¾") |
| Flow range (approximate)† | 0.67 to 18.9 LPM (0.17 to 5.0 GPM) | 1.4 to 42 LPM (0.4 to 11.1 GPM) |

| Pump tubing formulation | Description |  |  |
|---|---|--|---|
| Silicone (platinum-cured)  | <ul style="list-style-type: none"> – Complies with USP Class V, EP, FDA, REACH, RoHS, ADCF – Low protein binding, fungus-resistant, phthalate and latex free – Accommodates a wide temperature range | JB-96510-87 3 m (10 ft)/pk | JB-96510-91 3 m (10 ft)/pk |
| Silicone (peroxide-cured)  | <ul style="list-style-type: none"> – Complies with USP Class VI, EP, FDA, 3A, REACH, RoHS, ADCF – Greater physical compression capability – Economical, long life | JB-96400-87 3 m (10 ft)/pk | JB-96400-91 3 m (10 ft)/pk |
| BioPharm Plus Silicone (platinum-cured)  | <ul style="list-style-type: none"> – Complies with USP Class VI, EP, FDA, 3A, REACH, RoHS, ADCF – Ultra-smooth inner surface minimizes particle entrapment – Very low extractable—ideal for lab, biotech pharma applications | JB-96445-87 3 m (10 ft)/pk | JB-96445-91 3 m (10 ft)/pk |
| Puri-Flex™  | <ul style="list-style-type: none"> – Complies with USP Class VI, FDA, REACH, RoHS, ADCF – Heat sealable, weldable, and economical – Long pump life compared to silicone or many TPE tubings | JB-96419-87 3 m (10 ft)/pk | JB-96419-91 3 m (10 ft)/pk |
| C-Flex®  | <ul style="list-style-type: none"> – Complies with USP Class VI, EP, REACH, RoHS, ADCF – Heat sealable, weldable, economical – Better resistance to pH fluctuations | JB-06424-87 3 m (10 ft)/pk | JB-06424-91 3 m (10 ft)/pk |
| PharMed® BPT  | <ul style="list-style-type: none"> – Complies with USP Class VI, EP, FDA, NSF-51, REACH, RoHS – Over 10,000 hours of tubing life, sealable, weldable – Ideal for tissue and cell culture work | JB-06507-87 3 m (10 ft)/pk | JB-06507-91 3 m (10 ft)/pk |
| PharmaPure®  | <ul style="list-style-type: none"> – Complies with USP Class VI, EP, FDA, REACH, RoHS – Nontoxic and nonhemolytic biocompatible – Long life even under pressure with VERY low spallation | JB-06437-87 3 m (10 ft)/pk | JB-06437-91 3 m (10 ft)/pk |
| Chem-Durance® Bio  | <ul style="list-style-type: none"> – Complies with USP Class VI, FDA, REACH, RoHS – Excellent chemical compatibility and biocompatibility – Excellent pump life and durability under pressure | JB-06443-87 3 m (10 ft)/pk | JB-06443-91 3 m (10 ft)/pk |
| Tygon® E-LFL  | <ul style="list-style-type: none"> – Complies with USP Class VI, EP, FDA, EU Food, REACH, RoHS, ADCF – Longest life of all Tygon formulations – Broad chemical resistance | JB-06440-87 3 m (10 ft)/pk | JB-06440-91 3 m (10 ft)/pk |
| Tygon® E-Food (B-44-4X)  | <ul style="list-style-type: none"> – Complies with FDA, EU Food, NSF-51, 3A, REACH, RoHS, ADCF – Smooth inner surface unaffected by commercial sanitizers – Nontoxic, will not affect taste or odor | JB-06418-87 3 m (10 ft)/pk | JB-06418-91 3 m (10 ft)/pk |
| Norprene® Food (A-60-F)  | <ul style="list-style-type: none"> – Complies with FDA, 3A, NSF-51, REACH, RoHS – Ideal for high-temperature food applications – Resists heat, ozone, acids, and alkalis | JB-06399-87 3 m (10 ft)/pk | JB-06399-91 3 m (10 ft)/pk |
| GORE® STA-PURE® Series PCS  | <ul style="list-style-type: none"> – Complies with USP Class VI – Excellent flow stability—even under pressures up to 100 psi | JB-96241-87 0.68 m (27")/pk | JB-96241-91 0.68 m (27")/pk |

†Determined under the following conditions: Using a 11 to 321 rpm drive; 0 bar (0 psi) at inlet, 0.03 bar (0.5) psi at outlet; water temperature at 22°C (72°F).

Masterflex® C/L® Variable-Speed Compact Pumps

Pump in even the tightest spaces!

- Pump fluids in either direction—easily switchable reversing motor
- Easy tubing changes—open cover and release occlusion bed in one motion

A. C/L Single-Channel Pumps

- Stop/start remotely via contact closure
- MAX button quickly primes or purges tubing
- Pump from 0.002 to 43 mL/min

B. C/L Digital Microflex® Pump

- Icon-driven menu allows quick programming and setup
- Flow range of 0.00013 to 43 mL/min
- Copy dispense function for filling and dispensing applications
- Remote control of speed, direction, and start/stop/prime via 25-pin connector on back of drive
- Microflex pump head accepts continuous lengths of tubing for clean flow paths
- Tubing calibration ensures accuracy



FEATURES

- ✓ Flow range: 0.00013 to 43 mL/min
- ✓ Reversible pumping
- ✓ Remote control capabilities

MASTERFLEX®

ISO9001:2008
CERTIFIED SUPPLIER

Power supplies are:



| rpm | Speed control (repeatability) | Number of channels | Number of rollers | Reversible motor | IP rating | Dimensions—¼ DIN (L x W x H) | Power | | Catalog number |
|--|-------------------------------|--------------------|-------------------|------------------|-----------|--|-----------------------------|------------------------------------|--|
| | | | | | | | VAC, Hz | Amps | |
| A. C/L single-channel compact pumps | | | | | | | | | |
| 1.7 to 10 | ±5% | 1 | 4 | Yes | IP22 | 7" x 3¾" x 3½" (17.8 x 9.5 x 8.9 cm) | 90 to 260, 50/60 12 VDC† | 110 mA at 115 VAC — | JB-77122-04 JB-77122-06 |
| 13 to 80 | | | 3 | | | | 90 to 260, 50/60 12 VDC† | 175 mA at 115 VAC — | JB-77122-14 JB-77122-16 |
| 50 to 300 | | | 3 | | | | 90 to 260, 50/60 12 VDC† | 400 mA at 115 VAC — | JB-77122-24 JB-77122-26 |
| B. C/L digital Microflex pump | | | | | | | | | |
| 0.1 to 300 | ±0.1% | 1 | 3 | Yes | IP33 | 8½" x 5½" x 6¾" (20.5 x 14 x 15.7 cm) | 90 to 260 | 0.34 at 115 VAC, 0.2 at 230 VAC | JB-77123-00 |

†Power supply not included with 12 VDC models.

JB-17050-01 NIST-traceable calibration with data for peristaltic pump drive

For A models:

JB-77120-03 Brackets for panel mounting. Set of 2

JB-77200-07 Replacement power supply, 100 to 240 VAC, for pump 77122-24

JB-77120-11 Replacement power supply, 100 to 240 VAC, for pumps 77122-04, -14

For B model:

JB-07523-92 Foot switch, momentary start/stop; DB25 male; 6-ft (1.8-m) cable

JB-07523-95 Cable assembly, DB25 male connector and 25-ft (7.9-m) cable with stripped wire ends

JB-07523-97 Handheld remote controller, DB25 male, route tubing through handle for dispensing applications; 6-ft (1.8-m) cable

JB-77123-80 Replacement single-channel Microflex pump head

JB-07525-90 Replacement power supply, 90 to 260 VAC

Microbore Pump Tubing Ordering Information

| Tube ID (mm) | Tygon® E-Lab | Silicone (platinum-cured) | Silicone (peroxide-cured) | PharMed® BPT | Tygon E-LFL (long flex life) | Viton® | Puri-Flex™ | C-Flex® | Solvent/hydrocarbon |
|--------------|--------------------|---------------------------|---------------------------|--------------------|------------------------------|--------------------|--------------------|--------------------|---------------------|
| 0.19 | JB-06460-10 | — | JB-07625-10 | JB-95809-10 | JB-06449-10 | — | JB-96418-10 | JB-95718-10 | JB-95712-10 |
| 0.25 | JB-06460-12 | — | JB-07625-12 | JB-95809-12 | JB-06449-12 | — | JB-96418-12 | JB-95718-12 | JB-95712-12 |
| 0.51 | JB-06460-18 | JB-95590-18 | JB-07625-18 | JB-95809-18 | JB-06449-18 | JB-97632-18 | JB-96418-18 | JB-95718-18 | JB-95712-18 |
| 0.89 | JB-06460-26 | JB-95590-26 | JB-07625-26 | JB-95809-26 | JB-06449-26 | JB-97632-26 | JB-96418-26 | JB-95718-26 | JB-95712-26 |
| 1.14 | JB-06460-30 | JB-95590-30 | JB-07625-30 | JB-95809-30 | JB-06449-30 | JB-97632-30 | JB-96418-30 | JB-95718-30 | JB-95712-30 |
| 1.42 | JB-06460-34 | JB-95590-34 | JB-07625-34 | JB-95809-34 | JB-06449-34 | JB-97632-34 | JB-96418-34 | JB-95718-34 | JB-95712-34 |
| 2.06 | JB-06460-42 | JB-95590-42 | JB-07625-42 | JB-95809-42 | JB-06449-42 | JB-97632-42 | JB-96418-42 | JB-95718-42 | JB-95712-42 |
| 2.79 | JB-06460-48 | JB-95590-48 | JB-07625-48 | JB-95809-48 | JB-06449-48 | JB-97632-48 | JB-96418-48 | JB-95718-48 | JB-95712-48 |
| Length/pk | 30.4 m (100 ft) | 15.2 m (50 ft) | 15.2 m (50 ft) | 30.4 m (100 ft) | 30.4 m (100 ft) | 15.2 m (50 ft) | 15.2 m (50 ft) | 15.2 m (50 ft) | 15.2 m (50 ft) |

Flow Rates in mL/min

| rpm | Microbore pump tubing size (ID) | | | | | | | | |
|------------|---------------------------------|----------------|----------------|---------------|---------------|---------------|--------------|--------------|--|
| | 0.19 mm | 0.25 mm | 0.51 mm | 0.89 mm | 1.14 mm | 1.42 mm | 2.06 mm | 2.79 mm | |
| 1.7 to 10 | 0.002 to 0.013 | 0.004 to 0.022 | 0.015 to 0.087 | 0.041 to 0.25 | 0.064 to 0.39 | 0.09 to 0.57 | 0.18 to 1.05 | 0.28 to 1.65 | |
| 13 to 80 | 0.017 to 0.10 | 0.03 to 0.18 | 0.12 to 0.70 | 0.33 to 2.0 | 0.52 to 3.1 | 0.75 to 4.5 | 1.4 to 8.5 | 1.8 to 11.0 | |
| 50 to 300 | 0.06 to 0.39 | 0.11 to 0.66 | 0.43 to 2.6 | 1.2 to 7.5 | 1.9 to 11.4 | 2.8 to 17.1 | 5.3 to 32 | 7.2 to 43 | |
| 0.1 to 300 | 0.00013 to 0.39 | 0.0002 to 0.66 | 0.0009 to 2.6 | 0.003 to 7.5 | 0.004 to 11.4 | 0.006 to 17.1 | 0.011 to 32 | 0.014 to 43 | |

Masterflex® Pump Accessories

A. Pulse Dampener

Virtually eliminates pulsation in output flow. Five pairs of fittings and PTFE-pipe thread tape are included. Accepted tubing: all L/S® sizes, I/P® 26, nominal from 1/16" to 3/8" ID (1.6 to 9.5 mm ID). Fittings included (tubing ID x NPT(M) thread): 1/16" x 1/8", 1/8" x 1/8", 3/16" x 1/8", 1/4" x 1/8", and 3/8" x 1/8".



| Description | Connections | Dead volume | Max pressure | Materials | Catalog number |
|----------------|-------------|-------------|------------------|--------------|--------------------|
| Pulse dampener | 1/8" NPT(F) | 190 mL | 60 psi (4.3 bar) | Polyethylene | JB-07596-20 |

B. DB9 Cable Assembly

Use these 9-pin interface cable assemblies with Masterflex L/S® drives (07550- and 07551-series). Cable measures 6 ft (1.8 m) long.



| Description | Catalog number |
|--------------------------------|--------------------|
| Interface cable with DB9 (M/F) | JB-22050-54 |

C. Handheld Remote Controllers

These handheld controllers are designed to control basic drive operations. Route tubing through the handle for filling and dispensing applications. Handles accept Masterflex tubing sizes L/S® 13, L/S 14, L/S 16, L/S 25, L/S 17, L/S 18, L/S 15, and L/S 24 (up to 7/16" nominal OD).



| Description | Catalog number |
|--|--------------------|
| DB9 male connector; for 07528-series Masterflex L/S drives; control start/stop and direction | JB-07528-80 |
| DB25 male connector; for 07523-series and 07551-series Masterflex L/S drives; control start/stop, direction, and prime | JB-07523-97 |
| Stripped wire ends; control start/stop, direction, and prime | JB-07595-62 |

Overlook Filler/Dispensing Nozzles

- Maximize the speed, precision, and accuracy of dispensing and filling applications
- Dimensional tolerances of ±0.05% for assured repeatability

Nozzles feature a 316L stainless steel needle and a polycarbonate base with hose barb adapter. materials meet FDA, USDA and USP Class VI requirements. Sterilize by ethylene oxide, autoclaving, or gamma irradiation.

| Tubing ID | Catalog number |
|-----------|--------------------|
| 1/32" | JB-30619-06 |
| 1/16" | JB-30619-01 |
| 1/8" | JB-30619-07 |
| 3/16" | JB-30619-02 |
| 1/4" | JB-30619-08 |
| 5/16" | JB-30619-03 |
| 3/8" | JB-30619-09 |
| 1/2" | JB-30619-04 |
| 5/8" | JB-30619-10 |
| 3/4" | JB-30619-05 |



Masterflex® Ultrasonic Flow Sensors

Maintain accurate flow rates without affecting working fluid



Clamp-on sensor design makes setup easy—simply place the tubing in the sensor channel and close the lid.

- Noninvasive design eliminates contact with working fluid—ideal for applications with strict hygienic standards
- Provides accurate readings not affected by fluid color, tube color, or electromagnetic properties of liquids
- Continuously monitor peristaltic pump flow rates and send data to your computer with optional communications package

Ready to use out of the box—each sensor comes calibrated to national measurement standards for the appropriately sized Masterflex platinum-cured silicone tubing when water is the working fluid and across the full flow range. Adapt for use with other working fluids or Masterflex L/S® and I/P® tubing materials of the same size with the optional communications package. For best accuracy, the sensor should be calibrated for the specific working fluid.

What's included: flow sensor, cable, and calibration certificate.

MASTERFLEX®



Specifications

Accuracy: ±2 to 4% after using calibration software
Output: RS-485, 4 to 20 mA, 0 to 20 kHz, or PNP-NPN
Enclosure rating: IP65

| For Masterflex tubing size | Max flow rate† | | Min flow rate | | Catalog number |
|---|----------------|--------|---------------|--------|--------------------|
| | GPH | mL/min | GPH | mL/min | |
| Engineered for L/S Precision tubing | | | | | |
| 13 | 0.57 | 36 | 0.48 | 30 | JB-33501-13 |
| 14 | 2.06 | 130 | 0.48 | 30 | JB-33501-14 |
| 16 | 7.61 | 480 | 0.48 | 30 | JB-33501-16 |
| 25 | 15.85 | 1000 | 0.48 | 30 | JB-33501-25 |
| 17 | 26.95 | 1700 | 0.48 | 30 | JB-33501-17 |
| 18 | 36.46 | 2300 | 0.48 | 30 | JB-33501-18 |
| Engineered for L/S High-Performance Precision tubing | | | | | |
| 15 | 14.4 | 1100 | 0.48 | 30 | JB-33501-15 |
| 24 | 28.53 | 1800 | 0.48 | 30 | JB-33501-24 |
| 35 | 41.21 | 2600 | 0.48 | 30 | JB-33501-35 |
| 36 | 53.89 | 3400 | 0.48 | 30 | JB-33501-36 |
| Engineered for I/P Precision tubing | | | | | |
| 26 | 63.4 | 4000 | 0.48 | 30 | JB-33501-26 |
| 73 | 126.8 | 8000 | 0.48 | 30 | JB-33501-73 |

†Higher flow rates can be measured; stated maximum flow rate is that of the tubing.

JB-33501-96 Communications package includes software for data capture and calibration on USB drive and connector cable

Masterflex® Open-Head Sensor Retrofit System Controller

Instantly shuts down the drive if the pump head is opened during operation

- Protect technicians and operators tasked with tubing changes and routine maintenance in busy production environments
- Use in conjunction with Masterflex L/S® and I/P® open-head sensor equipped pump heads
- Compatible with Masterflex L/S and I/P drives without integrated open-head sensor
- Controller accepts input signals from up to two pump heads
- NEMA 4X / IP66 rated for washdown



| Description | Masterflex® Open-Head Sensor Retrofit System Controller |
|-----------------------------|--|
| Catalog number | JB-77097-00 |
| No. of pump heads accepted | 2 |
| Type of pump heads accepted | Use only with L/S Easy-Load® II pump heads 77200-30 and 77200-32; and I/P Easy-Load pump head 77602-30 |
| Drive requirements | Compatible with all L/S and I/P drives that accept the Easy-Load II pump head |



Masterflex® Leak Detector Sensors

Minimize damage from fluid leaks or tubing failures

Options available for mounting and connecting sensors to match your equipment and application:

- For Masterflex drives with an OHS input on the front of the drive, the leak detectors will plug directly into this connection
- For Masterflex digital drives with a DB25 remote I/O connector, leak detectors may be connected using DB25 adapter with extension cable 77097-28
- For Masterflex drives without an OHS input or DB25 interface connection, leak detection may be accomplished using the Masterflex open-head sensor retrofit system controller 77097-00

A. Leak Detector Sensor mounts directly to the underside of the pump head.

B. Leak Detector Sensor with Splitter Cable mounts directly to the underside of the pump head; splitter cable allows connection of an open-head sensor equipped pump head or a second leak detector sensor.

C. Leak Detector Sensor with Plastic Catch Basin includes a plastic catch basin; use where a larger sensing area is needed and for fluids with low conductivity.

D. Leak Detector Sensor with Plastic Catch Basin and Splitter Cable includes a plastic catch basin; use where a larger sensing area is needed and for fluids with low conductivity. Splitter cable allows connection of an open-head sensor equipped pump head or a second leak detector sensor.



| Key | Description | Catalog number |
|-----|--|----------------|
| A | Sensor | JB-77097-10 |
| B | Sensor with splitter cable | JB-77097-11 |
| C | Sensor with plastic catch basin | JB-77097-12 |
| D | Sensor with plastic catch basin and splitter cable | JB-77097-13 |

Tubing Accessories

Handheld Tubing Cutter

Steel blade coated with PTFE resin produces clean, straight cuts through tubing up to 1 1/4" OD (cuts polyethylene tubing up to 1 1/2" OD). Order carrying pouch and replacement blade separately below.



JB-06438-90 Handheld tubing cutter

JB-06438-81 Tubing cutter pouch

JB-06438-92 Replacement blade for handheld tubing cutter 06438-90

Benchtop Tubing Cutter

Steel blade makes right-angle cuts in plastic tubing 1/16" to 5/8" OD.



JB-06438-10 Benchtop cutter

JB-06438-11 Replacement blade

Plastic Clamp Ties

Perfect for flexible fuel line, water line, and vacuum line applications. Special curved clamp tie head ensures a tight seal. Ties measure 8"L x 0.18"W; maximum diameter of 1 3/4". Black resin resists UV degradation.



JB-95615-00 Clamp ties, white. 100/pk

JB-95615-10 Clamp ties, black. 100/pk

Cole-Parmer® Plastic Hose Clamps and Kits

Reusable white acetal copolymer or white or black nylon clamps will not rust or corrode. Recommended for continuous use from ambient temperature for the acetal copolymer to 200°F (93°C); ambient temperature for nylon clamps is 180°F (82°C). Clamps are non-conducting and stable in a wide variety of chemicals; black clamps resist UV degradation.

Once set, clamps stay put. To use, just position clamp on hose or tubing bundle and press the jaws together with a pair of pliers. Order clamps individually or in kits. Kits include 170 assorted clamps from 0.228" to 1.405" ID.

JB-06832-99 White acetal copolymer hose-clamp kit

JB-06420-99 White nylon hose-clamp kit

JB-06430-49 Black nylon hose-clamp kit



Nylon Hose Clamps

| Inside diameter | | | | Qty/ pk | White | Black |
|-----------------|-------|-------------|------|------------|--------------------|--------------------|
| Decimal inches | | Millimeters | | | Catalog number | Catalog number |
| Min | Max | Min | Max | | | |
| 0.246 | 0.290 | 5.95 | 7.5 | 100 | JB-06420-50 | JB-06430-07 |
| 0.283 | 0.312 | 7.1 | 7.9 | 100 | JB-06420-52 | JB-06430-02 |
| 0.350 | 0.395 | 9.1 | 9.9 | 100 | JB-06420-56 | JB-06430-06 |
| 0.360 | 0.410 | 9.3 | 10.5 | 100 | JB-06420-58 | JB-06430-08 |
| 0.430 | 0.480 | 11.11 | 12.3 | 100 | JB-06420-60 | JB-06430-10 |
| 0.500 | 0.545 | 12.7 | 13.8 | 100 | JB-06420-62 | JB-06430-12 |
| 0.525 | 0.605 | 13.3 | 15.4 | 100 | JB-06420-64 | JB-06430-14 |
| 0.580 | 0.660 | 15.0 | 16.9 | 100 | JB-06420-66 | JB-06430-46 |
| 0.650 | 0.750 | 16.6 | 19.0 | 100 | JB-06420-68 | JB-06430-18 |
| 0.750 | 0.875 | 19.05 | 22.2 | 100 | JB-06420-70 | JB-06430-20 |
| 0.779 | 0.899 | 19.7 | 22.6 | 100 | JB-06420-72 | JB-06430-22 |
| 0.859 | 0.989 | 21.8 | 25.0 | 100 | JB-06420-74 | JB-06430-44 |
| 0.900 | 0.989 | 23.0 | 25.0 | 100 | JB-06420-76 | JB-06430-26 |
| 0.990 | 1.135 | 25.0 | 28.5 | 100 | JB-06420-78 | JB-06430-28 |
| 1.123 | 1.296 | 28.5 | 32.9 | 50 | JB-06420-80 | JB-06430-30 |
| 1.250 | 1.425 | 31.7 | 35.9 | 50 | JB-06420-82 | JB-06430-32 |
| 1.406 | 1.610 | 35.7 | 40.8 | 50 | JB-06420-84 | JB-06430-34 |
| 1.593 | 1.812 | 40.4 | 46.0 | 50 | JB-06420-86 | JB-06430-36 |
| 1.790 | 2.110 | 45.6 | 53.5 | 50 | JB-06420-88 | JB-06430-38 |
| 1.870 | 2.125 | 47.0 | 52.0 | 50 | JB-06420-90 | JB-06430-40 |
| 2.119 | 2.390 | 53.5 | 60.7 | 25 | JB-06420-92 | JB-06430-42 |



Custom Cut Tubing

No More Tedious Cutting!

Save Time with Custom Cut Tubing

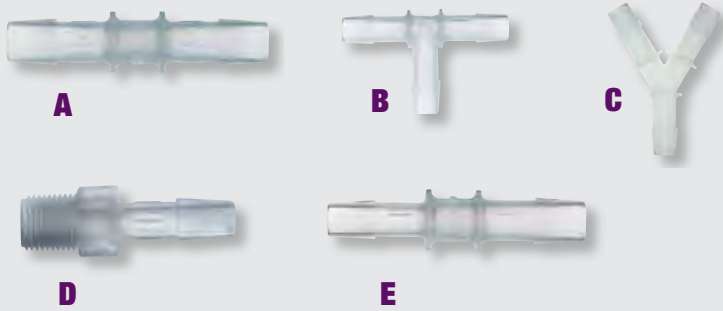
- ✓ Use your time more productively
- ✓ Eliminate expensive cutting equipment
- ✓ Minimize waste with accurate lengths
- ✓ Wide selection available, with samples prior to order



Contact your local dealer or visit **ColeParmer.in/CCT**

Masterflex® Barbed Fittings

Designed to tight tolerances and made from virgin materials



MASTERFLEX®

Specifications

- ✓ **High-Density Polyethylene (HDPE):** Very good chemical resistance. Temp range: -65 to 150°F (-53 to 65°C). Sterilize by ethylene oxide only.
- ✓ **Nylon:** Good chemical resistance. Temp range: -50 to 250°F (-46 to 121°C). Sterilize by ethylene oxide only.
- ✓ **Polypropylene (PP):** Very good chemical resistance. Temp range: 32 to 275°F (0 to 135°C). Sterilize by ethylene oxide or autoclave.
- ✓ **PVDF:** Excellent chemical resistance. Temp range: -80 to 265°F (-62 to 129°C). Sterilize by ethylene oxide or autoclave.

| Size | Use with Masterflex® tubing sizes | | | HDPE | Nylon | Polypropylene | PVDF |
|---|-----------------------------------|--------|------|----------------|----------------|----------------|----------------|
| | L/S® | I/P® | B/T® | Catalog number | Catalog number | Catalog number | Catalog number |
| A. Straight connectors | | | | | | | |
| 1/16" | 13, 14 | — | — | JB-40612-01 | JB-40612-02 | JB-40612-43 | JB-40612-04 |
| 1/8" | 16 | — | — | JB-40612-05 | JB-40612-06 | JB-40612-47 | JB-40612-08 |
| 3/16" | 15, 25 | — | — | JB-30612-09 | JB-30612-10 | JB-30612-51 | JB-30612-12 |
| 1/4" | 17, 24 | 26 | — | JB-30612-13 | JB-30612-14 | JB-30612-55 | JB-30612-16 |
| 3/8" | 18, 35, 36 | 70, 73 | 86 | JB-30612-17 | JB-30612-18 | JB-30612-59 | JB-30612-20 |
| 1/2" | — | 82, 88 | 88 | JB-30612-21 | JB-30612-22 | JB-30612-63 | JB-30612-24 |
| 5/8" | — | 89 | — | JB-30612-25 | JB-30612-26 | JB-30612-67 | JB-30612-28 |
| 3/4" | — | — | 90 | JB-30612-29 | JB-30612-30 | JB-30612-71 | JB-30612-32 |
| 1" | — | — | 92 | JB-30612-33 | JB-30612-34 | JB-30612-75 | JB-30612-36 |
| B. Tee connectors (equal leg) | | | | | | | |
| 1/16" | 13, 14 | — | — | JB-40613-01 | JB-40613-02 | JB-40613-43 | JB-40613-04 |
| 1/8" | 16 | — | — | JB-40613-05 | JB-40613-06 | JB-40613-47 | JB-40613-08 |
| 3/16" | 15, 25 | — | — | JB-30613-09 | JB-30613-10 | JB-30613-51 | JB-30613-12 |
| 1/4" | 17, 24 | 26 | — | JB-30613-13 | JB-30613-14 | JB-30613-55 | JB-30613-16 |
| 3/8" | 18, 35, 36 | 70, 73 | 86 | JB-30613-17 | JB-30613-18 | JB-30613-59 | JB-30613-20 |
| 1/2" | — | 82, 88 | 88 | JB-30613-21 | JB-30613-22 | JB-30613-63 | JB-30613-24 |
| 5/8" | — | 89 | — | JB-30613-25 | JB-30613-26 | JB-30613-67 | JB-30613-28 |
| 3/4" | — | — | 90 | JB-30613-29 | JB-30613-30 | JB-30613-71 | JB-30613-32 |
| 1" | — | — | 92 | JB-30613-33 | JB-30613-34 | JB-30613-75 | JB-30613-36 |
| C. Y connectors (equal leg) | | | | | | | |
| 1/16" | 13, 14 | — | — | JB-30614-01 | JB-30614-02 | JB-30614-43 | JB-30614-04 |
| 1/8" | 16 | — | — | JB-30614-05 | JB-30614-06 | JB-30614-47 | JB-30614-08 |
| 3/16" | 15, 25 | — | — | JB-30614-09 | JB-30614-10 | JB-30614-51 | JB-30614-12 |
| 1/4" | 17, 24 | 26 | — | JB-30614-13 | JB-30614-14 | JB-30614-55 | JB-30614-16 |
| 3/8" | 18, 35, 36 | 70, 73 | 86 | JB-30614-17 | JB-30614-18 | JB-30614-59 | JB-30614-20 |
| 1/2" | — | 82, 88 | 88 | JB-30614-21 | JB-30614-22 | JB-30614-63 | JB-30614-24 |
| D. NPT male threaded adapters, NPT (M) x tubing ID | | | | | | | |
| 1/8" x 1/8" | 16 | — | — | JB-30615-05 | JB-30615-06 | JB-30615-47 | JB-30615-08 |
| 3/16" x 1/8" | 15, 25 | — | — | JB-30615-09 | JB-30615-10 | JB-30615-51 | JB-30615-12 |
| 1/4" x 1/4" | 17, 24 | 26 | — | JB-30615-13 | JB-30615-14 | JB-30615-55 | JB-30615-16 |
| 3/8" x 1/4" | 18, 35, 36 | 70, 73 | 86 | JB-30615-17 | JB-30615-18 | JB-30615-59 | JB-30615-20 |
| 1/2" x 1/2" | — | 82, 88 | 88 | JB-30615-21 | JB-30615-22 | JB-30615-63 | JB-30615-24 |
| 5/8" x 1/2" | — | 89 | — | JB-30615-25 | JB-30615-26 | JB-30615-67 | JB-30615-28 |
| 3/4" x 1/2" | — | — | 90 | JB-30615-29 | JB-30615-30 | JB-30615-71 | JB-30615-32 |
| E. Reducing connectors | | | | | | | |
| 1/16" x 1/8" | 13, 14 | — | — | JB-40616-01 | JB-40616-02 | JB-40616-43 | JB-40616-04 |
| 1/8" x 3/32" | 16 | — | — | JB-40616-05 | JB-40616-06 | JB-40616-47 | JB-40616-08 |
| 3/16" x 1/8" | 15, 25 | — | — | JB-30616-09 | JB-30616-10 | JB-30616-51 | JB-30616-12 |
| 1/4" x 1/8" | 17, 24 | 26 | — | JB-30616-13 | JB-30616-14 | JB-30616-55 | JB-30616-16 |
| 3/8" x 1/4" | 18, 35, 36 | 70, 73 | 86 | JB-30616-17 | JB-30616-18 | JB-30616-59 | JB-30616-20 |
| 1/2" x 3/8" | — | 82, 88 | 88 | JB-30616-21 | JB-30616-22 | JB-30616-63 | JB-30616-24 |
| 5/8" x 1/2" | — | 89 | — | JB-30616-25 | JB-30616-26 | JB-30616-67 | JB-30616-28 |
| 3/4" x 1/2" | — | — | 90 | JB-30616-29 | JB-30616-30 | JB-30616-71 | JB-30616-32 |
| 1" x 1/2" | — | — | 92 | JB-30616-33 | JB-30616-34 | JB-30616-75 | JB-30616-36 |

Custom-Engineered Pumps

Designed for You

When an off-the-shelf pump just won't cut it, you need a solution custom-built for your requirements.

With more than 55 years combined experience, our design engineers will partner with you to create the exact pump you need.

Product Development Process



Concept

Complete product specifications developed according to your needs



Design

Innovative solution created with our advanced systems



Engineering

Product prototype and fabrication for your approval



Testing

Tested under actual conditions; products comply with UL, ETL, and CE under ISO:9001 and ISO:13485 standards



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Masterflex® OEM Pump Systems

NEW

Custom-design solutions for wide variety of original equipment manufacturing (OEM) applications

- Economical fluid transfer system from Masterflex
- Continuously improving ease of use and accuracy with easy-to-load pump heads and PWM speed control
- Easy to panel/base mount installation
- No-maintenance brushless motor

Our durable pumps can handle wide range of fluids, from highest purity to extremely caustic solutions and many more specialized needs. Other pump head and motor options available on request for higher pressure and higher flow rates.

| Description | Speed† | Flow rate‡ | Catalog number |
|--|---------|--------------------|--------------------|
| Easy-Load® II pump head with 24 V DC motor | 270 rpm | 0.2 to 1020 mL/min | JB-16345-18 |
| Miniflex® pump head with 24 V DC motor | 90 rpm | 1 to 100 mL/min | JB-16345-19 |

†For variable speed, use a separate DC speed controller.

‡Actual flow rate varies depending on tubing formulation and conditions.



Ismatec® Reglo Independent Channel Control (ICC) OEM Pump Modules

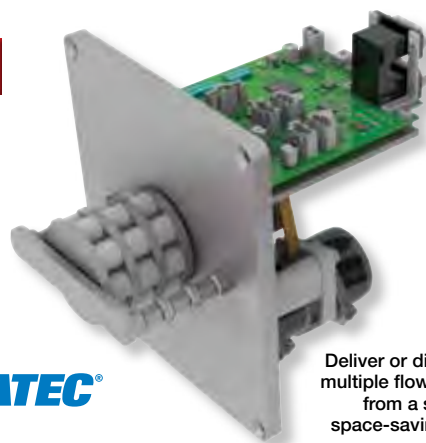
Install panel-mount configuration into your custom systems

- Pump each channel at different speeds and directions
- Each pump performs the job of up to four separate pumps
- More complex routines with the available software
- Flow range of 0.0002 to 35 mL/min (depending on model and tubing size selected)

Operating modes (each channel independent): Continuous mode, volume over time, volume dispensing, time mode, volume with pause mode, time with pause mode, independent channel calibration.

Easily integrate these peristaltic pumps into your system using the provided connections. Full control via USB; commands via RS-232. Up to eight pumps can be connected to a computer at once, either by a USB hub or daisy chaining the RS-232 in/out connectors on the pump(s). (**Note:** For full functionality of each channel via RS-232 control, each pump must be directly connected to a serial interface such as Hypercom or PuTTY.) In addition to the standard daisy chain connection, the ICC firmware will support using one module to control a second “slave” module to expand the number of channels being controlled in an OEM device.

NEW



Deliver or dispense at multiple flow rates—all from a single space-saving pump.

ISMATEC®

Specifications

Speed: 0.1 to 100 rpm **Pressure:** up to 14.5 psi (1.0 bar)









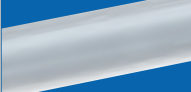
| Number of channels | Number of rollers | Tubing accepted | Power (VAC, Hz) | Catalog number |
|--------------------|-------------------|-----------------|-----------------|--------------------|
| 2 | 8 | Three-stop | 24 VDC | JB-78001-43 |
| 3 | 8 | Three-stop | 24 VDC | JB-78001-45 |
| 4 | 8 | Three-stop | 24 VDC | JB-78001-47 |
| 4 | 12 | Three-stop | 24 VDC | JB-78001-49 |







Flow Ranges (mL/min per channel)

| Tubing ID (mm) | 8 rollers | 12 rollers |
|----------------|----------------|-----------------|
| 0.13 | 0.0002 to 0.11 | 0.0001 to 0.093 |
| 0.51 | 0.0017 to 1.7 | 0.0016 to 1.6 |
| 0.57 | 0.0021 to 2.1 | 0.0019 to 1.9 |
| 0.64 | 0.0026 to 2.6 | 0.0024 to 2.4 |
| 0.95 | 0.0056 to 5.6 | 0.0050 to 5.0 |
| 1.02 | 0.0063 to 6.3 | 0.0056 to 5.6 |
| 1.42 | 0.011 to 11 | 0.0094 to 9.4 |
| 1.75 | 0.016 to 16 | 0.013 to 13 |
| 1.85 | 0.017 to 17 | 0.014 to 14 |
| 2.54 | 0.027 to 27 | 0.019 to 19 |
| 2.79 | 0.031 to 31 | 0.021 to 21 |
| 3.17 | 0.035 to 35 | 0.024 to 24 |

Masterflex® Tubing Formulations

Choosing the Right Tubing

| Pump tubing formulation | Advantages | Application suitability† | | | | | | | Meets classifications | Gas permeability | Sterilization |
|---|--|--------------------------|----------|------------------|----------|--------|----------------|----------------|---|---|--|
| | | Acids | Alkalies | Organic solvents | Pressure | Vacuum | Viscous fluids | Sterile fluids | | | |
|  <p>Silicone (platinum-cured)</p> | <p>Excellent biocompatibility. No leachable additives, DOP, or plasticizers; phthalate and latex-free; odorless and nontoxic, fungus-resistant. No taste imparted to transported fluids. Weather, ozone, corona, and radiation resistant. Minimal tendency to take a set. Translucent, clear to light amber.</p> | N/R | N/R | N/R | F | G | F | E | <p>USP Class V Extractables Exceeds Class VI Implant European Pharmacopoeia (EP 3.1.9) FDA 21 CFR 177.2600; FDA 21 CFR 210 and 211; Exceeds 3A sanitary cGMPs; REACH (non-DEHP) compliant RoHS compliant ADCF compliant</p> | <p>CO₂: 20,132 H₂: 6579 O₂: 7961 N₂: 2763</p> | <p>Sterilize by EtO, autoclave, or gamma radiation.</p> |
|  <p>Silicone (peroxide-cured)</p> | <p>Excellent biocompatibility. No additives, plasticizers or DOP; odorless and nontoxic, fungus-resistant. No taste imparted to transported fluids. Weather, ozone, corona, and radiation resistant. Minimal tendency to take a set. Translucent, clear to light amber.</p> | N/R | N/R | N/R | F | G | F | E | <p>USP Class VI European Pharmacopoeia (EP 3.1.9) FDA 21 CFR 177.2600 Exceeds 3A sanitary standards REACH (non-DEHP) compliant RoHS compliant ADCF compliant</p> | <p>CO₂: 20,132 H₂: 6579 O₂: 7961 N₂: 2763</p> | <p>Sterilize by EtO or autoclave.</p> |
|  <p>BioPharm Silicone (platinum-cured)</p> | <p>Ultra-smooth inner surface minimizes particle entrapment. Lower absorption; excellent biocompatibility; no leachable additive, DOP, or plasticizers. Very low extractables. Odorless and nontoxic, fungus-resistant. No taste imparted to transported fluids. Weather, ozone, corona, and radiation resistant. Translucent, clear to light amber.</p> | N/R | N/R | N/R | F | G | F | E | <p>USP Class VI European Pharmacopoeia (EP 3.1.9) FDA 21 CFR 177.2600 Exceeds 3A sanitary standards REACH (non-DEHP) compliant RoHS compliant</p> | <p>CO₂: 25,147 H₂: — O₂: 4715 N₂: 2284</p> | <p>Sterilize by EtO, autoclave, or gamma radiation.</p> |
|  <p>BioPharm Plus Silicone (platinum-cured)</p> | <p>Similar to BioPharm Silicone, plus: Longest life of any silicone pump tubing. Lower spallation than regular silicone. Enhanced pressure capability. Fungus-resistant. Nontoxic, no leachable plasticizers. Lower gas permeability than other silicones. Translucent, clear to light amber.</p> | N/R | N/R | N/R | F | G | F | E | <p>USP Class VI European Pharmacopoeia (EP 3.1.9) FDA 21 CFR 177.2600 Exceeds 3A sanitary standards REACH (non-DEHP) compliant RoHS compliant</p> | <p>CO₂: 25,147 H₂: — O₂: 4715 N₂: 2284</p> | <p>Sterilize by EtO, autoclave, or gamma radiation.</p> |
|  <p>Puri-Flex™</p> | <p>Biocompatible. Heat sealable and weldable. Long pump life when compared to silicone or other TPE tubings. Low spallation when compared to silicone or some other TPE tubings. Very low protein binding. Cost effective. No halogens or phthalates. Translucent, clear to light white.</p> | G | G | N/R | G | G | E | E | <p>USP Class VI FDA 21 CFR 177.2600 and 177.1810 REACH (non-DEHP) compliant RoHS compliant ADCF compliant</p> | <p>CO₂: 1200 H₂: — O₂: 200 N₂: 80</p> | <p>Sterilize by EtO, autoclave up to 135°C (275°F), gamma radiation up to 4.5 Mrad.</p> |
|  <p>C-Flex®</p> | <p>Physical properties similar to silicone with chemical compatibility of Tygon®. Inexpensive. Biocompatible. Heat sealable and weldable. Opaque, white.</p> | G | G | N/R | F | G | F | E | <p>USP Class VI European Pharmacopoeia (EP 3.2.9) REACH (non-DEHP) compliant RoHS compliant ADCF compliant</p> | <p>CO₂: — H₂: — O₂: 150 N₂: —</p> | <p>Sterilize by EtO, autoclave, or gamma radiation.</p> |
|  <p>C-Flex® ULTRA</p> | <p>Physical properties similar to silicone with chemical compatibility of Tygon®. Biocompatible. Heat sealable and weldable. Longer pump life and lower spallation than C-Flex. Translucent.</p> | G | G | N/R | F | G | F | E | <p>USP Class VI European Pharmacopoeia (EP 3.2.9) REACH (non-DEHP) compliant RoHS compliant ADCF compliant</p> | <p>CO₂: 2.1 H₂: — O₂: 1.1 N₂: 3.4</p> | <p>Sterilize by gamma radiation or one cycle of autoclave at 121°C (250°F), 1 bar (15 psi) for 30 minutes.</p> |

| Pump tubing formulation | Advantages | Application suitability† | | | | | | | Meets classifications | Gas permeability | Sterilization |
|---|--|--------------------------|----------|------------------|----------|--------|----------------|----------------|--|---|---|
| | | Acids | Alkalies | Organic solvents | Pressure | Vacuum | Viscous fluids | Sterile fluids | | | |
|  PharMed® BPT | Great for tissue and cell work—nontoxic and nonhemolytic. Long service life (up to 10,000 hrs); reduces tubing costs and pump downtime. Opaque to UV and visible light to protect light-sensitive fluids. Low gas permeability. High-pressure 10.3 bar (150 psi) version available. Opaque, beige | G | G | N/R | G | G | E | E | USP Class VI European Pharmacopoeia (EP 3.2.9) FDA 21 CFR 177.2600 NSF-51 REACH (non-DEHP) compliant RoHS compliant | CO ₂ : 1200 H ₂ : — O ₂ : 200 N ₂ : 80 | Sterilize by EtO, autoclave, or gamma radiation up to 2.5 Mrad. |
|  PharmaPure® | Nontoxic and nonhemolytic (similar to PharMed® BPT); biocompatible. Long life even under pressure; up to 1000 hours at 2.7 bar (40 psi). Very low spallation—protects fluid purity. Low extractables. Low gas permeability. Opaque, off-white. | G | G | N/R | G | G | E | E | USP Class VI FDA 21 CFR 177.2600 European Pharmacopoeia (EP 3.2.9) REACH (non-DEHP) compliant RoHS Compliant | CO ₂ : 1200 H ₂ : — O ₂ : 200 N ₂ : 80 | Sterilize by EtO, autoclave or gamma radiation up to 2.5 Mrad. |
|  Chem-Durance® Bio | Excellent chemical resistance. Excellent life and durability under pressure. Low spallation. Plasticizer-free inner liner. High dielectric constant. Excellent biocompatibility. Opaque, beige. | E | E | G | E | E | E | E | USP Class VI FDA 21 CFR 177.2600 REACH (non-DEHP) compliant RoHS Compliant | CO ₂ : 745 H ₂ : — O ₂ : 200 N ₂ : 80 | Sterilize with ethylene oxide (EtO) radiation or autoclave. |
|  PTFE | Chemically inert. Excellent chemical resistance. Will not leach into or absorb out of fluid being pumped. Extremely low gas permeability. Nontoxic. Virtually nonporous. Low coefficient of friction. Translucent, white. | E | E | E | G | G | E | G | USP Class VI REACH (non-DEHP) compliant RoHS compliant ADCF compliant | CO ₂ : 6.8 H ₂ : — O ₂ : — N ₂ : 1.0 | Sterilize by EtO or autoclave. |
|  Tygon® E-LFL | Longest life of all Tygon® peristaltic tubing. Clear for easy flow monitoring. Broad chemical resistance. Nonaging, nonoxidizing. Low gas permeability. Smooth bore. Good for viscous fluids. High dielectric constant. Transparent, clear. | G | G | N/R | G | G | E | G | USP Class VI European Pharmacopoeia (EP 3.2.9) FDA 21 CFR 175.300 EU Food REACH (non-DEHP) compliant RoHS compliant ADCF compliant | CO ₂ : 563 H ₂ : — O ₂ : 124 N ₂ : 67 | Sterilize by EtO or autoclave. |
|  Tygon® E-Food (B-44-4X) | Designed especially for handling food products. Bore is extremely smooth (better than most stainless steels) Nontoxic, will not affect taste or odor, and clear for CIP and flow verification. Excellent nonwetting properties permit flush cleaning and complete drainage. High dielectric constant. Transparent, clear. | G | G | N/R | G | G | E | F | FDA 21 CFR 175.300 EU Food NSF-51 REACH (non-DEHP) compliant RoHS compliant ADCF compliant Meets 3A sanitary standards | CO ₂ : 270 H ₂ : 97 O ₂ : 60 N ₂ : 30 | Sterilize by EtO or autoclave. |

†E = Excellent, G = Good, F = Fair, P = Poor, N/R = not recommended







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Masterflex® Tubing Formulations (continued)

| Pump tubing formulation | Advantages | Application suitability† | | | | | | | Meets classifications | Gas permeability | Sterilization |
|---|--|--------------------------|----------|----------------------------|----------|--------|----------------|----------------|---|---|--|
| | | Acids | Alkalies | Organic solvents | Pressure | Vacuum | Viscous fluids | Sterile fluids | | | |
|  Tygon® E-Lab (E-3603) | Inexpensive tubing for general laboratory applications. Clear for easy flow monitoring. Handles virtually all inorganic chemicals. Nonaging, nonoxidizing. Low gas permeability. Good for viscous fluids. High dielectric constant. Transparent, clear. | G | G | N/R | G | G | E | P | USP Class VI FDA 21 CFR 175.300 EU Food NSF-51 REACH (non-DEHP) compliant RoHS compliant ADFC compliant | CO ₂ : 360 H ₂ : 97 O ₂ : 80 N ₂ : 40 | Sterilize by EtO or autoclave. |
|  Tygon® Chemical (2001) | Best chemical resistance of any Tygon® formulation. Compatible with many polar solvents. Plasticizer-free. Clear for easy flow monitoring. Low extractability. Low gas permeability. High dielectric constant. Transparent, clear. | E | E | G | G | G | E | G | FDA 21 CFR 175.300 REACH (non-DEHP) compliant RoHS compliant ADFC compliant | CO ₂ : 114 H ₂ : — O ₂ : 19 N ₂ : 9 | Sterilize by EtO, autoclave, or gamma radiation. |
|  Tygon® Fuel & Lubricant (F-4040-A) | Specially formulated to transport hydrocarbons, petroleum products, and distillates. Suitable for gasoline, kerosene, heating oils, cutting fluids, and glycol-based coolants. Minimum extractability. Low gas permeability. High dielectric constant. Transparent, yellow. | G | G | N/R | G | G | E | P | REACH (non-DEHP) compliant RoHS compliant ADFC compliant | CO ₂ : 100 H ₂ : 97 O ₂ : 22 N ₂ : 12 | Sterilization is not recommended. |
|  Norprene® (A 60 G) | Best choice for vacuum/pressure applications. Offers longest pump tubing life. Heat, ambient ozone resistant. Good resistance to acids/alkalies. Black color hides dirt and dust. Heat sealable, nonaging, and nonoxidizing. High dielectric constant. High-pressure version available. Opaque, black. | G | G | N/R | E | E | E | N/R | NSF-51 REACH (non-DEHP) compliant RoHS compliant | CO ₂ : 1200 H ₂ : — O ₂ : 200 N ₂ : 80 | Sterilize by EtO, autoclave, or gamma irradiation. |
|  Norprene® Food (A 60 F) | Similar to Norprene® but with FDA approval. Excellent for food/dairy applications. Longest life, good flow consistency. Heat and ozone resistant. Good resistance to acids/alkalies. Heat sealable, nonaging, and nonoxidizing. High dielectric constant. Opaque, beige. | G | G | N/R | E | E | E | G | FDA 21 CFR 177.2600 NSF-51 REACH (non-DEHP) compliant RoHS compliant | CO ₂ : 1200 H ₂ : — O ₂ : 200 N ₂ : 80 | Sterilize by EtO, autoclave, or gamma irradiation. |
|  Viton® | Perfect for food and lab applications where FDA compliance is required. Excellent chemical resistance. Resistant to corrosives, solvents, and oils at elevated temperatures. Low gas permeability. Opaque, black. | E | E | Variable—test before using | G | G | G | F | FDA 21 CFR 177.2600 ADFC compliant | CO ₂ : 76 to 79 H ₂ : — O ₂ : 13 to 15 N ₂ : 4.3 | Sterilization is not recommended. |

†E = Excellent, G = Good, F = Fair, P = Poor, N/R = not recommended

Masterflex® Tubing Test Kit

Our FREE Tubing Test Kit is a simple way to test your chemicals against different tubing formulations. Kit contains samples of 19 different pump tubing formulations, formulation descriptions, a selection guide, instructions on how to test your tubing, and complete ordering information. Call today! Request item 00101-10.

Request your
FREE test kit
today!



Pump Tubing Compatibility Charts

Don't risk it!

- Check chemical compatibility before selecting tubing to ensure best performance
- For use with all Masterflex tubing sizes
- All ratings indicate tubing condition after exposure to the chemical at 21°C (70°F)

Ratings & Materials Legend

Ratings

- A: No effect; little noticeable change
 B: Minor effect; slight corrosion or discoloration
 C: Moderate effect; not recommended for continuous use; softening, loss of strength, swelling and/or shrinkage
 D: Severe effect; not recommended for use; severe softening, swelling and/or shrinkage
 — No data available

Tubing formulations

- PN: PharMed® BPT, High-Pressure PharMed® BPT, PharmaPure®, Norprene®, Norprene® Food, Puri-Flex™
 CF: C-Flex® and C-Flex® ULTRA
 S: Silicone (peroxide/platinum-cured), BioPharm, BioPharm Plus, GORE® STA-PURE® PCS
 T: Tygon® E-Lab, Tygon® E-LFL, Tygon® E-Food
 TU: Tygon® Fuel & Lubricant
 TC: Tygon® Chemical
 CD: Chem-Durance® Bio
 PFL: GORE® STA-PURE® PFL
 V: Viton®
 FP: Polytetrafluoroethylene (PTFE)

Pump head materials

- PSF: Polysulfone
 PC: Polycarbonate
 PPS: Polyphenylene sulfide
 SS: Stainless steel
 PP: Polypropylene

Tubing Test Procedure

1. Measure and weigh a sample of tubing.
2. Immerse the sample in the fluid for 72 hours in a closed vessel.
3. Dry sample, then measure and weigh it. Inspect carefully for signs of deterioration such as swelling, embrittlement, cracking, softness, or change of size or weight.
4. If there is no sign of deterioration, test a sample in pump under the conditions of your application.

| Fluid | Tubing formulation | | | | | | | | | | | Pump head material | | | | |
|-----------------------------|--------------------|----|---|---|----|----|----|-----|---|----|-----|--------------------|-----|----|----|--|
| | PN | CF | S | T | TU | TC | CD | PFL | V | FP | PSF | PC | PPS | SS | PP | |
| Acetaldehyde | D | A | B | D | D | D | C | A | D | A | D | — | A | A | A | |
| Acetate LMW | A | A | — | D | D | C | D | — | A | D | — | A | A | A | D | |
| Acetic acid <5% | A | A | A | A | A | B | A | A | — | A | A | A | A | B | B | |
| Acetic acid >5% | A | A | A | B | A | B | A | A | B | A | A | C | A | B | A | |
| Acetic anhydride | A | B | C | D | D | A | A | A | D | A | D | D | A | B | C | |
| Acetone | D | C | C | D | D | C | B | A | D | A | D | D | A | A | A | |
| Acetonitrile | B | A | — | D | D | B | B | — | D | A | D | D | A | A | — | |
| Acetyl bromide | C | A | — | D | D | C | D | — | — | A | — | — | — | — | — | |
| Acetyl chloride | C | A | C | D | D | C | D | A | A | A | D | D | A | A | D | |
| Air | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A | |
| Aliphatic hydrocarbons | D | D | — | D | B | D | D | — | — | — | — | — | — | B | — | |
| Aluminum chloride | A | A | B | A | A | A | A | — | A | A | A | A | A | D | A | |
| Aluminum sulfate | A | A | A | A | A | A | A | — | A | A | A | A | A | B | A | |
| Alums | A | A | A | A | A | A | A | — | A | A | — | — | — | — | A | |
| Ammonia, gas / liquid | A | A | C | B | B | B | B | — | D | A | A | D | A | B | A | |
| Ammonium acetate | A | A | — | A | A | A | A | A | D | A | — | A | — | B | A | |
| Ammonium carbonate | A | A | C | A | A | A | A | A | A | A | — | A | — | A | B | |
| Ammonium chloride | A | A | C | A | A | A | A | A | A | A | — | A | — | A | C | |
| Ammonium hydroxide | A | A | A | B | C | A | A | A | B | A | A | D | A | A | A | |
| Ammonium nitrate | A | A | C | A | A | A | A | A | A | A | A | — | A | A | A | |
| Ammonium phosphate | A | A | A | A | A | A | A | A | A | A | A | A | A | B | A | |
| Ammonium sulfate | A | A | A | A | A | A | A | A | A | A | A | A | A | B | A | |
| Amyl acetate | B | D | D | D | D | D | D | B | D | A | D | D | A | A | D | |
| Amyl alcohol | D | D | D | D | D | A | A | A | A | A | — | — | A | A | A | |
| Amyl chloride | C | D | D | D | D | D | D | — | A | A | D | D | D | A | D | |
| Aniline | C | B | D | D | D | D | D | A | B | A | D | D | A | A | A | |
| Aniline hydrochloride | C | B | D | D | D | D | D | A | B | A | — | D | — | D | D | |
| Aqua regia (80% HCl, 20% H) | D | — | D | D | D | A | A | — | B | A | D | D | D | D | B | |
| Aromatic hydrocarbons | D | D | — | D | D | D | D | — | A | — | — | — | — | — | — | |
| Arsenic salts | A | — | — | A | A | A | A | — | D | — | — | — | — | B | — | |
| Barium salts | A | A | A | A | A | A | A | A | A | A | A | — | A | B | B | |
| Benzaldehyde | D | D | B | D | D | C | C | A | D | A | C | C | A | B | C | |
| Benzenesulfonic acid | D | A | D | D | D | D | D | A | A | A | D | D | A | B | D | |
| Bleaching liquors | A | B | B | A | A | A | A | — | A | A | — | — | — | — | B | |
| Boric acid | A | A | A | A | A | A | A | A | A | A | A | A | A | B | A | |
| Bromine | D | A | D | D | D | D | D | — | A | A | — | D | D | D | C | |
| Butane | A | D | D | A | A | B | B | B | A | A | — | — | A | A | B | |
| Butanol (butyl alcohol) | D | B | B | D | A | A | A | A | A | A | A | C | A | A | B | |
| Butyl acetate | B | D | D | D | D | D | D | D | B | D | A | D | A | B | D | |
| Butyric acid | B | A | D | D | C | D | D | A | B | A | — | — | A | B | C | |
| Calcium oxide | A | — | A | A | A | A | A | — | A | A | — | — | — | A | A | |
| Calcium salts | A | A | B | A | A | A | A | A | A | A | A | — | A | B | A | |
| Carbon bisulfide | D | D | D | D | D | D | D | — | — | A | — | — | — | A | C | |
| Carbon dioxide | A | A | B | A | A | A | A | A | A | A | A | — | A | A | A | |
| Carbon tetrachloride | D | B | D | D | D | D | D | D | B | A | A | A | A | B | D | |
| Chlorine, dry | C | A | D | A | A | C | C | — | A | A | A | D | — | D | A | |
| Chlorine, wet | D | A | D | C | A | C | C | — | B | A | D | — | D | C | D | |
| Chloroacetic acid | B | A | — | A | D | A | A | B | D | A | D | D | A | B | D | |
| Chlorobenzene | D | D | D | D | D | D | D | A | A | B | D | D | A | A | D | |
| Chlorobromomethane | B | D | D | D | D | — | D | — | A | A | D | — | — | — | A | |
| Chloroform | C | D | D | D | D | D | D | D | B | A | A | D | D | A | D | |
| Chlorosulfonic acid | D | A | D | D | D | D | D | A | D | A | D | — | — | D | D | |
| Chromic acid, 30% | A | A | C | C | C | B | B | — | A | A | D | D | A | B | A | |
| Chromium salts | A | A | — | A | A | A | A | — | — | — | — | — | — | — | — | |
| Copper salts | A | A | A | A | A | A | A | — | A | A | — | — | A | B | A | |
| Cresol | D | D | D | B | C | A | A | A | A | A | D | D | A | A | C | |
| Cyclohexane | D | D | D | D | C | D | D | B | A | A | A | B | A | A | D | |
| Cyclohexanone | D | D | D | D | D | C | C | — | D | A | D | D | A | A | D | |
| Diacetone alcohol | A | A | B | D | D | A | A | A | D | A | — | D | — | B | C | |
| Dimethyl formamide | B | B | B | D | D | A | A | A | D | A | D | D | A | A | A | |
| Dimethyl Sulfoxide (DMSO) | A | — | — | — | — | — | — | — | — | A | A | C | A | A | A | |
| Essential oils | D | B | C | D | C | D | D | — | — | — | — | — | — | — | — | |
| Ethanol (ethyl alcohol) | C | B | A | D | B | A | A | A | A | A | B | B | A | A | A | |
| Ether | C | D | D | D | C | D | D | B | D | A | D | D | A | A | B | |
| Ethyl acetate | B | D | B | D | D | D | D | A | D | A | A | D | A | B | A | |
| Ethyl bromide | D | A | D | D | D | C | D | — | A | A | — | — | — | — | D | |
| Ethyl chloride | C | A | D | D | D | D | D | — | A | A | D | D | — | A | D | |
| Ethylamine | D | A | C | D | D | B | B | B | D | — | — | — | — | — | — | |
| Ethylene chlorohydrin | A | A | C | D | B | A | A | — | A | A | D | D | A | B | D | |
| Ethylene dichloride | C | A | D | D | D | D | D | B | A | A | D | D | A | B | A | |
| Ethylene glycol | A | B | A | A | A | A | A | A | A | A | A | C | A | B | A | |
| Ethylene oxide | A | A | A | A | A | A | A | B | D | A | A | D | D | B | D | |
| Fatty acids | C | B | C | B | B | C | C | A | A | A | — | C | — | B | A | |
| Ferric chloride | A | A | B | A | A | A | A | — | A | A | A | — | A | D | A | |
| Ferric sulfate | A | A | B | A | A | A | A | A | A | A | A | — | A | B | A | |
| Ferrous chloride | A | A | C | A | A | A | A | — | A | A | A | D | A | D | A | |
| Ferrous sulfate | A | A | C | A | A | A | A | A | A | A | A | A | A | B | A | |
| Fluoboric acid | D | A | A | C | D | A | A | — | — | A | A | — | A | B | A | |
| Fluoroborate salts | A | A | — | A | A | A | A | — | — | — | — | — | — | — | — | |
| Fluosilicic acid | C | A | D | A | A | A | A | — | A | A | A | — | A | C | A | |
| Formaldehyde | D | A | B | D | D | C | C | A | D | A | A | A | A | C | A | |
| Formic acid, 25% | A | A | B | B | C | A | A | A | D | A | C | D | A | B | A | |
| Freon® TMS | D | C | — | D | D | A | A | D | — | A | — | D | A | — | — | |
| Gasoline, high-aromatic | D | D | D | D | B | D | D | B | A | B | A | C | A | A | D | |
| Gasoline, nonaromatic | D | D | D | D | B | D | D | B | A | A | A | A | A | — | C | |
| Glucose | A | A | A | A | A | A | A | A | A | A | — | A | — | A | A | |
| Glue, P.V.A. | A | A | A | A | A | — | A | — | A | A | — | — | — | A | C | |
| Glycerin | A | B | A | A | A | A | A | — | A | A | A | A | A | A | A | |
| Hydroiodic acid | D | A | — | A | A | A | A | — | A | — | — | — | — | — | — | |
| Hydrobromic acid, 30% | D | A | D | B | A | A | A | — | A | A | B | D | A | D | A | |
| Hydrochloric acid (dil) | A | A | D | A | A | A | A | A | A | A | A | A | D | D | A | |
| Hydrochloric acid (med) | B | A | D | C | D | A | A | A | A | A | A | D | D | D | A | |
| Hydrochloric acid (conc) | — | B | D | C | D | A | A | A | A | A | A | B | D | D | A | |
| Hydrocyanic acid | A | A | C | A | A | A | A | A | A | A | — | — | — | B | A | |
| Hydrocyanic acid, gas, 10% | A | A | C | A | A | A | A | — | A | A | — | — | — | — | A | |
| Hydrofluoric acid, 50% | D | A | D | C | D | A | A | A | D | A | — | D | A | D | C | |

†Do not use the L/S® PTFE-tubing pump head with gases due to excessive heat buildup.

| Fluid | Tubing formulation | | | | | | | | | | Pump head material | | | | |
|---|--------------------|----|---|---|----|----|----|-----|---|----|--------------------|----|-----|----|----|
| | PN | GF | S | T | TU | TC | CD | PFL | V | FP | PSF | PC | PPS | SS | PP |
| Hydrofluoric acid, 75% | — | A | D | D | D | — | C | D | D | A | — | D | A | D | C |
| Hydrogen peroxide (dil) | A | A | A | A | A | A | A | A | A | A | A | A | — | B | A |
| Hydrogen peroxide, 90% | B | D | B | D | D | B | B | A | A | A | A | A | — | B | A |
| Hypochlorous acid | A | A | D | A | A | A | A | A | A | A | — | — | — | — | — |
| Iodine solutions | A | C | C | A | A | A | A | — | A | A | — | D | D | D | A |
| Iodoform | — | — | — | — | — | — | D | — | C | — | — | — | — | — | — |
| Kerosene | D | D | D | D | B | D | D | A | A | A | A | A | A | A | A |
| Ketones | D | B | — | D | D | C | C | — | — | A | D | D | A | A | A |
| Lacquer solvents | B | D | D | D | D | D | D | A | D | A | — | D | — | A | D |
| Lactic acid, 3-10% | A | A | A | A | A | A | A | A | A | A | A | A | A | B | A |
| Lead acetate | A | A | D | A | A | A | A | — | D | A | A | — | A | B | A |
| Linseed oil | C | D | A | D | A | B | B | A | A | A | A | A | A | A | A |
| Lithium hydroxide | B | A | D | A | A | — | B | — | C | A | — | D | A | B | — |
| Magnesium chloride | A | A | A | A | A | A | A | A | A | A | A | A | A | B | A |
| Magnesium sulfate | A | A | A | A | A | A | A | A | A | A | A | A | A | B | A |
| Malic acid | A | A | B | A | A | A | A | A | A | A | — | — | — | D | B |
| Manganese salts | A | A | B | A | A | A | A | — | A | A | — | — | — | D | — |
| Mercury salts | A | A | — | A | A | A | A | — | A | A | — | — | — | B | A |
| Methane | A | D | D | A | A | A | A | B | A | A† | — | — | — | A | B |
| Methanol (methyl alcohol) | A | — | A | C | C | A | A | A | B | A | D | B | A | A | A |
| Methyl chloride | C | A | D | D | D | D | D | B | B | A | D | — | A | A | D |
| Methyl ethyl ketone (MEK) | D | — | D | D | D | C | C | B | D | A | D | D | A | A | A |
| Mixed acid (40% H ₂ SO ₄ , 15% HNO ₃) | B | — | — | B | D | — | A | — | — | A | D | — | — | B | A |
| Molybdenum disulfide | — | A | — | — | — | — | A | — | — | A | — | — | — | — | — |
| Monoethanolamine | C | B | B | D | D | D | D | — | D | A | A | — | A | A | B |
| Naphtha | D | D | D | D | B | D | D | B | A | B | B | — | A | A | A |
| Natural gas | A | D | A | A | A | A | A | B | A | A† | — | — | — | A | B |
| Nickel salts | A | A | A | A | A | A | A | A | A | A | A | — | A | B | A |
| Nitric acid (dil) | A | A | B | A | D | A | A | A | B | A | A | B | A | A | A |
| Nitric acid (med) | A | — | C | C | D | A | A | A | A | A | C | C | — | A | B |
| Nitric acid (conc) | D | — | D | D | D | A | A | A | A | A | C | D | D | A | C |
| Nitrobenzene | D | D | D | D | D | D | D | A | B | A | D | D | A | B | B |
| Nitrogen oxides | A | A | D | A | A | A | A | — | D | A | — | — | — | — | — |
| Nitrous acid | A | A | — | A | C | A | A | — | — | A | — | — | — | B | A |
| Oils, animal | C | B | B | D | B | B | B | — | A | A | — | — | — | A | A |
| Oils, mineral | D | B | B | C | A | D | D | — | A | A | B | A | A | A | A |
| Oils, vegetable | C | B | B | D | A | B | B | A | A | A | A | — | A | A | A |
| Oleic acid | C | A | D | D | B | D | C | A | B | A | A | A | A | B | A |
| Oxalic acid, cold | B | A | B | C | D | A | A | A | A | A | — | B | A | B | A |
| Oxygen, gas | A | A | B | A | A | A | A | A | B | A† | A | A | — | A | — |
| Palmitic acid, 100% in ether | C | — | D | D | B | C | C | A | A | A | — | — | — | B | C |
| Perchloric acid | A | A | D | C | D | A | A | A | A | A | D | D | A | C | C |
| Perchloroethylene | C | B | D | D | D | D | D | B | A | A | D | D | A | B | D |
| Phenol (carboic acid) | A | D | D | B | C | A | A | A | A | A | — | D | — | B | A |
| Phosphoric acid, 50% | A | A | C | C | A | A | A | A | A | A | A | B | — | A | A |
| Phthalic acid | A | D | B | D | A | A | A | — | B | A | — | — | — | B | A |
| Plating solutions | A | A | D | A | D | A | A | — | A | A | — | — | — | — | A |
| Polyglycol | B | B | A | A | A | — | B | — | A | — | — | — | — | — | — |
| Potassium carbonate | A | A | — | A | A | A | A | A | A | — | A | — | A | B | A |
| Potassium chlorate | B | A | B | B | A | — | A | A | A | A | A | — | A | B | A |
| Potassium hydroxide (med) | A | A | B | B | D | — | A | B | D | A | A | D | A | B | A |
| Potassium hydroxide (conc) | A | A | C | D | D | — | A | B | D | A | A | D | — | B | B |
| Potassium iodide | C | A | — | A | A | A | A | — | A | A | — | — | — | A | B |
| Propanol (propyl alcohol) | A | — | A | D | A | A | A | A | A | A | B | A | A | A | A |
| Pyridine | C | A | D | D | D | C | C | A | D | A | D | D | A | A | B |
| Silicone fluids | A | B | C | B | A | B | A | — | A | A | — | — | A | A | A |
| Silicone oils | C | B | C | B | A | B | A | — | A | A | — | — | A | A | A |
| Silver nitrate | A | A | A | A | A | A | A | A | A | A | A | A | A | B | A |
| Soap solutions | B | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Sodium bicarbonate | A | A | A | A | A | A | A | A | A | A | A | A | A | B | A |
| Sodium bisulfate | A | A | — | A | A | A | A | A | A | A | A | A | A | D | A |
| Sodium bisulfite | A | A | A | A | A | — | A | A | A | A | — | A | — | B | A |
| Sodium borate | A | A | A | A | A | — | A | — | A | A | A | A | A | B | B |
| Sodium carbonate | A | A | A | A | A | A | A | A | A | A | A | A | A | A | A |
| Sodium chlorate | A | A | C | A | A | A | A | — | A | A | A | A | A | B | A |
| Sodium chloride | A | A | A | A | A | A | A | A | A | A | A | A | A | C | A |
| Sodium ferrocyanide | A | A | — | B | B | — | A | — | A | A | — | — | — | B | A |
| Sodium hydrosulfite | B | A | — | A | A | — | A | — | A | A | — | — | — | — | — |
| Sodium hydroxide (dil) | A | A | A | A | D | A | A | A | A | A | A | D | A | A | A |
| Sodium hydroxide, 25% | A | B | B | C | D | A | A | — | A | A | A | D | A | B | A |
| Sodium hydroxide (conc) | — | C | — | C | D | A | A | — | A | A | — | D | A | C | B |
| Sodium hypochlorite, <5% | A | A | B | A | A | A | A | A | A | A | A | B | A | A | A |
| Sodium hypochlorite, >5% | A | A | B | A | A | A | A | A | A | A | A | — | A | C | B |
| Sodium nitrate | A | A | D | A | A | A | A | A | A | A | — | — | A | B | A |
| Sodium silicate | A | A | A | A | A | — | A | A | A | A | A | — | A | B | A |
| Sodium sulfide | A | A | A | A | A | A | A | A | A | A | A | — | A | C | A |
| Sodium sulfite | A | A | A | A | A | A | A | A | A | A | — | D | — | A | B |
| Steam, up to 40 psi | C | — | A | D | D | — | D | A | B | A† | A | A | A | A | — |
| Stearic acid | C | A | B | A | B | C | C | A | A | A | C | A | — | B | C |
| Styrene | D | D | D | D | D | D | D | A | A | A | — | D | — | A | — |
| Sulfuric acid (dil) | A | A | D | A | A | A | A | A | A | A | A | A | A | D | A |
| Sulfuric acid (med) | A | A | D | A | B | A | A | — | A | A | B | C | A | D | A |
| Sulfuric acid (conc) | D | A | D | D | D | D | A | C | A | A | D | D | A | C | B |
| Sulfurous acid | A | A | D | A | A | A | A | — | B | A | A | — | A | B | A |
| Tannic acid | B | A | B | C | D | A | A | — | A | A | A | — | A | B | A |
| Tanning liquors | A | B | — | A | A | A | A | — | — | A | — | — | — | A | B |
| Tartaric acid | A | A | A | A | A | A | A | — | A | A | A | B | A | C | A |
| Tin salts | A | A | B | A | A | A | A | — | — | A | — | — | — | — | A |
| Toluene (toluol) | D | D | D | D | D | D | D | A | A | A | D | D | A | A | B |
| Trichloroacetic acid | B | A | D | A | D | A | A | — | C | A | — | D | A | D | A |
| Trichloroethylene | D | D | D | D | D | D | D | B | A | A | C | D | A | B | D |
| Trisodium phosphate | A | A | — | A | A | A | A | — | A | A | — | — | A | B | A |
| Turpentine | D | D | D | D | B | D | D | A | A | A | — | — | A | A | B |
| Urea | A | A | B | A | A | A | A | A | — | A | C | D | A | A | A |
| Uric acid | A | A | — | A | C | A | A | — | — | A | — | — | — | B | A |
| Water, fresh | A | A | B | A | A | A | A | — | A | A | A | A | A | A | A |
| Water, salt | A | A | A | A | A | A | A | A | A | A | A | A | A | B | A |
| Xylene | D | D | D | D | D | D | D | A | A | A | D | D | A | A | C |
| Zinc chloride | A | A | A | A | A | A | A | A | A | A | A | A | A | D | A |

†Do not use the L/S® PTFE-tubing pump head with gases due to excessive heat buildup.

Caution

The ratings in the charts do not reflect the extent to which extraction or leaching may occur or the extent to which fluids may undergo any physical changes in properties or composition as a result of coming into contact with the wetted materials. It is the user's responsibility to test and ensure the suitability of wetted materials for all intended users, including establishing the compatibility of any fluid with the material through which it is coming into contact.

Warning

The information in these tables has been supplied to Cole-Parmer by the tubing manufacturers and is to be used **ONLY** as a guide to select your tubing. Test fluids and tubing using the tubing test procedure on page 117. Cole-Parmer does not warrant (neither express or implied) that the information in these tables is accurate or complete or that any material is suitable for any purpose.

Danger

Even if tubing passes the immersion test, variations in temperature, pressure, or concentration may cause tubing failure. **SERIOUS INJURY MAY RESULT.** Use suitable guards and/or personal protection when pumping chemicals.

Enclosure Ratings / Standard Pipe Thread Fittings

Ingress Protection (IP) Ratings

The IP rating system classifies the degrees of protection from solid objects and liquids afforded by electrical equipment and enclosures. The system is recognized in most countries and is set out in a number of British and European standards. These include: Classification of Degrees of Protection Provided by Enclosures, BS (British Standards) 5490:1977; IEC (International Electrotechnical Commission) 529:1976.



Specifications for Degrees of Protection of Enclosures of Switchgear and Control Gear for voltages up to and including 1000 VAC and 1200 VDC, BS 5420:1977; and IEC 144:1963.

First Digit

Protection against solid objects

- 0 no protection
- 1 protected against solid objects over 50 mm (e.g. accidental touch by hands)
- 2 protected against solid objects over 12 mm (e.g. fingers)
- 3 protected against solid objects over 2.5 mm (tools)
- 4 protected against solid objects over 1 mm (fine tools/wires)
- 5 protected against dust—limited ingress (no harmful deposits)
- 6 totally protected against dust

Second Digit

Protection against liquids

- 0 no protection
- 1 protected against vertically falling drops of water (e.g. condensation)
- 2 protected against direct sprays of water up to 15° from the vertical
- 3 protected against spraying water up to 60° from the vertical
- 4 protected against water sprayed from all directions—limited ingress permitted
- 5 protected against low-pressure jets of water from all directions—limited ingress permitted
- 6 protected against strong jets of water from all directions—limited ingress permitted (e.g. for use on ship decks)
- 7 protected against the effects of immersion between 15 cm and 1 m

NEMA/IEC Enclosure Ratings

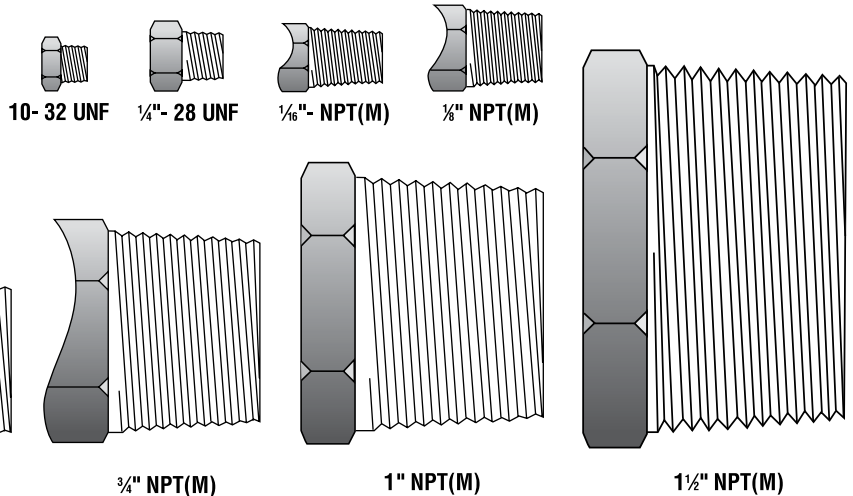
Conversion of NEMA type classifications to IEC classification designation (IP ratings).

Note: NEMA standards meet or exceed IEC standards; therefore, the conversion does not work in the opposite direction.

| NEMA enclosure type no. | NEMA definition | IEC enclosure class |
|-------------------------|--|---------------------|
| 1 | General-purpose. Protects against dust, light, and indirect splashing but is not dust-tight; primarily prevents contact with live parts; used indoors and under normal atmospheric conditions. | IP10 |
| 2 | Drip-tight. Similar to Type 1 but with addition of drip shields; used where condensation may be severe (as in cooling rooms and laundries). | IP11 |
| 3 and 3S | Weather-resistant. Protects against weather hazards such as rain and sleet; used outdoors on ship docks, in construction work, and in tunnels and subways. | IP54 |
| 3R | Intended for outdoor use. Provides a degree of protection against falling rain and ice formation. Meets rod entry, rain, external icing, and rust-resistance design tests. | IP14 |
| 4 and 4X | Watertight (weatherproof). Must exclude at least 65 GPM of water from 1-in. nozzle delivered from a distance not less than 10 ft for 5 minutes. Used outdoors on ship docks, in dairies, and in breweries. | IP56 |
| 5 | Dust-tight. Provided with gaskets or equivalent to exclude dust; used in steel mills and cement plants. | IP52 |
| 6 and 6P | Submersible. Design depends on specified conditions of pressure and time; submersible in water; used in quarries, mines, and manholes. | IP67 |
| 7 | Hazardous. For indoor use in Class I, Groups A, B, C, and D environments as defined in the NEC. | — |
| 8 | Hazardous. For indoor and outdoor use in locations classified as Class I, Groups A, B, C, and D as defined in the NEC. | — |
| 9 | Hazardous. For indoor and outdoor use in locations classified as Class II, Groups E, F, or G as defined in the NEC. | — |
| 10 | MSHA. Meets the requirements of the Mine Safety and Health Administration, 30 CFR Part 18 (1978). | — |
| 11 | General-purpose. Protects against the corrosive effects of liquids and gases. Meets drip and corrosion-resistance tests. | — |
| 12 and 12K | General-purpose. Intended for indoor use, provides some protection against dust, falling dirt, and dripping noncorrosive liquids. Meets drip, dust, and rust resistance tests. | IP52 |
| 13 | General-purpose. Primarily used to provide protection against dust, spraying of water, oil, and noncorrosive coolants. Meets oil exclusion and rust resistance design tests. | IP54 |

Standard Pipe Thread Fittings

The illustrations are actual size. If you have any question as to the size of fitting you require, simply compare the threads per inch, the diameter and length of the threading, and the taper of the threading of your existing fittings to these drawings.



1/4" NPT(M)

3/8" NPT(M)

1/2" NPT(M)

3/4" NPT(M)

1" NPT(M)

1 1/2" NPT(M)

Electrical Data / Hazardous Area Classifications

ATEX directive 94/9/EC

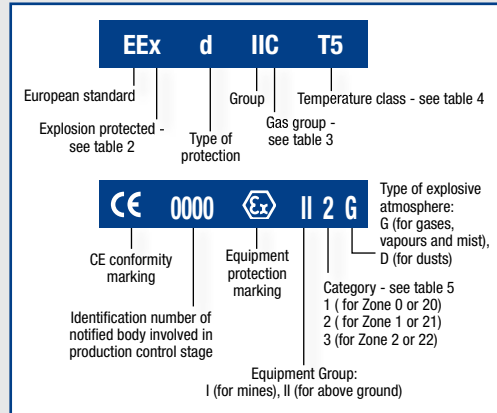
Since 1st July 2003 the ATEX Directive 94/9/EC has required equipment and protective systems that are for use in potentially explosive atmospheres, to conform to specific safety standards. The directive is applicable to all countries within the EU.

Equipment Marking

The following is a guide only to the identification markings on ATEX marked equipment and protective systems.

Determining the suitability of ATEX marked equipment and safety systems is the responsibility of the user.

EU Directive 94/9/EC from July 1, 2003 —Table 1



Methods of Protection—Table 2

| Method of protection | Marking | Protection principle |
|---|--------------|---|
| Electrical equipment for gases, vapours and mists according to CENELEC | | |
| Flameproof enclosure | EEx d | Contain the explosion and prevent flame propagation |
| Increased safety | EEx e | No arcs, sparks, or hot surfaces |
| Nonsparking | EEx n | No arcs, sparks, or hot surfaces |
| Intrinsic safety | EEx i | Limit the energy of the spark and surface temperature |
| Oil immersion | EEx o | Keep the ignition source constantly immersed in oil |
| Pressurised enclosure | EEx p | A protective gas contains the ignition source |
| Sand filling | EEx q | Fine ground filling surrounds the ignition source and therefore, an arc from inside of the housing cannot ignite the surrounding combustible atmosphere |

Classification of Gases and Dusts per CENELEC/IEC—Table 3

| Gas group | Temperature class | | | | | |
|-----------|---|---|---|--------------------|----|-------------------|
| | T1 | T2 | T3 | T4 | T5 | T6 |
| I | Methane | — | — | — | — | — |
| IIA | Acetone Methane Ethane Propane | Ethyl alcohol Cyclohexane n-butane n-butyl alcohol | Diesel fuel Aircraft fuel Fuel oil n-hexane Heptane | Acetaldehyde | — | — |
| IIB | Coal (lighting) gas Acrylonitrile | Ethylene Ethylene oxide | Ethylene glycol Hydrogen sulphide | Ethyl methyl ether | — | — |
| IIC | Hydrogen | Ethine (Acetylene) | — | — | — | Carbon disulphide |

Temperature Classification—Table 4

| CENELEC/IEC (Group II) Class | Max surface temperature | Comments |
|------------------------------|---|--|
| T1 | 450°C (842°F) | Temperature relates to all parts of equipment that can come into contact with the potentially explosive atmosphere |
| T2 | 300°C (572°F) | |
| T3 | 200°C (392°F) | |
| T4 | 135°C (275°F) | |
| T5 | 100°C (212°F) | |
| T6 | 85°C (185°F) | |
| Tx | Maximum surface temperature not defined | Assessment of equipment temperature class is the responsibility of the user |

Example equipment marking:

CE Ex II 2 G EEx d IIC T5

ATEX Category 2 (gas) equipment designated for installation in Zone 1. Protection by flameproof enclosure, suitable for hydrogen atmosphere with maximum equipment surface temperature of 100°C.

Equipment Groups I and II: Categories M1, M2, 1, 2, and 3—Table 5

| Group I Mines: methane and/or combustible dusts | | Group II Above ground: potentially explosive atmospheres or gas/air or dust/air mixtures, mist or vapours | | | | | |
|--|---|---|-----------------------|--|-----------------------|---|-----------------------|
| Category M | | Category 1 | | Category 2 | | Category 3 | |
| 1 | 2 | G (Gas) (Zone 0) | D (Dust) (Zone 20) | G (Gas) (Zone 1) | D (Dust) (Zone 21) | G (Gas) (Zone 2) | D (Dust) (Zone 22) |
| Equipment which guarantees a very high degree of safety. Operation guaranteed in case of errors. | Equipment which guarantees a very high degree of safety. Switching off possible if potentially explosive atmosphere occurs. | For equipment which guarantees a very high degree of safety. Intended for cases where potentially explosive atmospheres are often or constantly to be expected. | | For equipment which guarantees a high degree of safety. Intended for cases where a potentially explosive atmosphere is to be expected. | | For equipment which guarantees a standard degree of safety. Intended for cases where a potentially explosive atmosphere can be expected only rarely, and then, only for a short time. | |
| Very high protection level | High protection level | Very high protection level | | High protection level | | Normal | |

National Electrical Code (NEC) hazardous area classifications

- Class I:** Areas where flammable gases or vapors may be present in the air in sufficient quantities to be explosive
- Group A:** Atmospheres containing acetylene
- Group B:** Atmospheres such as butadiene, ethylene oxide, propylene oxide, acrolein, or hydrogen (or gases or vapors equivalent in hazard to hydrogen, such as manufactured gas)
- Group C:** Atmospheres such as cyclopropane, ethyl ether, or ethylene (or gas or vapors of equivalent hazard)
- Group D:** Atmospheres such as acetone, alcohol, ammonia, benzene, benzol, butane, gasoline, hexane, lacquer solvent vapors, naphtha, natural gas, propane, or gas or vapors of equivalent hazard
- Class II:** Areas made hazardous by the presence of combustible dust
- Group E:** Atmospheres containing combustible
- 1) metal dusts, regardless of resistivity
 - 2) dust of similarly hazardous characteristics having a resistivity less than 100 kΩ-cm
 - 3) electrically conductive dusts
- Group F:** Atmospheres containing combustible
- 1) carbon black, charcoal, or coke dusts having more than 8% total volatile material
 - 2) dusts so sensitized that they present an explosion hazard, and dusts having a resistivity greater than 100 Ω-cm but less than or equal to 1 x 10⁸ Ω-cm
- Group G:** Atmospheres containing combustible
- 1) dust having resistivity equal to or greater than 100 kΩ-cm
 - 2) electrically nonconductive dusts
- Class III:** Areas made hazardous by the presence of easily ignitable fibers or dust, but which are not likely to be suspended in the air in sufficient quantities to ignite
- Division 1:** Atmospheres where hazardous concentrations exist continuously, intermittently, or periodically under normal operating conditions
- Division 2:** Atmospheres where hazardous concentrations exist only in case of accidental rupture or breakdown of equipment

Explosion-proof: Enclosures or housings are designed to withstand internal explosions and prevent the spread of fire to the outside.

Intrinsically safe: Systems in which electrical energy in the circuits is not present at levels that would ignite a flammable mixture of a gas and air.

Conversion Factors

| To go from | Multiply by | To get |
|----------------------|-----------------|---------------------|
| atm | 33.89854 | ft H ₂ O |
| atm | 760 | mm Hg |
| atm | 1.033227 | kg/cm ² |
| atm | 14.705 | psi |
| atm | 1.01325 | bar |
| atm | 101.325 | kPa |
| atm | 101325 | Pa |
| bar | 14.50377 | psi |
| bar | 0.9869233 | atm |
| bar | 100,000 | Pa |
| BTU | 778.196 | lb-ft |
| BTU/min | 0.01757 | kW |
| BTU/hr | 0.216158 | lb-ft/sec |
| BTU/min | 0.023575 | hp |
| cm | 0.3937008 | inch |
| cm | 0.03280840 | feet |
| cm ³ | 0.03381402 | oz (fluid) |
| cm ³ | 0.001 | liter |
| cc/min | 1 | mL/min |
| cc/min | 0.016 | GPH |
| deg C | (1.8 x °C) + 32 | deg F |
| deg C | deg °C + 273.2 | K |
| deg F | 0.555 (°F - 32) | deg C |
| K | K - 273.2 | deg C |
| dyne | 0.00102 | gm |
| dyne | 0.000002248 | lb (force) |
| dyne | 0.00003597 | oz |
| dyne-cm | 0.00102 | gm-cm |
| dyne-cm | 0.0000007376 | lb-ft |
| dyne-cm | 0.000014 | oz-in |
| dyne/cm ² | 0.1 | Pa |
| feet (ft) | 30.48 | cm |
| ft | 0.3048 | m |
| ft H ₂ O | 0.4335 | psi |
| ft H ₂ O | 0.0295 | atm |
| ft H ₂ O | 0.8826 | in Hg |
| ft ³ | 7.480519 | gal |
| ft ³ | 0.028316847 | m ³ |
| ft ³ /hr | 0.4719474 | LPM |
| ft ³ /hr | 471.9474 | mL/min |
| ft ³ /min | 0.0283157 | m ³ /min |
| ft ³ /min | 28.3157 | LPM |
| gallon (gal) | 128 | oz (fluid) |
| gal | 3.785412 | liter |
| gal | 8.337 | lb H ₂ O |
| gal | 0.1337 | ft ³ |
| gal | 230.9 | in ³ |
| gal | 0.003785 | m ³ |
| gal (IMP) | 1.20095 | gal (US) |
| gal (US) | 0.83267 | gal (IMP) |
| GPH | 63.1 | mL/min |
| GPM | 3.785412 | LPM |
| GPM | 0.2271247 | m ³ /hr |

| To go from | Multiply by | To get |
|----------------------|-------------|----------------------|
| gram (gm) | 0.002205 | lb |
| gm | 0.03527 | oz (avd) |
| gm (force) | 980.7 | dyne |
| gm-cm | 980.7 | dyne-cm |
| gm-cm | 0.0000723 | lb-ft |
| gm-cm | 0.01389 | oz-in |
| gm-cm | 0.000867 | lb-in |
| gm-cm | 0.000098 | N-m |
| gm-cm ² | 0.22757 | oz-in ² |
| horsepower (hp) | 0.7457 | kW |
| hp | 42.44 | BTU/min |
| hp | 1.01387 | hp (metric) |
| hp | 396,000 | lb-in/min |
| hp (metric) | 0.9862 | hp |
| inch (in) | 2.54 | cm |
| in | 25.40 | mm |
| in ³ | 0.004329 | gal |
| in ³ | 0.01639 | liter |
| in ³ | 16.39 | mL |
| in Hg | 1.1329 | ft H ₂ O |
| in Hg | 0.4926 | psi |
| in Hg | 25.64 | mm Hg |
| in Hg | 3386 | Pa |
| joule | 0.0009478 | BTU |
| joule | 0.73756 | lb-ft |
| kg | 2.2046 | lb |
| kg-cm | 13.89 | oz-in |
| kg-m | 7.246 | lb-ft |
| kg/cm ² | 14.22334 | psi |
| kg/cm ² | 0.9678 | atm |
| kW | 56.92 | BTU/min |
| kW | 1.341 | hp |
| kPa | 0.009867841 | atm |
| kPa | 0.14504 | psi |
| lb (pound) | 444822 | dyne |
| lb | 453.597 | gm |
| lb | 0.453597 | kg |
| lb | 16 | oz |
| lb (force) | 4.44822 | N |
| lbs H ₂ O | 0.1199 | gal |
| lb-in | 1152.5 | gm-cm |
| lb-in | 0.1129 | N-m |
| lb-in/min | 0.00002525 | hp |
| lb-ft | 0.001285 | BTU |
| lb-ft | 13,560,000 | dyne-cm |
| lb-ft | 1.3558 | N-m |
| lb-ft | 192 | oz-in |
| lb-ft | 0.1383 | kg-m |
| lb-ft | 13825 | gm-cm |
| lb-ft/sec | 1.355 | watt |
| lb-ft/sec | 4.625 | BTU/hr |
| lb-ft/min | 0.022589 | watt |
| liter (L) | 1000 | cm ³ |
| liter | 0.2642 | gal |
| liter | 0.001 | m ³ |
| liter | 61.0237 | in ³ |
| LPM | 0.2642 | GPM |
| LPM | 2.11888 | ft ³ /hr |
| LPM | 0.035316 | ft ³ /min |

| To go from | Multiply by | To get |
|-----------------------|-------------|-----------------------|
| mL | 0.061 | in ³ |
| mL | 0.033818 | oz (fluid) |
| mL/min | 0.0158 | GPH |
| mL/min | 0.0333818 | oz/min |
| mL/min | 1 | cc/min |
| mL/min | 0.00211 | ft ³ /hr |
| mm | 0.03937 | in |
| mm Hg | 0.03937 | in Hg |
| mm Hg | 0.001315 | atm |
| mm Hg | 133.3 | Pa |
| meter (m) | 3.2808 | feet |
| m ³ | 1000 | liter |
| m ³ | 35.316 | ft ³ |
| m ³ | 264.2 | gal |
| m ³ /min | 35.316 | ft ³ /min |
| m ³ /hr | 4.405 | GPM |
| Newton (N) | 0.2248 | lb (force) |
| N-m | 141.612 | oz-in |
| N-m | 10197.16 | gm-cm |
| N-m | 0.737562 | lb-ft |
| N-m | 8.850 | lb-in |
| Newton/m ² | 1 | Pa |
| ounce (oz) | 28.3495 | gm |
| oz | 0.0625 | lb |
| oz (force) | 27801.39 | dyne |
| oz | 0.001943 | slug |
| oz (fluid) | 29.57 | mL |
| oz (fluid) | 0.007813 | gal |
| oz (fluid) | 29.57 | cm ³ |
| oz-in | 0.072 | kg-cm |
| oz-in | 72.007 | gm-cm |
| oz-in | 70620 | dyne-cm |
| oz-in | 0.00521 | lb-ft |
| oz-in | 0.007061 | N-m |
| oz-in ² | 4.3941 | gm-cm ² |
| oz/min | 29.57 | mL/min |
| Pascal (Pa) | 10 | dyne/cm ² |
| Pa | 1 | Newton/m ² |
| Pa | 0.0000099 | atm |
| Pa | 0.00001 | bar |
| Pa | 0.0002953 | in Hg |
| Pa | 0.000145 | psi |
| Pa | 0.0075 | mm Hg |
| psi | 6.895 | kPa |
| psi | 0.068046 | atm |
| psi | 0.0689 | bar |
| psi | 2.30666 | ft H ₂ O |
| psi | 2.036 | in Hg |
| psi | 0.070307 | kg/cm ² |
| psi | 6894.76 | Pa |
| slug | 514.785 | oz |
| watt (W) | 0.737562 | lb-ft/sec |
| W | 44.2537 | lb-ft/min |

**There's More at
ColeParmer.in**

Find **Technical Resources** to help you select and use your product

Why Choose Ismatec® Peristaltic Pumps?

1 Precise

Flow rates as low as 0.0001 mL/min for delivering accurate volumes.

2 Reduced Pulsation

Better reproducibility and longer tubing life with planetary gear drive construction.

3 Gentle Handling

Select pumps with convex rollers to extend tubing life and use with fragile samples such as live cells.

4 Customizable

Mix and match drives, pump heads, and tubing for a system tailored to your needs.

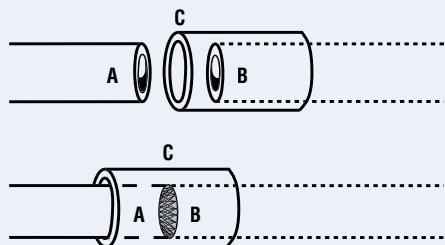
5 Quality & Durability

Swiss-engineered design manufactured to strict ISO 9001:2008 standards with two-year warranty in most models.



How to splice microbore tubing

1. Bring together one end of a length of color-coded tubing (A) and one end of a length of extension tubing (B). Both lengths of tubing should have the same ID and OD.
2. Center a 1 to 2" piece of larger tubing (C) over the ends of the two pieces to be joined (A and B). The short tubing piece should be of similar material and with an ID approximately equal to the OD of the tubing to be joined.
3. With the short piece (C) centered over the joint, apply solvent or sealant to the outside of tubing (B) and slide tubing (C) onto (B). Repeat the process for tubing (A) to join tubing permanently. If future tubing changes are necessary, then apply solvent or sealant only to tubing (B) and (C). Use a ketone-type solvent to splice Tygon® or Viton® tubing; an RTV adhesive for silicone tubing; and a tetrahydrofuran with PharMed® BPT tubing.



*Tubing can be found on pages 129-130.

Selecting the Right Ismatec Pump

| Pump Series | Features | Flow range | See page(s) |
|--|--|-----------------------|---------------|
| Reglo independent channel control (ICC) | Independently controlled channels with different speed capabilities. Bidirectional flow in each channel. 2, 3 or 4 channels. | 0.0001 to 43 mL/min | 123 |
| IPC Low-flow high-accuracy | High-precision multichannel dispensing and delivery pumps for analytical applications. Planetary drive. RS-232 or analog interface. 4, 8, 12, 16, or 24 channels. | 0.0004 to 44 mL/min | 124 |
| Reglo compact multichannel | Compact cassette dispensing pumps. Some models with calibrating functions. RS-232 or analog interface. 2 or 4 channels. | 0.0001 to 68 mL/min | 125 |
| BVP and MCP Quick-couple drives, Standard and Process versions | Variety of drives and pump heads allow a wide range of pumping solutions. Drives come in basic (BVP) models and programmable (MCP) models with calibrating function and RS-232 and analog interfaces. Process versions are IP65-rated; dust-tight and waterproof. Interchangeable pump heads are easy to install; with 1 to 24 channels. | 0.001 to 3700 mL/min | 126-127 |
| ecoline | Economical and powerful. Stackable stainless steel housing. Simple set up and operation. Models with analog interface. 1 to 8 channels. | 0.0075 to 5400 mL/min | 128 |
| Flowmaster™ | Powerful pump for heavy-duty processes. Stainless steel housing, IP65 rated; dust-tight and waterproof. Analog interface. 1 channel. | 37 to 13,000 mL/min | 128 |
| Fixed-speed rack-mount | Use these rack-mounted pumps almost anywhere. Easy tubing changes even while pump is running. 2 or 4 channels. | 0.014 to 22 mL/min | ColeParmer.in |
| Reglo Quick™ | Compact tubing-bed dispensing pump. Simple tubing changeout. Analog interface only. 1 channel. | 2.1 to 230 mL/min | ColeParmer.in |

Ismatec® Reglo Independent Channel Control (ICC) Pumps

Pump each channel at different speeds and directions!

- Flow range of 0.0001 to 43 mL/min (depending on model and tubing size selected)
- Each pump performs the job of up to four separate pumps
- Additional options in channel and roller configurations allow balanced pulsation control at desired flow rate
- USB interface for quick computer connections using redesigned graphical user-interface

FEATURES

- ✓ Small-volume dispensing
- ✓ Nutrient feed
- ✓ Buffer addition

These two-, three- and four-channel peristaltic pumps let you individually control the flow and direction of each channel from the intuitive keypad or via your computer—expanding your benchtop pumping capabilities with a single compact unit! Pump delivers continuous pumping or precision dispensing up to 43 mL/min with the capability of Bidirectional flow in each channel. Plus, independent channel calibration minimizes tube-to-tube differences, resulting in high calibration accuracy.



Deliver or dispense at multiple flow rates—all from a single space-saving pump.



Flow Ranges (mL/min per channel)

| Tubing ID (mm) | 6 rollers | 8 rollers | 12 rollers |
|----------------|----------------|----------------|-----------------|
| 0.13 | 0.0002 to 0.14 | 0.0002 to 0.11 | 0.0001 to 0.093 |
| 0.51 | 0.0019 to 1.9 | 0.0017 to 1.7 | 0.0016 to 1.6 |
| 0.57 | 0.0024 to 2.4 | 0.0021 to 2.1 | 0.0019 to 1.9 |
| 0.64 | 0.0030 to 3.0 | 0.0026 to 2.6 | 0.0024 to 2.4 |
| 0.95 | 0.0064 to 6.4 | 0.0056 to 5.6 | 0.0050 to 5.0 |
| 1.02 | 0.0073 to 7.3 | 0.0063 to 6.3 | 0.0056 to 5.6 |
| 1.42 | 0.013 to 13 | 0.011 to 11 | 0.0094 to 9.4 |
| 1.75 | 0.019 to 19 | 0.016 to 16 | 0.013 to 13 |
| 1.85 | 0.021 to 21 | 0.017 to 17 | 0.014 to 14 |
| 2.54 | 0.033 to 33 | 0.027 to 27 | 0.019 to 19 |
| 2.79 | 0.036 to 36 | 0.031 to 31 | 0.021 to 21 |
| 3.17 | 0.043 to 43 | 0.035 to 35 | 0.024 to 24 |

Note: Use tubing ID from table above as a guide to determine appropriate catalog number suffix for 3-stop tubing sold on pages 129-130.

Specifications

Speed: 0.1 to 100 rpm **Pressure:** up to 14.5 psi (1.0 bar)
Accuracy: ±1%



| Channels | Rollers | Tubing | Power (VAC, Hz) | Catalog number |
|-----------------------|---------|------------|-------------------|--------------------|
| Benchtop pumps | | | | |
| 2 | 6 | Three-stop | 100 to 240, 50/60 | JB-78001-58 |
| | 8 | | | JB-78001-60 |
| | 12 | | | JB-78001-62 |
| 3 | 6 | Three-stop | 100 to 240, 50/60 | JB-78001-68 |
| | 8 | | | JB-78001-70 |
| | 12 | | | JB-78001-72 |
| 4 | 6 | Three-stop | 100 to 240, 50/60 | JB-78001-78 |
| | 8 | | | JB-78001-80 |
| | 12 | | | JB-78001-82 |

Accessories

- JB-78016-98 Replacement Click'n'go™ tubing cassette, POM-C
- JB-78016-96 Click'n'go™ tubing cassette, PVDF



Independent Channel Design

- ✓ Up to four independently controllable channels
- ✓ Flexibility of bidirectional flow in each channel
- ✓ Continuous pumping or precision dispensing
- ✓ Enhanced accuracy through separate channel calibration

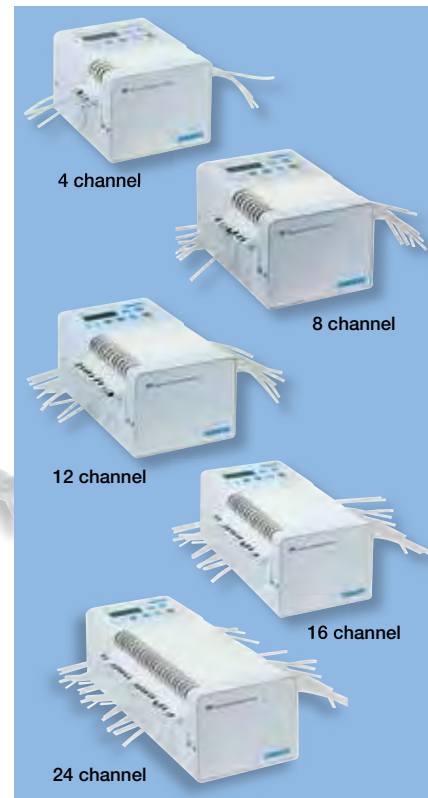
Ismatec® IPC Low-Flow High-Accuracy Pumps

Fewer tubing changes

- Planetary drive for less pulsation and longer tubing life
- Smooth rotation and accurate liquid flow provided by eight SS rotors
- Easy repeatability with four-digit LED
- Simple to use—automatic occlusion cartridges provide reproducible results
- Five modes for pumping or dispensing including flow rate, time, batches, drip-free, and volume
- Control via keypad, computer, or remote control
- IP and IP-N pumps available online

FEATURES

- ✓ Media/nutrient addition
- ✓ Small-volume dispensing
- ✓ Multichannel dispensing



Choose from 4, 8, 12, 16 and 24 channel configurations for application flexibility.

Specifications

Accuracy: better than $\pm 1\%$
Power: 230 VAC, 50/60 Hz

Pressure
Click'n'go cassettes: up to 14.5 psi (1 bar)
Pressure lever cassettes: up to 22 psi (1.5 bar)



See pages 129-130



| Flow range per channel (mL/min) | Channels | Rollers | Speed (rpm) | Cassette style | Tubing | Catalog number |
|---------------------------------|----------|---------|---------------|---------------------------------------|----------|----------------|
| IPC-N models | | | | | | |
| 0.0004 to 11 | 4 | 8 | 0.11 to 11.25 | Click'n'go | Two-stop | JB-78001-06 |
| | 8 | | | | | JB-78001-16 |
| | 12 | | | | | JB-78001-26 |
| | 16 | | | | | JB-78001-36 |
| 0.0004 to 11 | 24 | 8 | 0.11 to 11.25 | Pressure lever (adjustable occlusion) | Two-stop | JB-78001-46 |
| | 8 | | | | | JB-78000-17 |
| | 16 | | | | | JB-78000-37 |
| | 24 | | | | | JB-78000-47 |
| IPC models | | | | | | |
| 0.002 to 44 | 4 | 8 | 0.4 to 45 | Click'n'go | Two-stop | JB-78001-08 |
| | 8 | | | | | JB-78001-18 |
| | 12 | | | | | JB-78001-28 |
| | 16 | | | | | JB-78001-38 |
| 0.002 to 44 | 24 | 8 | 0.4 to 45 | Pressure lever (adjustable occlusion) | Two-stop | JB-78001-48 |
| | 4 | | | | | JB-78000-09 |
| | 8 | | | | | JB-78000-19 |
| | 12 | | | | | JB-78000-29 |
| | 16 | | | | | JB-78000-39 |
| | 24 | | | | | JB-78000-49 |

Order extra cartridges and adapters when fast tubing changes are crucial.

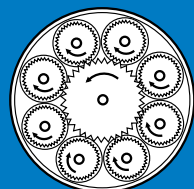
JB-78001-95 Replacement Click'n'go™ cartridge, POM-C

JB-78001-90 Repl. adjust. occlusion cartridge with pressure lever

JB-07618-71 Replacement adapters hold two-stop color-coded tubing in cartridge. Two adapters required per cartridge. Pack of 12

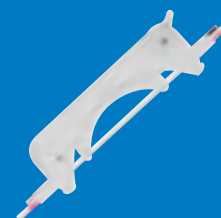
Planetary Drive System

With the planetary drive system, each roller is directly driven by the sun wheel. This mechanism prevents axial push-pull friction on the tubing—resulting in longer tubing life, lower pulsation, and high repeatability.



Pressure Level Cassettes

These cassettes feature a pressure lever that allows you to set a different tubing pressure for each channel. Depending on the application, tubing material, and diameter, you can adjust to optimal tubing pressure for your requirements.



Ismatec® Reglo Compact Multichannel Pumps

No more inconsistent results

- Consistent flow and reduced tubing wear for improved results
- Very small footprint for a stand-alone “smart” pump
- Get balanced pulsation control at your desired flow rate with choice of channel and roller configuration
- No maintenance—rollers are self-lubricating
- Easy channel changes—Click’n’go™ minicartridges snap in place
- Maintain uniform channel-to-channel performance with Click’n’go cassette spring-tensioning design

FEATURES

- ✓ Nutrient feed
- ✓ Buffer addition
- ✓ Small-volume dispensing



A
Reglo Analogue pump 78016-32

A. Reglo Analogue Pumps

Speed is adjustable in 1% steps (2 to 100%) via 2-digit potentiometer. Control speed remotely. Start/stop pump or change direction via contact closure; monitor speed through frequency output.

B. Reglo Digital Programmable Pumps

Continuously pump or dispense in any of four modes—flow rate, time, batches, or drip-free. Pumps feature analogue input and output controls, as well as an RS-232 interface for control by a computer. Remote control capable.



B
Reglo Digital pump 78017-02 is fully programmable.



Specifications

Pressure: Click'n'go cassettes: up to 14.5 psi (1 bar)
Pressure lever cassettes: up to 22 psi (1.5 bar)

Power: 230 VAC, 50/60 Hz



See pages 129-130

| Flow range per channel (mL/min) | Channels | Rollers | Speed (rpm) | Cassette style | Tubing | Catalog number |
|--|----------|---------|-------------|----------------|------------|----------------|
| A. Reglo Analogue pumps | | | | | | |
| 0.005 to 68 | 2 | 6 | 3.2 to 160 | Click'n'go | Three-stop | JB-78016-02 |
| 0.004 to 57 | | 8 | | | | JB-78016-12 |
| 0.003 to 38 | | 12 | | | | JB-78017-27 |
| 0.003 to 43 | 4 | 6 | 2.0 to 100 | Click'n'go | Three-stop | JB-78017-32 |
| 0.003 to 35 | | 8 | | | | JB-78016-32 |
| 0.002 to 24 | | 12 | | | | JB-78017-37 |
| B. Reglo Digital programmable pumps with calibrating function | | | | | | |
| 0.003 to 68 | 2 | 6 | 3.2 to 160 | Click'n'go | Three-stop | JB-78016-42 |
| 0.002 to 57 | | 8 | | | | JB-78017-02 |
| 0.002 to 38 | | 12 | | | | JB-78016-47 |
| 0.002 to 43 | 4 | 6 | 2.0 to 100 | Click'n'go | Three-stop | JB-78017-42 |
| 0.002 to 35 | | 8 | | | | JB-78017-12 |
| 0.001 to 24 | | 12 | | | | JB-78017-22 |

Minicartridges

Optional minicartridge with adjustable occlusion lets you manually vary pressure on each channel.

JB-07624-64 Optional adjustable occlusion cassette with pressure lever, POM-C

JB-78016-98 Replacement Click'n'go cassette, POM-C

Ismatec® BVP and MCP Quick-Couple Drives

Create a custom system with interchangeable pump heads

- Mount pump heads quickly with turn-and-lock mounting system
- Select from interchangeable tubing pump heads to achieve flow rates from 0.001 to 3700 mL/min
- Remote control and programming options add versatility
- Process washdown drives are IP-65 rated

BVP Standard and Process Drives

- Prime, flush, or prevent overflow with Max/Slow toggle switch

BVP Standard Drive features analog input that remote control of speed, start/stop or flow direction. **BVP Process Washdown Drive** is similar to the BVP Standard model, plus has a digital display for speed. The IP65-rated housing is ideal for dusty, humid, or corrosive environment and in cleanroom areas. The stainless steel housing is sealed for added durability.

MCP Standard and Process Programmable Digital Drives

- Save time—recall and store up to four programs
- Preprogrammed with tubing sizes and heads for faster setup
- Use the RS-232 interface to automate your lab or operate independently via the keypad—RS-232 in for remote operation; RS-232 out for cascading pumps

MCP Standard Drive is programmable to dispense by volume, time, flow rate, batches with variable pause time, stored programs, roller back steps, or number of dispensing cycles. Digital display shows speed, flow rate, dispensing volume, dispensing time, and pause time. **MCP Process Washdown Drive** adds an IP65-rated housing for washdown applications—ideal for dispensing and filling in dusty, humid, or corrosive environment and in cleanroom areas. The stainless steel housing is sealed for added durability.



BVP Standard drive

BVP Process washdown drive

MCP Standard programmable digital drive can store four programs downloaded from your computer.



REQUIRED System Components

- 1) Quick-couple drive .. 126
- 2) Pump head 126-127
- 3) Tubing 129-130

Specifications

Duty cycle: continuous



78003-08 and -10 only

| Model | BVP Standard drive | BVP Process washdown drive | MCP Standard drive | MCP Process washdown drive |
|-----------------------------|--|--|---|--|
| Catalog number | JB-78002-12 | JB-78003-10 | JB-78002-02 | JB-78003-08 |
| Programmable | No | No | Yes | Yes |
| Speed | 2.4 to 240 rpm (indicated as 1 to 99.9%) | 1 to 240 rpm | 1 to 240 rpm | 1 to 240 rpm |
| Resolution | 0.1% via 3-digit potentiometer | 0.1 rpm | 0.1 rpm | 0.1 rpm |
| Flow range/channel | 0.003 to 3700 mL/min | 0.001 to 3700 mL/min | 0.001 to 3700 mL/min | 0.001 to 3700 mL/min |
| Flow rate settings | — | — | µL/min, mL/min, L/min | µL/min, mL/min, L/min |
| Remote control capabilities | Speed control: 0 to 5 VDC, 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA Speed output: 0 to 10 VDC or 0 to 12 kHz Start/stop, rotation direction | Speed control: 0 to 5 VDC, 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA Speed output: 0 to 10 VDC or 0 to 7.2 kHz Start/stop, rotation direction, autostart | RS-232 (1 in, 1 out), 1 analog Speed control: 0 to 5 VDC, 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA Speed output: 0 to 10 VDC or 0 to 12 kHz Start/stop, rotation direction, autostart | RS-232 (1 in, 1 out), 1 analog Speed control: 0 to 5 VDC, 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA Speed output: 0 to 10 VDC or 0 to 7.2 kHz Start/stop, rotation direction, autostart |
| IP rating | IP30 | IP65 | IP30 | IP65 |
| Power | 230 VAC, 50/60 Hz | 230 VAC, 50/60 Hz | 230 VAC, 50/60 Hz | 230 VAC, 50/60 Hz |

Pump Heads for Quick-Couple Drives

A. Washdown Pump Heads

Dismantle for easy cleaning—ideal for hygienic applications. Convex rollers and concave tube-bed maintain the integrity of material being pumped. Coated aluminum with stainless steel rollers.

| Flow range (mL/min) | Channels | Rollers | Tubing | Wall thickness | Max pressure | Catalog number |
|---------------------|----------|---------|----------------------|----------------|------------------|--------------------|
| 0.49 to 3700 | 1 | 2 | Pump (pages 129-130) | 1.6 mm | 22 psi (1.5 bar) | JB-78002-11 |
| 3.6 to 3100 | 1 | 2 | | 2.4 mm | 36 psi (2.5 bar) | JB-78002-13 |
| 0.45 to 3400 | 1 | 3 | | 1.6 mm | 22 psi (1.5 bar) | JB-78002-16 |
| 3.3 to 2900 | 1 | 3 | | 2.4 mm | 36 psi (2.5 bar) | JB-78002-14 |



B. Minicartridge Pump Heads

Minimize pulsation with more rollers. Get up to 24 channels with 78002-50 and 07623-00 below. Get up to 16 channels of the smoothest flow with 78002-90 and 07623-30 below.

| Flow range (mL/min) | Channels | Rollers | Tubing | Max pressure | Catalog number |
|---------------------|--------------|---------|-------------------------------|------------------------------------|----------------|
| 0.002 to 100 | 8 (up to 24) | 6 | Three-stop (pages 129–130) | 14.5 psi (1.0 bar) [†] | JB-78002-50 |
| 0.003 to 52.3 | 4 (up to 16) | 12 | | | JB-78002-90 |

[†]22 psi (1.5 bar) achievable with pressure lever cassettes.

JB-07623-00 Eight-channel extension pump head. Use up to two with 78002-50 to get 24 channels

JB-07623-30 Four-channel extension pump head. Use up to three with 78002-90 to get 16 channels

C. Standard Cartridge Pump Heads

Ideal pump head for multichannel applications at higher flow rates. Click'n'go™ cartridges allow quick and easy tubing changes.

| Flow range (mL/min) | Channels | Rollers | Tubing | Max pressure | Catalog number |
|---------------------|----------|---------|-----------------------------|------------------------------------|----------------|
| 0.002 to 230 | 8 | 8 | Two-stop (pages 129–130) | 14.5 psi (1.0 bar) [†] | JB-78002-34 |
| | 12 | | | | JB-78002-36 |

[†]22 psi (1.5 bar) achievable with pressure lever cassettes.

D. Tubing Bed Pump Heads

Ideal for delicate substances which require gentle occlusion setting. Spring-loaded tubing bed adjusts occlusion for optimum pressure and tubing.

| Flow range (mL/min) | Channels | Rollers | Tubing | Max pressure | Catalog number |
|---------------------|----------|---------|-------------------------|---------------------|----------------|
| 1.1 to 1110 | 2 | 6 | Pump (pages 129–130) | 22 psi (1.5 bar) | JB-07611-10 |
| 0.09 to 530 | 3 | | | | JB-07611-15 |

E. Quick-Change Pump Heads

Hinged tube-bed allows rapid tube change-over. Easily accessible pump head. Self-centering tube-track results in longer tubing-life. Stainless steel rollers.

| Flow range (mL/min) | Channels | Rollers | Tubing | Max pressure | Catalog number |
|---------------------|----------|---------|-------------------------|---------------------|----------------|
| 0.08 to 880 | 1 | 3 | Pump (pages 129–130) | 22 psi (1.5 bar) | JB-78002-22 |
| 0.44 to 2800 | | | | | JB-78002-20 |

F. High-Viscosity Pump Head

Ideal for media with high viscosity or with a certain level of solid content. Accepts tubing with 1.6-mm and 2.4-mm wall thickness (for elevated differential pressures). Stainless steel rollers. Pressure on tubing adjustable via rollers.

| Flow range (mL/min) | Channels | Rollers | Tubing | Max pressure | Catalog number |
|---------------------|----------|---------|-------------------------|--------------|----------------|
| 0.41 to 3600 | 1 | 3 | Pump (pages 129–130) | 36 psi | JB-78002-60 |

G. Masterflex® Easy-Load® Pump Heads

Allows for fast and easy tubing changes. Accepts Masterflex L/S® pump tubing (on pages 93–95). Requires mounting plate below.

| Flow range (mL/min) | Channels | Rollers | Tubing | Max pressure | Catalog number |
|---------------------|-------------|---------|---|--------------|----------------|
| 3.4 to 672 | 1 (up to 2) | 3 | L/S 15, L/S 24 | 20 psi | JB-07516-12 |
| 0.12 to 912 | | | L/S 13, L/S 14, L/S 16, L/S 17, L/S 18, L/S 25 | | JB-07516-10 |

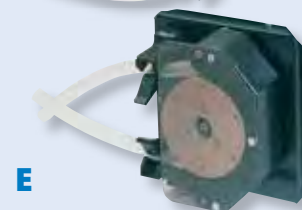
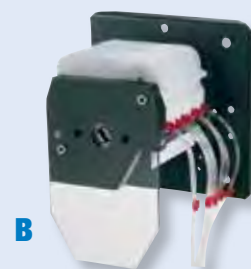
JB-78020-90 Mounting plate for Masterflex Easy-Load pump head

JB-07013-05 Mounting hardware to stack two Easy-Load pump heads

H. PTFE-Diaphragm Pump Heads

Pump almost any fluid with these chemically inert PTFE-diaphragm pump heads. Pump heads withstand temperatures up to 150°F (66°C). Requires adapter 78002-70 to mount to Quick-Couple drives. For adapters and tubing, see page 92. For check valves and tubing, please see ColeParmer.in

| Flow range (mL/min) | Ball check | Rollers | Tubing | Max pressure | Catalog number |
|---------------------|------------|-------------|---|--------------|----------------|
| 0.5 to 60 | Glass | 1/8" NPT(M) | For PTFE pump tubing, please see ColeParmer.in | 75 psi | JB-07090-62 |
| 4 to 480 | PTFE | 1/4" NPT(M) | | 50 psi | JB-07090-42 |



Ismatec® ecoline Pumps

Save space—pumps stack easily

- Durable stainless steel housing and four stabilizing feet for easier stacking
- Simple setup and operation—start, stop, and reverse flow with a single switch
- Models accommodate 1.6 or 2.4 mm wall tubing

Pumps A, B, C, and E are controllable remotely via an analogue input signal (0 to 5 VDC, 0 to 10 VDC, 0 to 20 mA, or 4 to 20 mA); start/stop drive or reverse direction via contact closure (eight-pin DIN). Input signals from your existing instruments actuate drive functions.

A–C. Single-Channel Pumps

- Minimize tubing wear and ensure automatic centering with convex roller

D. Masterflex® L/S® Easy-Load® Pump

- Change tubing quickly with easily accessible head
- Polysulfone housing and stainless steel rotor

E. Minicartridge Pumps

- No adjustments needed—spring-loaded cassettes for optimal occlusion at all times
- Get consistent, low-pulse flow with 6 or 12 rollers



C



E



| Key | Flow range per channel (mL/min) | Channels | Rollers | Speed | Tubing | Power | Catalog number | | |
|-----|---------------------------------|----------|---------|----------------|-----------------------|--------------------------|-----------------------|----------------------|-------------|
| A | 1.7 to 5400 | 1 | 2 | 3.5 to 350 rpm | 1.6 mm wall thickness | 230 VAC, 50 Hz | JB-78022-12 | | |
| | 13 to 4600 | | | | 2.4 mm wall thickness | | JB-78022-17 | | |
| B | 1.6 to 5000 | | 3 | | 3 | | 1.6 mm wall thickness | JB-78022-22 | |
| | 12 to 4200 | | | | | | 2.4 mm wall thickness | JB-78022-27 | |
| C | 0.25 to 1300 | | 3 | | 3 | | 1.6 mm wall thickness | JB-78022-32 | |
| D | 0.23 to 1600 | | 1 | | 3 | | 3.5 to 350 rpm | Masterflex® (pg 253) | JB-78022-52 |
| | 0.24 to 1000 | 4 | | JB-78022-57 | | | | | |
| E | 0.01 to 130 | 8 | | 6 | 3.5 to 350 rpm | Three-stop (pgs 276–277) | | | JB-78022-42 |
| | 0.0075 to 75 | 4 | | 12 | | | | | JB-78022-62 |

Accessories

- JB-07624-64 Optional adjustable occlusion cassette with pressure lever, POM-C
- JB-78016-98 Replacement Click'n'go™ cassette, POM-C
- JB-07610-25 Foot switch, momentary contact
- JB-17050-01 NIST-traceable calibration with data for peristaltic pump drive

Ismatec® Flowmaster™ Pump

Stainless steel construction—ideal for sanitary fluid transfer

- Easy cleaning—housing is IP65 rated for washdown
- Change tubing in just seconds!
- Easy to disassemble for cleaning
- Meets requirements of the biotech, food and beverage, and pharmaceutical industries

Single-channel pump head accommodates Masterflex® I/P® Precision tubing sizes 26, 73, and 82. Accepts a 0 to 5 VDC, 0 to 10 VDC, 1 to 20 mA, or 4 to 20 mA input signal for remote speed control. Features multiple overload protection and an extensive analog interface with status information for process control systems.

APPLICATIONS

- ✓ Bulk container pump
- ✓ FDA tablet coating
- ✓ Fermentation addition
- ✓ Cell culture
- ✓ Filtration

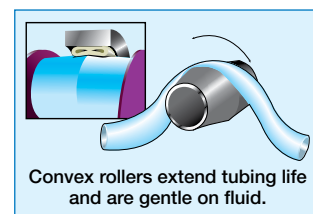


Stainless steel pump head detaches for easy cleaning.



| Flow range | Rollers | Speed | Tubing | Power | Catalog number |
|-----------------------|---------|--------------|-------------------------------------|-------------------|----------------|
| 37 mL/min to 13 L/min | 3 | 5 to 500 rpm | Masterflex I/P Precision (page 102) | 230 VAC, 50/60 Hz | JB-78025-05 |

JB-17050-01 NIST-traceable calibration with data for peristaltic pump drive



Convex rollers extend tubing life and are gentle on fluid.

2- and 3-Stop Color-Coded Tubing for Ismatec® Pumps

Don't confuse your tubing— color-coded stops for easy identification

Peristaltic Pumps

STEP 1: Choose a tubing material & select the catalog number prefix.

Make sure to choose 2-stop or 3-stop tubing based on what your pump uses!

STEP 3: Complete your system with extension tubing.

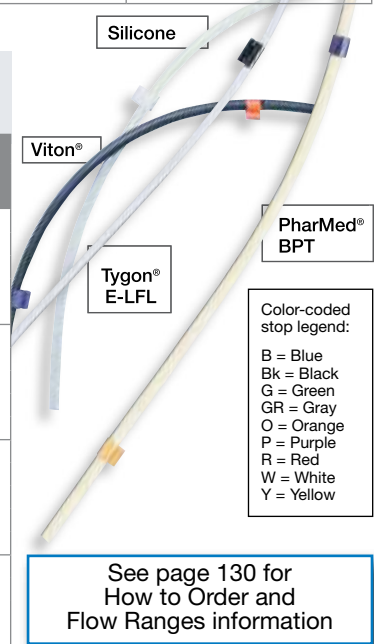
Connect stopped and extension tubing with barbed fittings or splicing.

| Material | Description | Suffixes for the available sizes | Tubes/ pk (length) | 2-Stop Tubing | | 3-Stop Tubing | | Extension Tubing | |
|---------------------------------|--|--|--------------------------|--------------------|--------------------|---|---------------|------------------|--|
| | | | | Cat. no. prefix | Cat. no. prefix | Cat. no. prefix | Length/ pk | | |
| Tygon® E-LFL | <ul style="list-style-type: none"> Complies with USP Class VI, EP, FDA, EU food, REACH, RoHS, ADCF Longest life of all Tygon formulations Broad chemical resistance | 10, 12, 14, 18, 22, 24, 26, 28, 30, 31, 33, 34, 36, 37, 40, 42, 43, 47, 48 | 12 (16") | JB-96449-XX | JB-96450-XX | JB-06449-XX | 100 ft | | |
| Tygon® E-Food | <ul style="list-style-type: none"> Complies with FDA, EU Food, NSF, 2A, REACH, RoHS, ADCF Smooth inner surface; nontoxic | 10, 12, 18, 26, 30, 34, 42, 48 | 12 (16") | JB-96457-XX | JB-96458-XX | JB-06457-XX | 100 ft | | |
| Tygon® E-Lab | <ul style="list-style-type: none"> Complies with USP Class VI, FDA, EU Food, NSF, REACH, RoHS, ADCF Ideal for general transfer applications Nonaging/nonoxidizing, low gas permeability | 09, 10, 12, 14, 16, 18, 19, 22, 24, 26, 27, 28, 29, 30, 31, 32, 34, 36, 38, 39, 40, 42, 44, 46, 48, 49 | 12 (16") | JB-96460-XX | JB-96461-XX | JB-06460-XX | 100 ft | | |
| Silicone (peroxide cured) | <ul style="list-style-type: none"> Complies with USP Class VI, EP, FDA, 3A, REACH, RoHS, ADCF Greater physical compression capability Economical, long tubing life | 10, 12, 14, 18, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48 | 6 (16") | JB-07616-XX | JB-07624-XX | JB-07625-XX | 50 ft | | |
| Silicone (platinum cured) | <ul style="list-style-type: none"> Complies with USP Class V, EP, FDA, REACH, RoHS, ADCF Low protein binding, fungus-resistant, phthalate and latex free | 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48 | 6 (16") | JB-95602-XX | JB-95603-XX | JB-95612-XX | 50 ft | | |
| Viton® | <ul style="list-style-type: none"> Complies with FDA, ADCF Resists corrosives, solvents, and oils at elevated temperatures | 18, 22, 24, 26, 30, 34, 38, 42, 46, 48 | 12 (12") | JB-97628-XX | JB-97629-XX | JB-97632-XX | 50 ft | | |
| PharMed® BPT | <ul style="list-style-type: none"> Complies with USP Class VI, EP, FDA, NSF, REACH, RoHS Over 10,000 hours of tubing life, sealable, weldable Ideal for tissue and cell culture work | 10, 12, 14, 18, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48 | 12 (16") | JB-95723-XX | JB-95714-XX | JB-95809-XX | 100 ft | | |
| Autoclavable PharMed® BPT | | 12, 32, 48 | 6 (16") | JB-95692-XX | JB-95693-XX | | | | |
| PVC Solvent/ hydrocarbon | <ul style="list-style-type: none"> Resistant to ozone and UV light Resists to cracking, swelling, hardening Ideal for fuels, distillates, lubricants, and glycol-based coolants | 10, 12, 14, 18, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48 | 12 (16") | JB-95606-XX | JB-95605-XX | JB-95712-XX | 50 ft | | |
| Chem-Durance® Bio | <ul style="list-style-type: none"> Suitable for acetone, MEK, and other highly aggressive chemicals Long life and outstanding fatigue resistance | 14, 18, 24, 26, 30, 34, 36, 42, 48 | 6 (16") | JB-96327-XX | JB-96328-XX | None (PharMed BPT recommended for extension tubing; see 95809-XX above) | | | |

STEP 2:

Find your desired flow rate and select the catalog number suffix. See page 130 for more.

| Flow rate ¹ (mL/min) with Fixed-Speed Pumps (order online) | | | | | | | | Catalog number suffix | ID (mm) | Color-coded stops |
|---|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-----------------------|---------|-------------------|
| 78012-00, 78012-05 | 78012-20, 78012-25 | 78012-30, 78012-35 | 78012-40, 78012-45 | 78012-50, 78012-55 | 78012-60, 78012-65 | 78012-80, 78012-85 | 78012-90, 78012-95 | | | |
| 0.047 | 0.14 | 0.047 | 0.093 | 0.056 | 0.11 | 0.17 | 0.056 | -10 | 0.19 | O/R |
| 0.081 | 0.24 | 0.08 | 0.16 | 0.1 | 0.19 | 0.29 | 0.1 | -12 | 0.25 | O/B |
| 0.19 | 0.56 | 0.19 | 0.37 | 0.22 | 0.43 | 0.65 | 0.22 | -14 | 0.38 | O/G |
| 0.25 | 0.75 | 0.25 | 0.5 | 0.29 | 0.58 | 0.86 | 0.29 | -16 | 0.44 | G/Y |
| 0.34 | 1 | 0.34 | 0.67 | 0.38 | 0.77 | 1.2 | 0.38 | -18 | 0.51 | O/Y |
| 0.52 | 1.6 | 0.52 | 1 | 0.6 | 1.2 | 1.8 | 0.6 | -22 | 0.64 | O/W |
| 0.73 | 2.2 | 0.73 | 1.5 | 0.84 | 1.7 | 2.5 | 0.84 | -24 | 0.76 | Bk/Bk |
| 1 | 2.9 | 1 | 2 | 1.1 | 2.3 | 3.4 | 1.1 | -26 | 0.89 | O/O |
| 1.3 | 3.8 | 1.3 | 2.5 | 1.5 | 2.9 | 4.4 | 1.5 | -28 | 1.02 | W/W |
| 1.6 | 4.7 | 1.6 | 3.1 | 1.8 | 3.6 | 5.4 | 1.8 | -30 | 1.14 | R/R |
| 2 | 5.9 | 2 | 3.9 | 2.3 | 4.6 | 6.9 | 2.3 | -32 | 1.3 | GR/GR |
| 2.3 | 6.8 | 2.3 | 4.6 | 2.7 | 5.4 | 8 | 2.7 | -34 | 1.42 | Y/Y |
| 2.6 | 7.7 | 2.6 | 5.1 | 3 | 6 | 9.1 | 3 | -36 | 1.52 | Y/B |
| 2.9 | 8.8 | 2.9 | 5.8 | 3.5 | 6.9 | 10 | 3.5 | -38 | 1.65 | B/B |
| 3.5 | 10 | 3.5 | 7 | 4.2 | 8.4 | 13 | 4.2 | -40 | 1.85 | G/G |
| 4.1 | 12 | 4.1 | 8.2 | 5 | 10 | 15 | 5 | -42 | 2.06 | P/P |
| 4.8 | 14 | 4.8 | 9.5 | 5.8 | 12 | 17 | 5.8 | -44 | 2.29 | P/Bk |
| 5.5 | 16 | 5.5 | 11 | 6.6 | 13 | 20 | 6.6 | -46 | 2.54 | P/O |
| 6.2 | 19 | 6.2 | 12 | 7.4 | 15 | 22 | 7.4 | -48 | 2.79 | P/W |



STEP 2 (continued): Find your desired flow rate and select the catalog number suffix.

Flow ranges (mL/min) with indicated pump system (page 125, 128 and online). Table with columns for flow ranges (78016-00 to 78022-62) and catalog numbers (-10 to -49).

Flow ranges (mL/min) with indicated pump system (pages 124, 127, online). Table with columns for flow ranges (IPC-N models, IPC models, 78002-34 to 78002-90) and catalog numbers (-10 to -49).

How to order 2- and 3-stop tubing. Step 1: Choose a tubing material... Step 2: Find your pump system... Step 3: Complete your system with extension tubing...

†Flow ranges (mL/min) are nominal. Actual flow depends on factors such as occlusion, fluid viscosity, temperature, and pressure.

Pump Tubing for Ismatec® Pumps

Table mapping tubing specifications (ID, OD, Wall) to Tygon® E-Lab, Silicone (peroxide cured), Silicone (platinum cured), Norprene®, and Viton® catalog numbers.

Flow ranges (mL/min) with indicated pump system†† (pages 126-128 and online). Table showing flow ranges for various pump models (78025-00 to 78022-60).

††Note: Lower flow rates achievable with digital drives. †Flow rate with Digital Drive 78002-10; lower flow rate achievable with Programmable Drive 78002-00.



Gaskets for Pharmaceutical Applications

- Wide range of sanitary gaskets, accessories, hygienic seals & specialty gaskets in elastomers and fluoro-elastomers
- Seal clamp connections in sanitary pipe lines and protect products from contamination, spalling, particulates and TOCs
- Protect facilities from unnecessary downtime associated with sanitary hygienic seal failure and replacement
- Provides a standard of consistency of sanitary seal selection between multiple facilities



Standard Tri-Clamp® Gaskets

Available in varied sizes and elastomers including Buna N, EPDM, PTFE, FKM, and platinum silicone.

[See page 132](#)



Screen Gaskets

Fluid filtration screen gaskets are ideal for USP Class VI elastomer or fluoro-elastomer.

[See page 132](#)



Smart Gaskets® & Accessories

Best performer in validating sterility in a high-purity pharmaceutical system.

[See page 133](#)



Tuf-Flex®

A unitized sanitary gasket designed to meet critical requirements in a biopharma, ultra-pure water, WFI and aseptic applications.

[See page 134](#)



Tuf-Steel®

Metal detectable and X-ray inspectable gasket, ideal for sanitary steam and extreme temperature processes.

[See page 134](#)



Biological Indicator Gasket

Saves time when confirming spore kill and enables the use of a self-contained biological indicator.

[Go online](#)



Lock & Label

Provides sanitary system safety, security and identification and reduces risk of accidental steam or product release.

[Go online](#)



Orifice Plates

Enhance system's performance, adjust flow rates, with the use of orifice plate line. Includes solid 316L stainless steel, in standard or tabbed Tri-Clamp®.

[Go online](#)



Ansi-Flex150# Gasket

Ideal for PVC piping and glass lining piping, and applications where low seating stress is required.

[Go online](#)



DIN & ISO Gaskets

In compliance with FDA, USP Class VI requirements to insure the highest purity sealing product available worldwide.

[Go online](#)

1= Excellent 2= Good 3= Acceptable 4= Marginal 5= Poor 0= Do Not Use

| Gasket Comment | Continuous steam | Intermittent steam | Pure water ambient | Pure water hot | Process fluids ambient | Process fluids hot | Process fluids variables (<0°C to >100°C) | Temperature range |
|---|------------------|--------------------|--------------------|----------------|------------------------|--------------------|---|-------------------|
| Tuf-Flex®/Ansi-Flex Maintains seal with wide temperature variations. Has extended service life.** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -20°F to 300°F |
| Tuf-Steel® Maintains seal with wide temperature variations. Has extended service life.** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -320°F to 550°F |
| PTFE Wide temperature variation and may cause leakage at ΔT. | 1 | 1 | 1 | 1 | 1 | 1 | 3 | -100°F to 500°F |
| Silicone (platinum) Very flexible very low temperature. | 2 | 2 | 2 | 2 | 2 | 2 | 1 | -40°F to 450°F |
| FKM Fluoroelastomer Acceptable for steam applications. | 2 | 2 | 2 | 2 | 2 | 2 | 2 | -30°F to 400°F |
| EPDM (peroxide cured) Low pressure steam only. | 3 | 3 | 3 | 3 | 3 | 3 | 3 | -30°F to 300°F |
| Buna N* Not recommended for strong acids and ozone. | 0 | 0 | 5 | 5 | 5 | 5 | 5 | -30°F to 200°F |

*Buna N does not pass U.S. Pharmacopia Class VI Certificate and Cytotoxicity and is not ADI free. **Application dependent

Cole-Parmer® Gaskets for Tri-Clamp® Sanitary Fittings

Ensure a tight seal

- Meet FDA CFR Title 21 CFR 177.2600, USDA, 3A, and cGMP criteria
- Silicone, EPDM, FKM, and PTFE gaskets are free of animal-derived ingredients and meet USP Class VI, EP 3.1.9, and cytotoxicity criteria

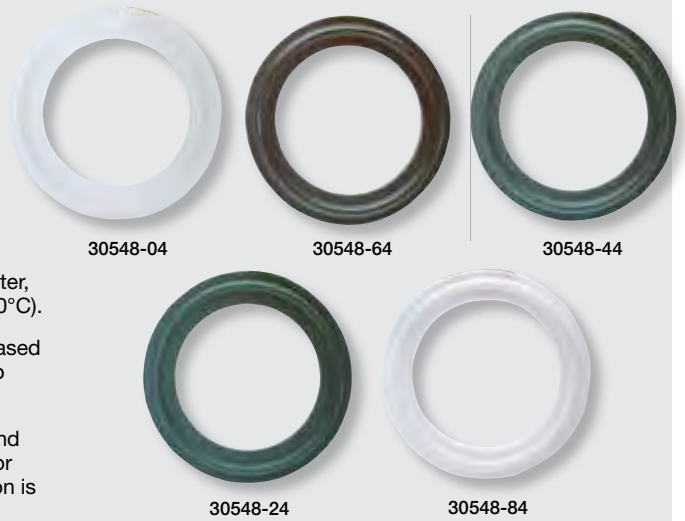
Platinum-Cured Silicone is ideal for most pharmaceutical, food, and beverage processing applications. Odorless and tasteless to ensure media purity. Usable from –58 to 446°F (–50 to 230°C).

EPDM offers good chemical resistance. An economical choice for water, acetone, or ketone applications. Usable from –65 to 212°F (–54 to 100°C).

Buna N offers good chemical resistance, particularly for petroleum-based products or cold water. Usable over a range from –65 to 275°F (–54 to 135°C).

FKM offers excellent chemical resistance, especially to many acids and alkalis. Best choice for many pharmaceutical, chemical, automotive, or fuel applications. Usable from –25 to 400°F (–32 to 204°C). Sterilization is not recommended.

PTFE offers excellent chemical compatibility. Highly resistant to stress cracking and corrosion. Usable from –450 to 550°F (–268 to 288°C).



ANIMAL DERIVED
INGREDIENT FREE

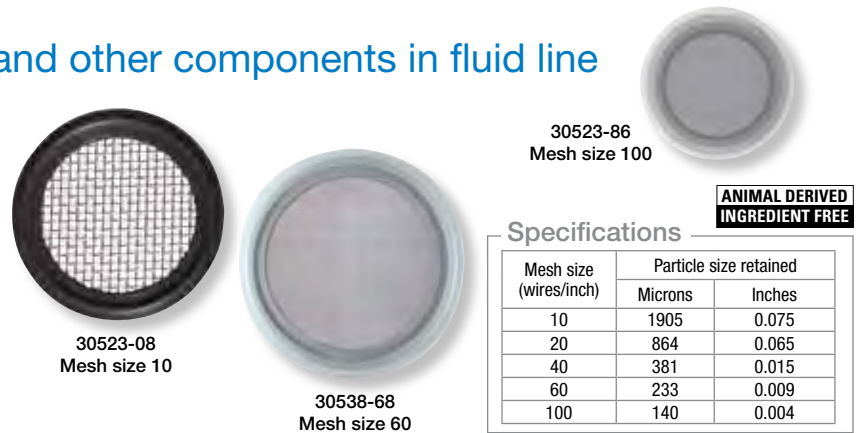
| Size | Platinum-cured silicone | EPDM | Buna N | FKM | PTFE |
|--------|-------------------------|----------------|----------------|----------------|----------------|
| | Catalog number | Catalog number | Catalog number | Catalog number | Catalog number |
| 1/2" | JB-16011-61 | JB-16011-62 | JB-16011-63 | JB-16011-64 | JB-16011-65 |
| 3/4" | JB-30548-00 | JB-30548-60 | JB-30548-40 | JB-30548-20 | JB-30548-80 |
| 1" | JB-30548-02 | JB-30548-62 | JB-30548-42 | JB-30548-22 | JB-30548-82 |
| 1 1/2" | JB-30548-04 | JB-30548-64 | JB-30548-44 | JB-30548-24 | JB-30548-84 |
| 2" | JB-30548-06 | JB-30548-66 | JB-30548-46 | JB-30548-26 | JB-30548-86 |
| 2 1/2" | JB-30548-08 | JB-30548-68 | JB-30548-48 | JB-30548-28 | JB-30548-88 |

Screen Gaskets

Protect your pump, valves, and other components in fluid line

- Prefilter before critical membrane filters
- Generate turbulence for enhanced mass or heat transfer
- Purify in chromatography applications

Screen gaskets are designed to be interchangeable with standard sanitary clamp gaskets. Available in platinum-cured silicone, FKM, and PTFE; screen mesh is constructed of 316L stainless steel. Gaskets meet USP Class VI, FDA CFR Title 21 Section 177.2600, USDA, 3-A, and cGMP criteria and are free of animal-derived ingredients.



ANIMAL DERIVED
INGREDIENT FREE

Specifications

| Mesh size (wires/inch) | Particle size retained | |
|------------------------|------------------------|--------|
| | Microns | Inches |
| 10 | 1905 | 0.075 |
| 20 | 864 | 0.065 |
| 40 | 381 | 0.015 |
| 60 | 233 | 0.009 |
| 100 | 140 | 0.004 |

Platinum-Cured Silicone is an ideal choice for pharmaceutical, high-purity water, injectable, food, and beverage applications. Resists adhesion; tasteless/odorless; plasticizer-free. Usable from –58 to 446°F (–50 to 230°C). Sanitize in place at up to 30 psi and up to 235°F (123°C).

FKM offers excellent chemical resistance. Applications include pharmaceutical, chemical, automotive, and fuel lines. Easy to install yet durable; resists hardening and embrittlement. Usable from –25 to 400°F (–32 to 204°C). Sterilization is not recommended.

PTFE offers excellent chemical resistance. Resists high temperatures. Commonly used in pharmaceutical, food, and chemical applications. Usable from –450 to 550°F (–268 to 288°C).

| Size | Mesh | | | | |
|--|-------------|-------------|-------------|-------------|-------------|
| | 10 | 20 | 40 | 60 | 100 |
| Platinum-cured silicone gaskets | | | | | |
| 1/2" | — | JB-30523-20 | JB-30523-40 | JB-30523-60 | JB-30523-80 |
| 3/4" | — | JB-30523-22 | JB-30523-42 | JB-30523-62 | JB-30523-82 |
| 1" | JB-30523-04 | JB-30523-24 | JB-30523-44 | JB-30523-64 | JB-30523-84 |
| 1 1/2" | JB-30523-06 | JB-30523-26 | JB-30523-46 | JB-30523-66 | JB-30523-86 |
| 2" | JB-30523-08 | JB-30523-28 | JB-30523-48 | JB-30523-68 | JB-30523-88 |
| FKM gaskets | | | | | |
| 1/2" | — | JB-30536-20 | JB-30536-40 | JB-30536-60 | JB-30536-80 |
| 3/4" | — | JB-30536-22 | JB-30536-42 | JB-30536-62 | JB-30536-82 |
| 1" | JB-30536-04 | JB-30536-24 | JB-30536-44 | JB-30536-64 | JB-30536-84 |
| 1 1/2" | JB-30536-06 | JB-30536-26 | JB-30536-46 | JB-30536-66 | JB-30536-86 |
| 2" | JB-30536-08 | JB-30536-28 | JB-30536-48 | JB-30536-68 | JB-30536-88 |
| PTFE gaskets | | | | | |
| 1/2" | — | JB-30538-20 | JB-30538-40 | JB-30538-60 | JB-30538-80 |
| 1" | JB-30538-04 | JB-30538-24 | JB-30538-44 | JB-30538-64 | JB-30538-84 |
| 1 1/2" | JB-30538-06 | JB-30538-26 | JB-30538-46 | JB-30538-66 | JB-30538-86 |
| 2" | JB-30538-08 | JB-30538-28 | JB-30538-48 | JB-30538-68 | JB-30538-88 |

Smart Gasket® Thermocouple Gaskets

Take samples or readings from a sanitary flow

- Measure temperature, take a sample, or dose chemicals into your process line
- Install in between two sanitary fittings
- Validate sterility in a high-purity pharmaceutical system

The Smart Gasket is used as a standard sanitary gasket with standard Tri-Clamp® fittings. The gaskets have moulded ports that allow either a thermocouple or sampling tube to be inserted into the line. Thermocouple gaskets obtain the critical thermal mapping information needed during the validation process.

Meet high pharmaceutical standards: US Pharmacopeia Class VI Certification, Cytotoxicity Criteria, CFR Title 21 Section 177.2600, Traceability: Lot and Batch, Certification: Lot and Batch, ASME-BPE Standards, USDA Standards, 3-A Sanitary Standards, Current Good Manufacturing Practices (CGMP), Animal Derived Ingredient Free

| Clamp size | Material | 1 Port | 2 Ports | 3 Ports | 4 Ports |
|------------|--------------|----------------|----------------|----------------|----------------|
| | | Catalog number | Catalog number | Catalog number | Catalog number |
| 1/2" | Pt. silicone | JB-30542-00 | JB-30543-00 | JB-30544-00 | JB-30545-00 |
| | EPDM | JB-30542-01 | JB-30543-01 | JB-30544-01 | JB-30545-01 |
| | FKM | JB-30542-02 | JB-30543-02 | JB-30544-02 | JB-30545-02 |
| 3/4" | Pt. silicone | JB-30542-04 | JB-30543-04 | JB-30544-04 | JB-30545-04 |
| | EPDM | JB-30542-05 | JB-30543-05 | JB-30544-05 | JB-30545-05 |
| | FKM | JB-30542-06 | JB-30543-06 | JB-30544-06 | JB-30545-06 |
| 1" | Pt. silicone | JB-30542-08 | JB-30543-08 | JB-30544-08 | JB-30545-08 |
| | EPDM | JB-30542-09 | JB-30543-09 | JB-30544-09 | JB-30545-09 |
| | FKM | JB-30542-10 | JB-30543-10 | JB-30544-10 | JB-30545-10 |
| 1 1/2" | Pt. silicone | JB-30542-12 | JB-30543-12 | JB-30544-12 | JB-30545-12 |
| | EPDM | JB-30542-13 | JB-30543-13 | JB-30544-13 | JB-30545-13 |
| | FKM | JB-30542-14 | JB-30543-14 | JB-30544-14 | JB-30545-14 |
| 2" | Pt. silicone | JB-30542-16 | JB-30543-16 | JB-30544-16 | JB-30545-16 |
| | EPDM | JB-30542-17 | JB-30543-17 | JB-30544-17 | JB-30545-17 |
| | FKM | JB-30542-18 | JB-30543-18 | JB-30544-18 | JB-30545-18 |



Find Thermocouples on next page...

Smart Gasket® Gaskets with Spore Trap

Prevent loss of spore test strips in process system

- Safe to use and easy to install into your sanitary systems
- Also available with one port; call for details

Gasket securely retains and accurately exposes spore challenge test strips for use in steam sterilization when validating. After each validation cycle, the spore trap, with its securely retained test strip, can easily be removed and rechallenge. Use with the spore trap slotted hinge clamps; order separately online.



| Clamp size | Material | No. of ports | Catalog number |
|-------------|----------|--------------|----------------|
| 1 to 1 1/2" | EPDM | 0 | JB-15960-90 |
| 2" | EPDM | 0 | JB-15960-91 |
| 3" | EPDM | 0 | JB-15960-92 |
| 4" | EPDM | 0 | JB-15960-93 |



Smart Gasket® Clamps

The Smart Gasket clamps are required with the gaskets because they have slots in them that allow for the different number of ports. The clamps are specific to the number of ports on the gasket.

| Clamp size | Material | 1 Port | 2 Ports | 3 Ports | 4 Ports |
|------------|---------------------|----------------|----------------|----------------|----------------|
| | | Catalog number | Catalog number | Catalog number | Catalog number |
| 1/2" | 304 Stainless steel | JB-30542-03 | JB-30543-03 | JB-30544-03 | JB-30545-03 |
| 3/4" | | JB-30542-07 | JB-30543-07 | JB-30544-07 | JB-30545-07 |
| 1" | | JB-30542-11 | JB-30543-11 | JB-30544-11 | JB-30545-11 |
| 1 1/2" | | JB-30542-15 | JB-30543-15 | JB-30544-15 | JB-30545-15 |
| 2" | | JB-30542-19 | JB-30543-19 | JB-30544-19 | JB-30545-19 |



Thermocouples for use with Smart Gasket® Gaskets on page 133

These thermocouples allow you to obtain critical thermal mapping information needed in the validation process. Flexible thermocouple wire allows you to take a reading in the line, away from the connection. The solid thermocouple probe will take a reading in the center of the flow stream. Other thermocouple types are available; call for more information.

JB-30545-90 Temperature probe, Type K, short probe (7/32") with 3-ft (1.0-m) cable

JB-30545-91 Temperature probe, Type K, long probe (1 1/4") with 3-ft (1.0-m) cable

JB-08516-82 Thermocouple wire, FEP coated, Type K, 10 ft (3.0 m)

JB-30545-94 Extension wire, Type K, 1.0 m

JB-30545-95 Extension wire, Type K, 1.8 m

JB-30545-97 Extension wire, Type K, 3.6 m

JB-30545-98 Hole plug

JB-30545-99 Sampling tube

JB-41507-01 Stopcock



30545-91

30545-90

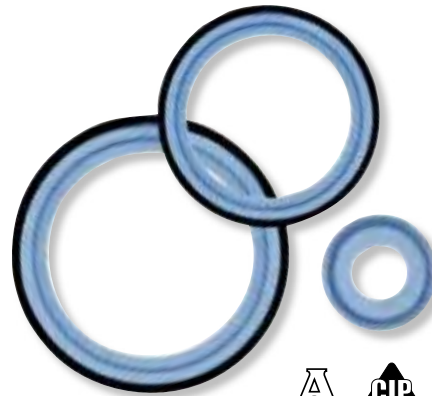
Tuf-Flex® Speciality Gaskets

Achieve higher results under CIP/SIP conditions

- Unites the flexibility of an elastomer with the chemical resistance of PTFE
- Totally unitized, perfectly sealed
- Leak-proof performance and superior creep resistance
- Excellent chemical resistance and minimal thermal expansion
- Outstanding service life and increased uptime

Tuf-Flex gasket gives high performance with exceptional purity because its elastomer core is protected by a unitized layer of PTFE. Designed to meet critical requirements in pharmaceutical, biotechnology, ultrapure water, WFI (water-for-injection), CIP/SIP. Temperature rating: -20 to 300°F (-28 to 148°C).

Tuf-Flex® Meets Stringent Standards: US Pharmacopeia Class VI Certification, Cytotoxicity Criteria, Title 21 CFR 177.2600 and 177.1550, 3-A Certified, USDA Sanitary Standards, Current Good Manufacturing Practices (CGMP), ASME-BPE Standards, Animal Derived Ingredient Free (ADI Free)



| Size | Catalog number |
|--------|--------------------|
| 1/2" | JB-30547-50 |
| 3/4" | JB-30547-52 |
| 1" | JB-30547-54 |
| 1 1/2" | JB-30547-56 |
| 2" | JB-30547-58 |
| 2 1/2" | JB-30547-60 |

Tuf-Steel® Speciality Gaskets

Take samples or readings from a sanitary line

- Superior creep resistance
- Excellent expansion/contraction stability with minimal thermal expansion
- Excellent chemical resistance

A metal-detectable gasket, composed of a unique proprietary blend of PTFE and 316L stainless steel, gives leak-proof performance and outstanding durability in steam applications. Ideal for sanitary steam pipe connections in extreme temperature applications, with temperatures ranging from -350 to 550°F (-212 to 287°C).

Tuf-Steel® Meets Stringent Standards: US Pharmacopeia Class VI Certification, Cytotoxicity Criteria, USDA and 3-A Sanitary Standards, Current Good Manufacturing Practices (CGMP), ASME-BPE Standards, Animal Derived Ingredient Free (ADI Free)

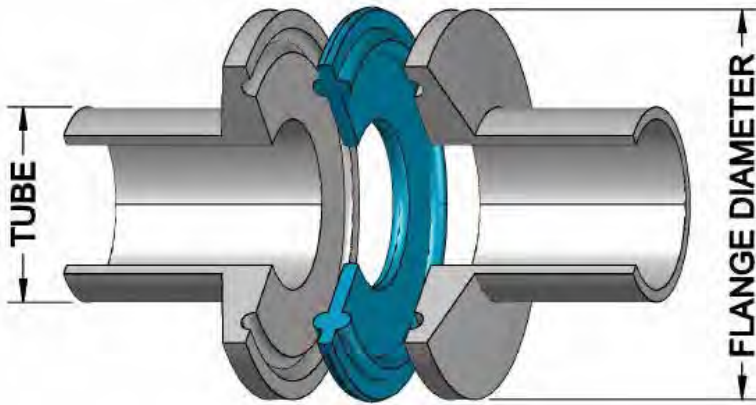


| Size | Catalog number |
|--------|--------------------|
| 1/2" | JB-30547-00 |
| 3/4" | JB-30547-02 |
| 1" | JB-30547-04 |
| 1 1/2" | JB-30547-06 |
| 2" | JB-30547-08 |
| 2 1/2" | JB-30547-10 |

Tri-Clamp® Sizing Guide

for Gaskets & Hoses

Actual Sizing on next page ▶



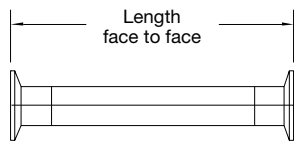
- **Tri-Clamp (TC)** is a commonly used term for the sanitary fittings with a clamp and ferrule in process applications.
- **TC Size** is governed by the Tube OD and not by the TC/Flange OD.

| Hose/Gasket size (inch) | TC Size (inch) | Tube OD (inch) | Tube OD* (mm) | TC/Flange OD (inch) | TC/Flange OD (mm) |
|-------------------------|----------------|----------------|---------------|---------------------|-------------------|
| 1/2" | 1/2" | 1/2" | 12.7 | 0.984" | 25 |
| 3/4" | 3/4" | 3/4" | 19.05 | 0.984" | 25 |
| 1" | 1" | 1" | 25.4 | 1.984" | 50.39 |
| 1 1/2" | 1 1/2" | 1 1/2" | 38.1 | 1.984" | 50.39 |
| 2" | 2" | 2" | 50.8 | 2.516" | 63.91 |
| 2 1/2" | 2 1/2" | 2 1/2" | 63.5 | 3.047" | 77.39 |
| 3" | 3" | 3" | 76.2 | 3.579" | 90.91 |
| 4" | 4" | 4" | 101.6 | 4.682" | 118.92 |

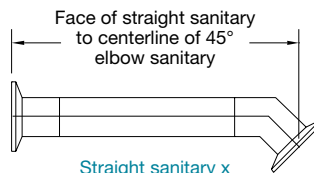
Hose Length Measurements

Length of flexible hose assembly with TC ends is measured from end to end.

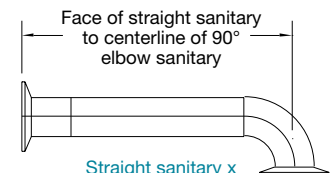
The following illustrations show how to measure the overall length (OAL) of Flexible Components hose assemblies, including 45° and 90° elbow fittings. **Rotation Note:** When ordering double elbow hose assemblies, angular orientation between the elbows is to be mentioned in degrees.



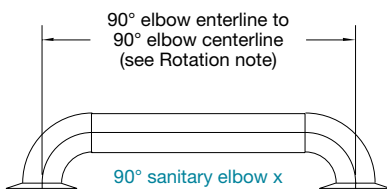
Straight sanitary x straight sanitary



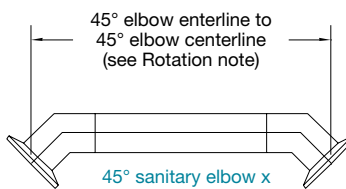
Straight sanitary x 45° elbow sanitary



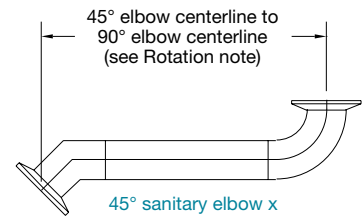
Straight sanitary x 90° elbow



90° sanitary elbow x 90° sanitary elbow



45° sanitary elbow x 45° sanitary elbow

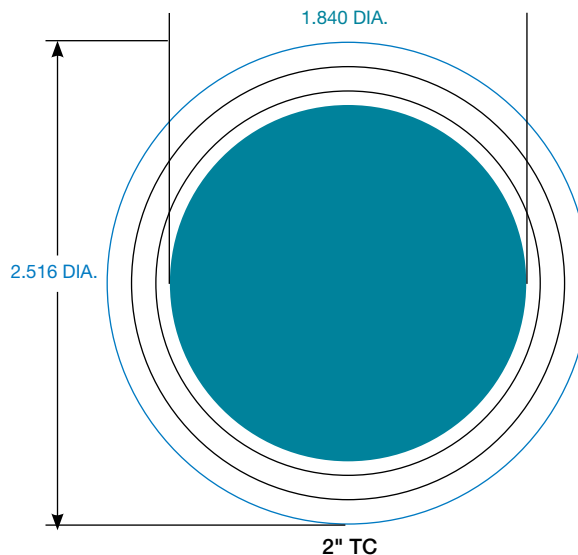
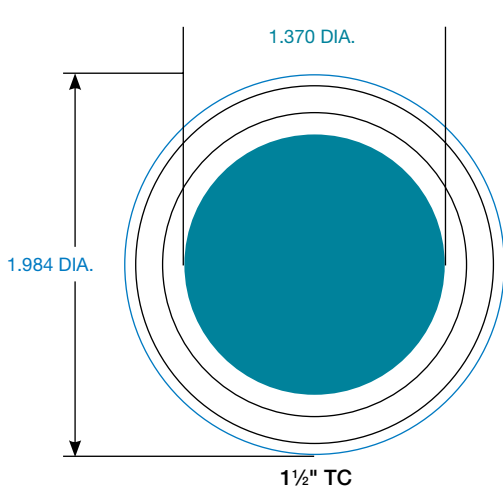
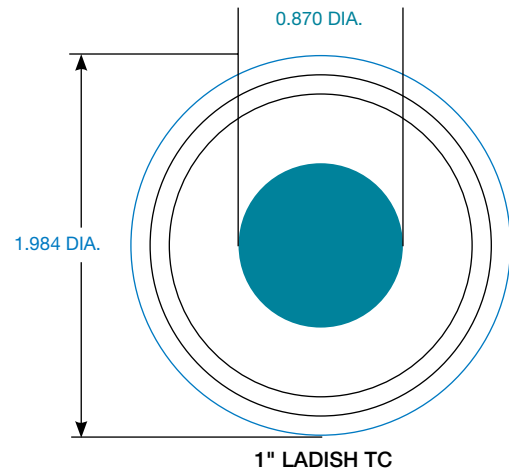
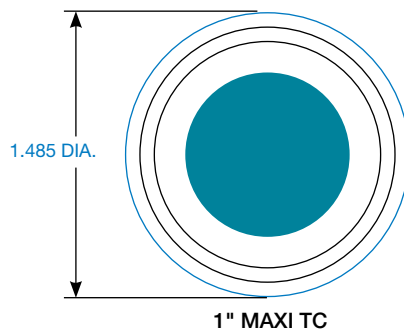
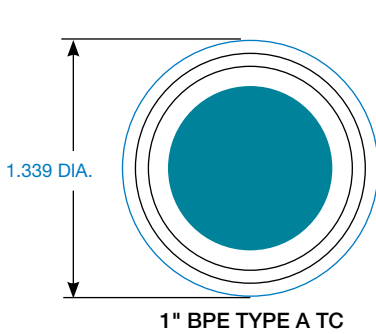
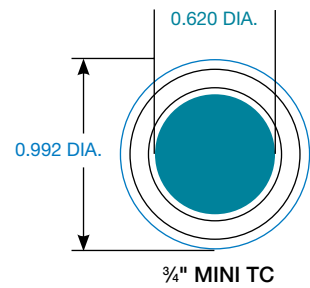
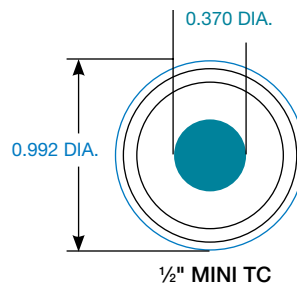
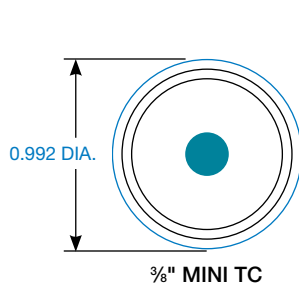
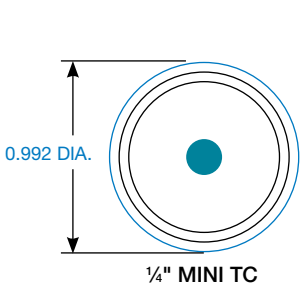
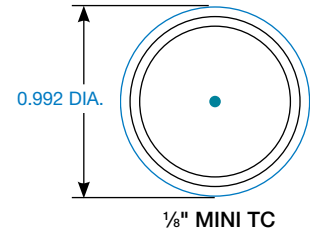


45° sanitary elbow x 90° sanitary elbow

Tri-Clamp® Sizing Guide

Actual Sizing

- These actual size drawings are provided to eliminate sizing errors when specifying sanitary fittings and gaskets.
- For your convenience and ordering accuracy, all these drawings may be used as sizing ID and OD patterns.
- The outside diameter is the same for TC sizes $\frac{1}{2}$ " and $\frac{3}{4}$ ". The same holds true for the 1" and $1\frac{1}{2}$ " TC sizes. TC sizes 2", $2\frac{1}{2}$ ", 3" and 4" ID have specific OD diameters.





Tygon® 3370 I.B. Braid-Reinforced Silicone Hose

Commonly specified in the most pharmaceutical applications requiring sanitary fluid transfer, suitable for CIP and SIP cycles. *See page 138.*



Sani-Tech® STHT®-WR Wire-Reinforced Silicone Hose

Constructed of multi-ply reinforcement and 316L stainless steel helical wire, suitable for high-pressure ratings with full vacuum capabilities. *See page 139.*



Sani-Tech® STHT®-R Braid Reinforced Silicone Hose

An ultra-flexible, high-purity hose that was developed for higher pressure applications. *See page 140.*



Sani-Tech® STHT®-W Wire-Reinforced Silicone Hose

Wrapped with multi-ply reinforcement and 316L stainless steel helical wire, designed for vacuum and tight bend radius applications. *See page 140.*



Sani-Tech® Ultra-HP High-Purity Silicone Hose

Most suitable for bioprocessing and product transfer applications. *See page 142.*



PharmaSmooth™ FEP Fluoropolymer Hose

A flexible hose covered with EPDM rubber, with high-purity, ultra-smooth inner bore surface suitable in pharmaceutical production. *See page 143.*



TLCT Chemfluor® FEP Fluoropolymer Hose

Excellent chemical resistance minimizes the corrosive effects of transferred media. *See page 143.*



TS and TSS Series Chemfluor® Inner PTFE Hose

Have superior kink resistance, improved vacuum ratings and better damage resistance. *See page 144.*

Hoses for Sanitary Fluid Transfer

- A wide range of platinum-cured silicon and fluoropolymer hoses and hose assembly with crimped end fittings, used in sanitary fluid transfer, pharma-biopharma manufacturing and process lines
- Lot number traceability with documentation
- Custom length with crimped sanitary Tri-Clamp® end fittings can be made available as per requirement



Tygon® 3370 I.B. Braid-Reinforced Silicone Hose Designed to maintain fluid purity under pressure

Tygon 3370 I.B. silicone hose is frequently specified in the most demanding applications requiring sanitary transfer of fluids. Its smooth inner surface reduces the risk of particle entrapment and inhibits microscopic bacterial buildup. Cleaning and sterilization cycles also may become more effective from this smooth inner surface by helping to prevent excessive residue buildup during use. Additionally, an improvement in fluid flow characteristics may occur from the reduced surface area and lowered absorption of fluids to the wall.

Tygon 3370 I.B. can easily withstand repeated CIP and SIP cleaning and sterilization cycles, making it ideal for repeat-use applications. Its flexibility, durability, chemical, and temperature resistance provide a unique combination of characteristics required in many pharmaceutical, biotechnology, laboratory, food, beverage, cosmetic, environmental, and industrial applications.

Characteristics

Tygon 3370 I.B. silicone hose is produced from a platinum curing process to meet the demanding requirements of biocompatibility. In-house extractability tests have shown that Tygon 3370 I.B. hose has a low extractable content. Lower extractables help to maintain the purity of transported fluids in sensitive applications.

Biocompatibility

Tygon 3370 I.B. hose complies fully with the requirements of the USP Class VI Criteria and is entirely nontoxic, non-hemolytic, and nonpyrogenic. Continued monitoring of the hose also ensures minimal bioburden levels are maintained. Tygon 3370 I.B. hose also meets 3-A Sanitary Standard No. 18-01 and FDA 21 CFR Part 177.2600 Criteria.

Features/Benefits

- Withstands repeated CIP and SIP cleaning and sterilization
- Custom colour striping available



APPLICATIONS

- ✓ Sterile filling
- ✓ Media dispensing
- ✓ Bioreactor process lines
- ✓ Water purification systems
- ✓ Food and dairy processing
- ✓ Diagnostic test product manufacturing
- ✓ Sanitary fitting assembly

Specifications

Sterilization

Autoclavable: yes
Gas: ethylene oxide
Radiation: up to 2.5 MRad



| Physical properties | ASTM Method | Value or rating |
|---|---------------|-----------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 70 |
| Tensile strength, psi (MPa) | D412 | 1,200 (8.3) |
| Ultimate elongation, % | D412 | 500 |
| Tear resistance, lb-f/inch (kN/m) | D624 Die B | 250 (44) |
| Specific gravity | D792 | 1.18 |
| Water absorption, % 24 hrs @ 23°C (73°F) | D570 | 0.11 |
| Compression set constant deflection, % @ 70°C (158°F) for 22 hrs @ 175°C (347°F) for 22 hrs | D395 Method B | 3 10 |
| Brittleness by impact temperature | D746 | -80°C (-112°F) |
| Max recommended operating temperature | — | 160°C (320°F) |
| Dielectric strength, v/mil (kV/mm) | D149 | 600 (24) |
| Tensile modulus, 200% psi (MPa) | D412 | 650 (4.5) |
| Tensile set, % | D412 | 25 |
| Colour | — | Translucent |

Sizes Available

| ID (inch) | ID (mm) | OD (inch) | OD (mm) | Wall (inch) | Wall (mm) | Max working pressure, psi | | Vacuum rating, in. of mercury | | Length (ft) | Model number | Catalog number |
|-----------|---------|-----------|---------|-------------|-----------|---------------------------|----------|-------------------------------|----------|-------------|--------------|----------------|
| | | | | | | at 23°C | at 160°C | at 23°C | at 160°C | | | |
| 0.187 | 4.76 | 0.443 | 11.25 | 0.127 | 3.24 | 170 | 125 | 30 | 30 | 50 | AHJ001718 | JB-95703-00 |
| 0.25 | 6.35 | 0.515 | 13.08 | 0.132 | 3.37 | 150 | 105 | 30 | 30 | 50 | AHJ001719 | JB-95703-01 |
| 0.375 | 9.53 | 0.687 | 17.45 | 0.156 | 3.96 | 130 | 95 | 30 | 30 | 50 | AHJ001720 | JB-95703-02 |
| 0.5 | 12.70 | 0.847 | 21.51 | 0.173 | 4.41 | 125 | 90 | 30 | 30 | 50 | AHJ001721 | JB-95703-03 |
| 0.625 | 15.88 | 0.98 | 24.89 | 0.177 | 4.51 | 110 | 80 | 30 | 30 | 50 | AHJ001722 | JB-95703-04 |
| 0.75 | 19.05 | 1.15 | 29.21 | 0.2 | 5.08 | 100 | 75 | 30 | 30 | 50 | AHJ001671 | JB-95703-05 |
| 1.25 | 31.75 | 1.636 | 41.55 | 0.193 | 4.90 | 55 | 40 | 10 | 5 | 25 | AHJ421725 | JB-95703-07 |
| 2 | 50.80 | 2.427 | 61.65 | 0.213 | 5.42 | 20 | 12 | 0 | 0 | 25 | AHJ421798 | JB-15947-01 |

Tygon® 3370 I.B. Hose with Sanitary Tri-Clamp® End Fittings

- Crimped sanitary Tri-Clamp end fittings in 316L stainless steel with material test certificate

- End connection surface finish with certificate: internal Ra ≤ 0.4 µm

- Hydro test certificate for hose assembly

- Additional lengths and end connections available—contact an Application Specialist



| Overall length | Hose ID and Tri-Clamp size | | | | |
|----------------|----------------------------|----------------|----------------|----------------|----------------|
| | 0.5" | 0.75" | 1" | 1.5" | 2" |
| | Catalog number | Catalog number | Catalog number | Catalog number | Catalog number |
| 0.5 m | JB-16012-05 | JB-16012-40 | JB-16012-75 | JB-16013-10 | JB-16013-45 |
| 1 m | JB-16012-10 | JB-16012-45 | JB-16012-80 | JB-16013-15 | JB-16013-50 |
| 1.5 m | JB-16012-15 | JB-16012-50 | JB-16012-85 | JB-16013-20 | JB-16013-55 |
| 2 m | JB-16012-20 | JB-16012-55 | JB-16012-90 | JB-16013-25 | JB-16013-60 |
| 3 m | JB-16012-25 | JB-16012-60 | JB-16012-95 | JB-16013-30 | JB-16013-65 |

Sani-Tech® STHT®-WR Wire-Reinforced Silicone Hose

Ultra-flexible, high-pressure platinum-cured silicone hose

Sani-Tech STHT-WR platinum-cured silicone, wire-reinforced hose, constructed of multi-ply reinforcement and 316L stainless steel helical wire, provides unsurpassed flexibility while maintaining high-pressure ratings with full vacuum capabilities. Manufactured with an ultra-pure, biopharmaceutical-grade silicone to ensure your process integrity.

Characteristics

The manufacturing process is carefully controlled from receiving through production. Inspection and lot traceability information is readily accessible as batch numbers are assigned. All packages are identified by external labeling on both the bag and crush-proof box. Variety of unique colour-coding systems for your particular application needs possible.

Biocompatibility

Sani-Tech STHT-WR is manufactured from the finest grade of silicone materials and is fully characterized, validated, and tested to a variety of specifications including USP Class VI criteria, ISO 10993 and European Pharmacopoeia 3.1.9. Sani-Tech STHT-WR platinum-cured braid-reinforced silicone hose has a Master File with the US Food and Drug Administration.

Features/Benefits

- Biopharmaceutical grade
- Ultra-flexible bend radius
- Autoclavable and sterilizable
- Temperature range from –62 to 260°C (–80 to 500°F)
- Custom colour-coding available
- High pressure and vacuum rating
- Lot number traceability



APPLICATIONS

- ✓ Biopharmaceutical manufacturing
- ✓ Pharmaceutical processing and production
- ✓ Vacuum pump applications
- ✓ Bulk transfer
- ✓ Load cell
- ✓ Bioreactor process lines
- ✓ Production fermentation

Specifications

Sterilization

Autoclavable: yes
Gas: ethylene oxide
Radiation: up to 25 kGy



| Physical properties | ASTM Method | Value or rating |
|-------------------------------------|-------------|-----------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 65 |
| Tensile strength, psi | D412 | 1291 |
| Ultimate elongation, 100% | D412 | 693 |
| Tear resistance, lb-f/inch | D624 | 329 |
| Specific gravity | D792 | 1.19 |
| Tensile modulus | D412 | 351 |

Sizes Available

| ID (inch) | ID (mm) | OD (inch) | OD (mm) | Wall (inch) | Wall (mm) | Minimum bend radius (inch) | Recommended working pressure, psi at 20°C | Minimum burst pressure, psi at 20°C | Length (ft) | Model number | Catalog number |
|-----------|---------|-----------|---------|-------------|-----------|----------------------------|---|-------------------------------------|-------------|--------------|--------------------|
| 0.5 | 12.70 | 0.92 | 23.37 | 0.210 | 5.33 | 1.50 | 150 | 600 | 25 | STHT-WR-0500 | JB-15943-62 |
| 0.75 | 19.05 | 1.19 | 30.23 | 0.220 | 5.59 | 2.50 | 125 | 500 | 25 | STHT-WR-0750 | JB-15943-63 |
| 1 | 25.40 | 1.45 | 36.83 | 0.225 | 5.72 | 4.00 | 125 | 500 | 25 | STHT-WR-1000 | JB-15943-64 |
| 1.5 | 38.10 | 2.16 | 54.86 | 0.330 | 8.38 | 5.50 | 125 | 500 | 25 | STHT-WR-1500 | JB-15943-65 |
| 2 | 50.80 | 2.69 | 68.33 | 0.345 | 8.76 | 7.00 | 100 | 400 | 25 | STHT-WR-2000 | JB-15943-66 |

Sani-Tech® STHT®-WR Hose with Sanitary Tri-Clamp® End Fittings

- Crimped sanitary Tri-Clamp end fittings in 316L stainless steel with material test certificate
- End connection surface finish with certificate: internal Ra ≤ 0.4 µm
- Hydro test certificate for hose assembly
- Additional lengths and end connections available—contact an Application Specialist



| Overall length | Hose ID and Tri-Clamp size | | | | |
|----------------|----------------------------|--------------------|--------------------|--------------------|--------------------|
| | 0.5" | 0.75" | 1" | 1.5" | 2" |
| | Catalog number | Catalog number | Catalog number | Catalog number | Catalog number |
| 0.5 m | JB-16014-85 | JB-16015-20 | JB-16015-55 | JB-16015-90 | JB-16016-25 |
| 1 m | JB-16014-90 | JB-16015-25 | JB-16015-60 | JB-16015-95 | JB-16016-30 |
| 1.5 m | JB-16014-95 | JB-16015-30 | JB-16015-65 | JB-16016-56 | JB-16016-35 |
| 2 m | JB-16015-00 | JB-16015-35 | JB-16015-70 | JB-16016-05 | JB-16016-40 |
| 3 m | JB-16015-05 | JB-16015-40 | JB-16015-75 | JB-16016-10 | JB-16016-45 |

Sani-Tech® STHT®-R Braid-Reinforced and STHT®-W Wire-Reinforced Silicone Hose

Reinforced platinum-cured silicone hose for high pressure ratings

Sani-Tech STHT-R platinum-cured braid-reinforced silicone hose is an ultra-flexible, high-purity hose that was developed for higher pressure applications. It is manufactured with Sani-Tech 65 brand silicone resin. Sani-Tech STHT-R platinum-cured silicone hose resists temperature extremes, ozone, corona, radiation, moisture, compression sets, weathering, and chemical attack and imparts no taste or odors to fluids transported within it. Hose withstands repeated autoclaving and resists the adherence of blood products and other sanitary fluids.

Sani-Tech STHT-W platinum-cured wire-reinforced silicone hose is wrapped with multi-ply reinforcement and 316L stainless steel helical wire. This tubing, manufactured with an extruded homogeneous silicone tubing ID to ensure product integrity, is designed for vacuum and tight bend radius applications.

Characteristics

The manufacturing process is carefully controlled from receiving through production. Inspection and lot traceability information is readily accessible as batch numbers are assigned. All packages are identified by external labeling on both the bag and crush-proof box.

Biocompatibility

Sani-Tech STHT-R and STHT-W are manufactured from the finest grade of silicone materials and are fully characterized, validated, and tested to a variety of specifications including USP Class VI criteria, FDA CFR 177.2600, ISO 10993, and European Pharmacopoeia 3.1.9. Sani-Tech STHT-R and STHT-W platinum-cured silicone hose have a Master File with the US Food and Drug Administration.

Features/Benefits

- High pressure rating
- Excellent bend radius
- Autoclavable and sterilizable
- Temperature range from -62 to 260°C (-80 to 500°F)
- Lot number traceability
- Custom colour-coding available

Hose assembly with Sanitary Tri-clamp end fittings is available. Please contact our application experts.



Sani-Tech STHT-R

- ✓ Load cell
- ✓ Pump applications
- ✓ Cell cultures
- ✓ Vessel or tank transfer
- ✓ Laboratory use



Sani-Tech STHT-W

- ✓ Pharmaceutical processing
- ✓ Biotechnology
- ✓ Vacuum pump applications
- ✓ Bulk transfer
- ✓ Load cell

Specifications

Sterilization

Autoclavable: yes
Gas: ethylene oxide
Radiation: up to 2.5 MRad



| Physical properties | ASTM Method | STHT-R | STHT-W |
|-------------------------------------|-------------|-----------------|-----------------|
| | | Value or rating | Value or rating |
| Durometer hardness, Shore A, 15 sec | D2240 | 65 | 65 |
| Tensile strength, psi | D412 | 1376 | 1291 |
| Ultimate elongation, 100% | D412 | 668 | 693 |
| Tear resistance, lb-f/inch | D624 | 326 | 329 |
| Specific gravity | D792 | 1.21 | 1.19 |
| Tensile modulus | D412 | 444 | 351 |

| ID (inch) | ID (mm) | OD (inch) | OD (mm) | Wall (inch) | Wall (mm) | Minimum bend radius (inch) | Recommended working pressure, psi at 20°C | Minimum burst pressure, psi at 20°C | Length (ft) | Model number | Catalog number |
|---|---------|-----------|---------|-------------|-----------|----------------------------|---|-------------------------------------|-------------|--------------|--------------------|
| Sani-Tech STHT-R braid-reinforced hose | | | | | | | | | | | |
| 0.062 | 1.57 | 0.272 | 6.91 | 0.105 | 2.67 | — | 200 | 775 | 50 | STHT-R-0062 | JB-15964-65 |
| 0.125 | 3.18 | 0.355 | 9.02 | 0.115 | 2.92 | — | 190 | 775 | 50 | STHT-R-0125 | JB-15964-66 |
| 0.187 | 4.75 | 0.447 | 11.35 | 0.130 | 3.30 | — | 185 | 750 | 50 | STHT-R-0187 | JB-15964-67 |
| 0.25 | 6.35 | 0.5 | 12.70 | 0.125 | 3.18 | 1.00 | 180 | 775 | 50 | STHT-R-0250 | JB-15964-68 |
| 0.375 | 9.53 | 0.625 | 15.88 | 0.125 | 3.18 | 2.00 | 180 | 775 | 50 | STHT-R-0375 | JB-15964-69 |
| 0.5 | 12.70 | 0.875 | 22.23 | 0.188 | 4.76 | 3.00 | 175 | 700 | 50 | STHT-R-0500 | JB-15964-70 |
| 0.625 | 15.88 | 1 | 25.40 | 0.188 | 4.76 | 4.00 | 125 | 500 | 50 | STHT-R-0625 | JB-15964-71 |
| 0.75 | 1.125 | 1.636 | 41.55 | 0.443 | 11.25 | 4.00 | 105 | 425 | 50 | STHT-R-0750 | JB-15964-72 |
| 0.875 | 22.23 | 1.25 | 31.75 | 0.188 | 4.76 | 5.00 | 100 | 400 | 50 | STHT-R-0875 | JB-15964-73 |
| 1 | 25.40 | 1.375 | 34.93 | 0.188 | 4.76 | 6.00 | 75 | 300 | 50 | STHT-R-1000 | JB-15964-74 |
| Sani-Tech STHT-W wire-reinforced silicone hose | | | | | | | | | | | |
| 0.5 | 12.70 | 0.88 | 22.35 | 0.190 | 4.83 | 3 | 150 | 600 | 12 | STHT-W-0500 | JB-15964-75 |
| 0.75 | 19.05 | 1.13 | 28.70 | 0.190 | 4.83 | 4 | 125 | 500 | 12 | STHT-W-0750 | JB-15964-76 |
| 1 | 25.40 | 1.38 | 35.05 | 0.190 | 4.83 | 6 | 125 | 500 | 12 | STHT-W-1000 | JB-15964-77 |
| 1.5 | 38.10 | 1.88 | 47.75 | 0.190 | 4.83 | 8 | 125 | 500 | 12 | STHT-W-1500 | JB-15964-78 |
| 2 | 50.80 | 2.38 | 60.45 | 0.190 | 4.83 | 8 | 100 | 400 | 12 | STHT-W-2000 | JB-15964-79 |
| 2.5 | 63.50 | 2.88 | 73.15 | 0.190 | 4.83 | 9 | 85 | 350 | 12 | STHT-W-2500 | JB-15964-80 |
| 3 | 76.20 | 3.38 | 85.85 | 0.190 | 4.83 | 10 | 75 | 300 | 12 | STHT-W-3000 | JB-15964-81 |
| 4 | 101.60 | 4.38 | 111.25 | 0.190 | 4.83 | 20 | 75 | 300 | 12 | STHT-W-4000 | JB-15964-82 |

Hose Applications in Pharma & Biopharma Processes



Typical Hose Applications:

- CIP/SIP skids
- Manufacturing skids
- Bioreactor process lines
- Bulk transfer
- Load cells and portable tanks transfers
- Isolators
- Vacuum pump applications, etc.

Specifications for Hose Formulations:

- USP Class VI criteria
- USFDA Guidelines
- Steam sterilizable or autoclavable

Platinum-cured silicone and smooth inner bore fluoropolymers meet these specifications, hence widely used with different reinforcement options (braid reinforced, wire reinforced, etc.) based on the application, pressure and temperature conditions.

Common Properties of Platinum-Cured Silicone Hoses:

- Light in weight and flexible
- Excellent bend radius
- Not to be considered for high-pressure applications
- Less chemical resistance as compared to fluoropolymers

Common Properties of Smooth Inner-Bore Fluoropolymers:

- Superior chemical resistance and corrosion resistance
- Mechanically tough, yet flexible
- High pressure ratings than silicon
- Smooth inner bore
- Good erosion resistance
- Low thermal conductivity

Considering the above characteristics, each application is unique, hence we need to consider many parameters to suggest a suitable hose formulation.

- What is the product?
- What is the maximum and operating process temperature?
- What is the maximum and operating process pressure?
- Overview of the application



Need Help Selecting?

Trust our **expert** Application Specialists to help you find the right product.

022-6139-4444 | info@coleparmer.in

Sani-Tech® Ultra-HP High-Purity Silicone Hose

Easy installation in bioprocess applications

NEW

Sani-Tech® Ultra-HP hose is constructed with multiple layers of reinforced Sani-Tech Ultra platinum-cured silicone, 316L stainless steel helical wire reinforcement, and a PharmaFluor® FEP liner. The FEP liner is fully bonded to the silicone hose using a proprietary bonding technology, providing a high purity fluid path. The smooth inner bore surface ensures both optimal flow and ease of cleaning and sanitization. Light weight and exceptional flexibility make this hose very user-friendly. State-of-the-art manufacturing techniques ensure tight dimensional tolerances, making assembly a simple process.

Characteristics

PharmaFluor FEP liner maintains fluid integrity and low binding characteristics, low TOCs, extractables, and leachables. The body and jacket of the hose are constructed with Sani-Tech Ultra platinum-cured silicone. Sani-Tech Ultra formulations are manufactured in a certified cleanroom from the finest grade of silicone materials.

Biocompatibility

Sani-Tech Ultra-HP hose is constructed using 100% USP Class VI compliant materials to provide further security and minimize the risk of contamination. These materials are fully characterized, documented and certified per USP <88>, USP <87>, ISO 10993, FDA 21 CFR 177.1550, FDA 21 CFR 177.2600, and European Pharmacopoeia 3.1.9.

Features/Benefits

- Smooth inner bore for improved cleaning and sanitization
- High-purity materials with low TOCs, extractables and leachables
- Fluoropolymer liner minimizes binding of biological materials
- Helical 316L stainless steel wire enables use under full vacuum
- Broad chemical resistance
- Light weight and flexible
- Low force to bend
- Simple assembly procedure
- Temperature range from –54 to 177°C (–65 to 350°F)
- Meets all USP Class VI, EP 3.1.9, FDA, and ISO criteria



APPLICATIONS

- ✓ Bioprocessing
- ✓ Product transfer
- ✓ Load cells
- ✓ SIP/CIP

Specifications

Sterilization

Autoclavable: yes
Gas: ethylene oxide
Radiation: up to 5.0 Mrad (50 kGy)



Physical Properties of Sani-Tech® Ultra-HP Jacket

| Physical properties | ASTM Method | Value or rating |
|-------------------------------------|-------------|-----------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 55 |
| Tensile strength, psi (MPa) | D412 | 1300 |
| Ultimate elongation, 100% | D412 | 500 |
| Tear resistance, ppi | D792 | 190 |
| Specific gravity | D792 | 1.2 |
| Tensile modulus at 100% psi | D412 | 200 |

Physical Properties of PharmaFluor® FEP Liner

| Physical properties | ASTM Method | Value or rating |
|--|-------------|-----------------|
| Durometer hardness, Shore D | D2240 | 55 |
| Elongation @ 23°C (73°F) | D638 | 275% |
| Low temperature embrittlement | D746 | –73°C (–100°F) |
| Specific gravity | D792 | 2.17 |
| Chemical resistance: strong or weak acids, strong or weak alkalis, solvents or fuels | D471 | Excellent |
| Moisture absorption | D570 | <0.01% |

Sizes Available

| ID (inch) | ID (mm) | OD (inch) | OD (mm) | Wall (inch) | Wall (mm) | Minimum bend radius (inch) | Maximum working pressure, psi at 20°C | Vacuum rating, in. Hg | Length (ft) | Model number | Catalog number |
|-----------|---------|-----------|---------|-------------|-----------|----------------------------|---------------------------------------|-----------------------|-------------|--------------|--------------------|
| 0.50 | 13.0 | 0.80 | 21.0 | 0.16 | 4.0 | 5 | 150 | 29.9 | 1 | STHT-HP-0500 | JB-16016-57 |
| 0.75 | 19.0 | 1.00 | 27.0 | 0.16 | 4.0 | 6 | 150 | 29.9 | 1 | STHT-HP-0750 | JB-16016-58 |
| 1.00 | 25.0 | 1.50 | 38.0 | 0.25 | 6.0 | 7 | 150 | 29.9 | 1 | STHT-HP-1000 | JB-16016-59 |
| 1.50 | 38.0 | 2.00 | 51.0 | 0.25 | 6.0 | 12 | 150 | 29.9 | 1 | STHT-HP-1500 | JB-16016-60 |
| 2.00 | 51.0 | 2.50 | 64.0 | 0.25 | 6.0 | 13 | 150 | 29.9 | 1 | STHT-HP-2000 | JB-16016-61 |

Sani-Tech® Ultra-HP High-Purity Silicone hoses are available in custom lengths up to 100 ft and with crimped Tri-Clamp® end fittings. Contact our Application Experts for more information.

TLCT Series Chemfluor® and PharmaSmooth™ FEP Fluoropolymer Hose

Smooth FEP inner tube

TLCT Chemfluor hose is constructed with a white FEP inner core and reinforced with multiple polyester plicords and EPDM rubber cover. The kink-resistant EPDM reinforced design delivers extended service life and durability. This construction is ideal for use in a wide range of demanding applications. The FEP fluoropolymer liner used in TLCT has been the top choice in the process industry for many years. The inner tube's excellent chemical resistance minimizes the corrosive effects of transferred media. TLCT delivers exceptional flow rates due to the ultra-smooth inner bore surface, preventing virtually all material entrapment and bacteria buildup.

PharmaSmooth FEP flexible hose solves a long-standing problem associated with cleaning the rough surface of any hose covered with EPDM rubber. PharmaSmooth's EPDM outer surface achieves close to a 20 Ra rating, enabling you to quickly and easily remove dirt on the hose cover with a wet cloth and enhancing the overall cleanliness of your operation. The high-purity, ultra-smooth inner bore surface of the hose prevents virtually all material entrapment and bacteria buildup, meeting the stringent sanitary standards required in critical processing applications such as pharmaceutical, biopharmaceutical, and food and beverage production.

Characteristics

The manufacturing process is carefully controlled from receiving through production. Inspection and lot traceability information is readily accessible as batch numbers are assigned. All packages are identified by external labeling on both the bag and crush-proof box.

Biocompatibility

TLCT Chemfluor and PharmaSmooth FEP fluoropolymer hoses are validated and tested to a variety of specifications including US Pharmacopeia Class VI, FDA 21CFR177.1550, and 3-A Sanitary Standard 62-01.

Features/Benefits

- Ultra-smooth easy-to-clean outer surface
- Excellent bend radius; smooth ID when bent and kink resistant
- Full vacuum rated
- Sterilizable and autoclavable—can be cleaned with steam, caustics, solvents, or other cleaning agents
- Resistant to chemicals, ozone, and abrasion



TLCT Series Chemfluor® FEP

- ✓ Chemical trailer loading/unloading
- ✓ Isolation dampeners
- ✓ Flavors
- ✓ Portable pumps
- ✓ Food and beverage
- ✓ Load cell applicators



PharmaSmooth FEP

- ✓ Load cells
- ✓ Pumping stations/portable pumps
- ✓ Rail car loading/unloading
- ✓ Vessel or tank transfer
- ✓ Skid transfer
- ✓ CIP
- ✓ Chemical process lines

Specifications

| Physical properties | TLCT Chemfluor FEP | | PharmaSmooth FEP | |
|---|--------------------|--------------------------|------------------|--------------------------|
| | ASTM Method | Value or rating | ASTM Method | Value or rating |
| Durometer hardness, Shore A, 15 sec | D2240 | 70 | D2240-91 | 55 |
| Maximum recommended operating temperature | — | 160°C (320°F) | — | 204°C (400°F) |
| Tensile strength, psi (MPa) | D412 | 1200 (8.3) | D1457 | 3400 (23) |
| Ultimate elongation, % | D412 | 500 | D1457 | 325 |
| Brittleness by impact temperature | D746 | -80°C (-112°F) | D746-79 | -73°C (-100°F) |
| Specific gravity | D792 | 1.18 | D792 | 2.15 |
| Water absorption, % 24 hrs @ 23°C (73°F) | D570 | 0.11 | D570-81 | <0.01 |
| Folding endurance (cycles) | — | 5 - 80 x 10 ₃ | — | 5 - 80 x 10 ₃ |
| Colour | — | Translucent | — | Translucent |

TLCT Chemfluor® & PharmaSmooth™ FEP hoses are available in custom lengths up to 100 ft and with crimped Tri-Clamp® end fittings. Contact our Application Experts for more information.

| ID (inch) | ID (mm) | OD (inch) | OD (mm) | Wall (inch) | Wall (mm) | Minimum bend radius (inch) | Recommended working pressure, psi at 20°C | Minimum burst pressure, psi at 20°C | Length (ft) | Model number | Catalog number |
|---|---------|-----------|---------|-------------|-----------|----------------------------|---|-------------------------------------|-------------|--------------|--------------------|
| TLCT Series Chemfluor FEP fluoropolymer hose | | | | | | | | | | | |
| 0.5 | 12.70 | 0.95 | 24.13 | 0.225 | 5.72 | 2.5 | 500 | 2100 | 1 | 3808WTLCT | JB-15939-24 |
| 0.75 | 19.05 | 1.270 | 32.26 | 0.260 | 6.60 | 3.25 | 500 | 2100 | 1 | 3812WTLCT | JB-15939-25 |
| 1 | 25.40 | 1.52 | 38.61 | 0.260 | 6.60 | 4.75 | 450 | 1800 | 1 | 3816WTLCT | JB-15939-26 |
| 1.125 | 28.58 | 1.75 | 44.45 | 0.313 | 7.94 | 7 | 320 | 1600 | 1 | 3820WTLCT | JB-15939-27 |
| 1.5 | 38.10 | 2.15 | 54.61 | 0.325 | 8.26 | 9 | 300 | 1350 | 1 | 3824WTLCT | JB-15939-28 |
| 2 | 50.80 | 2.660 | 67.56 | 0.330 | 8.38 | 11.5 | 250 | 1200 | 1 | 3832WTLCT | JB-15939-29 |
| 2.5 | 63.50 | 3.15 | 80.01 | 0.325 | 8.26 | 18 | 200 | 900 | 1 | 3840WTLCT | JB-15939-30 |
| 3 | 76.20 | 3.67 | 93.22 | 0.335 | 8.51 | 22 | 150 | 700 | 1 | 3848WTLCT | JB-15939-31 |
| 4 | 101.60 | 4.71 | 119.63 | 0.355 | 9.02 | 34 | 150 | 600 | 1 | 3864WTLCT | JB-15939-13 |
| PharmaSmooth FEP fluoropolymer hose | | | | | | | | | | | |
| 0.5 | 12.7 | 0.875 | 23.1 | 0.19 | 5.2 | 2.5 | 500 | 2100 | 1 | 3808PSTLCT | JB-15945-82 |
| 0.75 | 19.1 | 1.25 | 31.8 | 0.25 | 6.4 | 3.25 | 500 | 2100 | 1 | 3812PSTLCT | JB-15945-83 |
| 1 | 25.4 | 1.50 | 38.1 | 0.25 | 6.4 | 4.75 | 450 | 1800 | 1 | 3816PSTLCT | JB-15945-84 |
| 1.25 | 31.8 | 1.75 | 44.5 | 0.25 | 6.4 | 7 | 320 | 1600 | 1 | 3820PSTLCT | JB-15945-85 |
| 1.5 | 38.1 | 2.00 | 52.1 | 0.25 | 7 | 9 | 300 | 1350 | 1 | 3824PSTLCT | JB-15945-86 |
| 2 | 50.8 | 2.64 | 67.3 | 0.32 | 8.2 | 11.5 | 250 | 1200 | 1 | 3832PSTLCT | JB-15945-87 |
| 2.5 | 63.5 | 3.25 | 81.3 | 0.38 | 8.9 | 18 | 200 | 900 | 1 | 3840PSTLCT | JB-15945-88 |
| 3 | 76.2 | 3.75 | 93 | 0.38 | 8.4 | 22 | 150 | 700 | 1 | 3848PSTLCT | JB-15945-89 |
| 4 | 101.6 | 4.75 | 119.4 | 0.38 | 8.9 | 34 | 150 | 600 | 1 | 3864PSTLCT | JB-15945-90 |

TS and TSS Series Chemfluor® Inner PTFE Hose

Up to 33% thicker inner tube

Flexible Components TS and TSS Series hoses are designed with a thicker Chemfluor PTFE tube than most manufacturers. This enables smooth tube hoses to have superior kink resistance, improved vacuum ratings, and better damage resistance.

TS series is a smooth Chemfluor PTFE fluoropolymer inner tube with 304 stainless steel high-tensile strength braid.

TSS series is a smooth Chemfluor PTFE fluoropolymer liner, silicone covered, 304 stainless steel high-tensile strength braid. Pure platinum-cured silicone outer cover is extruded over the TS Series hose (smooth white Chemfluor PTFE fluoropolymer inner tube with 304 stainless steel high-tensile strength braid). Permits easy cleaning, reduces braid fraying, and helps insulate exterior from "burn" potential. Ultra-smooth finish on outer cover eliminates particle entrapment between the SS braid strands.

Characteristics

The manufacturing process is carefully controlled from receiving through production. Inspection and lot traceability information is readily accessible as batch numbers are assigned. All packages are identified by external labeling on both the bag and crush-proof box.

Biocompatibility

TS Chemfluor PTFE hose is validated and tested to a variety of specifications including US Pharmacopeia Class VI and FDA 21CFR177.1550.

TSS Chemfluor PTFE hose is validated and tested to a variety of specifications including US Pharmacopeia Class VI, FDA 21CFR177.1550, and 3-A Sanitary Standard 62-01.

Features/Benefits

- **TS:** noncontaminating
- **TS:** can be steam autoclaved and cleaned with detergent or caustic
- **TS:** full ID sizes for greater flow rate per given size and less pressure drop through fitting area than hoses with tube size ID
- **TSS:** extruded silicone cover is "locked" onto stainless steel braid, will not move when handled
- **TSS:** can be autoclaved



TS Series

- ✓ Sanitary transfer
- ✓ Steam transfer core
- ✓ Bottle filling
- ✓ Gas analysis
- ✓ Hydraulic lines
- ✓ Extrusion presses
- ✓ Molding/adhesive conveying



TSS Series

- ✓ Washdown hoses
- ✓ Transfer and equipment lines
- ✓ Filling equipment
- ✓ Pharmaceutical, food & beverage, and chemical

Specifications

Minimum overall length (OAL) of hose assemblies with anti-kink casing:
0.25 inch sizes: 18 inch OAL
0.375 inch and 0.5 inch sizes: 24 inch OAL

Temperature rating:
-73 to 232°C continuous;
260°C intermittent
(-100 to 450°F continuous;
500°F intermittent)

TS & TSS series hoses are available in custom lengths up to 300 ft and with crimped Tri-Clamp® end fittings. Contact our Application Experts for more information.

| ID (inch) | ID (mm) | OD (inch) | OD (mm) | Wall (inch) | Wall (mm) | Minimum bend radius (inch) | Recommended working pressure, psi at 20°C | Minimum burst pressure, psi at 20°C | Length (ft) | Model number | Catalog number |
|---|---------|-----------|---------|-------------|-----------|----------------------------|---|-------------------------------------|-------------|--------------|--------------------|
| TS Series Chemfluor® inner PTFE hose | | | | | | | | | | | |
| 0.125 | 3.18 | 0.25 | 6.35 | 0.063 | 1.59 | 1.50 | 3000 | 15,000 | 1 | 1602TS400 | JB-15965-91 |
| 0.25 | 6.35 | 0.375 | 9.53 | 0.063 | 1.59 | 2.50 | 3000 | 13,500 | 1 | 1604TS400 | JB-15965-92 |
| 0.375 | 9.53 | 0.5 | 12.70 | 0.063 | 1.59 | 3.50 | 2500 | 10,000 | 1 | 1606TS400 | JB-15965-93 |
| 0.5 | 12.70 | 0.625 | 15.88 | 0.063 | 1.59 | 4.00 | 2000 | 8500 | 1 | 1608TS400 | JB-15965-94 |
| 0.625 | 15.88 | 0.750 | 19.05 | 0.063 | 1.59 | 5.00 | 1500 | 7000 | 1 | 1610TS400 | JB-15965-95 |
| 0.75 | 19.05 | 0.875 | 22.23 | 0.063 | 1.59 | 7.50 | 1200 | 4800 | 1 | 1612TS400 | JB-15965-96 |
| 1 | 25.40 | 1.125 | 28.58 | 0.063 | 1.59 | 12.00 | 800 | 3200 | 1 | 1616TS500 | JB-15965-97 |
| TSS Series Chemfluor® inner PTFE silicone-covered hose | | | | | | | | | | | |
| 0.25 | 6.35 | 0.5 | 12.70 | 0.125 | 3.18 | 2.50 | 3000 | 13,500 | 1 | 1604TSS40 | JB-15945-80 |
| 0.375 | 9.53 | 0.56 | 14.29 | 0.094 | 2.38 | 3.50 | 2500 | 10,000 | 1 | 1606TSS40 | JB-15939-20 |
| 0.5 | 12.70 | 0.75 | 19.05 | 0.125 | 3.18 | 4.00 | 2000 | 8500 | 1 | 1608TSS40 | JB-15939-21 |
| 0.75 | 19.05 | 1 | 25.40 | 0.125 | 3.18 | 7.50 | 1200 | 4800 | 1 | 1612TSS40 | JB-15939-22 |
| 1 | 25.40 | 1.25 | 31.75 | 0.125 | 3.18 | 12.00 | 800 | 3200 | 1 | 1616TSS50 | JB-15939-23 |

Choosing the Right Hose or Tubing

As easy as S-T-A-M-P!

Size

Consider inner diameter (ID), outer diameter (OD), wall thickness, and cut lengths. ID, OD, and wall are significant factors in pressure and vacuum ratings. The tolerances are a concern for leak points and critical design dimensions.

Temperature

Operating temperature, cleaning temperature, ambient temperature, and the complete temperature fluctuation should figure into the selection of tubing. Sudden changes or extreme temperatures can negatively affect performance and cause premature failures.

Application

Knowing how the tubing will be used is critical. Regulatory concerns and required documentation is important. FDA, USDA, 3-A, ISO, EPA, USP and NSF all carry different compliance concerns which warrant different material selection. Proper supporting documentation and certificates should be reviewed before placing the order.

Media

Understanding the media being transported ensures zero extractables, adsorption/absorption, and particulate entrapment. Various chemicals attack materials at different rates. Often, cleaning agents are the most aggressive fluids used, but be aware of any chemical reactions which might be caused by changing fluids.

Pressure

Vacuum and positive pressure both create stress on tubing. Increased or decreased temperatures greatly reduce the pressure rating for materials. Changing the wall thickness can help increase pressure rating, as can reducing the overall OD/ID.

| Product name | Description | Page(s) |
|--|--|---------|
| Sani-Tech® SHT®-C Sanitary Silicone Tubing | Ultra-pure, biopharmaceutical grade | 146-147 |
| Sani-Tech® Ultra Silicone Tubing | The next generation platinum-cured silicone tubing | 148-149 |
| Pure-Fit® SPT Sanitary Silicone Tubing | Pharmaceutical-grade platinum-cured silicone tubing developed for transferring high-purity liquids and sensitive biologicals | 150-151 |
| Tygon® 3350 Sanitary Silicone Tubing | Platinum cured with an ultra-smooth inner surface for sanitary transfer of sensitive fluids | 152 |
| Versilic® Silicone Tubing | Peroxide-cured silicone tubing for biopharmaceutical applications | 153 |
| C-Flex® Thermoplastic Elastomer Tubing | Biopharmaceutical-grade thermoplastic elastomer tubing | 154-155 |
| Cole-Parmer® Silicone Tubing | Platinum cured silicon tubing | 156 |
| C-Flex® ULTRA Biopharma Pump Tubing | Thermoplastic elastomer pump tubing to meet the critical demands of the biopharmaceutical world | 157 |
| PharMed® BPT Biocompatible Tubing | Peristaltic pump and cell culture tubing | 158 |
| PharmaPure® Low-Spallation Peristaltic Pump Tubing | High-performance peristaltic pump tubing | 159 |
| SaniPure™ BDF™ Biopharm Tubing | Bovine derivative free biopharmaceutical-grade tubing | 160 |
| PharmaFluor® FEP Tubing | Effectively transfers abrasive and corrosive fluids | 161 |



Cole-Parmer will provide a certificate of resin or elastomer compliance FREE at your request with each order of fittings, gaskets, or tubing. Certificates list catalog number, formulation, compound number, lot number (where applicable), and the regulations and

agencies the fitting, tubing, or gasket complies with, including FDA, USP, USDA, National Formulary, NSF International, GMP, and 3A. Look for the blue "check" icon throughout this catalog to identify when a certificate of compliance is available.

For a tubing selection guide and chemical resistance information, go to ColeParmer.in

Sani-Tech® STHT®-C Sanitary Silicone Tubing Ultra-pure, biopharmaceutical grade

Sani-Tech STHT-C, an ultrapure biopharmaceutical-grade tubing, is an excellent choice for many pharmaceutical, biotechnology, food and beverage, and general lab applications. It has a useful life unmatched by any other known process tubing. Sani-Tech STHT-C platinum-cured silicone tubing resists temperature extremes, ozone, corona, radiation, moisture, compression sets, weathering, and chemical attack and imparts no taste or odors to fluids transported within it. This tubing withstands repeated autoclaving and resists the adherence of blood products and other sanitary fluids. Sani-Tech STHT-C, in 1/16" ID and greater, comes with laser marked part numbers and lot codes to provide total product traceability.

Characteristics

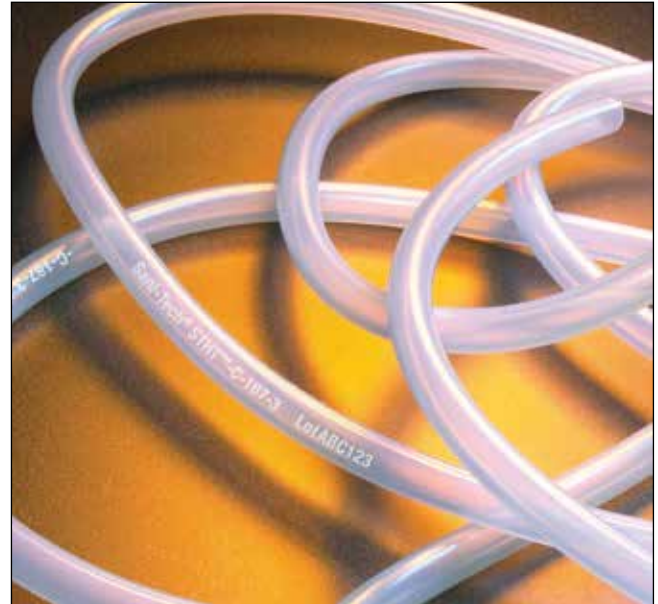
The manufacturing process is carefully controlled from receiving through production. Inspection and lot traceability are readily accessible as batch numbers are assigned. All packages are identified by external labeling on both the bag and crush-proof box.

Biocompatibility

Sani-Tech STHT-C is manufactured from the finest grade of silicone materials and is fully characterized, validated and tested to a variety of specifications including USP Class VI criteria, ISO 10993, European Pharmacopoeia 3.1.9, and Japanese Pharmacopoeia – Section 51. For additional compliance data, please contact our Application Specialists. Sani-Tech STHT-C has a Master File with the US Food and Drug Administration.

Features/Benefits

- Ultrapure, biopharmaceutical-grade silicone
- Permanently laser marked with part number and lot code for total product traceability
- Unsurpassed surface smoothness
- Ultraflexible
- Autoclavable and sterilizable
- Temperature range from –62 to 260°C (–80°F to 500°F)
- Imparts no taste or odors



APPLICATIONS

- ✓ Sterile fill and transfers
- ✓ Drug delivery
- ✓ Media processing
- ✓ Sanitary peristaltic pump tubing
- ✓ Laboratory use
- ✓ Cell harvest
- ✓ Liquid chromatography

Specifications

Sterilization

Autoclavable: steam 30 min at 15 psi
(121°C/250°F)
Gas: ethylene oxide
Radiation: up to 5 MRad

| Physical properties | ASTM Method | Value or rating |
|-------------------------------------|-------------|-----------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 50 |
| Tensile strength, psi (MPa) | D412 | 1293 (8.57) |
| Ultimate elongation, 100% | D412 | 714 |
| Tear resistance, ppi (kN/m) | D624 | 286 (50.1) |
| Specific gravity | D792 | 1.17 |
| Tensile modulus, psi (MPa) | D412 | 309 (2.13) |



Sizes Available

| ID (inch) | OD (inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|--------------|--------------|---------|---------|--------------|-----------|-----------|--------------|--------------------|
| 0.012 | 0.024 | 0.3 | 0.61 | 0.006 | 0.155 | 25 ft | STHT-C-012-0 | JB-15947-43 |
| 0.02 | 0.036 | 0.51 | 0.91 | 0.008 | 0.2 | 25 ft | STHT-C-020-0 | JB-15947-44 |
| 0.025 | 3/64 (0.047) | 0.64 | 1.2 | 0.011 | 0.28 | 25 ft | STHT-C-025-0 | JB-15947-45 |
| 1/32 (0.031) | 0.066 | 0.76 | 1.7 | 0.018 | 0.46 | 25 ft | STHT-C-030-0 | JB-15947-46 |
| 1/32 (0.031) | 0.16 | 0.76 | 4.1 | 1/16 (0.063) | 1.57 | 25 ft | STHT-C-030-2 | JB-15947-47 |
| 0.04 | 0.086 | 1 | 2.2 | 1/64 (0.023) | 0.6 | 25 ft | STHT-C-040-0 | JB-06539-06 |
| 0.058 | 3/64 (0.078) | 1.5 | 1.9 | 0.009 | 0.23 | 25 ft | STHT-C-058-0 | JB-15947-48 |
| 1/16 (0.063) | 1/8 (0.125) | 1.6 | 3.2 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-062-1 | JB-06539-08 |
| 1/16 (0.063) | 3/16 (0.188) | 1.6 | 4.7 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-062-2 | JB-06539-09 |
| 1/16 (0.063) | 1/4 (0.250) | 1.6 | 6.4 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-062-3 | JB-15939-86 |
| 1/16 (0.063) | 5/16 (0.313) | 1.6 | 7.9 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-062-4 | JB-15947-49 |
| 1/16 (0.063) | 7/16 (0.438) | 1.6 | 11.1 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-062-5 | JB-15947-50 |
| 1/16 (0.063) | 9/16 (0.563) | 1.6 | 14.3 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-062-6 | JB-15947-51 |
| 3/64 (0.078) | 3/64 (0.141) | 2 | 3.6 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-078-1 | JB-15947-52 |
| 3/64 (0.078) | 1/4 (0.203) | 2 | 5.2 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-078-2 | JB-15947-53 |
| 3/64 (0.078) | 1/2 (0.266) | 2 | 6.7 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-078-3 | JB-15947-54 |
| 3/64 (0.078) | 5/8 (0.328) | 2 | 8.3 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-078-4 | JB-15947-55 |



Sizes Available

| ID (inch) | OD (Inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|---------------|----------------|---------|---------|--------------|-----------|-----------|---------------|----------------|
| 5/64 (0.078) | 29/64 (0.453) | 2 | 11.5 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-078-5 | JB-15947-56 |
| 5/64 (0.078) | 37/64 (0.578) | 2 | 14.7 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-078-6 | JB-15947-57 |
| 3/32 (0.094) | 5/32 (0.156) | 2.4 | 4 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-093-1 | JB-06539-20 |
| 3/32 (0.094) | 7/32 (0.219) | 2.4 | 5.5 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-093-2 | JB-15947-58 |
| 3/32 (0.094) | 9/32 (0.281) | 2.4 | 7.1 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-093-3 | JB-15947-59 |
| 3/32 (0.094) | 11/32 (0.344) | 2.4 | 8.7 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-093-4 | JB-15947-60 |
| 3/32 (0.094) | 15/32 (0.469) | 2.4 | 11.9 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-093-5 | JB-15947-61 |
| 3/32 (0.094) | 19/32 (0.594) | 2.4 | 15.1 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-093-6 | JB-15947-62 |
| 1/8 (0.125) | 3/16 (0.188) | 3.2 | 4.7 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-125-1 | JB-06539-26 |
| 1/8 (0.125) | 1/4 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-125-2 | JB-06539-27 |
| 1/8 (0.125) | 5/16 (0.313) | 3.2 | 7.9 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-125-3 | JB-15939-87 |
| 1/8 (0.125) | 3/8 (0.375) | 3.2 | 9.5 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-125-4 | JB-06539-29 |
| 1/8 (0.125) | 1/2 (0.500) | 3.2 | 12.7 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-125-5 | JB-15947-63 |
| 1/8 (0.125) | 5/8 (0.625) | 3.2 | 15.8 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-125-6 | JB-15947-64 |
| 3/32 (0.156) | 7/32 (0.219) | 4 | 5.5 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-156-1 | JB-06539-32 |
| 3/32 (0.156) | 9/32 (0.281) | 4 | 7.1 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-156-2 | JB-15947-65 |
| 3/32 (0.156) | 11/32 (0.344) | 4 | 8.7 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-156-3 | JB-15939-88 |
| 3/32 (0.156) | 13/32 (0.406) | 4 | 10.3 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-156-4 | JB-15939-89 |
| 3/32 (0.156) | 17/32 (0.531) | 4 | 13.5 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-156-5 | JB-15947-66 |
| 3/32 (0.156) | 21/32 (0.656) | 4 | 16.7 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-156-6 | JB-15947-67 |
| 3/16 (0.188) | 1/4 (0.250) | 4.7 | 6.4 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-187-1 | JB-06539-38 |
| 3/16 (0.188) | 5/16 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-187-2 | JB-06539-39 |
| 3/16 (0.188) | 3/8 (0.375) | 4.7 | 9.5 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-187-3 | JB-15947-68 |
| 3/16 (0.188) | 7/16 (0.438) | 4.7 | 11.1 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-187-4 | JB-06539-41 |
| 3/16 (0.188) | 9/16 (0.563) | 4.7 | 14.2 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-187-5 | JB-15947-69 |
| 3/16 (0.188) | 11/16 (0.688) | 4.7 | 17.4 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-187-6 | JB-15947-70 |
| 1/4 (0.250) | 5/16 (0.313) | 6.4 | 7.9 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-250-1 | JB-06539-44 |
| 1/4 (0.250) | 3/8 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-250-2 | JB-06539-45 |
| 1/4 (0.250) | 7/16 (0.438) | 6.4 | 11.1 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-250-3 | JB-06539-46 |
| 1/4 (0.250) | 1/2 (0.500) | 6.4 | 12.7 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-250-4 | JB-06539-47 |
| 1/4 (0.250) | 5/8 (0.625) | 6.4 | 15.8 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-250-5 | JB-15947-71 |
| 1/4 (0.250) | 3/4 (0.750) | 6.4 | 19 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-250-6 | JB-15947-72 |
| 15/16 (0.313) | 3/8 (0.375) | 7.9 | 9.5 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-312-1 | JB-15947-73 |
| 15/16 (0.313) | 7/16 (0.438) | 7.9 | 11.1 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-312-2 | JB-06539-51 |
| 15/16 (0.313) | 1/2 (0.500) | 7.9 | 12.7 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-312-3 | JB-06539-52 |
| 15/16 (0.313) | 9/16 (0.563) | 7.9 | 14.3 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-312-4 | JB-06539-53 |
| 15/16 (0.313) | 11/16 (0.688) | 7.9 | 17.4 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-312-5 | JB-15947-74 |
| 15/16 (0.313) | 13/16 (0.813) | 7.9 | 20.6 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-312-6 | JB-15947-75 |
| 3/8 (0.375) | 7/16 (0.438) | 9.5 | 11.1 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-375-1 | JB-15947-76 |
| 3/8 (0.375) | 1/2 (0.500) | 9.5 | 12.7 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-375-2 | JB-06539-57 |
| 3/8 (0.375) | 9/16 (0.563) | 9.5 | 14.3 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-375-3 | JB-06539-58 |
| 3/8 (0.375) | 5/8 (0.625) | 9.5 | 15.9 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-375-4 | JB-06539-59 |
| 3/8 (0.375) | 3/4 (0.750) | 9.5 | 19 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-375-5 | JB-15947-77 |
| 3/8 (0.375) | 7/8 (0.875) | 9.5 | 22.2 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-375-6 | JB-15947-78 |
| 1/2 (0.500) | 9/16 (0.563) | 12.7 | 14.3 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-500-1 | JB-06539-62 |
| 1/2 (0.500) | 5/8 (0.625) | 12.7 | 15.9 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-500-2 | JB-06539-63 |
| 1/2 (0.500) | 11/16 (0.688) | 12.7 | 17.4 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-500-3 | JB-06539-64 |
| 1/2 (0.500) | 3/4 (0.750) | 12.7 | 19.1 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-500-4 | JB-06539-65 |
| 1/2 (0.500) | 7/8 (0.875) | 12.7 | 22.2 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-500-5 | JB-15947-79 |
| 1/2 (0.500) | 1 (1.000) | 12.7 | 25.4 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-500-6 | JB-15947-80 |
| 5/8 (0.625) | 11/16 (0.688) | 15.9 | 17.4 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-625-1 | JB-15947-81 |
| 5/8 (0.625) | 3/4 (0.750) | 15.9 | 19.1 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-625-2 | JB-15947-82 |
| 5/8 (0.625) | 13/16 (0.813) | 15.9 | 20.7 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-625-3 | JB-06539-70 |
| 5/8 (0.625) | 7/8 (0.875) | 15.9 | 22.2 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-625-4 | JB-06539-71 |
| 5/8 (0.625) | 1 (1.000) | 15.9 | 25.4 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-625-5 | JB-15947-83 |
| 5/8 (0.625) | 1 1/8 (1.125) | 15.9 | 28.5 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-625-6 | JB-15947-84 |
| 3/4 (0.750) | 13/16 (0.813) | 19.1 | 20.6 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-750-1 | JB-15947-85 |
| 3/4 (0.750) | 7/8 (0.875) | 19.1 | 22.2 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-750-2 | JB-15947-86 |
| 3/4 (0.750) | 15/16 (0.938) | 19.1 | 23.8 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-750-3 | JB-15947-87 |
| 3/4 (0.750) | 1 (1.000) | 19.1 | 25.4 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-750-4 | JB-06539-77 |
| 3/4 (0.750) | 1 1/8 (1.125) | 19.1 | 28.5 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-750-5 | JB-15947-88 |
| 3/4 (0.750) | 1 1/4 (1.250) | 19.1 | 31.7 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-750-6 | JB-15947-89 |
| 7/8 (0.875) | 15/16 (0.938) | 22.2 | 23.8 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-875-1 | JB-15947-90 |
| 7/8 (0.875) | 1 (1.000) | 22.2 | 25.4 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-875-2 | JB-15947-91 |
| 7/8 (0.875) | 1 1/16 (1.063) | 22.2 | 26.9 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-875-3 | JB-15947-92 |
| 7/8 (0.875) | 1 1/8 (1.125) | 22.2 | 28.5 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-875-4 | JB-15947-93 |
| 7/8 (0.875) | 1 1/4 (1.250) | 22.2 | 31.7 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-875-5 | JB-15947-94 |
| 7/8 (0.875) | 1 3/8 (1.375) | 22.2 | 34.9 | 1/4 (0.250) | 6.4 | 25 ft | STHT-C-875-6 | JB-15947-95 |
| 1 (1.000) | 1 1/16 (1.063) | 25.4 | 26.9 | 1/32 (0.031) | 0.8 | 25 ft | STHT-C-1000-1 | JB-15947-96 |
| 1 (1.000) | 1 1/8 (1.125) | 25.4 | 28.5 | 1/16 (0.063) | 1.6 | 25 ft | STHT-C-1000-2 | JB-15947-97 |
| 1 (1.000) | 1 3/16 (1.188) | 25.4 | 30.1 | 3/32 (0.094) | 2.4 | 25 ft | STHT-C-1000-3 | JB-15947-98 |
| 1 (1.000) | 1 1/4 (1.250) | 25.4 | 31.7 | 1/8 (0.125) | 3.2 | 25 ft | STHT-C-1000-4 | JB-06539-89 |
| 1 (1.000) | 1 3/8 (1.375) | 25.4 | 34.9 | 3/16 (0.188) | 4.8 | 25 ft | STHT-C-1000-5 | JB-06539-90 |

Sani-Tech® Ultra Silicone Tubing

The next generation platinum-cured silicone tubing

Sani-Tech Ultra represents the next generation in ultrapure platinum-cured silicone tubing. Features like ultralow extractables and longer pump life were engineered into Sani-Tech Ultra to meet the stringent requirements of the biopharmaceutical market.

Characteristics

Sani-Tech Ultra formulations are manufactured and packaged in a certified cleanroom from the finest grade of silicone materials. Ultralow TOCs ensure that contamination by extractables is kept to an absolute minimum, and the formulation imparts no taste or odors. Sani-Tech Ultra has superior pump life compare to other silicone tubing.

Biocompatibility

Sani-Tech Ultra is fully characterized, validated and tested to a variety of specifications including USP Class VI, ISO 10993, and European Pharmacopoeia 3.1.9. All detailed testing protocols are available on our product validation guide. Sani-Tech Ultra has a Master File with the US Food and Drug Administration.

Features/Benefits

- Biopharmaceutical grade
- Ultralow extractables
- Excellent flexibility
- Laser etched for lot traceability
- Available in 50 and 65 durometers
- Superior pump life
- Fully autoclavable and sterilizable
- Nonyellowing formulation
- Imparts no taste or odors
- Temperature range from -62 to 260°C (-80 to 500°F)
- Meets all USP Class VI, EP 3.1.9, FDA, and ISO criteria



APPLICATIONS

- ✓ Sterile fill and transfers
- ✓ Drug delivery
- ✓ Cell harvest
- ✓ Media processing
- ✓ Sanitary peristaltic pump tubing
- ✓ Production filtration and fermentation
- ✓ Bioreactor process lines

Specifications

Sterilization
Autoclavable: steam
30 min at 15 psi
(121°C/250°F)
Gas: ethylene oxide
Radiation: up to 5.0 MRad
(50 kilogray)

| Physical properties | ASTM Method | Value or rating, Sani-Tech Ultra 50 | Value or rating, Sani-Tech Ultra 65 |
|-------------------------------------|-------------|-------------------------------------|-------------------------------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 50 | 65 |
| Tensile strength, psi (MPa) | D412 | 1293 (8.91) | 1373 (9.47) |
| Ultimate elongation, 100% | D412 | 719 | 608 |
| Tear resistance, ppi (kN/m) | D624 | 185 (50.1) | 179 (50.1) |
| Specific gravity | D792 | 1.17 | 1.17 |
| Tensile modulus, psi (MPa) | D412 | 200 (1.38) | 302 (2.08) |



Sizes Available

| ID (inch) | OD (inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|--------------|--------------|---------|---------|--------------|-----------|-----------|---------------|----------------|
| 0.012 | 0.024 | 0.3 | 0.61 | 0.006 | 0.155 | 25 ft | ULTRA-C-012-0 | JB-15948-00 |
| 0.02 | 0.036 | 0.51 | 0.91 | 0.008 | 0.2 | 25 ft | ULTRA-C-020-0 | JB-15948-01 |
| 0.025 | 3/64 (0.047) | 0.64 | 1.2 | 0.011 | 0.28 | 25 ft | ULTRA-C-025-0 | JB-15948-02 |
| 1/32 (0.031) | 0.066 | 0.76 | 1.7 | 3/16 (0.188) | 0.46 | 25 ft | ULTRA-C-030-0 | JB-15948-03 |
| 1/32 (0.031) | 0.16 | 0.76 | 4.1 | 5/8 (0.625) | 1.57 | 25 ft | ULTRA-C-030-2 | JB-15948-04 |
| 0.04 | 0.086 | 1 | 2.2 | 0.023 | 0.6 | 25 ft | ULTRA-C-040-0 | JB-15948-05 |
| 0.058 | 0.076 | 1.5 | 1.9 | 0.009 | 0.23 | 25 ft | ULTRA-C-058-0 | JB-15948-06 |
| 1/16 (0.063) | 1/8 (0.125) | 1.6 | 3.2 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-062-1 | JB-15941-48 |
| 1/16 (0.063) | 3/16 (0.188) | 1.6 | 4.7 | 3/16 (0.188) | 1.6 | 25 ft | ULTRA-C-062-2 | JB-15941-49 |
| 1/16 (0.063) | 1/4 (0.250) | 1.6 | 6.4 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-062-3 | JB-15941-50 |
| 1/16 (0.063) | 5/16 (0.313) | 1.6 | 7.9 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-062-4 | JB-15948-07 |
| 1/16 (0.063) | 3/8 (0.438) | 1.6 | 11.1 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-062-5 | JB-15948-08 |
| 1/16 (0.063) | 7/16 (0.563) | 1.6 | 14.3 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-062-6 | JB-15948-09 |
| 3/64 (0.078) | 3/64 (0.141) | 2 | 3.6 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-078-1 | JB-15948-10 |
| 3/64 (0.078) | 1/8 (0.203) | 2 | 5.2 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-078-2 | JB-15948-11 |
| 3/64 (0.078) | 1/4 (0.266) | 2 | 6.7 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-078-3 | JB-15948-12 |
| 3/64 (0.078) | 3/8 (0.328) | 2 | 8.3 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-078-4 | JB-15948-13 |
| 3/64 (0.078) | 7/8 (0.453) | 2 | 11.5 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-078-5 | JB-15948-14 |



Sizes Available

| ID (inch) | OD (Inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|--------------|----------------|---------|---------|--------------|-----------|-----------|----------------|----------------|
| 5/64 (0.078) | 37/64 (0.578) | 2 | 14.7 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-078-6 | JB-15948-15 |
| 3/32 (0.094) | 5/32 (0.156) | 2.4 | 4 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-093-1 | JB-15941-36 |
| 3/32 (0.094) | 7/32 (0.219) | 2.4 | 5.5 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-093-2 | JB-15948-16 |
| 3/32 (0.094) | 9/32 (0.281) | 2.4 | 7.1 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-093-3 | JB-15948-17 |
| 3/32 (0.094) | 11/32 (0.344) | 2.4 | 8.7 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-093-4 | JB-15948-18 |
| 3/32 (0.094) | 13/32 (0.407) | 2.4 | 11.9 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-093-5 | JB-15948-19 |
| 3/32 (0.094) | 15/32 (0.594) | 2.4 | 15.1 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-093-6 | JB-15948-20 |
| 1/8 (0.125) | 3/16 (0.188) | 3.2 | 4.7 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-125-1 | JB-15943-40 |
| 1/8 (0.125) | 1/4 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-125-2 | JB-15943-41 |
| 1/8 (0.125) | 5/16 (0.313) | 3.2 | 7.9 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-125-3 | JB-15943-42 |
| 1/8 (0.125) | 3/8 (0.375) | 3.2 | 9.5 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-125-4 | JB-15943-43 |
| 1/8 (0.125) | 1/2 (0.500) | 3.2 | 12.7 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-125-5 | JB-15948-21 |
| 1/8 (0.125) | 5/8 (0.625) | 3.2 | 15.8 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-125-6 | JB-15948-22 |
| 3/32 (0.156) | 7/32 (0.219) | 4 | 5.5 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-156-1 | JB-15941-59 |
| 3/32 (0.156) | 9/32 (0.281) | 4 | 7.1 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-156-2 | JB-15941-60 |
| 3/32 (0.156) | 11/32 (0.344) | 4 | 8.7 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-156-3 | JB-15941-61 |
| 3/32 (0.156) | 13/32 (0.407) | 4 | 10.3 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-156-4 | JB-15941-62 |
| 3/32 (0.156) | 15/32 (0.531) | 4 | 13.5 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-156-5 | JB-15941-63 |
| 3/32 (0.156) | 17/32 (0.656) | 4 | 16.7 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-156-6 | JB-15941-64 |
| 3/16 (0.188) | 1/4 (0.250) | 4.7 | 6.4 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-187-1 | JB-15941-65 |
| 3/16 (0.188) | 5/16 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-187-2 | JB-15941-66 |
| 3/16 (0.188) | 3/8 (0.375) | 4.7 | 9.5 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-187-3 | JB-15941-67 |
| 3/16 (0.188) | 7/16 (0.438) | 4.7 | 11.1 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-187-4 | JB-15941-68 |
| 3/16 (0.188) | 9/16 (0.563) | 4.7 | 14.2 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-187-5 | JB-15941-69 |
| 3/16 (0.188) | 11/16 (0.688) | 4.7 | 17.4 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-187-6 | JB-15948-23 |
| 1/4 (0.250) | 5/16 (0.313) | 6.4 | 7.9 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-250-1 | JB-15941-42 |
| 1/4 (0.250) | 3/8 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-250-2 | JB-15941-43 |
| 1/4 (0.250) | 7/16 (0.438) | 6.4 | 11.1 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-250-3 | JB-15941-44 |
| 1/4 (0.250) | 1/2 (0.500) | 6.4 | 12.7 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-250-4 | JB-15941-45 |
| 1/4 (0.250) | 5/8 (0.625) | 6.4 | 15.8 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-250-5 | JB-15941-46 |
| 1/4 (0.250) | 3/4 (0.750) | 6.4 | 19 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-250-6 | JB-15941-47 |
| 5/16 (0.313) | 3/8 (0.375) | 7.9 | 9.5 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-312-1 | JB-15943-35 |
| 5/16 (0.313) | 7/16 (0.438) | 7.9 | 11.1 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-312-2 | JB-15943-36 |
| 5/16 (0.313) | 1/2 (0.500) | 7.9 | 12.7 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-312-3 | JB-15943-37 |
| 5/16 (0.313) | 9/16 (0.563) | 7.9 | 14.3 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-312-4 | JB-15941-35 |
| 5/16 (0.313) | 11/16 (0.688) | 7.9 | 17.4 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-312-5 | JB-15943-38 |
| 5/16 (0.313) | 13/16 (0.813) | 7.9 | 20.6 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-312-6 | JB-15943-39 |
| 3/8 (0.375) | 7/16 (0.438) | 9.5 | 11.1 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-375-1 | JB-15948-24 |
| 3/8 (0.375) | 1/2 (0.500) | 9.5 | 12.7 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-375-2 | JB-15943-48 |
| 3/8 (0.375) | 9/16 (0.563) | 9.5 | 14.3 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-375-3 | JB-15943-49 |
| 3/8 (0.375) | 5/8 (0.625) | 9.5 | 15.9 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-375-4 | JB-15943-50 |
| 3/8 (0.375) | 3/4 (0.750) | 9.5 | 19 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-375-5 | JB-15943-51 |
| 3/8 (0.375) | 7/8 (0.875) | 9.5 | 22.2 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-375-6 | JB-15948-25 |
| 1/2 (0.500) | 9/16 (0.563) | 12.7 | 14.3 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-500-1 | JB-15943-52 |
| 1/2 (0.500) | 5/8 (0.625) | 12.7 | 15.9 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-500-2 | JB-15943-53 |
| 1/2 (0.500) | 11/16 (0.688) | 12.7 | 17.4 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-500-3 | JB-15943-54 |
| 1/2 (0.500) | 3/4 (0.750) | 12.7 | 19.1 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-500-4 | JB-15943-55 |
| 1/2 (0.500) | 7/8 (0.875) | 12.7 | 22.2 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-500-5 | JB-15948-26 |
| 1/2 (0.500) | 1 (1.000) | 12.7 | 25.4 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-500-6 | JB-15948-27 |
| 5/8 (0.625) | 11/16 (0.688) | 15.9 | 17.4 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-625-1 | JB-15948-28 |
| 5/8 (0.625) | 3/4 (0.750) | 15.9 | 19.1 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-625-2 | JB-15948-29 |
| 5/8 (0.625) | 13/16 (0.813) | 15.9 | 20.7 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-625-3 | JB-15943-56 |
| 5/8 (0.625) | 7/8 (0.875) | 15.9 | 22.2 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-625-4 | JB-15943-57 |
| 5/8 (0.625) | 1 (1.000) | 15.9 | 25.4 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-625-5 | JB-15943-58 |
| 5/8 (0.625) | 1 1/8 (1.125) | 15.9 | 28.5 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-625-6 | JB-15948-30 |
| 3/4 (0.750) | 13/16 (0.813) | 19.1 | 20.6 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-750-1 | JB-15948-31 |
| 3/4 (0.750) | 7/8 (0.875) | 19.1 | 22.2 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-750-2 | JB-15948-32 |
| 3/4 (0.750) | 15/16 (0.938) | 19.1 | 23.8 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-750-3 | JB-15948-33 |
| 3/4 (0.750) | 1 (1.000) | 19.1 | 25.4 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-750-4 | JB-15943-59 |
| 3/4 (0.750) | 1 1/8 (1.125) | 19.1 | 28.5 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-750-5 | JB-15948-34 |
| 3/4 (0.750) | 1 1/4 (1.250) | 19.1 | 31.7 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-750-6 | JB-15948-35 |
| 7/8 (0.875) | 15/16 (0.938) | 22.2 | 23.8 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-875-1 | JB-15948-36 |
| 7/8 (0.875) | 1 (1.000) | 22.2 | 25.4 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-875-2 | JB-15948-37 |
| 7/8 (0.875) | 1 1/16 (1.063) | 22.2 | 26.9 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-875-3 | JB-15948-38 |
| 7/8 (0.875) | 1 1/8 (1.125) | 22.2 | 28.5 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-875-4 | JB-15948-39 |
| 7/8 (0.875) | 1 1/4 (1.250) | 22.2 | 31.7 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-875-5 | JB-15948-40 |
| 7/8 (0.875) | 1 3/8 (1.375) | 22.2 | 34.9 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-875-6 | JB-15948-41 |
| 1 (1.000) | 1 1/16 (1.063) | 25.4 | 26.9 | 1/32 (0.031) | 0.8 | 25 ft | ULTRA-C-1000-1 | JB-15948-42 |
| 1 (1.000) | 1 1/8 (1.125) | 25.4 | 28.5 | 1/16 (0.063) | 1.6 | 25 ft | ULTRA-C-1000-2 | JB-15948-43 |
| 1 (1.000) | 1 3/16 (1.188) | 25.4 | 30.1 | 3/32 (0.094) | 2.4 | 25 ft | ULTRA-C-1000-3 | JB-15948-44 |
| 1 (1.000) | 1 1/4 (1.250) | 25.4 | 31.7 | 1/8 (0.125) | 3.2 | 25 ft | ULTRA-C-1000-4 | JB-15943-60 |
| 1 (1.000) | 1 3/8 (1.375) | 25.4 | 34.9 | 3/16 (0.188) | 4.8 | 25 ft | ULTRA-C-1000-5 | JB-15943-61 |
| 1 (1.000) | 1 1/2 (1.500) | 25.4 | 38.1 | 1/4 (0.250) | 6.4 | 25 ft | ULTRA-C-1000-6 | JB-15948-45 |

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Pure-Fit® SPT Sanitary Silicone Tubing

Clear platinum-cured silicone tubing simplifies sanitation

Pure-Fit SPT is a pharmaceutical-grade platinum-cured silicone tubing developed for transferring high-purity liquids and sensitive biologicals in a variety of biopharmaceutical and biotechnology production applications. It offers an unsurpassed level of inner surface smoothness—inhibiting protein binding and bacterial growth and allowing for easy sterilization and sanitation. Additionally, the smooth inner diameter improves the fluid flow characteristics by reducing the peaks and valleys on the inner surface topography.

Characteristics

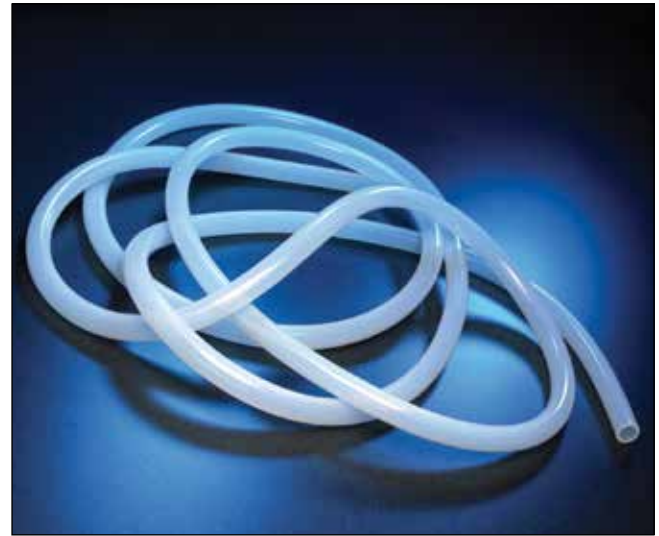
Peristaltic pump tubing is a key component in many biopharmaceutical manufacturing applications. Pure-Fit SPT's nontacky outer surface dramatically increases pump life giving you the flexibility to have longer production cycles and minimizing the risk of pump tube failures in your processes.

Biocompatibility

Pure-Fit SPT is manufactured and packaged in a state-of-the-art cleanroom environment with complete lot control from raw material receipt through final product shipments. Pure-Fit SPT tubing complies fully with the requirements of USP Class VI and EP 3.1.9 criteria and is nontoxic and nonpyrogenic.

Features/Benefits

- Pharmaceutical grade
- Excellent flexibility and bend radius
- Minimal extractables
- Tear resistant
- Superior inner surface smoothness
- Fully autoclavable and sterilizable
- Imparts no taste or odors
- Extremely stable over wide temperature range of –62 to 260°C (–80 to 500°F)
- Meets all USP Class VI and European Pharmacopeia 3.1.9 protocols
- Excellent peristaltic pump life
- Manufactured in Class 10000 cleanroom
- Complete lot traceability



APPLICATIONS

- ✓ Sterile fill and transfers
- ✓ Load cell
- ✓ Production filtration
- ✓ Drug delivery systems
- ✓ Media processing
- ✓ Cell harvest
- ✓ Laboratory use
- ✓ Sanitary peristaltic pump tubing



Specifications

Sterilization

Autoclavable: steam 30 min
at 15 psi (121°C/250°F)
Gas: ethylene oxide
Radiation: up to 5 MRad

| Physical properties | ASTM Method | Value or rating, SPT-60 | Value or rating, SPT-50 |
|-------------------------------------|-------------|-------------------------|-------------------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 60 | 50 |
| Tensile strength, psi (MPa) | D412 | 950 (6.55) | 1150 (8.0) |
| Ultimate elongation, 100% | D412 | 250 (min) | 450 |
| Tear resistance, ppl | D624 | 80 | 150 |
| Specific gravity | D792 | 1.17 | 1.15 |
| Appearance | — | Translucent | Translucent |



Pure-Fit SPT-60 Tubing Metric Sizes

| ID (mm) | OD (mm) | Wall (mm) | Pack size | Model number | Catalog number |
|---------|---------|-----------|-----------|--------------|----------------|
| 1 | 3 | 1 | 25 meters | SPT60-0103 | JB-94703-22 |
| 1.5 | 3 | 0.75 | 25 meters | SPT60-1503 | JB-15946-81 |
| 2 | 4 | 1 | 25 meters | SPT60-0204 | JB-94703-23 |
| 2 | 5.5 | 1.75 | 25 meters | SPT60-0255 | JB-94703-24 |
| 2 | 6 | 2 | 25 meters | SPT60-0206 | JB-94703-25 |
| 3 | 5 | 1 | 25 meters | SPT60-0305 | JB-94703-26 |
| 3 | 5.5 | 1.25 | 25 meters | SPT60-0355 | JB-94703-27 |
| 3 | 6 | 1.5 | 25 meters | SPT60-0306 | JB-94703-28 |
| 3 | 7 | 2 | 25 meters | SPT60-0307 | JB-15939-03 |
| 4 | 6 | 1 | 25 meters | SPT60-0406 | JB-94703-29 |
| 4 | 7 | 1.5 | 25 meters | SPT60-0407 | JB-94703-30 |
| 4 | 8 | 2 | 25 meters | SPT60-0408 | JB-94703-31 |
| 4 | 10 | 3 | 25 meters | SPT60-0410 | JB-94703-32 |
| 5 | 7 | 1 | 25 meters | SPT60-0507 | JB-15946-82 |
| 5 | 8 | 1.5 | 25 meters | SPT60-0508 | JB-94703-33 |
| 5 | 9 | 2 | 25 meters | SPT60-0509 | JB-94703-34 |
| 5 | 10 | 2.5 | 25 meters | SPT60-0510 | JB-94703-35 |
| 6 | 8 | 1 | 25 meters | SPT60-0608 | JB-94703-36 |
| 6 | 9 | 1.5 | 25 meters | SPT60-0609 | JB-94703-37 |
| 6 | 10 | 2 | 25 meters | SPT60-0610 | JB-94703-38 |
| 6 | 11 | 2.5 | 25 meters | SPT60-0611 | JB-94703-39 |
| 6 | 12 | 3 | 25 meters | SPT60-0612 | JB-94703-40 |
| 7 | 10 | 1.5 | 25 meters | SPT60-0710 | JB-94703-41 |
| 7 | 11 | 2 | 25 meters | SPT60-0711 | JB-94703-42 |
| 7 | 12 | 2.5 | 25 meters | SPT60-0712 | JB-94703-43 |
| 7 | 13 | 3 | 25 meters | SPT60-0713 | JB-15946-83 |
| 8 | 11 | 1.5 | 25 meters | SPT60-0811 | JB-15946-84 |
| 8 | 12 | 2 | 25 meters | SPT60-0812 | JB-94703-44 |
| 8 | 14 | 3 | 25 meters | SPT60-0814 | JB-94703-45 |
| 8 | 16 | 4 | 25 meters | SPT60-0816 | JB-94703-46 |
| 8.5 | 12 | 1.75 | 25 meters | SPT60-8512 | JB-15946-85 |
| 9 | 13 | 2 | 25 meters | SPT60-0913 | JB-94703-47 |
| 10 | 14 | 2 | 25 meters | SPT60-1014 | JB-94703-48 |
| 10 | 16 | 3 | 25 meters | SPT60-1016 | JB-94703-49 |
| 10 | 18 | 4 | 25 meters | SPT60-1018 | JB-15946-86 |
| 10 | 23 | 6.5 | 25 meters | SPT60-1023 | JB-15946-87 |
| 12 | 15 | 1.5 | 25 meters | SPT60-1215 | JB-15946-88 |
| 12 | 17 | 2.5 | 25 meters | SPT60-1217 | JB-94703-50 |
| 15 | 21 | 3 | 25 meters | SPT60-1521 | JB-94703-51 |
| 18 | 24 | 3 | 10 meters | SPT60-1824 | JB-15946-89 |
| 20 | 27 | 3.5 | 10 meters | SPT60-2027 | JB-15946-90 |
| 25 | 35 | 5 | 10 meters | SPT60-2535 | JB-15946-91 |
| 30 | 40 | 5 | 10 meters | SPT60-3040 | JB-15946-92 |
| 40 | 50 | 5 | 10 meters | SPT60-4050 | JB-15946-93 |
| 50 | 60 | 5 | 10 meters | SPT60-5060 | JB-15946-94 |

Pure-Fit SPT-60 Tubing Imperial Sizes

| ID (inch) | OD (Inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|--------------|--------------|---------|---------|--------------|-----------|-----------|-------------------|----------------|
| 1/32 (0.031) | 3/32 (0.160) | 0.76 | 4.1 | 1/16 (0.063) | 1.57 | 50 ft | SPT60-.030 X .160 | JB-15948-91 |
| 1/16 (0.063) | 3/16 (0.188) | 1.6 | 4.7 | 1/16 (0.063) | 1.6 | 50 ft | SPT60-.063 X .188 | JB-15948-92 |
| 1/8 (0.125) | 1/4 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 50 ft | SPT60-.125 X .250 | JB-15948-93 |
| 3/16 (0.188) | 5/16 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 50 ft | SPT60-.188 X .313 | JB-15948-94 |
| 3/16 (0.188) | 3/8 (0.375) | 4.7 | 9.5 | 3/32 (0.094) | 2.4 | 50 ft | SPT60-.188 X .375 | JB-15948-95 |
| 1/4 (0.250) | 3/8 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 50 ft | SPT60-.250 X .375 | JB-15948-96 |
| 1/4 (0.250) | 7/16 (0.438) | 6.4 | 11.1 | 3/32 (0.094) | 2.4 | 50 ft | SPT60-.250 X .438 | JB-15948-97 |
| 1/4 (0.250) | 1/2 (0.500) | 6.4 | 12.7 | 1/8 (0.125) | 3.2 | 50 ft | SPT60-.250 X .500 | JB-15948-98 |
| 5/16 (0.313) | 7/16 (0.438) | 7.9 | 11.1 | 1/16 (0.063) | 1.6 | 50 ft | SPT60-.313 X .438 | JB-15948-99 |
| 5/16 (0.313) | 1/2 (0.500) | 7.9 | 12.7 | 3/32 (0.094) | 2.4 | 50 ft | SPT60-.313 X .500 | JB-15949-00 |
| 3/8 (0.375) | 5/8 (0.563) | 9.5 | 14.3 | 3/32 (0.094) | 2.4 | 50 ft | SPT60-.375 X .563 | JB-15964-00 |
| 3/8 (0.375) | 3/4 (0.625) | 9.5 | 15.9 | 1/8 (0.125) | 3.2 | 50 ft | SPT60-.375 X .625 | JB-15964-01 |
| 3/8 (0.375) | 3/4 (0.750) | 9.5 | 19.1 | 3/16 (0.188) | 4.8 | 50 ft | SPT60-.375 X .750 | JB-15964-02 |
| 1/2 (0.500) | 3/4 (0.750) | 12.7 | 19.1 | 1/8 (0.125) | 3.2 | 50 ft | SPT60-.500 X .750 | JB-15964-03 |
| 1/2 (0.500) | 7/8 (0.875) | 12.7 | 22.2 | 3/16 (0.188) | 4.8 | 50 ft | SPT60-.500 X .880 | JB-15964-04 |

Tygon® 3350 Sanitary Silicone Tubing

Platinum cured with an ultra-smooth inner surface for sanitary transfer of sensitive fluids

Tygon 3350 platinum-cured silicone tubing has been designed to reduce the risk of particle entrapment and microscopic buildup during fluid transfer. In-house analysis of the inner surface of Tygon 3350 silicone tubing compared to other silicone tubing shows that it is up to three times smoother. In addition, when compared to stainless steel tubing, Tygon 3350 tubing exhibits a smoother surface by a factor of up to 40.

A smoother fluid path also helps to facilitate complete sanitation of a fluid transfer system. Even in repeat use applications, Tygon 3350 silicone tubing may prevent residue buildup, aiding in complete cleaning and sterilization. Additionally, the smooth inner surface improves fluid flow characteristics by reducing surface area.

Lower Extractables and Superior Biocompatibility

Tygon 3350 silicone tubing is compounded to meet the most demanding requirements of biocompatibility. In-house extractability tests have shown that Tygon 3350 silicone tubing has a low extractable content. Lower extractables help to maintain the purity of transported fluids in sensitive applications.

Platinum-cured Tygon 3350 silicone tubing complies fully with the requirements of the USP Class VI Criteria and is entirely nontoxic, nonhemolytic, and nonpyrogenic. Additionally, Tygon 3350 silicone tubing meets 3-A Sanitary Standards, FDA 21 CFR Part 177.2600 Criteria, and NSF 51 Standard. Tygon 3350 silicone tubing also complies with the ISO 10993 guidelines for contact with blood (or other body fluids and tissue) for up to 30 days as listed in the FDA GP-95.

Features/Benefits

- Ultra-smooth inner bore reduces potential for particle entrapment
- Minimal extractables help maintain fluid integrity
- Documented biocompatibility for sensitive applications
- Excellent fluid flow characteristics
- Fully tested to ISO 10993 standards to facilitate validation process
- Complete inventory of standard sizes

Sizes Available

| ID (inch) | OD (Inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|---------------|---------------|---------|---------|--------------|-----------|-----------|--------------|----------------|
| 1/32 (0.031) | 3/32 (0.094) | 0.8 | 2.4 | 1/32 (0.031) | 0.8 | 50 ft | ABW00001 | JB-95702-00 |
| 1/16 (0.063) | 1/8 (0.125) | 1.6 | 3.2 | 1/32 (0.031) | 0.8 | 50 ft | ABW00002 | JB-95702-01 |
| 1/16 (0.063) | 3/16 (0.188) | 1.6 | 4.7 | 1/16 (0.063) | 1.6 | 50 ft | ABW00003 | JB-95702-02 |
| 3/32 (0.094) | 5/32 (0.156) | 2.4 | 4 | 1/32 (0.031) | 0.8 | 50 ft | ABW00004 | JB-95702-03 |
| 3/32 (0.094) | 7/32 (0.219) | 2.4 | 5.5 | 1/16 (0.063) | 1.6 | 50 ft | ABW00005 | JB-95702-04 |
| 1/8 (0.125) | 3/16 (0.188) | 3.2 | 4.7 | 1/32 (0.031) | 0.8 | 50 ft | ABW00006 | JB-95702-05 |
| 1/8 (0.125) | 1/4 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 50 ft | ABW00007 | JB-95702-06 |
| 3/32 (0.156) | 7/32 (0.219) | 4 | 5.5 | 1/32 (0.031) | 0.8 | 50 ft | ABW00009 | JB-95702-07 |
| 3/16 (0.188) | 1/4 (0.250) | 4.7 | 6.4 | 1/32 (0.031) | 0.8 | 50 ft | ABW00011 | JB-95702-08 |
| 3/16 (0.188) | 5/16 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 50 ft | ABW00012 | JB-95702-09 |
| 3/16 (0.188) | 3/8 (0.375) | 4.7 | 9.5 | 3/32 (0.094) | 2.4 | 50 ft | ABW00013 | JB-95702-10 |
| 3/16 (0.188) | 7/16 (0.438) | 4.7 | 11.1 | 1/8 (0.125) | 3.2 | 50 ft | ABW00014 | JB-95702-11 |
| 1/4 (0.250) | 5/16 (0.313) | 6.4 | 7.9 | 1/32 (0.031) | 0.8 | 50 ft | ABW00016 | JB-95702-12 |
| 1/4 (0.250) | 3/8 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 50 ft | ABW00017 | JB-95702-13 |
| 1/4 (0.250) | 7/16 (0.438) | 6.4 | 11.1 | 3/32 (0.094) | 2.4 | 50 ft | ABW00018 | JB-95702-14 |
| 1/4 (0.250) | 1/2 (0.500) | 6.4 | 12.7 | 1/8 (0.125) | 3.2 | 50 ft | ABW00019 | JB-95702-15 |
| 3/16 (0.313) | 7/16 (0.438) | 7.9 | 11.1 | 1/16 (0.063) | 1.6 | 50 ft | ABW00022 | JB-95702-16 |
| 3/16 (0.313) | 1/2 (0.500) | 7.9 | 12.7 | 3/32 (0.094) | 2.4 | 50 ft | ABW00023 | JB-95702-17 |
| 3/8 (0.375) | 1/2 (0.500) | 9.5 | 12.7 | 1/16 (0.063) | 1.6 | 50 ft | ABW00027 | JB-95702-18 |
| 3/8 (0.375) | 9/16 (0.563) | 9.5 | 14.2 | 3/32 (0.094) | 2.4 | 50 ft | ABW00028 | JB-95702-19 |
| 3/8 (0.375) | 5/8 (0.625) | 9.5 | 15.8 | 1/8 (0.125) | 3.2 | 50 ft | ABW00029 | JB-95702-20 |
| 7/16 (0.438) | 9/16 (0.563) | 11.1 | 14.2 | 1/16 (0.063) | 1.6 | 50 ft | ABW00032 | JB-95702-21 |
| 7/16 (0.438) | 3/4 (0.625) | 11.1 | 15.8 | 3/32 (0.094) | 2.4 | 50 ft | ABW00033 | JB-95702-22 |
| 1/2 (0.500) | 3/4 (0.625) | 12.7 | 15.8 | 1/16 (0.063) | 1.6 | 50 ft | ABW00036 | JB-95702-23 |
| 1/2 (0.500) | 7/8 (0.688) | 12.7 | 17.4 | 3/32 (0.094) | 2.4 | 50 ft | ABW00037 | JB-95702-24 |
| 1/2 (0.500) | 1 (0.750) | 12.7 | 19.1 | 1/8 (0.125) | 3.2 | 50 ft | ABW00038 | JB-95702-25 |
| 5/8 (0.625) | 13/16 (0.813) | 15.9 | 20.6 | 3/32 (0.094) | 2.4 | 50 ft | ABW00045 | JB-95702-26 |
| 5/8 (0.625) | 1/2 (0.875) | 15.9 | 22.2 | 1/8 (0.125) | 3.2 | 50 ft | ABW00046 | JB-95702-27 |
| 3/4 (0.750) | 1 (1.000) | 19.1 | 25.4 | 1/8 (0.125) | 3.2 | 50 ft | ABW00053 | JB-95702-28 |
| 1 (1.000) | 1 1/4 (1.250) | 25.4 | 31.7 | 1/8 (0.125) | 3.2 | 50 ft | ABW00062 | JB-95702-29 |
| 1 1/4 (1.250) | 1 1/2 (1.500) | 31.7 | 38.1 | 1/8 (0.125) | 3.2 | 50 ft | ABW00069 | JB-95702-30 |
| 1 1/2 (1.500) | 2 (2.000) | 38.1 | 50.8 | 1/4 (0.250) | 6.4 | 50 ft | ABW00074 | JB-95702-31 |



APPLICATIONS

- ✓ Pharmaceutical and cosmetic processing
- ✓ Medical devices
- ✓ Cell harvest and media process systems
- ✓ Sterile fill lines
- ✓ Water for injection (WFI) transfer
- ✓ Chemistry and blood analyzers
- ✓ Liquid chromatography

Specifications

Sterilization
Autoclavable: steam 30 min at 15 psi (121°C/250°F)
Gas: ethylene oxide
Radiation: up to 2.5 MRad



| Physical properties | ASTM Method | Value or rating |
|---|---------------|-----------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 50 |
| Tensile strength, psi (MPa) | D412 | 1450 (10 MPa) |
| Ultimate elongation, 100% | D412 | 770 |
| Tear resistance, ppi (kN/m) | D624 | 200 (35) |
| Specific gravity | D792 | 1.14 |
| Water absorption, % 24 hrs @ 23°C | D570 | 0.11 |
| Compression set constant deflection, % @ 70°C (158°F) for 22 hrs @ 175°C (347°F) for 22 hrs | D395 Method B | 7 35 |
| Brittleness by impact temperature | D746 | -80°C (-112°F) |
| Maximum recommended operating temperature | — | 204°C (400°F) |
| Dielectric strength, v/mil (kV/mm) | D149 | 480 (19.0) |
| Tensile modulus, psi (MPa) | D412 | 280 (1.9) |

Versilic® Silicone Tubing

Peroxide-cured silicone tubing for biopharmaceutical applications

Versilic shore tubing is biologically inert and does not inhibit cell culture. It stays flexible down to -50°C and maintains its chemical, mechanical, and electrical performance up to +200°C.

Characteristics

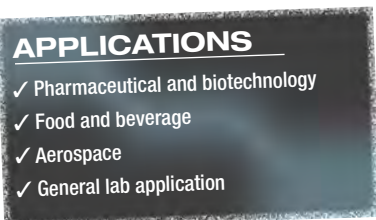
Versilic tubing is an excellent choice for many pharmaceutical, biotechnology, food and beverage, aerospace, and general lab applications. This translucent silicone tubing is peroxide-cured and is odorless and nontoxic. It has excellent heat resistance (usable from -59 to 177°C) and low compression set.

Biocompatibility

Versilic tubing meets the European Pharmacopoeia requirements for silicone elastomer for closures and tubing, USP Class VI biological tests, and ISO 10993 biocompatibility (systemic toxicity, irritation, sensitization, cytotoxicity, hemocompatibility, and Ames test). It meets FDA and BfR positive lists as well as food grade tests according to EC directives.

Features/Benefits

- Peroxide-cured silicone
- Biological neutrality
- FDA/BfR
- US and European Pharmacopoeia
- Temperature range from -50 to 200°C (-58 to 392°F)



Specifications

Sterilization

Autoclavable: yes
Gas: ethylene oxide
Radiation: up to 5 MRad

| Physical properties | ASTM Method | Value or rating |
|---------------------|-------------|-----------------|
| Colour | — | Translucent |
| Specific gravity | D792 | 1.15 |
| Hardness | D2240 | 62 |
| Tensile strength | D412 | 7.5 |
| Ultimate elongation | D412 | 270 |
| 300 Modulus | D412 | 7.7 |



| ID (mm) | OD (mm) | Pack size | Model number | Catalog number |
|---------|---------|-----------|--------------|----------------|
| 0.5 | 2.5 | 50 meters | 760010-50 | JB-06522-01 |
| 1 | 3 | 50 meters | 760070-50 | JB-06522-02 |
| 1.5 | 3 | 50 meters | 760110-50 | JB-15964-56 |
| 2 | 4 | 50 meters | 760160-50 | JB-06522-04 |
| 2 | 5.5 | 50 meters | 760170-50 | JB-06522-05 |
| 2 | 6 | 50 meters | 760180-50 | JB-06522-06 |
| 3 | 5 | 50 meters | 760210-50 | JB-06522-07 |
| 3 | 5.5 | 50 meters | 760220-50 | JB-15964-57 |
| 3 | 6 | 50 meters | 760230-50 | JB-06522-09 |
| 3 | 7 | 50 meters | 760250-50 | JB-15939-01 |
| 4 | 6 | 50 meters | 760320-50 | JB-06522-11 |
| 4 | 7 | 25 meters | 760330-25 | JB-06522-12 |
| 4 | 8 | 25 meters | 760350-25 | JB-06522-13 |
| 4 | 10 | 25 meters | 760360-25 | JB-06522-14 |
| 5 | 7 | 25 meters | 760410-25 | JB-15964-58 |
| 5 | 8 | 25 meters | 760420-25 | JB-15944-14 |
| 5 | 9 | 25 meters | 760430-25 | JB-06522-17 |
| 5 | 10 | 25 meters | 760440-25 | JB-06522-18 |
| 5 | 8 | 25 meters | 760490-25 | JB-15964-59 |
| 6 | 9 | 25 meters | 760500-25 | JB-06522-20 |
| 6 | 10 | 25 meters | 760510-25 | JB-15944-15 |
| 6 | 12 | 25 meters | 760520-25 | JB-15944-16 |
| 7 | 10 | 25 meters | 760570-25 | JB-15939-98 |
| 7 | 11 | 25 meters | 760580-25 | JB-15939-99 |
| 7 | 12 | 25 meters | 760581-25 | JB-15940-00 |
| 7 | 13 | 25 meters | 760590-25 | JB-15939-02 |
| 8 | 11 | 25 meters | 760630-25 | JB-06522-27 |
| 8 | 12 | 25 meters | 760650-25 | JB-06522-28 |
| 8 | 14 | 25 meters | 760670-25 | JB-06522-29 |
| 8 | 16 | 25 meters | 760690-25 | JB-06522-30 |
| 8.5 | 12 | 25 meters | 760720-25 | JB-15964-60 |
| 9 | 13 | 25 meters | 760730-25 | JB-06522-32 |
| 10 | 14 | 25 meters | 760770-25 | JB-06522-33 |
| 10 | 16 | 25 meters | 760800-25 | JB-06522-34 |
| 10 | 18 | 25 meters | 760810-25 | JB-15940-01 |
| 10 | 23 | 25 meters | 760820-25 | JB-15964-61 |
| 12 | 15.5 | 25 meters | 760870-25 | JB-06522-37 |
| 12 | 17 | 25 meters | 760880-25 | JB-06522-38 |
| 15 | 21 | 25 meters | 761050-25 | JB-06522-39 |
| 18 | 24 | 10 meters | 761080-10 | JB-06522-40 |
| 20 | 27 | 10 meters | 761100-10 | JB-15944-17 |
| 25 | 35 | 10 meters | 761150-10 | JB-06522-42 |
| 30 | 40 | 10 meters | 761170-10 | JB-15964-62 |
| 40 | 50 | 10 meters | 761190-10 | JB-15964-63 |
| 50 | 60 | 10 meters | 761270-10 | JB-15964-64 |

Need Help Selecting?

Trust our **expert** Application Specialists to help you find the right product.

022-6139-4444
info@coleparmer.in

C-Flex® Thermoplastic Elastomer Tubing

Biopharmaceutical-grade thermoplastic elastomer tubing

C-Flex tubing is a unique, proprietary thermoplastic elastomer specifically designed to meet the critical demands of the pharmaceutical, research, biopharmaceutical, and diagnostics industries. C-Flex biopharmaceutical tubing has been used by many of the world's leading biotech and pharmaceutical processing companies for more than 20 years.

Available in three different formulations:

- 374 – Clear, 60A Durometer ADCF
- 082 – Clear, 60A Durometer
- 072 – Opaque, 60A Durometer

Characteristics

Each coil of C-Flex tubing is extruded to precise ID, OD, and wall dimensions. All tubing is formulated to meet the standards of the biopharmaceutical industry and is QA tested before leaving the Saint-Gobain Performance Plastics production facility

Features/Benefits

- Complies with USP 24/NF19, Class VI standards
- Manufactured under strict GMPs
- Nonpyrogenic, noncytotoxic, nonhemolytic
- Chemically resistant to concentrated acids and alkalis
- Significantly less permeable than silicone
- Low platelet adhesion and protein binding
- Ultra-smooth inner bore
- Superior to PVC for many applications, with significantly fewer TOC extractables
- Longer peristaltic pump life
- Heat-sealable, bondable and formable
- Remains flexible from –45 to 135°C (–50 to 275°F)
- Available in animal-derived component-free (ADCF), clear, and opaque formulations
- Lot traceable
- Safer disposal through incineration



APPLICATIONS

- ✓ Cell culture media
- ✓ Cell fermentation
- ✓ Diagnostic equipment
- ✓ Pharmaceutical production
- ✓ Pinch valves
- ✓ Laboratory research
- ✓ High-purity water
- ✓ Reagent dispensing
- ✓ Botanical product production
- ✓ Peristaltic pump segments
- ✓ Sterile filling and dispensing systems

FREE Certificates of Compliance

Cole-Parmer will provide a certificate of resin or elastomer compliance FREE at your request with each order of fittings, gaskets, or tubing. Certificates list catalog number, formulation, compound number, lot number (where applicable), and the regulations and agencies the fitting, tubing, or gasket complies with, including FDA, USP, USDA, National Formulary, NSF International, GMP, and 3A. Look for the blue "check" icon throughout this catalog to identify when a certificate of compliance is available.





Specifications

| Physical properties | ASTM Method | Value or rating, 374 | Value or rating, 082 | Value or rating, 072 |
|---|-------------|----------------------|----------------------|----------------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 59 | 59 | 65 |
| Tensile strength, psi | D412 | 800 | 900 | 1105 |
| Ultimate elongation, 100% | D412 | 720 | 740 | 785 |
| Tensile modulus @100%/300%, psi | D412 | 230/390 | 240/400 | 270/420 |
| Tensile set @ 300% stretch | — | 16 | 19 | 12.2 |
| Graves tear strength, pli Die C | ASTM D624 | 155 | 150 | 155 |
| Compression set constant deflection, "B" (22 hrs @ 70°C), % | — | 25 | 53 | 43 |
| Water absorption, % at 100% RH | ASTM D570 | 0.004 | 0.017 | 0.006 |
| Brittle point | ASTM D746 | -60°C | -60°C | -67°C |
| Low temperature flexibility @ -40°C | ASTM 380 | Pass | Pass | Pass |

Sizes Available

| ID (inch) | OD (inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | 374 formulation | | | 082 formulation | | | 072 formulation | | |
|--------------|---------------|---------|---------|--------------|-----------|-----------------|--------------|--------------------|-----------------|--------------|--------------------|-----------------|--------------|--------------------|
| | | | | | | Pack size | Model number | Catalog number | Pack size | Model number | Catalog number | Pack size | Model number | Catalog number |
| 1/8 (0.125) | 1/4 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 50 ft | 374-125-2 | JB-06432-50 | 50 ft | 082-125-2 | JB-15964-38 | 50 ft | 072-125-2 | JB-15964-20 |
| 3/16 (0.188) | 3/16 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 50 ft | 374-188-2 | JB-06432-51 | 50 ft | 082-188-2 | JB-15964-39 | 50 ft | 072-188-2 | JB-15964-21 |
| 3/16 (0.188) | 3/8 (0.375) | 4.7 | 9.5 | 3/32 (0.094) | 2.4 | 50 ft | 374-188-3 | JB-06432-52 | 50 ft | 082-188-3 | JB-15964-40 | 50 ft | 072-188-3 | JB-15964-22 |
| 1/4 (0.250) | 3/8 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 50 ft | 374-250-2 | JB-06432-53 | 50 ft | 082-250-2 | JB-15964-41 | 50 ft | 072-250-2 | JB-15964-23 |
| 1/4 (0.250) | 7/16 (0.438) | 6.4 | 11.1 | 3/32 (0.094) | 2.4 | 50 ft | 374-250-3 | JB-06432-54 | 50 ft | 082-250-3 | JB-15964-42 | 50 ft | 072-250-3 | JB-15964-24 |
| 1/4 (0.250) | 1/2 (0.500) | 6.4 | 12.7 | 1/8 (0.125) | 3.2 | 50 ft | 374-250-4 | JB-06432-55 | 50 ft | 082-250-4 | JB-15964-43 | 50 ft | 072-250-4 | JB-15964-25 |
| 3/16 (0.313) | 1/2 (0.500) | 7.9 | 12.7 | 3/32 (0.094) | 2.4 | 50 ft | 374-313-3 | JB-06432-56 | 50 ft | 082-313-3 | JB-15964-44 | 50 ft | 072-313-3 | JB-15964-26 |
| 3/8 (0.375) | 1/2 (0.500) | 9.5 | 12.7 | 1/16 (0.063) | 1.6 | 50 ft | 374-375-2 | JB-06432-57 | 50 ft | 082-375-2 | JB-15964-45 | 50 ft | 072-375-2 | JB-15964-27 |
| 3/8 (0.375) | 9/16 (0.563) | 9.5 | 14.3 | 3/32 (0.094) | 2.4 | 50 ft | 374-375-3 | JB-06432-58 | 50 ft | 082-375-3 | JB-15964-46 | 50 ft | 072-375-3 | JB-15964-28 |
| 3/8 (0.375) | 3/4 (0.625) | 9.5 | 15.9 | 1/8 (0.125) | 3.2 | 50 ft | 374-375-4 | JB-06432-59 | 50 ft | 082-375-4 | JB-15964-47 | 50 ft | 072-375-4 | JB-15964-29 |
| 1/2 (0.500) | 11/16 (0.688) | 12.7 | 17.4 | 3/32 (0.094) | 2.4 | 50 ft | 374-500-3 | JB-06432-60 | 50 ft | 082-500-3 | JB-15964-48 | 50 ft | 072-500-3 | JB-15964-30 |
| 1/2 (0.500) | 3/4 (0.750) | 12.7 | 19.1 | 1/8 (0.125) | 3.2 | 50 ft | 374-500-4 | JB-06432-61 | 50 ft | 082-500-4 | JB-15964-49 | 50 ft | 072-500-4 | JB-15964-31 |
| 5/8 (0.625) | 3/4 (0.750) | 15.9 | 22.2 | 1/8 (0.125) | 3.2 | 50 ft | 374-625-4 | JB-06432-62 | 50 ft | 082-625-4 | JB-15964-50 | 50 ft | 072-625-4 | JB-15964-32 |
| 3/4 (0.750) | 1 (1.000) | 19.1 | 25.4 | 1/8 (0.125) | 3.2 | 15 ft | 374-750-4 | JB-15946-95 | 15 ft | 082-750-4 | JB-15964-51 | 15 ft | 072-750-4 | JB-15964-33 |
| 3/4 (0.750) | 1 1/8 (1.125) | 19.1 | 28.5 | 3/16 (0.188) | 4.8 | 15 ft | 374-750-6 | JB-15946-96 | 15 ft | 082-750-6 | JB-15964-52 | 15 ft | 072-750-6 | JB-15964-34 |
| 3/4 (0.750) | 1 1/4 (1.250) | 19.1 | 31.7 | 1/4 (0.250) | 6.4 | 15 ft | 374-750-8 | JB-15946-97 | 15 ft | 082-750-8 | JB-15964-53 | 15 ft | 072-750-8 | JB-15964-35 |
| 1 (1.000) | 1 3/8 (1.375) | 25.4 | 34.9 | 3/16 (0.188) | 4.8 | 15 ft | 374-1000-6 | JB-15946-98 | 15 ft | 082-1000-6 | JB-15964-54 | 15 ft | 072-1000-6 | JB-15964-36 |
| 1 (1.000) | 1 1/2 (1.500) | 25.4 | 38.1 | 1/4 (0.250) | 6.4 | 15 ft | 374-1000-8 | JB-15946-99 | 15 ft | 082-1000-8 | JB-15964-55 | 15 ft | 072-1000-8 | JB-15964-37 |

Tubing Racks

Keep tubing lines organised

These racks offer a simple and economical method for organising and routing multiple tubing lines. Choose from racks with adhesive fastener or through holes for secure mounting (mounting screws are not included).

| Tubing OD | Fastener | Number of channels | Qty/pk | Catalog number |
|----------------|---------------|--------------------|--------|--------------------|
| 4.8 mm (3/16") | Through holes | 10 | 10 | JB-06432-02 |
| 4.8 mm (3/16") | Adhesive | 10 | 10 | JB-06432-07 |
| 6.4 mm (1/4") | Through holes | 10 | 10 | JB-06432-03 |
| 6.4 mm (1/4") | Adhesive | 10 | 10 | JB-06432-08 |
| 9.6 mm (3/8") | Through holes | 7 | 10 | JB-06432-04 |
| 12.7 mm (1/2") | Through holes | 5 | 10 | JB-06432-05 |



Some racks separate easily for more convenient, customised tubing retainers.

Cole-Parmer® Peroxide-Cured Reinforced Silicone Tubing

Low compression formulation keeps its shape and cleanliness



Compliance
See page 154

Applications: Demanding high-pressure pharmaceutical, biotechnology, aerospace, and food and beverage applications.

Characteristics: Excellent heat resistance, low compression set, odorless, nontoxic, low tackiness, translucent.

Certifications: Elastomer is FDA-compliant (21 CFR 177.2600) and meets USP Class VI. Tubing is manufactured according to GMP.

Temperature range: -60 to 400°F (-51 to 204°C)

Sterilise: Autoclave or gamma irradiation.



| ID: in. (mm) | OD: in. (mm) | Wall: in. (mm) | Max psi at 70°F (bar at 21°C) | Length (ft) | Catalog number |
|--------------|--------------|----------------|-------------------------------|-------------|--------------------|
| 1/16 (1.8) | 5/16 (8.0) | 1/8 (3.2) | 175 (12.1) | 25 | JB-95623-00 |
| 1/8 (3.2) | 3/8 (9.6) | 1/8 (3.2) | 175 (12.1) | 25 | JB-95623-01 |
| 1/4 (6.4) | 9/16 (14.4) | 5/32 (4.0) | 155 (10.7) | 25 | JB-95623-03 |
| 5/16 (8.0) | 19/32 (15.1) | 9/64 (3.6) | 145 (10.0) | 25 | JB-95623-04 |
| 3/8 (9.6) | 11/16 (17.6) | 5/32 (4.0) | 138 (9.5) | 25 | JB-95623-05 |
| 1/2 (12.8) | 13/16 (20.8) | 5/32 (4.0) | 125 (8.6) | 25 | JB-95623-06 |
| 3/4 (19.1) | 1 1/8 (28.6) | 3/16 (4.8) | 57 (3.9) | 25 | JB-95623-08 |
| 7/8 (22.2) | 1 1/4 (31.8) | 3/16 (4.8) | 119 (8.2) | 25 | JB-95623-09 |
| 1 (25.4) | 1 3/8 (35.0) | 3/16 (4.8) | 113 (7.8) | 10 | JB-95623-10 |

Pure-Fit® Tru Valve

Easy implementation in your system

- Reusable for multiple cycles and applications

The valve's butterfly design allows easy installation to existing lines; purity is maintained because the valve goes around the exterior of the tubing and never comes in contact with process fluid.

Simple threaded handle and calibrated scale ensure accurate control of flow and can also be written into validation protocols. The valve also features lockout positioning for use in steam-in-place (SIP) cycles. Withstands autoclaving or gamma irradiation. Accommodates any flexible tubing up to 17.8 mm (0.700") in outer diameter.



| Fits Masterflex® tubing sizes | Material | Catalog number |
|--|------------------------|--------------------|
| L/S® 13, 14, 15, 16, 17, 18, 24, 25, 35, 36; I/P® 26, 73 | Glass-reinforced nylon | JB-20002-00 |

Cole-Parmer® Silicone Tubing

No need to worry about the heat—use for applications up to 460°F

Peroxide Silicone



Compliance
See page 154

Applications: Pharmaceutical, biotechnology, food and beverage, aerospace, and general lab applications.

Characteristics: Peroxide-cured, excellent heat resistance, low compression set, odorless, nontoxic, translucent.

Certifications: Elastomer is FDA-compliant (21 CFR 177.2600) and meets USP Class VI requirements. Tubing is manufactured according to GMP.

Temperature range: -60 to 460°F (-51 to 238°C)

Sterilise: Autoclave or gamma irradiation.

Platinum Silicone



Compliance
See page 154

Applications: Pharmaceutical, biotechnology, aerospace, food and beverage, and general lab applications.

Characteristics: Platinum-cured, excellent heat resistance, low compression set, odorless, nontoxic, translucent.

Certifications: Elastomer is FDA-compliant (21 CFR 177.2600) and meets USP Class VI. Tubing is manufactured according to GMP.

Temperature range: -58 to 446°F (-50 to 230°C)

Sterilise: Autoclave or gamma irradiation.



| Dimensions: in. (mm) | | | Max psi at 70°F (21°C) | Peroxide silicone 25-ft/pk | Platinum silicone 25-ft/pk |
|----------------------|--------------|------------|------------------------|----------------------------|----------------------------|
| ID | OD | Wall | | Cat. no. | Cat. no. |
| 1/50 (0.5) | 1/12 (2.1) | 1/32 (0.8) | 30 | JB-06411-59 | JB-95802-00 |
| 1/32 (0.8) | 3/32 (2.4) | 1/32 (0.8) | 30 | JB-06411-60 | JB-95802-01 |
| 1/16 (1.6) | 1/8 (3.2) | 1/32 (0.8) | 15 | JB-06411-62 | JB-95802-02 |
| 3/32 (2.4) | 5/32 (4.0) | 1/32 (0.8) | 15 | JB-06411-63 | JB-95802-03 |
| 1/8 (3.2) | 3/16 (4.8) | 1/32 (0.8) | 10 | JB-06411-64 | JB-95802-04 |
| 1/8 (3.2) | 1/4 (6.4) | 1/16 (1.6) | 20 | JB-06411-67 | JB-95802-05 |
| 1/8 (3.2) | 3/8 (9.6) | 1/8 (3.2) | 25 | JB-06411-68 | JB-95802-06 |
| 5/32 (4.0) | 5/32 (4.0) | 1/32 (0.8) | 10 | JB-06411-65 | JB-95802-07 |
| 3/16 (4.8) | 1/4 (6.4) | 1/32 (0.8) | 9 | JB-06411-66 | JB-95802-08 |
| 3/16 (4.8) | 5/16 (8.0) | 1/16 (1.6) | 13 | JB-06411-03 | JB-95802-09 |
| 3/16 (4.8) | 7/16 (11.2) | 1/8 (3.2) | 22 | JB-06411-69 | JB-95802-10 |
| 1/4 (6.4) | 5/16 (8.0) | 1/32 (0.8) | 9 | JB-06411-70 | JB-95802-11 |
| 1/4 (6.4) | 3/8 (9.6) | 1/16 (1.6) | 10 | JB-06411-71 | JB-95802-12 |
| 1/4 (6.4) | 7/16 (11.2) | 3/32 (2.4) | 17 | JB-06411-72 | JB-95802-13 |
| 1/4 (6.4) | 1/2 (12.8) | 1/8 (3.2) | 17 | JB-06411-74 | JB-95802-14 |
| 5/16 (8.0) | 7/16 (11.2) | 1/16 (1.6) | 10 | JB-06411-75 | JB-95802-15 |
| 5/16 (8.0) | 1/2 (12.8) | 3/32 (2.4) | 16 | JB-06411-76 | JB-95802-16 |
| 5/16 (8.0) | 9/16 (14.4) | 1/8 (3.2) | 20 | JB-06411-77 | JB-95802-17 |
| 3/8 (9.6) | 1/2 (12.8) | 1/16 (1.6) | 10 | JB-06411-12 | JB-95802-18 |
| 3/8 (9.6) | 9/16 (14.4) | 3/32 (2.4) | 12 | JB-06411-78 | JB-95802-19 |
| 3/8 (9.6) | 5/8 (16.0) | 1/8 (3.2) | 15 | JB-06411-79 | JB-95802-20 |
| 1/2 (12.8) | 5/8 (16.0) | 1/16 (1.6) | 9 | JB-06411-80 | JB-95802-21 |
| 1/2 (12.8) | 11/16 (17.6) | 3/32 (2.4) | 10 | JB-06411-19 | JB-95802-22 |
| 1/2 (12.8) | 3/4 (19.2) | 1/8 (3.2) | 12 | JB-06411-55 | JB-95802-23 |
| 5/8 (16.0) | 13/16 (20.8) | 3/32 (2.4) | 10 | JB-06411-82 | JB-95802-24 |
| 5/8 (16.0) | 7/8 (22.4) | 1/8 (3.2) | 12 | JB-06411-58 | JB-95802-25 |
| 3/4 (19.2) | 1 (25.4) | 1/8 (3.2) | 9 | JB-06411-83 | JB-95802-26 |

Pure-Fit® TC Tubing Clamps

Smooth edges won't tear or puncture tubing

- Can install over existing fittings or assemblies
- Fully sterilizable
- Meet USP Class IV criteria
- Pack of 10



06822-11

| Material | Tubing OD range | Tubing wall minimum | Catalog number |
|----------|-----------------------------|---------------------|--------------------|
| PP | Up to 9.5 mm (3/8") | 0.76 mm | JB-06822-01 |
| | 9.5 to 19 mm (3/8" to 3/4") | 1.52 mm | JB-06822-11 |
| PVDF | Up to 9.5 mm (3/8") | 0.76 mm | JB-06822-03 |
| | 9.5 to 19 mm (3/8" to 3/4") | 1.52 mm | JB-06822-13 |

C-Flex® ULTRA Biopharmaceutical Pump Tubing

Thermoplastic elastomer pump tubing to meet the critical demands of the biopharmaceutical world

C-Flex ULTRA tubing exceeds the industry's demands for a flexible, clear, sealable, and weldable pump tube for fluid processing applications. This new 60A C-Flex material has been developed to outperform existing C-Flex and every other "look-alike" on the market. It has been extensively tested by independent organizations and is consistently outperforming every known competitor.

Characteristics

Significantly Extends the Life of Pump Heads

The lack of surface tackiness typically found with TPE tubing reduces the need to clean gummy pump heads—greatly extending their life.

Sealable and Weldable

C-Flex ULTRA can be thermally sealed and rewelded, making it ideal for the biopharmaceutical filling and sampling processes.

Biocompatibility

C-Flex ULTRA complies with USP Class VI standards and is manufactured by Saint-Gobain under strict GMP guidelines. It is nonpyrogenic, noncytotoxic and has excellent resistance to concentrated acids and alkalis. The ULTRA formula is significantly less permeable than silicone and has low platelet adhesion and low protein binding characteristics.

Features/Benefits

- Very low spallation during the pumping process
- Exceptional pump life
- The smoother outer surface achieved by the new ULTRA formula does not gum pump heads like other TPEs
- Excellent clarity—fluid is easily visible through the translucent tubing wall
- Sealable and weldable either pre- or post-gamma irradiation



APPLICATIONS

- ✓ Pharmaceutical and biotechnology applications
- ✓ Cell culture media and fermentation
- ✓ Single-use assemblies
- ✓ Process filling
- ✓ Sampling application

Specifications

| Physical properties | ASTM Method | Value or rating |
|---|-------------|-----------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 62 |
| Density, g/cc | — | 0.888 |
| Tensile strength, psi (MPa) | D412 | 735 (1.1) |
| Ultimate elongation, % | D412 | 725 |
| 100% Modulus, psi (MPa) | D412 | 280 (1.9) |
| 300% Modulus, psi (MPa) | D412 | 390 (2.7) |
| Graves tear strength, pli (kN/m) | D624 | 150 (26.3) |
| Tensile set @ 300% stretch, % | D412 | 40 |
| Compression set @ 22 hrs, 70°C, % | D395 | 30 |
| Water absorption, % | D570 | 0.037 |
| Low temperature brittleness point | D746 | –83°C (–64°F) |
| Low temperature flexibility @ –50°C (–58°F) | D380 | Pass |

Sizes Available

| ID (inch) | OD (inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|--------------|---------------|---------|---------|--------------|-----------|-----------|--------------|----------------|
| 1/8 (0.125) | 3/8 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 50 ft | 700-125-2 | JB-15943-25 |
| 3/16 (0.188) | 5/8 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 50 ft | 700-188-2 | JB-15943-26 |
| 3/16 (0.188) | 3/4 (0.375) | 4.7 | 9.5 | 3/32 (0.094) | 2.4 | 50 ft | 700-188-3 | JB-15943-27 |
| 1/4 (0.250) | 3/4 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 50 ft | 700-250-2 | JB-15943-28 |
| 1/4 (0.250) | 7/8 (0.438) | 6.4 | 11.1 | 3/32 (0.094) | 2.4 | 50 ft | 700-250-3 | JB-15943-29 |
| 1/4 (0.250) | 1 1/2 (0.500) | 6.4 | 12.7 | 1/8 (0.125) | 3.2 | 50 ft | 700-250-4 | JB-15943-30 |
| 5/16 (0.313) | 1 1/2 (0.500) | 7.9 | 12.7 | 3/32 (0.094) | 2.4 | 50 ft | 700-313-3 | JB-15943-31 |
| 3/8 (0.375) | 1 1/2 (0.500) | 9.5 | 12.7 | 1/16 (0.063) | 1.6 | 50 ft | 700-375-2 | JB-15943-32 |
| 3/8 (0.375) | 5/8 (0.625) | 9.5 | 15.8 | 1/8 (0.125) | 3.2 | 50 ft | 700-375-4 | JB-15943-33 |
| 1/2 (0.500) | 3/4 (0.750) | 12.7 | 19.1 | 1/8 (0.125) | 3.2 | 50 ft | 700-500-4 | JB-15943-34 |



PharMed® BPT Biocompatible Tubing Peristaltic pump and cell culture tubing

Transporting biocompatible fluids through a peristaltic pump limits the risk of fluid contact with any portion of the pump itself. PharMed BPT tubing has been formulated to withstand the rigors of peristaltic pumping action while providing the biocompatible fluid surface required in sensitive applications. With its superior flex life characteristics, PharMed BPT tubing simplifies manufacturing processes by reducing production downtime due to pump tubing failure. The excellent wear properties can also lead to reduced erosion of the tubing interior walls, improving the overall efficiency of filtering systems.

Characteristics

Simplifies Cleaning and Sterilization

PharMed BPT tubing is ideal for use in clean-in-place (CIP) and steam-in-place (SIP) cleaning and sterilization systems. It is compatible with virtually all commercial cleaners and sanitizers and can be repeatedly autoclaved for up to five cycle times, without affecting overall service life. PharMed BPT tubing also can be exposed to Cobalt 60 gamma irradiation levels of up to 5 MRad with minimal effect on physical properties.

Superior to Silicone Tubing for Many Applications

PharMed BPT tubing is less permeable to gases and vapors than silicone tubing. It is ideal for protecting sensitive cell culture, fermentation, synthesis, separation, purification, and process monitoring and control systems. PharMed BPT tubing has very good general chemical resistance and excellent acid, alkali and oxidation resistance. Opaque to visible and UV light, PharMed BPT tubing will help to protect sensitive fluids. Continuous service temperature range is -51 to 135°C (-60 to 275°F).

Biocompatibility

PharMed BPT tubing complies fully with the requirements of the USP Class VI criteria and nontoxic, nonhemolytic, and nonpyrogenic. In addition, PharMed BPT tubing meets FDA 21 CFR Part 177 2600 criteria for food contact. PharMed BPT tubing also complies with the ISO 10993 guidelines for contact with blood (or other body fluids and tissue) for up to 30 days as listed in the FDA GP-95. PharMed BPT tubing has a Master File number with US Food and Drug administration.

Features/Benefits

- Outlasts silicone tubing in peristaltic pumps by up to 30 times
- Low particulate spallation
- Can be autoclaved repeatedly
- Temperature range from -51 to 135°C (-60 to 275°F)
- Withstands repeated CIP and SIP cleaning and sterilization
- Fully tested to ISO 10993 standards to facilitate validation process
- Meets USP Class VI, FDA, and NSF criteria

Sizes Available

| ID (inch) | OD (inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|--------------|--------------|---------|---------|--------------|-----------|-----------|--------------|----------------|
| 0.02 | 3/64 (0.141) | 0.5 | 3.6 | 1/16 (0.063) | 1.6 | 25 ft | AY242605 | JB-96880-00 |
| 1/32 (0.031) | 5/32 (0.156) | 0.8 | 4 | 1/16 (0.063) | 1.6 | 25 ft | AY242606 | JB-96880-02 |
| 1/16 (0.063) | 1/4 (0.125) | 1.6 | 3.2 | 1/32 (0.031) | 0.8 | 25 ft | AY242002 | JB-96880-03 |
| 1/16 (0.063) | 3/16 (0.188) | 1.6 | 4.7 | 1/16 (0.063) | 1.6 | 25 ft | AY242003 | JB-96880-04 |
| 3/32 (0.094) | 7/32 (0.219) | 2.4 | 5.5 | 1/16 (0.063) | 1.6 | 25 ft | AY242005 | JB-96880-30 |
| 1/8 (0.125) | 9/16 (0.188) | 3.2 | 4.7 | 1/32 (0.031) | 0.8 | 25 ft | AY242006 | JB-96880-05 |
| 1/8 (0.125) | 1/4 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 25 ft | AY242007 | JB-96880-06 |
| 3/16 (0.188) | 5/16 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 25 ft | AY242012 | JB-96880-08 |
| 1/4 (0.250) | 3/8 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 25 ft | AY242017 | JB-96880-10 |
| 1/4 (0.250) | 1/2 (0.500) | 6.4 | 12.7 | 1/8 (0.125) | 3.2 | 25 ft | AY242019 | JB-96880-12 |
| 5/16 (0.313) | 7/16 (0.438) | 7.9 | 11.1 | 1/16 (0.063) | 1.6 | 25 ft | AY242022 | JB-96880-14 |
| 3/8 (0.375) | 1/2 (0.500) | 9.5 | 12.7 | 1/16 (0.063) | 1.6 | 25 ft | AY242027 | JB-15947-00 |
| 3/8 (0.375) | 3/4 (0.625) | 9.5 | 15.8 | 1/8 (0.125) | 3.2 | 25 ft | AY242029 | JB-96880-16 |
| 1/2 (0.500) | 3/4 (0.750) | 12.7 | 19.1 | 1/8 (0.125) | 3.2 | 25 ft | AY242038 | JB-96880-18 |
| 5/8 (0.625) | 7/8 (0.875) | 15.9 | 22.2 | 1/8 (0.125) | 3.2 | 25 ft | AY242046 | JB-96880-20 |
| 3/4 (0.750) | 1 (1.000) | 19.1 | 25.4 | 1/8 (0.125) | 3.2 | 25 ft | AY242053 | JB-96880-22 |



APPLICATIONS

- ✓ Diagnostic test product manufacturing
- ✓ Cell harvest and media process systems
- ✓ Vaccine manufacturing
- ✓ Bioreactor process lines
- ✓ Production filtration and fermentation
- ✓ Sterile filling

Specifications

Sterilization

Autoclavable: steam 30 min at 15 psi (121°C/250°F)
Gas: ethylene oxide
Radiation: up to 5.0 MRad



| Physical properties | ASTM Method | Value or rating |
|--|------------------|-----------------|
| Durometer hardness, Shore A, 15 sec | D2240-02 | 64 |
| Tensile strength, psi | D412-98 | 1000 |
| Ultimate elongation, % | D412-98 | 375 |
| Tensile stress, @ 100% psi | D412-98 | 410 |
| Tensile set (@ 75% of ultimate elongation), % | D412-98 | 47 |
| Tear resistance, lb-f/inch | D1004-94 | 120 |
| Compression set constant deflection, % @ 158°F (70°C) for 22 hours | D395-98 Method B | 27 |
| Specific gravity | D792-00 | 0.98 |
| Water absorption, %, 24 hrs @ 73°F (23°C) | D570-98 | 0.3 |
| Brittle point | D746-98 | -60°C (-75°F) |
| Low temperature flexibility @ -40°C (-40°F) | D380-94 | Passed |
| Flame resistance classified | UL94-HB | Passed |
| Heat resistance | — | 135°C (275°F) |
| Dielectric strength, v/mil | D149-97a | 535 |
| Colour | — | Cream |

PharmaPure® Low-Spallation Peristaltic Pump Tubing

High-performance peristaltic pump tubing outlasts silicone tubing by up to 30 times

PharmaPure is a premium, low-spallation, biologically-compatible peristaltic pump tubing developed especially for pharmaceutical, biotechnology, and laboratory applications. This tubing meets the demanding challenges of providing unsurpassed pump life with ultralow particulate spallation and very low permeability.

Characteristics

The superior flex life characteristics of PharmaPure simplify the manufacturing process by reducing production downtime due to pump tubing failures. Its excellent wear properties allow the product to provide extremely low rates of spallation as compared to silicone and other alternate materials. Because PharmaPure has low permeability and superior absorption characteristics, it is ideal for protecting sensitive cell cultures.

Biocompatibility

PharmaPure tubing complies fully with the requirements of USP Class VI and European Pharmacopeia 3.2.9 and FDA 21 CFR Part 177.2600 criteria, and is entirely noncytotoxic, nonpyrogenic, and nonhemolytic. To confirm the superior characteristics of PharmaPure tubing, the following tests were also performed: Genotoxicity Tests, Bacteriostasis – Fungistasis Tests, Physiochemical Testing for Elastomeric Closures (USP <381>), Physiochemical Testing for Plastics (USP <661>), Total Extractables (per 21 CFR 177.2600), and full Preservative Absorption Test Protocol evaluating benzyl alcohol, phenol, meta-cresol, methyl paraben, and propyl paraben. PharmaPure tubing has a Master File with the US Food and Drug Administration.

Features/Benefits

- Ultralow particulate spallation
- Provides an excellent barrier with very low permeability
- Withstands repeated autoclaving and sterilization
- Meets all USP Class VI and FDA criteria
- Custom mold and design capabilities



Specifications

| Physical properties | ASTM Method | Value or rating |
|--|------------------|-------------------------|
| Durometer hardness, Shore A, 15 sec | D2240-00 | 65 |
| Tensile strength, psi (MPa) | D412-98 | 700 (4.8) |
| Ultimate elongation, % | D412-98 | 400 |
| Tensile stress, @ 100% psi (MPa) | D412-98 | 375 (2.6) |
| Tensile set, % @ 75% of ultimate elongation | D412-98 | 38 |
| Colour | — | Off white |
| Tear resistance, lb-f/inch (kN/m) | D1004-94 | 110 (19.3) |
| Compression set constant deflection, % @ 70°C (158°F) for 22 hrs | D395-98 Method B | 36 |
| Specific gravity | D792-00 | 0.92 |
| Water absorption, % 24 hrs @ 23°C (73°F) | D570-98 | 0.04 |
| Brittle temperature | D746-98 | -67°C (-89°F) |
| Low temperature flexibility @ -40°F (-40°C) | D380-94 | Passed (still flexible) |
| Flame resistance classification | UL 94-HB | Passed |
| Maximum recommended operating temperature | — | 135°C (275°F) |
| Dielectric strength, v/mil (kV/mm) | D149-97a | 567 (22.3) |

APPLICATIONS

- ✓ Cell harvest and media process systems
- ✓ Bioreactor process lines
- ✓ Sterile filling
- ✓ Diagnostic test products
- ✓ Production filtration and fermentation

Sizes Available

| ID (inch) | OD (inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|--------------|--------------|---------|---------|--------------|-----------|-----------|--------------|----------------|
| 1/32 (0.031) | 3/32 (0.156) | 0.8 | 4 | 1/16 (0.063) | 1.6 | 25 ft | AL242606 | JB-06541-01 |
| 1/16 (0.063) | 1/8 (0.125) | 1.6 | 3.2 | 1/32 (0.031) | 0.8 | 25 ft | AL242002 | JB-06541-02 |
| 1/16 (0.063) | 3/16 (0.188) | 1.6 | 4.7 | 1/16 (0.063) | 1.6 | 25 ft | AL242003 | JB-06541-03 |
| 3/32 (0.094) | 7/32 (0.219) | 2.4 | 5.5 | 1/16 (0.063) | 1.6 | 25 ft | AL242005 | JB-06541-04 |
| 1/8 (0.125) | 3/16 (0.188) | 3.2 | 4.7 | 1/32 (0.031) | 0.8 | 25 ft | AL242006 | JB-06541-05 |
| 1/8 (0.125) | 1/4 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 25 ft | AL242007 | JB-06541-06 |
| 3/16 (0.188) | 3/16 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 25 ft | AL242012 | JB-06541-07 |
| 1/4 (0.250) | 3/8 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 25 ft | AL242017 | JB-06541-08 |
| 1/4 (0.250) | 1/2 (0.500) | 6.4 | 12.7 | 1/8 (0.125) | 3.2 | 25 ft | AL242019 | JB-06541-09 |
| 3/16 (0.313) | 7/16 (0.438) | 7.9 | 11.1 | 1/16 (0.063) | 1.6 | 25 ft | AL242022 | JB-06541-10 |
| 3/8 (0.375) | 1/2 (0.500) | 9.5 | 12.7 | 1/16 (0.063) | 1.6 | 25 ft | AL242027 | JB-06541-11 |
| 3/8 (0.375) | 5/8 (0.625) | 9.5 | 15.8 | 1/8 (0.125) | 3.2 | 25 ft | AL242029 | JB-06541-12 |
| 1/2 (0.500) | 3/4 (0.750) | 12.7 | 19.1 | 1/8 (0.125) | 3.2 | 25 ft | AL242038 | JB-06541-13 |
| 5/8 (0.625) | 7/8 (0.875) | 15.9 | 22.2 | 1/8 (0.125) | 3.2 | 25 ft | AL242046 | JB-06541-14 |
| 3/4 (0.750) | 1 (1.000) | 19.1 | 25.4 | 1/8 (0.125) | 3.2 | 25 ft | AL242053 | JB-06541-15 |

SaniPure™ BDF™ Biopharmaceutical Tubing

Bovine derivative free biopharmaceutical-grade tubing

SaniPure BDF tubing is a breakthrough innovation in polymer high-performance materials. SaniPure BDF is completely certified to be free of materials of animal origin and is the ideal choice for handling sensitive biological fluid transfer applications. It combines the features of traditional silicone tubing with superior peristaltic pump life performance and low absorption characteristics. SaniPure BDF tubing answers the industry's requirements for performance, characterization, and animal-free origination.

Characteristics

SaniPure BDF has an ultra-smooth inner bore which drastically reduces potential particle entrapment and microscopic build-up during critical fluid transfer processes. This smooth fluid path also helps facilitate complete sanitation of the fluid transfer system and improves flow characteristics by reducing surface area.

The innovative design of SaniPure BDF creates an advanced tubing formulation that has an absorption rate lower than virtually all elastomeric tubing currently in use, making it the obvious selection when fluid integrity must be maintained throughout the process. This will also ensure that common preservatives which are added during processing are fully optimized.

Biocompatibility

SaniPure BDF tubing complies fully with the requirements of USP Class VI, European Pharmacopeia 3.2.9 and FDA 21 CFR Part 177.1210 criteria and is entirely noncytotoxic, nonpyrogenic, and nonhemolytic. To ensure the superior characteristics of SaniPure BDF tubing, the following tests were also performed: Genotoxicity Tests, Bacteriostasis – Fungistasis Tests, Physicochemical Testing for Elastomeric Closures (USP <381>), Physicochemical Testing for Plastics (USP <661>), and Total Extractables (per 21 CFR 177.2600). SaniPure BDF tubing has a Master File with the US Food and Drug Administration.

Features/Benefits

- Certified to be free of materials of animal origin
- Ultra-smooth inner bore reduces potential for particle entrapment
- Documented biocompatibility for sensitive applications
- Meets USP Class VI, EP 3.2.9, and FDA criteria
- Noncytotoxic, nonpyrogenic, and nonhemolytic
- Very low absorption and adsorption compared to silicone tubing
- Heat sealable, bondable, sterile-weldable, and custom moldable for assemblies
- Superior peristaltic pump life
- Fully autoclavable and sterilizable



APPLICATIONS

- ✓ Sterile filling and processing
- ✓ Cell harvest and media process systems
- ✓ Production filtration and fermentation
- ✓ Cell and tissue culture transport
- ✓ Drug delivery systems
- ✓ Diagnostic equipment and laboratory research
- ✓ Bioreactor process lines
- ✓ High-purity water transfer
- ✓ Buffer solutions

Specifications

Sterilization

Autoclavable: yes Gas: ethylene oxide Radiation: up to 5.0 MRad

| Physical properties | ASTM Method | Value or rating |
|--|------------------|-------------------------|
| Durometer hardness, Shore A, 15 sec | D2240 | 60 |
| Tensile strength, psi (MPa) | D412-98 | 1630 (11.2) |
| Ultimate elongation, % | D412-98 | 770 |
| Tear resistance, lb-f/inch (kN/m) | D1004 Die C | 190 (33.3) |
| Compression set constant deflection, % @ 70°C (158°F) for 22 hrs | D395-98 Method B | 55 |
| Brittle temperature | D746-98 | -66°C (-87°F) |
| Specific gravity | D792-00 | 0.90 |
| Water absorption, %, 24 hrs @ 23°C (73°F) | D570-98 | 0.07 |
| Maximum recommended temperature | — | 135°C (275°F) |
| Colour | — | Clear |
| Dielectric strength v/mil (kV/mm) | D149 | 550 (21.6) |
| Tensile modulus @ 300% psi (MPa) | D412 | 555 (3.83) |
| Tensile set @ 75% of ultimate elongation | D412-98 | 100 |
| Low temperature flexibility @ -40°C (-40°F) | D380-94 | Passed (still flexible) |



Sizes Available

| ID (inch) | OD (inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|--------------|--------------|---------|---------|--------------|-----------|-----------|--------------|----------------|
| 1/32 (0.031) | 3/32 (0.094) | 0.8 | 2.4 | 1/32 (0.031) | 0.8 | 50 ft | AR400001 | JB-06590-01 |
| 1/16 (0.063) | 1/8 (0.125) | 1.6 | 3.2 | 1/32 (0.031) | 0.8 | 50 ft | AR400002 | JB-06590-02 |
| 1/16 (0.063) | 3/16 (0.188) | 1.6 | 4.7 | 1/16 (0.063) | 1.6 | 50 ft | AR400003 | JB-06590-03 |
| 1/8 (0.125) | 1/4 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 50 ft | AR400007 | JB-06590-04 |
| 3/16 (0.188) | 3/16 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 50 ft | AR400012 | JB-06590-05 |
| 3/16 (0.188) | 3/8 (0.375) | 4.7 | 9.5 | 3/32 (0.094) | 2.4 | 50 ft | AR400013 | JB-06590-06 |
| 1/4 (0.250) | 3/8 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 50 ft | AR400017 | JB-06590-07 |
| 1/4 (0.250) | 7/16 (0.438) | 6.4 | 11.1 | 3/32 (0.094) | 2.4 | 50 ft | AR400018 | JB-06590-08 |
| 1/4 (0.250) | 1/2 (0.500) | 6.4 | 12.7 | 1/8 (0.125) | 3.2 | 50 ft | AR400019 | JB-06590-09 |
| 3/8 (0.375) | 1/2 (0.500) | 9.5 | 12.7 | 1/16 (0.063) | 1.6 | 50 ft | AR400027 | JB-06590-10 |
| 3/8 (0.375) | 5/8 (0.625) | 9.5 | 15.8 | 1/8 (0.125) | 3.2 | 50 ft | AR400029 | JB-06590-11 |
| 1/2 (0.500) | 3/4 (0.750) | 12.7 | 19.1 | 1/8 (0.125) | 3.2 | 50 ft | AR400038 | JB-06590-12 |

PharmaFluor® FEP Tubing

Effectively transfers abrasive and corrosive fluids

PharmaFluor FEP is a fluoropolymer tubing that meets the demands of biopharmaceutical, medical, and laboratory applications. It has outstanding chemical and physical characteristics because processing occurs under stringently controlled conditions. In addition to being chemically inert, PharmaFluor FEP tubing can be used in a broad range of temperatures, from -73 to 204°C (-100 to 400°F).

Characteristics

Fluid integrity is an obvious area of concern in biopharmaceutical, medical and lab applications. PharmaFluor FEP will resist the absorption/adsorption of aqueous fluids, which minimizes the risk of fluid alteration in single or repeat use applications. It is also virtually unaffected by chemical sanitizers and cleaners and can be cleaned repeatedly without decreasing its service life.

Biocompatibility

PharmaFluor FEP complies fully with the requirements of USP Class VI and all current ISO standards, and is entirely noncytotoxic, nonpyrogenic, and nonhemolytic. To ensure the superior characteristics of PharmaFluor FEP, the following tests were also performed: Genotoxicity Tests, Bacteriostasis-Fungistasis Tests, Physicochemical Testing for Elastomeric Closures (USP <381>), and Physicochemical Testing for Plastics (USP <661>). PharmaFluor FEP has a Master File with the US Food and Drug Administration.

Features/Benefits

- Chemically inert and ultrapure
- Documented biocompatibility
- Fully characterized to all current standards
- Noncytotoxic, nonpyrogenic, and nonhemolytic
- Extremely low sorption characteristics compared to other flexible tubings
- Fully autoclavable and sterilizable
- Excellent barrier with very low permeability



APPLICATIONS

- ✓ Sterile fill and dispensing systems
- ✓ Diagnostic equipment
- ✓ General laboratory use
- ✓ Cell and tissue culture transport
- ✓ Analytical and process equipment in biotechnology, pharmaceutical, and environmental fields

Specifications

Sterilization

Autoclavable: yes
Gas: ethylene oxide
Radiation: up to 50 kGy

| Physical properties | ASTM Method | Value or rating |
|--------------------------------------|-------------|--------------------------------------|
| Durometer hardness Shore D | D2240 | 55 |
| Elongation @ 23°C (73°F) | D638 | 275% |
| Maximum service temperature | — | 204°C (400°F) |
| Melting point | D4591 | 302 to 310°C (500 to 530°F) |
| Low temperature embrittlement | D746 | -73°C (-100°F) |
| Specific gravity | D792 | 2.17 |
| Odor and taste | — | None |
| Toxicity | — | None |
| Flammability | — | UL 94 rated V-0 (self-extinguishing) |
| Moisture absorption, % | D570 | <0.01% |
| Effect of weathering and UV exposure | — | None |
| Colour | — | Transparent |

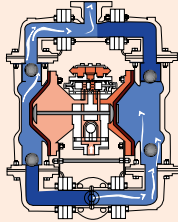
Sizes Available

| ID (inch) | OD (inch) | ID (mm) | OD (mm) | Wall (inch) | Wall (mm) | Pack size | Model number | Catalog number |
|--------------|--------------|---------|---------|--------------|-----------|-----------|-------------------|--------------------|
| 1/16 (0.063) | 1/8 (0.125) | 1.6 | 3.2 | 1/32 (0.031) | 0.8 | 50 ft | PHFE6-0125-031-50 | JB-15943-81 |
| 1/8 (0.188) | 1/4 (0.250) | 4.7 | 6.4 | 1/32 (0.031) | 0.8 | 50 ft | PHFE6-0250-031-50 | JB-15943-84 |
| 3/32 (0.156) | 1/4 (0.250) | 4 | 6.4 | 3/64 (0.047) | 1.2 | 50 ft | PHFE6-0250-047-50 | JB-15943-83 |
| 1/8 (0.125) | 1/4 (0.250) | 3.2 | 6.4 | 1/16 (0.063) | 1.6 | 50 ft | PHFE6-0250-062-50 | JB-15943-82 |
| 3/16 (0.188) | 5/16 (0.313) | 4.7 | 7.9 | 1/16 (0.063) | 1.6 | 50 ft | PHFE6-0312-062-50 | JB-15943-85 |
| 1/8 (0.313) | 3/8 (0.375) | 7.9 | 9.5 | 1/32 (0.031) | 0.8 | 50 ft | PHFE6-0375-031-50 | JB-15943-87 |
| 1/4 (0.250) | 3/8 (0.375) | 6.4 | 9.5 | 1/16 (0.063) | 1.6 | 50 ft | PHFE6-0375-062-50 | JB-15943-86 |
| 3/8 (0.375) | 1/2 (0.500) | 9.5 | 12.7 | 1/16 (0.063) | 1.6 | 50 ft | PHFE6-0500-062-50 | JB-15943-88 |

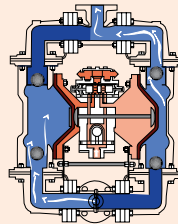


How Double-Diaphragm Pumps Work

Discharge Stroke—Pressurized air is directed to the left diaphragm, pushing it outward. Liquid is forced from the left outer chamber, through the chamber, an open discharge check valve, and exits the pump at the discharge manifold.



Suction Stroke—As the left diaphragm is pushed out, a connecting rod pulls the right diaphragm inward, filling the right chamber with fluid. Liquid enters the pump at the suction manifold, moves through an open suction check valve, and fills the chamber.



Surge Suppressor—Liquid pressure pushes the diaphragm upward, and a balancing air cushion keeps the diaphragm centered at midstroke. The diaphragm flexes within the mid-range position, absorbing and equalizing discharge pulsation.



Air-Powered Double-Diaphragm Pumps

Move high-viscosity fluids easily— even sludge!

- High flow rates—up to 106 GPM
- No need to worry about electrical sparking
- Won't lose seal even after repeated servicing
- Easy pump head access for maintenance needs
- No lubrication of valve required

Safely handles abrasive fluids and slurries—ideal for high-viscosity and shear-sensitive materials. Encapsulated muffler provides excellent sound dampening.



Specifications

Suction lift: 10 ft (3 m) H₂O

Viscosity: up to 11,000 cp

Max temperature:

PP models: 150°F (66°C)

PVDF models: 200°F (93°C)

SS models: 212°F (100°C)

Duty cycle: continuous

Run dry: yes

Polypropylene (PP) Pumps



| Max GPM (LPM) | Max psi (bar) | Port size | Max particle size | Diaphragm material | Air inlet requirements | | | Catalog number |
|---------------|---------------|-----------|-------------------|--------------------|------------------------|---------------|--------------------------|----------------|
| | | | | | Connection | Max psi (bar) | scfm (m ³ /h) | |
| 4 (15.1) | 100 (6.9) | ¼" NPT(F) | ½" | Santoprene® | ¼" NPT(F) | 100 (6.9) | 1 to 6 (1.7 to 10.2) | JB-74000-70 |
| | | | | PTFE | | | | JB-74000-72 |
| 14 (53) | 100 (6.9) | ½" NPT(F) | ⅛" | Santoprene | ¼" NPT(F) | 100 (6.9) | 2 to 16 (3.4 to 27.2) | JB-74000-00 |
| | | | | PTFE | | | | JB-74000-42 |
| 23 (87.1) | 100 (6.9) | ¾" NPT(F) | ⅛" | Santoprene | ¼" NPT(F) | 100 (6.9) | 4 to 25 (6.8 to 42.5) | JB-74000-11 |
| | | | | PTFE | | | | JB-74000-13 |

PVDF Pumps

| Max GPM (LPM) | Max psi (bar) | Port size | Max particle size | Diaphragm material | Air inlet requirements | | | Catalog number |
|---------------|---------------|-----------|-------------------|--------------------|------------------------|---------------|--------------------------|----------------|
| | | | | | Connection | Max psi (bar) | scfm (m ³ /h) | |
| 4 (15.1) | 100 (6.9) | ¼" NPT(F) | ½" | Santoprene | ¼" NPT(F) | 100 (6.9) | 1 to 6 (1.7 to 10.2) | JB-74000-80 |
| | | | | PTFE | | | | JB-74000-82 |
| 14 (53) | 100 (6.9) | ½" NPT(F) | ⅛" | PTFE | ¼" NPT(F) | 100 (6.9) | 2 to 16 (3.4 to 27.2) | JB-74000-46 |
| | | | | Santoprene | | | | JB-74000-21 |
| 23 (87.1) | 100 (6.9) | ¾" NPT(F) | ⅛" | Santoprene | ¼" NPT(F) | 100 (6.9) | 4 to 25 (6.8 to 42.5) | JB-74000-21 |
| | | | | PTFE | | | | JB-74000-22 |

Stainless Steel Pump

| Max GPM (LPM) | Max psi (bar) | Port size | Max particle size | Diaphragm material | Air inlet requirements | | | Catalog number |
|---------------|---------------|-----------|-------------------|--------------------|------------------------|---------------|--------------------------|----------------|
| | | | | | Connection | Max psi (bar) | scfm (m ³ /h) | |
| 4.4 (16.7) | 125 (8.6) | ¼" NPT(F) | ⅛" | PTFE | ¼" NPT(F) | 125 (8.6) | 1 to 8 (1.7 to 13.6) | JB-74007-00 |

Specifically designed to move delicate biological fluids

Masterflex® Drives Powering Quattroflow™ Pumps

MASTERFLEX®

- Diaphragms enable soft, gentle pumping through the strokes generated by the eccentric shaft
- No mechanical seal or rotating parts that can fail—only the diaphragm and body come in contact with the fluid

Quattroflow Pumps offer a unique four diaphragm (chamber) design, providing the constant low-pulsation, low-shear pumping needed for your biological fluids. In addition, the quaternary diaphragm design enables risk-free dry-running, self-priming, and a high turn-down ratio. Both the single-use and multiple-use models safely and reliably pump plasma products, proteins, monoclonal antibodies, vaccines, and more.

Single-use pump heads have a disposable wetted chamber constructed of solid polypropylene (PP) that can be replaced as a complete unit. This saves you time and money by eliminating the cleaning validation, sterilization process normally associated with permanent multiple-use systems. You can quickly turn around equipment from one batch to the next, maximizing production operations. Plus, fluid path integrity and sterility is ensured with no chance of cross-batch or cross-product contamination. Come presterilized and double bagged.

Multiple-use pump systems ensure total product containment without abrasion and minimal particle creation. Stainless steel construction handles higher pressure applications including cross-flow filtration and chromatography columns.

Special Masterflex Drives were developed to best take advantage of the operating parameters of the Quattroflow pumps. Drives feature an intuitive interface, remote control functionality, and a brushless, maintenance-free motor with $\pm 0.1\%$ speed control accuracy. The graphical LCD shows six different parameters: motor rpm, flow rate, dispense volume, cumulative volume, dispense interval time, and copy number. Dispense by volume or time with a user-defined time interval between cycles.

Plastic-enclosed drive has an IP33 rating for benchtop lab applications and has been combined with the lower flow QF150 series pump head.

Stainless steel drives have IP66 and NEMA 4X ratings and are designed for both the QF150 and QF1200 series. Sealed stainless steel housing and sealed keypad are protected from dust, water, and chemicals in the washdown environment—simply hose down to clean.



| Systems | | | Replacement pump heads | |
|------------------------|-----------------------------------|--------------------|------------------------|--|
| Pump head model | Drive type | Catalog number | Catalog number | |
| QF150SU (single use) | ABS plastic, IP33 | JB-74000-35 | JB-76000-00 | |
| | Stainless steel, IP66 and NEMA 4X | JB-74000-37 | JB-76000-00 | |
| QF150S (multiple use) | ABS plastic, IP33 | JB-74000-31 | JB-76000-06 | |
| | Stainless steel, IP66 and NEMA 4X | JB-74000-33 | JB-76000-06 | |
| QF1200SU (single use) | Stainless steel, IP66 and NEMA 4X | JB-74000-47 | JB-76000-02 | |
| QF1200S (multiple use) | Stainless steel, IP66 and NEMA 4X | JB-74000-43 | JB-76000-08 | |

Specifications for Quattroflow Pumps

| Model | QF150SU (single use) | QF150S (multiple use) | QF1200SU (single use) | QF1200S (multiple use) |
|-----------------------------|--|---|--|---|
| Flow range | 1 to 180 L/h (0.26 to 48 GPH) | 1 to 180 L/h (0.26 to 48 GPH) | 20 to 960 L/h (5.3 to 253 GPH) | 20 to 960 L/h (5.3 to 253 GPH) |
| Max pressure | For fluid temp <104°F (40°C) | 58 psi (4 bar) | 58 psi (4 bar) | 87 psi (6 bar) |
| | For fluid temp >104°F (40°C) | 58 psi (4 bar) | 58 psi (4 bar) | 58 psi (4 bar) |
| Max fluid temperature | 140°F (60°C) | 176°F (80°C) | 140°F (60°C) | 176°F (80°C) |
| Suction lift at 300 rpm | 6.6 to 9.8 ft (2 to 3 m) | 6.6 to 9.8 ft (2 to 3 m) | 13.1 to 14.7 ft (4 to 4.5 m) | 13.1 to 14.7 ft (4 to 4.5 m) |
| Volume per revolution | At free output | 1.2 mL | 1.2 mL | 9.6 mL |
| | Without connector | 15 mL | 15 mL | 75 mL |
| Connection type | ¼" Tri-Clamp® | ¼" Tri-Clamp | ¾" Tri-Clamp | ¾" Tri-Clamp |
| Position of connectors | In-line | In-line | In-line | In-line |
| Connector direction options | 4 | 4 | 4 | 4 |
| Wetted materials | PP (housing, valve plate), TPE (diaphragm), EPDM (valves, O-rings) | 316L SS (housing, valve plate), TPE (diaphragm), EPDM (valves, O-rings) | PP (housing, valve plate), TPE (diaphragm), EPDM (valves, O-rings) | 316L SS (housing, valve plate), TPE (diaphragm), EPDM (valves, O-rings) |

Specifications for Masterflex Drives

| Description | ABS plastic drive for QF150 | Stainless steel drive for QF150 | Stainless steel drive for QF1200 |
|-----------------------------|---|---------------------------------|----------------------------------|
| Speed | 3000 rpm | 3000 rpm | 1700 rpm |
| Speed control | $\pm 0.1\%$ | $\pm 0.1\%$ | $\pm 0.1\%$ |
| Motor size | ¼ hp (0.05 kW) | ¼ hp (0.05 kW) | ⅜ hp (0.26 kW) |
| IP rating | IP33 | IP66 and NEMA 4X | IP66 and NEMA 4X |
| Dispense modes | Motor rpm, flow rate, dispense volume, cumulative volume, dispense interval time, and copy number | | |
| Input/output communications | Speed control: scalable 0 to 20 mA, 4 to 20 mA, 0 to 10 V; Pumping direction: requires open collector or contact enclosure; Start/stop/purge: requires open collector or contact closure; Tachometer output: scalable 0 to 20 mA, 4 to 20 mA, 0 to 10 V | | |
| Power | 90 to 260 VAC | | |



Applications

- Cross-flow systems
- Tangential flow filtration
- Chromatography systems
- Reaction dosing
- Virus or sterile filtration
- Buffer mixing systems
- Virus cultures
- Bacterial and viral vaccines
- Cell cultures
- Cell culture supernatants
- Enzyme solutions
- Antibodies
- Virus inactivation

Cole-Parmer® Drum Pump Systems

Get pumping immediately with everything you need

- Equipped with variable-speed control motors for added safety and control
- Maintenance is reduced with no mechanical seals
- Run dry capability

Pre-configured drum and container pumps are engineered to safely transfer a variety of liquids from drums, tanks, and small storage vessels. Based upon the application, polypropylene (PP), CPVC, PVDF, and 316 stainless steel (SS) materials provide excellent chemical resistance against corrosive liquids.

The Measurement Pump Packages (“D” and “E”) include a digital flowmeter and totalizer. The dispensing hose for all the pumps is a 6-ft length of PVC tubing. The storage bracket for all packages is made from 16 gauge coated steel.

What’s included: electric motor with 16-ft (4.8-m) power cord, pump tube, wall storage bracket, barrel adapter, dispensing hose and nozzle. Models 70614-07 and -09 also include a flowmeter/totalizer.

Quick Reference Table

| Pumps | Wetted materials | Typical applications include but not limited to |
|----------|--|--|
| A | CPVC tube; PP barrel adapter and dispensing nozzle; PVC dispensing hose | Corrosive water treatment chemicals—sodium hypochlorite, potassium hydroxide, and sodium bromide |
| B | Polypropylene tube; PP barrel adapter and dispensing nozzle; PVC dispensing hose | Acids and alkalies—hydrochloric acid, nitric acid (20%), acetic acid, and sulfuric acid |
| C | PVDF tube; PP barrel adapter; PVDF dispensing nozzle; PVC dispensing hose | Concentrated acids and alkalies—sulfuric acid 66 Baume, propionic acid, concentrated nitric (98%), and hydrofluoric acid |
| D | Polypropylene tube; PP barrel adapter and dispensing nozzle; PVC dispensing hose; PP flowmeter/totalizer | Acids and alkalies—hydrochloric acid, nitric acid (20%), acetic acid, and sulfuric acid |
| E | PVDF tube; PP barrel adapter; PVDF dispensing nozzle; PVC dispensing hose; PP flowmeter/totalizer | Concentrated acids and alkalies—sulfuric acid 66 Baume, propionic acid, concentrated nitric (98%), and hydrofluoric acid |
| F | 316 SS tube and barrel adapter; aluminum dispensing nozzle; PVC dispensing hose | Light oils—light machining oils, transmission fluid, nitric acid |

Specifications

Speed: 10,000 rpm **Port:** 1" (25 mm) hose barb **Hose:** 6 ft (1.8 m) of PVC tubing with 1" ID

| Max flow GPM (LPM) | Max head | Max viscosity | Motor | | Power | | Tube | | Max temperature | Catalog number |
|---|--------------|---------------|-------|----|-------|----|-------------|----------|-----------------|--------------------|
| | | | Type | hp | VAC | Hz | Length | Material | | |
| A. Water treatment pump | | | | | | | | | | |
| 35 (132) | 35 ft (10 m) | 1500 | ODP | 1 | 230 | 50 | 39" (99 cm) | CPVC | 190°F (90°C) | JB-70614-01 |
| B. Acids and alkalies pump | | | | | | | | | | |
| 35 (132) | 35 ft (10 m) | 1500 | ODP | 1 | 230 | 50 | 39" (99 cm) | PP | 130°F (55°C) | JB-70614-03 |
| C. Concentrated and alkalies pump | | | | | | | | | | |
| 35 (132) | 35 ft (10 m) | 1500 | TEFC | 1 | 230 | 50 | 39" (99 cm) | PVDF | 175°F (80°C) | JB-70614-05 |
| D. Acids and alkalies measurement pump with flowmeter/totalizer | | | | | | | | | | |
| 35 (132) | 35 ft (10 m) | 300 | ODP | 1 | 230 | 50 | 39" (99 cm) | PP | 130°F (55°C) | JB-70614-07 |
| E. Concentrated acids and alkalies measurement pump with flowmeter/totalizer | | | | | | | | | | |
| 35 (132) | 35 ft (10 m) | 300 | TEFC | 1 | 230 | 50 | 39" (99 cm) | PVDF | 175°F (80°C) | JB-70614-09 |
| F. Light oil pump package | | | | | | | | | | |
| 35 (132) | 35 ft (10 m) | 1500 | ODP | 1 | 230 | 50 | 39" (99 cm) | 316 SS | 130°F (55°C) | JB-70614-11 |

Service that doesn't end with sales.

We install, commission, provide IQ/OQ certification, and repair virtually all of our products.

022-6139-4444 | info@coleparmer.in



Steel Hand-Operated Drum Pumps

Reliable pumping for organic fluids

A. 316 Stainless Steel (SS) Pumps

- Suitable for pumping chlorinated or petroleum-based solvents
- 316 SS/PTFE parts offer excellent chemical resistance

What's included: vented bung adapter. To safely pump petroleum-based solvents, use grounding wire (order separately below). Order optional adapters for 5-gallon containers below.

B. Carbon Steel Pumps

- Pump mild soaps, disinfectants, and other noncorrosive liquids (not recommended for high-pH solutions)
- Sturdy carbon steel and HDPE construction ensures long life

What's included: vented bung adapter. Order optional adapters for 5-gallon containers below.



| Key | Strokes/ gal (L) | Wetted materials | Container adapter | Inlet tube | | Outlet hose | | Catalog number |
|-----|---------------------|---|----------------------|---|---------------|---------------------|---------------------------|----------------------------|
| | | | | L | OD | L | OD | |
| A | 16 (5) | 316 stainless steel body; PTFE packing, piston, inlet tube | 2" NPT(M) | 23" (58 cm) | 5/8" (1.6 cm) | 6" (15 cm) spout | 1/2" (1.3 cm) OD spout | JB-07079-20 |
| | 8 (3) | | | — | 5/8" (1.6 cm) | | | JB-07079-30 |
| | 5 (2) | | | 316 stainless steel body and piston; PTFE seals | 2" IPS bung | 37" (94 cm) | 5/8" (1.6 cm) | 7" (18 cm) curved spout |
| B | 16 (5) | Carbon steel body; HDPE packing, piston, inlet tube | 2" NPT(M) | 23" (58 cm) | 5/8" (1.6 cm) | 6" (15 cm) spout | 1/2" (1.3 cm) OD spout | JB-07079-25 |
| | 8 (3) | | | — | 5/8" (1.6 cm) | | | JB-07079-35 |
| | 5 (2) | | | Steel body and piston; polyethylene seals | 2" IPS bung | 37" (94 cm) | 5/8" (1.6 cm) | 7" (18 cm) curved spout |

JB-07079-10 Steel screw-in adapter, 1 3/4" NPT(F). Fits 5-gallon pails

JB-07079-15 Flex spout adapter, polyethylene. Fits 5-gallon containers with 2 3/8" opening

JB-06434-50 Grounding wire for 316 SS pumps, 10-ft (3.0-m) long. Includes two copper alligator clips

JB-07079-01 Service kits for 07079-25, -35, and -80

JB-07079-21 Service kits for 07079-20, -30, and -90

High-Viscosity Sanitary Drum Pumps

No clogs, even with viscous fluids

- Progressive cavity positive-displacement design allows for low-shear properties
- Designed for transferring food products, pharmaceuticals, and cosmetic products from barrels, kettles, and tanks. Model 75220-65 comes with a turbine flowmeter.
- Easy cleaning with little downtime

What's included: drive (either electric or air) and pump tube. Batch control model 75220-55 also includes a NEMA 4X starter box, and a sanitary check valve.



Specifications

Accuracy: ±0.05% **Run dry:** no **Outlet:** 1 1/2" Tri-Clamp®



| Max flow rate† GPM (LPM) | Max viscosity | Motor | | | | Tube length | Max temperature | Wetted materials | | Catalog number |
|--|---------------|-------|-----|-------------|-------|-------------|--------------------|------------------|------------|--------------------|
| | | Type | hp | VAC | Hz | | | Tube | Elastomers | |
| Sanitary drum pumps | | | | | | | | | | |
| 12 (45) | 10,000 cps | TEFC | 1 | 230 | 50/60 | 39" (99 cm) | 212°F (100°C) | 316 SS | PTFE | JB-75220-05 |
| 6 (22) | 10,000 cps | TEFC | 1.5 | 230-380/460 | 50/60 | | | | | JB-75220-20 |
| 4 (15) | 10,000 cps | Air | — | — | — | | | | | JB-75220-30 |
| Sanitary batch control system | | | | | | | | | | |
| 3 (11) | 25,000 cps | TEFC | 1 | 230 | 50/60 | 39" (99 cm) | 212°F (100°C) | 316 SS | PTFE | JB-75220-55 |
| Sanitary drum pump with turbine flowmeter | | | | | | | | | | |
| 12 (45) | 300 cps | TEFC | 1 | 230 | 50/60 | 39" (99 cm) | 212°F (100°C) | 316 SS | PTFE | JB-75220-65 |

†Max flow rate is based upon water.

Cole-Parmer® Digital Gear Drive with Remote Control

Easier setup and operation

- Graphical LCD shows four operating modes: continuous run, timed dispense, copy dispense, volume dispense
- Get pulse-free flow in combination with Micropump® A-mount head
- Maximize bench space by stacking up to three drives
- Control speed, direction, and more remotely via DB25 female connector on drive

Analog remote control options and simple programming make this drive ideal for automated process applications. Drive features set time interval between dispense cycles for hands-free dispensing. Batch count function counts down and displays batches completed. Cumulative volume function enables you to track total volume dispensed over multiple cycles.

What's included: 6-ft (1.8-m) line cord with IEC 320/CEE22 socket. These models are shipped with country specific plug/cord set; please specify ultimate destination when ordering.



Cole-Parmer®

JB-07523-92 Foot switch for momentary start/stop; 6-ft (1.8-m) cable
JB-07523-94 Male connector, DB25.
Use to create your own cable



| Motor rpm | Motor hp | Motor type | Power VAC, Hz | Catalog number |
|------------|----------|------------|---------------|--------------------|
| 36 to 3600 | 1/10 | PMDC | 90 to 260 | JB-75211-70 |

Cole-Parmer® Gear Pump Systems

Order one part number, get a complete system—drive and pump head

Benchtop Analog Drives provide continuous-duty operation with Micropump® A-mount pump heads. Gradual, one-second acceleration offers smooth control of drive speed and flow rate. The permanent-magnet, direct-current (PMDC) drive is built to last—excellent for long-term applications.

Benchtop Digital Drives. Graphical LCD shows four operating modes: continuous run, timed dispense, copy dispense, and volume dispense. View pump performance continually. Systems deliver pulse-free flow in combination with Micropump® A-mount head. Retrieve displacement and flow values by pump head size. IP33-rated enclosure ensures splash and dust resistance. Drive has a DB25F connection to the optional foot switch for hands-free on/off control (order foot switch separately).



Benchtop analog system 74013-45



Benchtop digital system 74014-32

Cole-Parmer®



Specifications

| | | |
|--|--|--|
| Viscosity: 0.2 to 1500 cp | Remote control: Analog drives: none Digital drives: (input) on/off by contact closure | Max operating temperature: 60°C (104°F) |
| Suction lift: 0.6 m of H ₂ O (at 1750 rpm) | 0 to 10 VDC, 0 to 20 mA, 4 to 20 mA, and remote output | Speed: Analog drives: 50 to 5000 rpm Digital drives: 36 to 3600 rpm |
| Duty cycle: continuous | | Power: Analog, 220 VAC Digital, 90 to 260 VAC |
| Port size: 1/8" NPT(F) | | |

| Flow rates (mL/min) [†] | | | Max pressure | | Wetted parts | | | Benchtop analog systems | Benchtop digital systems | Service kits |
|----------------------------------|-----------|-------------|--------------|--------------|--------------|----------|--------|-------------------------|--------------------------|--------------------|
| mL/rev | at 50 rpm | at 3600 rpm | Diff (bar) | System (bar) | Body | Gears | Seals | Catalog number | Catalog number | Catalog number |
| 0.017 | 0.85 | 85 | 1.38 | 20.68 | 316 SS | Graphite | PTFE | JB-74013-75 | JB-74014-72 | JB-07144-42 |
| 0.092 | 4.60 | 331.2 | 5.17 | 20.68 | 316 SS | PPS | PTFE | JB-74013-05 | JB-74014-02 | — |
| 0.092 | 4.60 | 331.2 | 5.17 | 20.68 | 316 SS | PPS | PPS | JB-74013-65 | JB-74014-62 | — |
| 0.261 | 13.05 | 939.6 | 8.61 | 20.68 | 316 SS | PEEK | Viton® | JB-74013-55 | JB-74014-52 | JB-74012-52 |
| 0.316 | 15.8 | 1137.6 | 5.17 | 20.68 | 316 SS | PPS | PTFE | JB-74013-15 | JB-74014-12 | — |
| 0.64 | 32.0 | 2304 | 5.17 | 20.68 | 316 SS | PPS | PTFE | JB-74013-25 | JB-74014-22 | JB-74012-22 |
| 0.91 | 45.5 | 3276 | 5.17 | 20.68 | 316 SS | PPS | PTFE | JB-74013-35 | JB-74014-32 | — |
| 1.17 | 58.5 | 4212 | 4.14 | 20.68 | 316 SS | PPS | Viton | JB-74013-45 | JB-74014-42 | — |

[†]Flow rates in mL/min are based on water at room temperature and no back pressure.

JB-07523-92 Foot switch for 74014 series only. Momentary start/stop, 1.8-m cable
JB-06385-10 Male pipe adapter (straight); PP, 1/4" OD x 1/8" NPT(M). Pack of 10

JB-30621-31 Male pipe adapter; HDPE, 1/8" NPT(M) x 1/4" ID. Pack of 10
JB-40610-36 Male pipe adapter; natural PP, 1/8" NPT(M) x 1/4" ID. Pack of 10



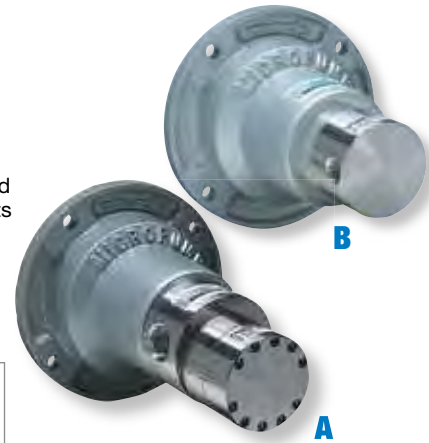
Gear Pump Heads for NEMA 56C Motors

Eliminate pulsation and leaking

- Compact size and easy to service

Magnetically driven, precision-gear cavity pump heads provide smooth, accurate, pulseless fluid delivery. The magnetic drive and a single seal keep fluids securely inside and potential contaminants out. Chemical-resistant materials handle a wide range of fluids.

- A. Cavity-Style Pump Heads** are designed to handle higher inlet pressures.
- B. Suction Shoe Pump Heads** give higher delivery pressures and superior priming performance.



Specifications

| | | |
|---|---|---|
| Viscosity range: Cavity style: 0.2 to 2500 cp Suction shoe: 0.2 to 1500 cp | Suction lift: Cavity style: 24" of H ₂ O (at 1750 rpm) Suction shoe: 6" of H ₂ O (at 1750 rpm) | Duty cycle: continuous Internal bypass: no |
|---|---|---|

| Flow rate (mL/min) [†] | | | Max speed (rpm) | Max pressure | | | | Port size NPT(F) | Wetted parts | | | Temperature range | | Reversible ^{‡‡} | Catalog number |
|-----------------------------------|------------|--------------|-----------------|--------------|----------|------------|------------|------------------|--------------|-------|--------------------|-------------------|------------|--------------------------|--------------------------|
| mL/rev | at 500 rpm | at max speed | | Diff psi | Diff bar | System psi | System bar | | Body | Gears | Seals | °F | °C | | |
| A. Cavity-Style Pump Heads | | | | | | | | | | | | | | | |
| 3.15 | 1575 | 12,600 | 4000 | 50 | 3.4 | 1500 | 103 | 3/8" | 316 SS | PTFE | PTFE | -50 to 130 | -45 to 54 | Yes | JB-73007-01 [‡] |
| 3.48 | 1740 | 13,920 | | 60 | 4.1 | | | | | PEEK | TEV ^{††} | -20 to 200 | -28 to 93 | No | JB-73007-00 [‡] |
| 3.48 | 1740 | 13,920 | | 100 | 6.9 | | | | | PEEK | TEV ^{††} | -20 to 200 | -28 to 93 | No | JB-73007-02 [‡] |
| 6.2 | 3100 | 21,390 | 3450 | 50 | 3.4 | 300 | 21 | 3/4" | 316 SS | PTFE | PTFE | -50 to 130 | -45 to 54 | Yes | JB-73007-07 |
| 12.2 | 6100 | 21,350 | 1750 | 125 | 8.6 | 1000 | 69 | 3/4" | 316 SS | PEEK | Viton [®] | -20 to 200 | -28 to 93 | Yes | JB-73007-13 |
| B. Suction Shoe Pump Heads | | | | | | | | | | | | | | | |
| 0.81 | 405 | 2795 | 6000 | 75 | 5.2 | 1500 | 103 | 3/8" | 316 SS | PPS | Viton [®] | -20 to 250 | -28 to 121 | No | JB-07003-41 |
| | | | | 125 | 8.6 | | | | | PEEK | Viton | -20 to 250 | -28 to 121 | | JB-73005-03 |
| | | | | 125 | 8.6 | | | | | PEEK | TEV ^{††} | -20 to 250 | -28 to 121 | | JB-73005-05 |
| 1.82 | 910 | 6279 | 4000 | 120 | 8.3 | 1500 | 103 | 3/8" | 316 SS | PEEK | Viton | -20 to 250 | -28 to 121 | No | JB-73005-09 |
| | | | | 120 | 8.3 | | | | | PEEK | TEV ^{††} | -20 to 250 | -28 to 121 | | JB-73005-02 |
| | | | | 50 | 3.4 | | | | | PEEK | TEV ^{††} | -20 to 250 | -28 to 121 | | JB-73005-06 |
| 3.48 | 1740 | 12,006 | 4000 | 75 | 5.2 | 1500 | 103 | 3/8" | 316 SS | PEEK | Viton | -20 to 250 | -28 to 121 | No | JB-73005-12 |
| | | | | 75 | 5.2 | | | | | PEEK | Viton | -20 to 250 | -28 to 121 | | JB-73005-12 |
| | | | | 75 | 5.2 | | | | | PEEK | TEV ^{††} | -20 to 250 | -28 to 121 | | JB-73005-13 |

[†]Flow rates based on water at room temperature and no back pressure [‡]Viscosity is 0.2 to 1500 cp ^{††}TEV = PTFE Encapsulated Viton
^{‡‡}Reversible pumps operating in the reverse direction will see degradation in performance and a reduction in life.

Gear Pumps

Dose, meter, and more with self-priming, bidirectional capabilities

- Wear-resistant helical gears offer reduced noise levels of 10 dB
- Heavy-duty three-piece design combines bearings and wear plates to easily service pump in the field
- PPS or investment cast 316 SS provide excellent compatibility for applications involving corrosive chemicals

PPS Gear Pumps with mechanical seals provide a cost-effective option for pumping a variety of fluids.

Investment Cast 316 SS Sealless Magnetic Drive Pumps provide superior performance in continuous-duty applications. Sealless design is engineered to handle hazardous, toxic, or highly corrosive chemicals.



Specifications

| | | |
|--|--|--|
| Max viscosity: 500 cp at 1725 rpm [†] | Suction lift: 18" Hg Duty cycle: continuous | Reversible: yes Run dry: no |
|--|--|--|

| Max flow GPM (LPM) | Max diff psi (bar) | Port size | Max temperature | Motor | | Power [‡] | | Wetted materials | Catalog number | Service kits Cat. no. |
|---|--------------------|----------------|-----------------|-------------|-------------|--------------------|-------------|---|----------------|-----------------------|
| | | | | Speed (rpm) | hp | VAC | Hz | | | |
| PPS gear pumps with mechanical seals | | | | | | | | | | |
| 1.5 (5.7) | 100 (6.9) | 1/2" NPT (F) | 200°F (93°C) | 1725 | 1/3 | 115/230 | 60 | PPS gear pumps: PPS body and idler gear, chemical grade carbon bearings, 316 SS shaft and drive gear, Viton [®] mechanical seal, and PTFE encapsulating silicone O-rings | JB-70736-00 | — |
| 4.0 (15.1) | | 3/4 | | | JB-70736-15 | | | | JB-70736-16 | |
| 5.6 (21.2) | | 1 | | | JB-70736-20 | | | | JB-70736-21 | |
| 8.0 (30.3) | 1 1/2" NPT (F) | 115/230 | 60 | JB-70736-25 | JB-70736-26 | | | | | |
| 15 (56.8) | 100 (6.9) | 1 1/2" NPT (F) | 230/460 | 60 | 2 | JB-70736-35 | JB-70736-36 | | | |
| 30 (113.6) | | | | | 5 | JB-70736-50 | JB-70736-51 | | | |
| Investment cast 316 SS sealless magnetic drive pumps | | | | | | | | | | |
| 2.0 (7.6) | 110 (7.6) | 1/2" NPT (F) | 450°F (232°C) | 1725 | 1/2 | 115/230 | 60 | 316 SS body, shafts, drive gear and containment can; PTFE idler gear, bearings and PTFE encapsulating silicone O-rings | JB-70737-05 | JB-70737-06 |
| 5.6 (21.2) | 110 (7.6) | 1/2" NPT (F) | | | 1 | | | | JB-70737-20 | JB-70737-21 |
| 15 (56.8) | 110 (7.6) | 1 1/2" NPT (F) | | | 3 | | | | 230/460 | 60 |

[†]Contact your local dealer if your maximum viscosity requirements are higher.

[‡]115/230 VAC models are single phase. Three-phase motors for variable-speed use with controllers are available; call your local office or dealer to order.

Abaque™ Peristaltic Hose Pumps Built for your toughest projects

- Produce flow rates to 339 GPM and pressures as high as 217 psi (15 bar)
- Eliminate leaks and product contamination with sealless design
- Handle even your most abrasive, aggressive, viscous, and solid-laden fluids
- Use in demanding applications such as water and wastewater, mining, energy, ceramic, and chemical process

Rugged, low-maintenance Abaque pumps have none of the seats, valves, or mechanical seals that create problems on other pumps—the hose is the only component that needs to be replaced. Order a ready-to-use system below or customize a pump to suit your needs. If your application is moving a more viscous fluid or needs to lift product greater than 29 ft, a vacuum assist kit option is highly recommended.

What's included: flat pack (liquid end), gear box, motor, and natural rubber hose.



Specifications

Fluid temperature: 32 to 158°F (0 to 70°C) for natural rubber hose
Suction lift: up to 29 ft (8.8m)
Duty cycle: continuous
Run dry: yes
Construction: ductile iron and steel
Power: 190–380 VAC, 50 Hz

Configure an Abaque pump with numerous options:

- Vacuum assist kit for highly viscous fluids
- Leak detector
- Pulsation dampener
- Nonmetallic hose inserts: PPH, PVDF
- Hose materials: natural rubber, Buna N, EPDM, CSM

| Max flow rate, continuous | | Discharge pressure | | Max viscosity | | Max solid particulate | | Max soft particulate | | Motor | | Catalog number |
|---------------------------|--------|--------------------|-----|---------------|---------|-----------------------|-----|----------------------|-----|-------|-----|----------------|
| GPM | L/min | psi | bar | cSt | SSU | in. | mm | in. | mm | hp | rpm | |
| 0.21 | 0.78 | 109 | 7.5 | 13,000 | 60,000 | 0.06 | 1.5 | 0.1 | 2.5 | 0.33 | 37 | JB-75809-01 |
| 0.36 | 1.39 | 109 | 7.5 | 13,000 | 60,000 | 0.06 | 1.5 | 0.1 | 2.5 | 0.5 | 66 | JB-75809-02 |
| 0.68 | 2.55 | 116 | 8 | 30,000 | 139,000 | 0.12 | 3 | 0.2 | 5 | 0.5 | 37 | JB-75809-03 |
| 1.12 | 4.25 | 116 | 8 | 30,000 | 139,000 | 0.12 | 3 | 0.2 | 5 | 0.5 | 37 | JB-75809-05 |
| 1.34 | 5.07 | 116 | 8 | 30,000 | 139,000 | 0.12 | 3 | 0.2 | 5 | 1 | 66 | JB-75809-04 |
| 2.01 | 7.63 | 116 | 8 | 30,000 | 139,000 | 0.12 | 3 | 0.2 | 5 | 1 | 66 | JB-75809-06 |
| 2.32 | 8.8 | 217 | 15 | 22,000 | 102,000 | 0.14 | 3.7 | 0.23 | 6 | 1 | 38 | JB-75809-07 |
| 4.15 | 15.74 | 217 | 15 | 22,000 | 102,000 | 0.14 | 3.7 | 0.23 | 6 | 1.5 | 68 | JB-75809-08 |
| 4.89 | 18.55 | 217 | 15 | 28,000 | 165,000 | 0.22 | 5.7 | 0.37 | 9.5 | 1.5 | 26 | JB-75809-09 |
| 7.0 | 26.49 | 217 | 15 | 25,000 | 115,000 | 0.23 | 6 | 0.39 | 10 | 2 | 24 | JB-75809-12 |
| 8.11 | 30.69 | 217 | 15 | 28,000 | 165,000 | 0.22 | 5.7 | 0.37 | 9.5 | 2 | 43 | JB-75809-14 |
| 9.01 | 34.10 | 217 | 15 | 28,000 | 165,000 | 0.22 | 5.7 | 0.37 | 9.5 | 2 | 47 | JB-75809-11 |
| 16.22 | 61.41 | 217 | 15 | 28,000 | 165,000 | 0.22 | 5.7 | 0.37 | 9.5 | 3 | 86 | JB-75809-15 |
| 16.33 | 61.82 | 217 | 15 | 25,000 | 115,000 | 0.23 | 6 | 0.39 | 10 | 3 | 56 | JB-75809-13 |
| 21.18 | 80.20 | 217 | 15 | 40,000 | 185,000 | 0.35 | 9 | 0.63 | 16 | 10 | 34 | JB-75809-16 |
| 31.17 | 117.96 | 217 | 15 | 40,000 | 185,000 | 0.35 | 9 | 0.63 | 16 | 10 | 42 | JB-75809-18 |
| 31.78 | 120.3 | 217 | 15 | 40,000 | 185,000 | 0.35 | 9 | 0.63 | 16 | 10 | 51 | JB-75809-17 |
| 42.28 | 160.04 | 217 | 15 | 40,000 | 185,000 | 0.35 | 9 | 0.63 | 16 | 10 | 57 | JB-75809-19 |

Service that doesn't end with sales.

We install, commission, provide IQ/OQ certification, and repair virtually all of our products.

022-6139-4444 | info@coleparmer.in



Cole-Parmer® High-Precision, High-Pressure Piston Pumps

Precision pumping for your HPLC application

- Digital stepper motor ensures accuracy at low flow rates
- Self-flush feature washes piston with every stroke
- Interactive keypad controls make programming at the pump easy
- Pressure and leak sensors (except single-head pumps) alert you to malfunctions
- Remotely control pump with a PC via RS-232 and micro USB



APPLICATIONS

- ✓ General lab fluid transfer
- ✓ Precise chemical metering
- ✓ Dispensing
- ✓ Preparative and simulated moving bed chromatography
- ✓ UHP chromatography
- ✓ Analytical, flash, and small-scale preparations

Get high performance and high precision at an affordable price! This series of Cole-Parmer pumps precisely meter and dispense chemicals, making them perfect for both your analytical and small-scale applications. Requiring minimal bench space, these pumps will easily integrate into any laboratory or industrial environment.

Single-Head Pumps precisely meter and dispense chemicals, perfect for small-scale laboratory fluid transfers and HPLC applications. Small footprint saves bench and fume hood space.

High-Flow Dual-Head Pumps are ideally suited to preparative and simulated moving bed chromatography applications and other high throughput processes.

High-Performance Isocratic Pumps are best suited to semi-prep and other small-scale HPLC separations, and general metering and dispensing applications.

Low-Pulsation Dual-Head Pump provides virtually pulse-free operation with a low dead-volume pulse dampener, automatic pressure compensation, and advanced linear cam technology.



74931-01



74931-20



74931-12



74931-45



74931-10



| Description | | Single-head pumps | | | High-flow dual-head pumps | | | High-performance isocratic pumps | | Low-pulsation dual-head pump |
|-------------------------|----------------|--|-------------|---|---|-------------|-------------|---|------------------|---|
| Catalog number | | JB-74931-00 | JB-74931-01 | JB-74931-20 | JB-74931-10 | JB-74931-11 | JB-74931-12 | JB-74931-25 | JB-74931-45 | JB-74931-30 |
| Flow | Range (mL/min) | 0 to 10 | | | 0 to 100 | | 0 to 300 | 0 to 100 | 0 to 10 | 0 to 12 |
| | Accuracy | ±2% of set point | | | ±3% of set point | | | ±3% of set point | ±2% of set point | ±2% of set point |
| | Repeatability | ±1% | | ±0.2% | ±0.5% | | | ±0.5% | | ±0.2% |
| Pressure | Range (psi) | 0 to 2000 | | 0 to 6000 | 0 to 4000 | | 0 to 1000 | 0 to 4000 | 0 to 5000 | 0 to 6000 |
| | Accuracy | — | | ±2% full-scale | ±2% full-scale | | | — | | ±2% full-scale |
| Pulse dampener | | No | | Yes | Yes | No | No | Yes | | Yes |
| Pump head material | | PEEK | 316 SS | 316 SS | PEEK | 316 SS | 316 SS | 316 SS | 316 SS | 316 SS |
| Wetted materials | | Synthetic ruby, sapphire, UHMWPE, PTFE | | | Synthetic ruby, sapphire, UHMWPE, PTFE | | | Synthetic ruby, sapphire, UHMWPE, PTFE | | Synthetic ruby, sapphire, UHMWPE, PTFE |
| Output | | RS-232, micro USB | | RS-232, micro USB, voltage flow control, run/stop | RS-232, micro USB, voltage flow control, run/stop | | | RS-232, micro USB, voltage flow control, run/stop | | RS-232, micro USB, voltage flow control, run/stop |
| Max temperature (fluid) | | 212°F (100°C) | | | 212°F (100°C) | | | 212°F (100°C) | | 212°F (100°C) |
| Duty cycle | | Continuous | | | Continuous | | | Continuous | | Continuous |
| Self-priming | | No | | | No | | | No | | No |
| Dimensions (W x H x D) | | 7.6 x 14 x 26.7 cm | | 17.8 x 16.5 x 40.6 cm | 25.4 x 16 x 43.2 cm | | | 17.8 x 16.5 x 40.6 cm | | 25.4 x 16 x 43.2 cm |
| Power (VAC, Hz) | | 100 to 240, 50/60 | | | 100 to 240, 50/60 | | | 100 to 240, 50/60 | | 100 to 240, 50/60 |

Cole-Parmer® Touch-Screen Syringe Pumps

Intuitive programming and control

- Control flow rates from 5 pL/min to 220 mL/min via touch-screen display
- Save space by positioning pump on side—display rotates automatically
- Daisy chain up to 99 pumps with built-in RS-485 connectivity
- Accepts any type of syringe

Model 74905-50 is an infuse only syringe pump. It accommodates up to two syringes. Flow rates are defined by the user and operation is based on a selectable target volume or time values to control the total infusion volume.

Model 74905-52 is an infuse/withdraw syringe pump. The pump accommodates up to two syringes. The unit will operate in the following modes: infuse only, withdraw only, infuse then withdraw, withdraw then infuse, and continuous. One program can be stored.

Model 74905-54 is a programmable version of the 74905-52 pump. It is programmed to accept up to 800 user-defined steps—up to 40 programs with 20 steps each can be stored in memory.

Model 74905-56 is a push/pull syringe pump. The pump accommodates up to two syringes for infusion and two syringes for withdrawal. This pump is designed to support infusion and withdrawal simultaneously at the user-defined flow rates. The unit



operates in the following modes: infuse only, withdraw only, infuse then withdraw, withdraw then infuse, and continuous.

Model 74905-58 is a programmable version of the 74905-56 pump. It is programmed to accept up to 800 user-defined steps—up to 40 programs with 20 steps each can be stored into memory.



Specifications

| | | |
|--------------------------------|---|-------------------------------------|
| Accuracy: ±0.355% | Syringe sizes accepted: 0.5 µL to 140 mL | Output: RS-232, RS-485, USB, |
| Reproducibility: ±0.05% | Linear force: 75 lb (34 kg) | 15 pin D-sub connector |

| Description | Flow rate per syringe | Power (VAC, Hz) | Catalog number |
|----------------------------------|---------------------------|-------------------|--------------------|
| Infusion | 5 pL/min to 220.97 mL/min | 100 to 240, 50/60 | JB-74905-50 |
| Infusion/withdrawal | | | JB-74905-52 |
| Infusion/withdrawal programmable | | | JB-74905-54 |
| Push/pull | | | JB-74905-56 |
| Push/pull programmable | | | JB-74905-58 |

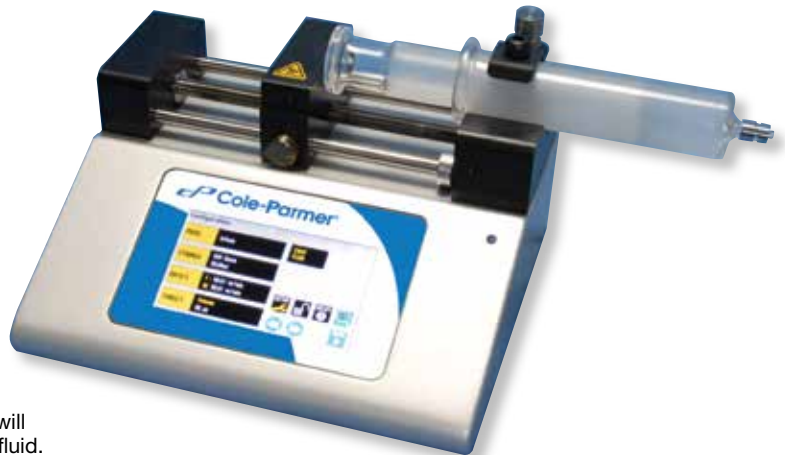
Cole-Parmer® Entry-Level Touch-Screen Syringe Pumps

Get more done simultaneously

- Accommodate two syringes for infusion and two syringes for withdrawal at the same time
- Control flow rates from 0.58 pL/min to 88.28 mL/min via full-color touch screen
- Daisy chain up to 99 pumps together with the built-in RS-485 connectivity
- Accept syringes from 0.5 µL to 60 mL

These pumps feature a continuous push and pull (infusion/withdrawal) pump. When used with check valves, the pump will draw fluid from a reservoir while opposite side is dispensing fluid. After dispensing the user-settable volume, the pump automatically switches direction and dispenses from the other side while the just-consumed side is being refilled.

Pump can be placed on its side to provide a smaller footprint with the display automatically rotating.



Specifications

| | |
|------------------------------------|--|
| Accuracy: ±0.5% | Output: RS-232, RS-485, USB, |
| Reproducibility: ±0.05% | 15 pin D-sub connector |
| Linear force: 75 lb (34 kg) | Power: 100 to 240 VAC, 50/60 Hz |

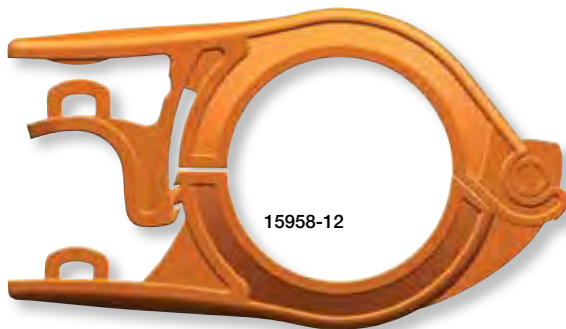
| Number of syringes | Syringe sizes accepted | Flow rate per syringe | Catalog number |
|---|------------------------|-----------------------------|--------------------|
| Infusion only pumps | | | |
| 1 | 0.5 µL to 60 mL | 1.28 pL/min to 88.28 mL/min | JB-74905-02 |
| 2 | 0.5 µL to 10 mL | | JB-74905-06 |
| Infusion/withdrawal programmable pumps | | | |
| 1 | 0.5 µL to 60 mL | 1.28 pL/min to 88.28 mL/min | JB-74905-04 |
| 2 | 0.5 µL to 10 mL | | JB-74905-08 |
| 2 | 0.5 µL to 10 mL | 0.58 pL/min to 11.70 mL/min | JB-74905-12 |
| 1 | 0.5 µL to 1000 µL | | JB-74905-34 |

Value Plastics PharmaLok™ Single-Use Tubing Clamps

Easy to use—no tools needed

- Single-handed closure—a significant advancement in the biopharma industry
- ASME BPE 2014 DT-9.3.1 compliant, DIN compliant
- Connects both plastic and stainless steel fittings with 360° compression
- Tamper evident and zip tie compatible

PharmaLok design allows effortless attachment of fittings to bag ports and filters. Simply rest the fitting in the regulation-sized slot, lightly grip the surrounding handles, and listen for the sound of clicks to confirm a secure connection.



Specifications

Material: glass-filled nylon, USP Class VI and ISO 11137 certified

Maximum pressure: 80 psi (conforms to ASME BPE-2014 PM-4.2.2)

Operating temperature: –70 to 60°C

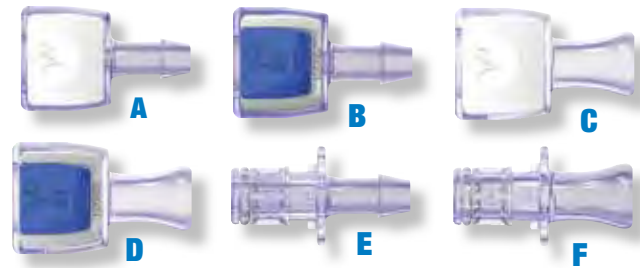
Sterilisation: autoclave (134°C for 30 minutes) or gamma irradiation

| Clamp size | Clamp type | Color | Qty/pk | Catalog number |
|--------------------------------|-----------------------|--------|--------|--------------------|
| ½" to ¾" (12.7 to 19.0 mm) | Easy-open, single use | White | 10 | JB-15958-13 |
| | | Blue | 10 | JB-15958-14 |
| | | Orange | 10 | JB-15958-15 |
| ¾" to 1" (19.0 to 25.4 mm) | Single use | White | 10 | JB-15957-29 |
| | | Blue | 10 | JB-15957-30 |
| 1" to 1½" (25.4 to 38.1 mm) | Easy-open, single use | White | 10 | JB-15958-10 |
| | | Blue | 10 | JB-15958-11 |
| | | Orange | 10 | JB-15958-12 |
| | Single use | White | 10 | JB-15957-31 |
| | | Orange | 10 | JB-15957-32 |
| | | Blue | 10 | JB-15957-32 |

Value Plastics RQ-Series Quick Connectors for Bioprocessing

Guard against accidental disconnects with secure locking feature

- Materials meet USP Class VI and ISO 10993 criteria
- Several connector configurations available in commonly used polycarbonate (PC) and polypropylene (PP) materials
- Large ergonomic button and thumb pad with secure latch and optional integrated locking mechanism
- Maintain fluid path integrity with plugs and caps
- Suitable for autoclave, EtO, or gamma sterilisation



Bodies and Caps

| Series | Tubing ID | Material | Qty/pk | Catalog number |
|---|-----------------|----------|--------|--------------------|
| A. Female connector bodies, 600 series barb | | | | |
| RQC | ¼" (6.4 mm) | PC | 100 | JB-15957-11 |
| | | PP | 100 | JB-15957-12 |
| | ⅜" (9.5 mm) | PC | 100 | JB-15957-13 |
| | | PP | 100 | JB-15957-14 |
| RQX | ½" (12.5 mm) | PC | 100 | JB-15958-16 |
| | | PP | 100 | JB-15958-17 |
| B. Female connector bodies with locking feature, 600 series barb | | | | |
| RQC | ¼" (6.4 mm) | PC | 100 | JB-15957-15 |
| | | PP | 100 | JB-15957-16 |
| | ⅜" (9.5 mm) | PC | 100 | JB-15957-17 |
| | | PP | 100 | JB-15957-18 |
| RQX | ½" (12.5 mm) | PC | 100 | JB-15958-20 |
| | | PP | 100 | JB-15958-21 |
| C. Female caps | | | | |
| RQC | — | PC | 100 | JB-15957-19 |
| | | PP | 100 | JB-15957-20 |
| RQX | — | PC | 100 | JB-15958-18 |
| | | PP | 100 | JB-15958-19 |
| D. Female caps with locking feature | | | | |
| RQC | — | PC | 100 | JB-15957-21 |
| | | PP | 100 | JB-15957-22 |
| RQX | — | PC | 100 | JB-15958-22 |
| | | PP | 100 | JB-15958-23 |

Inserts and Plugs

| Series | Size | Material | Qty/pk | Catalog number |
|---|-----------------|----------|--------|--------------------|
| E. Male connector inserts, 600 series barb | | | | |
| RQC | ¼" (6.4 mm) | PC | 100 | JB-15957-23 |
| | | PP | 100 | JB-15957-24 |
| | ⅜" (9.5 mm) | PC | 100 | JB-15957-25 |
| | | PP | 100 | JB-15957-26 |
| RQX | ½" (12.5 mm) | PC | 100 | JB-15958-24 |
| | | PP | 100 | JB-15958-25 |
| F. Male plugs | | | | |
| RQC | — | PC | 100 | JB-15957-27 |
| | | PP | 100 | JB-15957-28 |
| RQX | — | PC | 100 | JB-15958-26 |
| | | PP | 100 | JB-15958-27 |

For any other sizes, please call our Application Team on 022-6139-4444 or e-mail us at info@coleparmer.in

Value Plastics ADI-Free Sanitary Adapters

Protect sensitive processes

Feature a radiused flow surface controlled to 15 micron Ra to ensure a smooth, uninterrupted flow; no particulate buildup; and easy cleaning. Made from animal-derived ingredient-free polypropylene or PVDF, these adapters may be sterilised by gamma irradiation. Material meets the requirements for USP Class VI. **Pack of 10.**



31513-71



31513-76

**ANIMAL DERIVED
INGREDIENT FREE**

| Description | Polypropylene | PVDF |
|--|--------------------|--------------------|
| | Catalog number | Catalog number |
| 1/2" mini sanitary x 1/4" ID hose barb | JB-31513-70 | JB-31513-80 |
| 1/2" mini sanitary x 3/8" ID hose barb | JB-31513-71 | JB-31513-81 |
| 1/2" mini sanitary x 1/2" ID hose barb | JB-31513-72 | JB-31513-82 |
| 1/2" mini sanitary x 3/4" ID hose barb | JB-31513-73 | JB-31513-83 |
| 1/2" mini sanitary end cap | JB-31513-90 | — |
| 1 1/2" sanitary x 1/4" ID hose barb | JB-31513-74 | JB-31513-84 |
| 1 1/2" sanitary x 3/8" ID hose barb | JB-31513-75 | JB-31513-85 |
| 1 1/2" sanitary x 1/2" ID hose barb | JB-31513-76 | JB-31513-86 |
| 1 1/2" sanitary x 3/4" ID hose barb | JB-31513-77 | JB-31513-87 |
| 1 1/2" sanitary x 1" ID hose barb | JB-31513-78 | JB-31513-88 |
| 1 1/2" sanitary end cap | JB-31513-91 | — |

Clamps for Sanitary Fittings

Ensure your connection

– Available in 304 stainless steel (SS), glass-reinforced nylon, or PVDF



30562-03

30508-21

| Sanitary connection size | Material | Catalog number |
|--------------------------|----------|--------------------|
| 1/2" mini | PVDF | JB-31201-88 |
| 1/2" to 3/4" | Nylon | JB-30508-21 |
| | 304 SS | JB-30800-74 |
| 1 to 1 1/2" | Nylon | JB-30508-23 |
| | 304 SS | JB-30800-75 |
| 2" | Nylon | JB-30508-25 |
| | 304 SS | JB-30800-76 |
| 2 1/2" | 304 SS | JB-30800-77 |
| 3" | 304 SS | JB-30800-78 |
| 4" | 304 SS | JB-30800-80 |

Pure-Fit® SC Aseptic Connectors

Maintain bioprocess purity

- No potential for residual connector covers
- Easy-to-see visual confirmation of engagement
- Components available in three fully interchangeable sizes

Each connection features a triple-redundant locking mechanism. Caps on both ends protect from contaminants and damage prior to installation.

Designed for a maximum operating pressure of 3.45 bar over a temperature range of 0 to 40°C. Characterisation data is available; please contact Cole-Parmer for more details. All parts are double bagged and nonsterile.



20001-91

Specifications



| | |
|---|--|
| Housings (inner and outer): PVDF | Protective cap: C-Flex® |
| Inner fitting: PVDF | Safety cap: polypropylene |
| Valve: platinum-cured silicone | Temperature range: 0 to 40°C |
| Valve retainer: PVDF | Max operating pressure: 3.45 bar |
| O-ring: platinum-cured silicone | Sterilisation: gamma irradiation, autoclave |
| Locking clip: PVDF | |

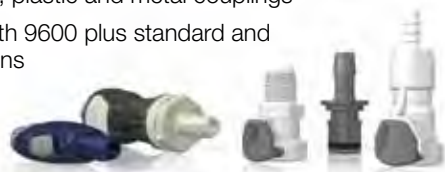
| Description | Tube ID | Qty/pk | Catalog number |
|-----------------------------|---------|--------|--------------------|
| Complete aseptic connection | 1/4" | 25 | JB-20001-91 |
| Connector inner housing | | | JB-20001-92 |
| Connector outer housing | | | JB-20001-93 |
| Complete aseptic connection | 3/8" | 25 | JB-20001-94 |
| Connector inner housing | | | JB-20001-95 |
| Connector outer housing | | | JB-20001-96 |
| Complete aseptic connection | 1/2" | 25 | JB-20001-97 |
| Connector inner housing | | | JB-20001-98 |
| Connector outer housing | | | JB-20001-99 |

Connect/disconnect fluid transfer lines easily and quickly, without using tools and disrupting tubing pressure



LinkTech™ Quick-Connect Couplings

- Dual-latch, side-latch, and a variety of thumb-latch styles
- Twist locks
- 1/16" to 3/4" (1.6 mm to 19 mm) tubing ID sizes
- Standard engineering resins, acetal, nylon, polypropylene, and chrome-plated brass
- Multi-barb manifold configuration
- Range included: threaded, panel mounts, in-line connectors, elbows, plastic and metal couplings
- Broader portfolio with 9600 plus standard and custom configurations



| Product Name | Product Description |
|---------------------------|---|
| MQC Series Quick Connects | Dual latch couplings for 1/8", 3/32", and 3/16" tubing ID in ten different color combinations |
| SBL Series Quick Connects | Nylon side latch couplings for 1/8" and 3/16" tubing IDs with 180° tube orientation |
| RQ Series Quick Connects | Quick-connect couplings with a large guarded button and a secure locking feature |
| XQ Series Quick Connects | Thumb latch couplings in polypropylene and acetal for 1/4", 5/16", and 3/8" tubing IDs |
| 10 Series Quick Connects | Twist lock couplings with 1/16" flow size |
| 20 Series Quick Connects | Legacy metal latch couplings with 1/8" flow size |
| 30 Series Quick Connects | Advanced plastic latch couplings with 1/8" flow size |
| 40 Series Quick Connects | Legacy metal latch couplings with 1/4" flow size |
| 42 Series Quick Connects | Dual flow path couplings with 3/32" flow size |
| 50 Series Quick Connects | Advanced plastic latch couplings with 1/4" flow size |
| 55 Series Quick Connects | Advanced plastic latch couplings with nonspill technology |
| 60 Series Quick Connects | Advanced plastic latch couplings with 3/8" flow size |
| 65 Series Quick Connects | Advanced plastic latch couplings with 1/2" free flow |
| 100 Series Quick Connects | Couplings featuring ten lines and one connection with 1/16" flow size |

LinkTech™ All-Plastic Quick-Disconnect Fittings

Disconnect quickly with large plastic thumb-latch

- Audible click lets you know the fittings are secure
- Buna N O-ring seal eliminates leaks
- Interchangeable with other similar industry thumb-latch fittings

Easily connect and disconnect from your 3/8" flow line with LinkTech 60 series quick-disconnect fittings—simply order a body (female half) and an insert (male half). Just press the robust plastic thumb-latch to quickly disconnect fitting halves. Mix and match valved and straight-through (nonvalved) fittings to suit your flowpath needs; the valved fittings automatically seal the flow path when disconnected. Choose between polypropylene (PP) for stronger chemical resistance and ability to be gamma sterilized or food-grade polysulfone (PSF) for a wide operating temperature range.

Specifications

| | PP | PSF |
|-------------------|-------------------------|-----------------------------|
| Body material | PP | PSF |
| Flow capacity | 3/8" | 3/8" |
| Temperature range | 32 to 160°F (0 to 71°C) | -40 to 280°F (-40 to 138°C) |
| Max pressure | 60 psi (4.2 bar) | 125 psi (8.6 bar) |
| Sterilization | Gamma irradiation | — |

A. Male Threaded Fittings

| Thread size | Resin | Qty/pk | Bodies | | Inserts | |
|-------------------------------------|-------|--------|----------------|----------------|----------------|----------------|
| | | | Catalog number | Catalog number | Catalog number | Catalog number |
| Valved | | | | | | |
| 3/8" NPT(M) | PP | 10 | JB-41303-07 | JB-41303-23 | | |
| 1/2" NPT(M) | | | JB-41303-08 | JB-41303-24 | | |
| 3/4" NPT(M) | | | JB-41303-34 | JB-41303-38 | | |
| 3/8" NPT(M) | PSF | 10 | JB-41307-07 | JB-41307-23 | | |
| 1/2" NPT(M) | | | JB-41307-08 | JB-41307-24 | | |
| 3/4" NPT(M) | | | | | | |
| Straight-through (nonvalved) | | | | | | |
| 3/8" NPT(M) | PP | 10 | JB-41303-00 | JB-41303-14 | | |
| 1/2" NPT(M) | | | JB-41303-01 | JB-41303-15 | | |
| 3/4" NPT(M) | | | JB-41303-32 | JB-41303-36 | | |
| 1/4" NPT(M) | PSF | 10 | JB-41307-00 | JB-41307-14 | | |
| 3/8" NPT(M) | | | JB-41307-01 | JB-41307-15 | | |

NEW

A. Male threaded fitting; valved, PP



B. In-line hose barb fitting; nonvalved, PSF



B. In-Line Hose Barb Fittings

| Tube ID | Resin | Qty/pk | Bodies | | Inserts | |
|-------------------------------------|-------|--------|----------------|----------------|----------------|----------------|
| | | | Catalog number | Catalog number | Catalog number | Catalog number |
| Valved | | | | | | |
| 3/8" | PP | 10 | JB-41303-09 | JB-41303-25 | | |
| 1/2" | | | JB-41303-10 | JB-41303-26 | | |
| 3/4" | | | JB-41303-11 | JB-41303-27 | | |
| 3/8" | PSF | 10 | JB-41307-09 | JB-41307-25 | | |
| 1/2" | | | JB-41307-10 | JB-41307-26 | | |
| 3/4" | | | JB-41307-11 | JB-41307-27 | | |
| Straight-through (nonvalved) | | | | | | |
| 3/8" | PP | 10 | JB-41303-02 | JB-41303-16 | | |
| 1/2" | | | JB-41303-03 | JB-41303-17 | | |
| 3/4" | | | JB-41303-04 | JB-41303-18 | | |
| 3/8" | PSF | 10 | JB-41307-02 | JB-41307-16 | | |
| 1/2" | | | JB-41307-03 | JB-41307-17 | | |
| 3/4" | | | JB-41307-04 | JB-41307-18 | | |

Barbed Fittings

No tools needed for assembly

Combine these simple, economical fittings with our flexible tubing for use in your low-pressure applications (generally less than 30 psi).



Specifications

Brass. Good chemical resistance.

Temp range: -85 to 250°F (-65 to 121°C).
Not recommended for sterilization.

High-Density Polyethylene (HDPE). Very good chemical resistance. Temp range: -65 to 150°F (-53 to 65°C). Sterilize by ethylene oxide only.

PVDF. Excellent chemical resistance. Temp range: -80 to 265°F (-62 to 129°C). Sterilize by ethylene oxide or autoclave.

Nylon. Good chemical resistance. Temp range: -50 to 250°F (-46 to 121°C). Sterilize by ethylene oxide only.

PFA. Excellent chemical resistance.

Temp range: 0 to 400°F (-17 to 204°C).
Sterilize by ethylene oxide or autoclave.

Polypropylene (PP). Very good chemical resistance. Temp range: 9 to 180°F (-13 to 66°C). Sterilize by ethylene oxide or gamma irradiation.

Black PP: Temp range: 9 to 180°F (-13 to 66°C). Sterilize by ethylene oxide or autoclave.

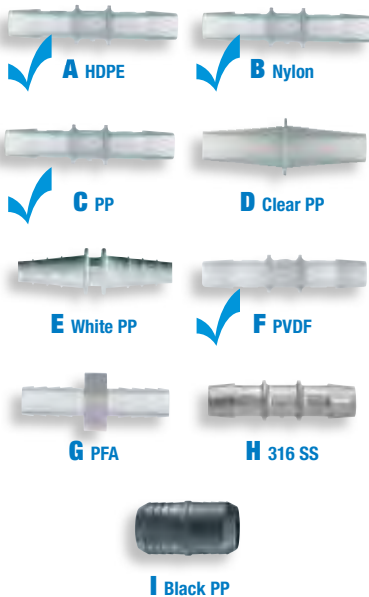
Clear PP: Temp range: 32 to 275°F (0 to 135°C). Sterilize by ethylene oxide or autoclave.

White PP: Temp range: 9 to 180°F (-13 to 66°C). Sterilize by autoclave only.

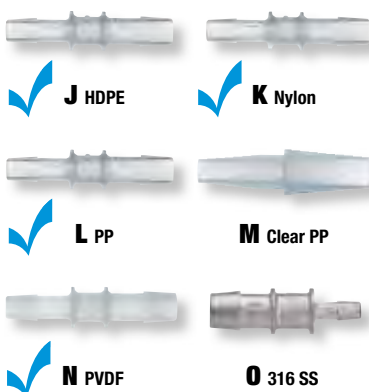
PVC. Good chemical resistance. Rated at 340 psi at 77°F (25°C). Temp range: -10 to 140°F (-23 to 60°C). Sterilize by ethylene oxide only.

Stainless Steel (316 SS). Very good chemical resistance. Rated at 200 psi at 77°F (25°C). Temp range: -40 to 200°F (-40 to 93°C). Sterilize by ethylene oxide, autoclave, or gamma irradiation.

Straight connectors



Reducing connectors



| Tubing ID | Material | Key | Qty/ pk | Catalog number |
|----------------------------|----------|-----|---------|--------------------|
| Straight connectors | | | | |
| 1/16" | HDPE | A | 10 | JB-40622-47 |
| 1/16" | Nylon | B | 10 | JB-40622-48 |
| 1/16" | PP | C | 10 | JB-50622-49 |
| 1/16" | Clear PP | D | 25 | JB-06365-11 |
| 1/16" | PVDF | F | 10 | JB-40703-00 |
| 3/32" | HDPE | A | 10 | JB-40622-44 |
| 3/32" | Nylon | B | 10 | JB-40622-45 |
| 3/32" | PP | C | 10 | JB-50622-46 |
| 3/32" | Clear PP | D | 25 | JB-06365-33 |
| 3/32" | PVDF | F | 10 | JB-40703-01 |
| 1/8" | HDPE | A | 10 | JB-40622-53 |
| 1/8" | Nylon | B | 10 | JB-40622-54 |
| 1/8" | PP | C | 10 | JB-51518-05 |
| 1/8" | Clear PP | D | 25 | JB-06365-22 |
| 1/8" | PVDF | F | 10 | JB-40703-02 |
| 1/8" | 316 SS | H | 1 | JB-30620-01 |
| 5/32" | HDPE | A | 10 | JB-30622-50 |
| 5/32" | Nylon | B | 10 | JB-30622-51 |
| 5/32" | PP | C | 10 | JB-40622-52 |
| 5/32" | PVDF | F | 10 | JB-30703-03 |
| 5/32" | PFA | G | 1 | JB-06383-95 |
| 4-5.25 mm | White PP | E | 10 | JB-06288-10 |
| 3/16" | HDPE | A | 10 | JB-30622-55 |
| 3/16" | Nylon | B | 10 | JB-30622-56 |
| 3/16" | PP | C | 10 | JB-40622-57 |
| 3/16" | PVDF | F | 10 | JB-30703-04 |
| 3/16" | 316 SS | H | 1 | JB-30620-03 |
| 5 mm | Clear PP | D | 12 | JB-06459-10 |
| 6 mm | Clear PP | D | 12 | JB-06459-20 |
| 6-8 mm | White PP | E | 10 | JB-06288-20 |
| 1/4" | HDPE | A | 10 | JB-30621-85 |
| 1/4" | Nylon | B | 10 | JB-30621-86 |
| 1/4" | PP | C | 10 | JB-40610-00 |
| 1/4" | PVDF | F | 10 | JB-30703-05 |
| 1/4" | PFA | G | 1 | JB-06383-96 |
| 1/4" | 316 SS | H | 1 | JB-30620-04 |
| 5/16" | HDPE | A | 10 | JB-30621-87 |
| 5/16" | Nylon | B | 10 | JB-30621-88 |
| 5/16" | PP | C | 10 | JB-40610-01 |
| 5/16" | PVDF | F | 10 | JB-30703-06 |
| 5/16" | 316 SS | G | 1 | JB-30620-02 |
| 8-10 mm | White PP | E | 10 | JB-06288-30 |
| 9 mm | Clear PP | D | 12 | JB-06459-30 |
| 3/8" | HDPE | A | 10 | JB-30621-89 |
| 3/8" | Nylon | B | 10 | JB-30621-90 |
| 3/8" | PP | C | 10 | JB-40610-02 |
| 3/8" | PVDF | F | 10 | JB-30703-07 |
| 3/8" | PFA | G | 1 | JB-06383-97 |
| 3/8" | 316 SS | H | 1 | JB-30620-05 |
| 10-12 mm | White PP | E | 10 | JB-06288-40 |
| 12-14 mm | White PP | E | 10 | JB-06288-50 |

| Tubing ID | Material | Key | Qty/ pk | Catalog number |
|--------------------------------------|----------|-----|---------|--------------------|
| Straight connectors—continued | | | | |
| 1/2" | HDPE | A | 10 | JB-30621-92 |
| 1/2" | Nylon | B | 10 | JB-30621-93 |
| 1/2" | PP | C | 10 | JB-40610-03 |
| 1/2" | PVDF | F | 10 | JB-30703-08 |
| 1/2" | 316 SS | H | 1 | JB-30620-06 |
| 13 mm | Clear PP | D | 12 | JB-06459-40 |
| 5/8" | HDPE | A | 10 | JB-30621-79 |
| 5/8" | Nylon | B | 10 | JB-30621-80 |
| 5/8" | PP | C | 10 | JB-40610-04 |
| 5/8" | PVDF | F | 10 | JB-30703-09 |
| 5/8" | 316 SS | H | 1 | JB-30620-07 |
| 3/4" | HDPE | A | 10 | JB-30621-81 |
| 3/4" | Nylon | B | 10 | JB-30621-82 |
| 3/4" | PP | C | 5 | JB-40610-05 |
| 3/4" | PVDF | F | 5 | JB-30703-10 |
| 3/4" | 316 SS | H | 1 | JB-30620-08 |
| 14-16 mm | White PP | E | 10 | JB-06288-60 |
| 1" | HDPE | A | 10 | JB-30621-83 |
| 1" | Nylon | B | 10 | JB-30621-84 |
| 1" | PP | C | 5 | JB-40610-06 |
| 1" | PVDF | F | 5 | JB-30703-11 |
| 1 1/4" | Nylon | B | 5 | JB-31408-00 |
| 1 1/4" | Black PP | I | 5 | JB-31407-00 |
| 1 1/2" | Nylon | B | 5 | JB-31408-01 |
| 1 1/2" | Black PP | I | 5 | JB-31407-01 |
| 2" | Nylon | B | 5 | JB-31408-02 |
| 2" | Black PP | I | 5 | JB-31407-02 |
| Reducing connectors | | | | |
| 3/32" x 1/16" | HDPE | J | 10 | JB-41518-22 |
| 3/32" x 1/16" | Nylon | K | 25 | JB-40621-94 |
| 3/32" x 1/16" | PP | L | 25 | JB-50621-95 |
| 3/32" x 1/16" | PVDF | N | 10 | JB-40703-40 |
| 1/8" x 1/16" | HDPE | J | 10 | JB-41518-29 |
| 1/8" x 1/16" | Nylon | K | 25 | JB-40622-22 |
| 1/8" x 1/16" | PP | L | 25 | JB-50622-23 |
| 1/8" x 1/16" | PVDF | N | 10 | JB-40703-41 |
| 1/8" x 1/16" | 316 SS | O | 1 | JB-30620-09 |
| 1/8" x 3/32" | HDPE | J | 10 | JB-41518-31 |
| 1/8" x 3/32" | Nylon | K | 25 | JB-40622-20 |
| 1/8" x 3/32" | PP | L | 25 | JB-50622-21 |
| 1/8" x 3/32" | PVDF | N | 10 | JB-40703-42 |
| 1/8" x 3/32" | 316 SS | O | 1 | JB-30620-10 |
| 3/16" x 1/16" | PVDF | N | 10 | JB-30703-46 |
| 3/16" x 3/32" | PVDF | N | 10 | JB-30703-47 |
| 3/16" x 1/8" | HDPE | J | 10 | JB-31518-33 |
| 3/16" x 1/8" | PP | L | 10 | JB-41518-34 |
| 3/16" x 1/8" | PVDF | N | 10 | JB-30703-48 |
| 3/16" x 5/32" | PVDF | N | 10 | JB-30703-49 |
| 1/4" x 1/8" | HDPE | J | 10 | JB-30622-27 |
| 1/4" x 1/8" | Nylon | K | 10 | JB-30622-28 |
| 1/4" x 1/8" | PP | L | 10 | JB-41518-36 |
| 1/4" x 1/8" | PVDF | N | 10 | JB-30703-50 |

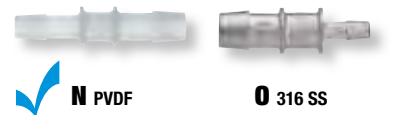
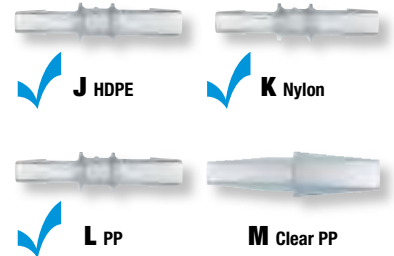


Single barb fittings seal better than multi-barb fittings because they allow the tubing to relax around the barb.

| Tubing ID | Material | Key | Qty/pk | Catalog number |
|--------------------------------------|----------|-----|--------|----------------|
| Reducing connectors—continued | | | | |
| 1/4" x 5/32" | HDPE | J | 10 | JB-30622-24 |
| 1/4" x 5/32" | Nylon | K | 10 | JB-30622-25 |
| 1/4" x 5/32" | PP | L | 10 | JB-40622-26 |
| 1/4" x 5/32" | PVDF | N | 10 | JB-30703-51 |
| 1/4" x 3/16" | HDPE | J | 10 | JB-30622-29 |
| 1/4" x 3/16" | Nylon | K | 10 | JB-30622-30 |
| 1/4" x 3/16" | PP | L | 10 | JB-40622-32 |
| 1/4" x 3/16" | PVDF | N | 10 | JB-30703-52 |
| 5/16" x 1/4" | HDPE | J | 10 | JB-30622-33 |
| 5/16" x 1/4" | Nylon | K | 10 | JB-30622-34 |
| 5/16" x 1/4" | PP | L | 10 | JB-40610-07 |
| 5/16" x 1/4" | PVDF | N | 10 | JB-30703-53 |
| 3/8" x 1/4" | HDPE | J | 10 | JB-30622-35 |
| 3/8" x 1/4" | Nylon | K | 10 | JB-30703-99 |
| 3/8" x 1/4" | PP | L | 10 | JB-40610-08 |
| 3/8" x 1/4" | PVDF | N | 10 | JB-30703-54 |
| 3/8" x 5/16" | HDPE | J | 10 | JB-30622-36 |
| 3/8" x 5/16" | PP | L | 10 | JB-40610-09 |
| 3/8" x 5/16" | PVDF | N | 10 | JB-30703-55 |
| 5/32" x 1/16" | PVDF | N | 10 | JB-30703-43 |
| 5/32" x 3/32" | PVDF | N | 10 | JB-30703-44 |
| 5/32" x 1/8" | HDPE | J | 10 | JB-30622-17 |
| 5/32" x 1/8" | Nylon | K | 10 | JB-30622-18 |
| 5/32" x 1/8" | PP | L | 10 | JB-40622-19 |
| 5/32" x 1/8" | PVDF | N | 10 | JB-30703-45 |
| 6 x 5 mm | Clear PP | M | 12 | JB-06458-10 |
| 9 x 5 mm | Clear PP | M | 12 | JB-06458-20 |
| 9 x 6 mm | Clear PP | M | 12 | JB-06458-40 |
| 1/2" x 1/4" | HDPE | J | 10 | JB-30622-38 |
| 1/2" x 1/4" | Nylon | K | 10 | JB-30622-39 |
| 1/2" x 1/4" | PP | L | 10 | JB-40610-10 |
| 1/2" x 1/4" | PVDF | N | 10 | JB-30703-56 |
| 1/2" x 1/4" | 316 SS | O | 1 | JB-30620-11 |
| 1/2" x 3/16" | HDPE | J | 10 | JB-30622-40 |
| 1/2" x 3/16" | Nylon | K | 10 | JB-30622-41 |
| 1/2" x 3/16" | PP | L | 10 | JB-40610-11 |
| 1/2" x 3/16" | PVDF | N | 10 | JB-30703-57 |
| 1/2" x 3/8" | HDPE | J | 10 | JB-30622-42 |
| 1/2" x 3/8" | Nylon | K | 10 | JB-30622-43 |
| 1/2" x 3/8" | PP | L | 10 | JB-40610-12 |
| 1/2" x 3/8" | PVDF | N | 10 | JB-30703-58 |
| 13 x 6 mm | Clear PP | M | 12 | JB-06458-50 |
| 13 x 9 mm | Clear PP | M | 12 | JB-06458-60 |
| 5/8" x 1/4" | HDPE | J | 10 | JB-30621-96 |
| 5/8" x 1/4" | Nylon | K | 10 | JB-30621-97 |
| 5/8" x 1/4" | PP | L | 10 | JB-40610-13 |
| 5/8" x 1/4" | PVDF | N | 10 | JB-30703-59 |
| 5/8" x 3/16" | HDPE | J | 10 | JB-30621-98 |
| 5/8" x 3/16" | Nylon | K | 10 | JB-30621-99 |
| 5/8" x 3/16" | PP | L | 10 | JB-40610-14 |
| 5/8" x 3/16" | PVDF | N | 10 | JB-30703-60 |
| 5/8" x 3/8" | HDPE | J | 10 | JB-30622-00 |
| 5/8" x 3/8" | Nylon | K | 10 | JB-30622-02 |
| 5/8" x 3/8" | PP | L | 10 | JB-40610-15 |
| 5/8" x 3/8" | PVDF | N | 10 | JB-30622-01 |
| 5/8" x 1/2" | HDPE | J | 10 | JB-30622-03 |
| 5/8" x 1/2" | Nylon | K | 10 | JB-30622-04 |
| 5/8" x 1/2" | PP | L | 10 | JB-40610-16 |
| 5/8" x 1/2" | PVDF | N | 10 | JB-30703-62 |
| 3/4" x 3/8" | HDPE | J | 5 | JB-30622-07 |
| 3/4" x 3/8" | Nylon | K | 5 | JB-30622-08 |
| 3/4" x 3/8" | PP | L | 5 | JB-40610-17 |
| 3/4" x 3/8" | PVDF | N | 5 | JB-30703-63 |
| 3/4" x 1/2" | HDPE | J | 5 | JB-30622-09 |
| 3/4" x 1/2" | Nylon | K | 5 | JB-30622-10 |
| 3/4" x 1/2" | PP | L | 5 | JB-40610-18 |
| 3/4" x 1/2" | PVDF | N | 5 | JB-30703-64 |
| 3/4" x 1/2" | 316 SS | O | 1 | JB-30620-12 |
| 3/4" x 5/8" | HDPE | J | 5 | JB-30622-05 |
| 3/4" x 5/8" | Nylon | K | 5 | JB-30622-06 |
| 3/4" x 5/8" | PP | L | 5 | JB-40610-19 |
| 3/4" x 5/8" | PVDF | N | 5 | JB-30703-65 |

| Tubing ID | Material | Key | Qty/pk | Catalog number |
|--------------------------------------|----------|-----|--------|----------------|
| Reducing connectors—continued | | | | |
| 1" x 1/2" | HDPE | J | 5 | JB-30622-15 |
| 1" x 1/2" | Nylon | K | 5 | JB-30622-16 |
| 1" x 1/2" | PP | L | 5 | JB-40610-20 |
| 1" x 1/2" | PVDF | N | 5 | JB-30703-66 |
| 1" x 5/8" | HDPE | J | 5 | JB-30622-11 |
| 1" x 5/8" | Nylon | K | 5 | JB-30622-12 |
| 1" x 5/8" | PP | L | 5 | JB-40610-21 |
| 1" x 5/8" | PVDF | N | 5 | JB-30703-67 |
| 1" x 3/4" | HDPE | J | 5 | JB-30622-13 |
| 1" x 3/4" | Nylon | K | 5 | JB-30622-14 |
| 1" x 3/4" | PP | L | 5 | JB-40610-22 |
| 1" x 3/4" | PVDF | N | 5 | JB-30703-68 |
| Elbow connectors | | | | |
| 1/16" | Clear PP | T | 25 | JB-06365-17 |
| 1/16" | PVDF | V | 10 | JB-30703-20 |
| 3/32" | HDPE | P | 10 | JB-40622-63 |
| 3/32" | Nylon | Q | 10 | JB-40623-16 |
| 3/32" | PP | S | 10 | JB-50622-64 |
| 3/32" | PVDF | V | 10 | JB-40703-21 |
| 3/32" | Clear PP | T | 25 | JB-06365-28 |
| 1/8" | HDPE | P | 10 | JB-40622-71 |
| 1/8" | Nylon | Q | 10 | JB-40623-18 |
| 1/8" | PP | S | 10 | JB-50623-19 |
| 1/8" | PVDF | V | 10 | JB-40703-22 |
| 1/8" | 316 SS | W | 1 | JB-30620-13 |
| 3/16" | HDPE | P | 10 | JB-30622-72 |
| 3/16" | Nylon | Q | 10 | JB-30622-74 |
| 3/16" | PP | S | 10 | JB-40622-75 |
| 3/16" | PVDF | V | 10 | JB-30622-73 |
| 3/16" | 316 SS | W | 10 | JB-30620-14 |
| 4 mm | Clear PP | U | 20 | JB-06285-10 |
| 6 mm | Clear PP | U | 20 | JB-06285-20 |
| 1/4" | HDPE | P | 10 | JB-30622-76 |
| 1/4" | Nylon | Q | 10 | JB-30622-77 |
| 1/4" | PP | S | 10 | JB-40610-23 |
| 1/4" | PVDF | V | 10 | JB-30703-25 |
| 1/4" | 316 SS | W | 1 | JB-30620-15 |
| 5/16" | 316 SS | W | 1 | JB-30620-16 |
| 8 mm | Clear PP | U | 20 | JB-06285-30 |
| 3/8" | HDPE | P | 10 | JB-30622-78 |
| 3/8" | Nylon | Q | 10 | JB-30622-79 |
| 3/8" | PP | S | 10 | JB-40610-24 |
| 3/8" | PVDF | V | 10 | JB-30703-27 |
| 3/8" | 316 SS | W | 1 | JB-30620-17 |
| 10 mm | Clear PP | U | 20 | JB-06285-40 |
| 12 mm | Clear PP | T | 20 | JB-06285-50 |
| 1/2" | HDPE | P | 10 | JB-30622-80 |
| 1/2" | Nylon | Q | 10 | JB-30622-81 |
| 1/2" | PP | S | 10 | JB-40610-25 |
| 1/2" | PVDF | V | 10 | JB-30703-28 |
| 1/2" | 316 SS | W | 1 | JB-30620-18 |
| 14 mm | Clear PP | U | 10 | JB-06285-60 |
| 5/8" | HDPE | P | 10 | JB-30622-65 |
| 5/8" | Nylon | Q | 10 | JB-30622-66 |
| 5/8" | PP | S | 10 | JB-40610-26 |
| 5/8" | PVDF | V | 10 | JB-30703-29 |
| 5/8" | 316 SS | W | 1 | JB-30620-19 |
| 16 mm | Clear PP | U | 10 | JB-06285-70 |
| 3/4" | HDPE | P | 10 | JB-30622-67 |
| 3/4" | Nylon | Q | 10 | JB-30622-68 |
| 3/4" | PP | S | 5 | JB-40610-27 |
| 3/4" | PVDF | V | 5 | JB-30703-30 |
| 3/4" | 316 SS | W | 1 | JB-30620-20 |
| 1" | HDPE | P | 5 | JB-30622-69 |
| 1" | PP | S | 5 | JB-40610-28 |
| 1" | Nylon | Q | 10 | JB-30622-70 |
| 1" | PVDF | V | 5 | JB-30703-31 |
| 1 1/4" | Nylon | Q | 5 | JB-31408-05 |
| 1 1/4" | Black PP | R | 5 | JB-31407-05 |
| 1 1/2" | Nylon | Q | 5 | JB-31408-06 |
| 1 1/2" | Black PP | R | 5 | JB-31407-06 |
| 2" | Nylon | Q | 5 | JB-31408-07 |
| 2" | Black PP | R | 5 | JB-31407-07 |

Reducing connectors (continued)



Elbow connectors



See next page for more...

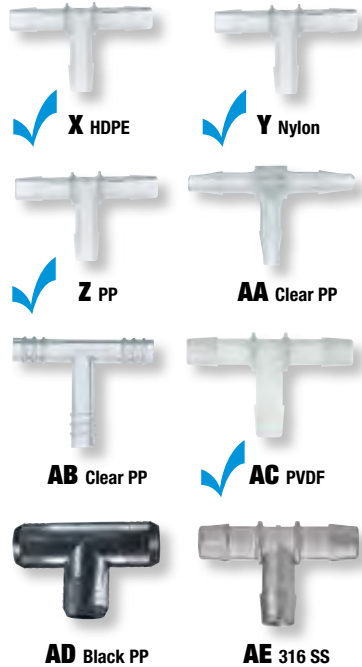
Barbed Fittings (continued)

Barbed fittings are designed for quick and easy assembly without tools. Combine these simple, economical fittings with our flexible tubing for use in your low-pressure applications (generally less than 30 psi).

For material descriptions, refer to page 174.



T connectors



Reducing T connectors



Y connectors



| Tubing ID | Material | Key | Qty/ pk | Catalog number |
|---------------------|----------|-----|---------|--------------------|
| T connectors | | | | |
| 1/16" | Nylon | Y | 25 | JB-31500-30 |
| 1/16" | HDPE | X | 10 | JB-40624-27 |
| 1/16" | Nylon | Y | 10 | JB-40624-29 |
| 1/16" | PP | Z | 10 | JB-50624-30 |
| 1/16" | Clear PP | AA | 25 | JB-06365-77 |
| 1/16" | PVDF | AC | 10 | JB-30703-70 |
| 3/32" | HDPE | X | 10 | JB-40623-56 |
| 3/32" | Nylon | Y | 10 | JB-40624-26 |
| 3/32" | PP | Z | 10 | JB-50623-57 |
| 3/32" | PP | Z | 25 | JB-50624-28 |
| 3/32" | PVDF | AC | 10 | JB-40703-71 |
| 1/8" | HDPE | X | 10 | JB-40623-64 |
| 1/8" | Nylon | Y | 10 | JB-40623-65 |
| 1/8" | PP | Z | 25 | JB-50623-66 |
| 1/8" | PVDF | AC | 10 | JB-40703-72 |
| 1/8" | 316 SS | AE | 1 | JB-30620-25 |
| 4 mm | Clear PP | AB | 20 | JB-06294-10 |
| 3/16" | HDPE | X | 10 | JB-30623-67 |
| 3/16" | Nylon | Y | 10 | JB-30623-69 |
| 3/16" | PP | Z | 25 | JB-40623-70 |
| 3/16" | PVDF | AC | 10 | JB-30624-31 |
| 3/16" | 316 SS | AE | 1 | JB-30620-26 |
| 6 mm | Clear PP | AB | 20 | JB-06294-20 |
| 1/4" | HDPE | X | 10 | JB-30623-71 |
| 1/4" | Nylon | Y | 10 | JB-30623-72 |
| 1/4" | PP | Z | 10 | JB-40610-30 |
| 1/4" | PVDF | AC | 10 | JB-30703-75 |
| 1/4" | 316 SS | AE | 1 | JB-30620-27 |
| 5/16" | HDPE | X | 10 | JB-30623-73 |
| 5/16" | Nylon | Y | 10 | JB-30623-75 |
| 5/16" | PP | Z | 10 | JB-40623-76 |
| 5/16" | PVDF | AC | 10 | JB-30623-74 |
| 5/16" | 316 SS | AE | 1 | JB-30620-28 |
| 8 mm | Clear PP | AB | 20 | JB-06294-30 |
| 3/8" | HDPE | X | 10 | JB-30623-77 |
| 3/8" | Nylon | Y | 10 | JB-30623-78 |
| 3/8" | PP | Z | 10 | JB-40610-31 |
| 3/8" | PVDF | AC | 10 | JB-30703-77 |
| 3/8" | 316 SS | AE | 1 | JB-30620-29 |
| 10 mm | Clear PP | AB | 20 | JB-06294-40 |
| 1/2" | HDPE | X | 10 | JB-30623-79 |
| 1/2" | Nylon | Y | 10 | JB-30623-80 |
| 1/2" | PP | Z | 10 | JB-40610-32 |
| 1/2" | PVDF | AC | 10 | JB-30703-78 |
| 1/2" | 316 SS | AE | 1 | JB-30620-30 |
| 12 mm | Clear PP | AB | 20 | JB-06294-50 |
| 5/8" | HDPE | X | 10 | JB-30623-58 |
| 5/8" | Nylon | Y | 10 | JB-30623-59 |
| 5/8" | PP | Z | 10 | JB-40610-33 |
| 5/8" | PVDF | AC | 10 | JB-30703-79 |
| 5/8" | 316 SS | AE | 1 | JB-30620-31 |
| 14 mm | Clear PP | AB | 10 | JB-06294-60 |
| 3/4" | HDPE | X | 10 | JB-30623-60 |
| 3/4" | Nylon | Y | 10 | JB-30623-61 |
| 3/4" | PP | Z | 5 | JB-40610-34 |
| 3/4" | PVDF | AC | 5 | JB-30703-80 |
| 3/4" | 316 SS | AE | 1 | JB-30620-32 |
| 16 mm | Clear PP | AB | 10 | JB-06294-70 |
| 1" | HDPE | X | 10 | JB-30623-62 |
| 1" | Nylon | Y | 10 | JB-30623-63 |
| 1" | PP | Z | 5 | JB-40610-35 |
| 1" | PVDF | AC | 5 | JB-30703-81 |
| 1 1/4" | Nylon | Y | 5 | JB-31408-08 |
| 1 1/4" | Black PP | AD | 5 | JB-31407-08 |
| 1 1/2" | Nylon | Y | 5 | JB-31408-09 |
| 1 1/2" | Black PP | AD | 5 | JB-31407-05 |

| Tubing ID | Material | Key | Qty/ pk | Catalog number |
|--|----------|-----|---------|--------------------|
| Reducing T connectors (straight x branch) | | | | |
| 1/16" x 1/8" | 316 SS | AI | 1 | JB-31208-41 |
| 3/16" x 1/16" | 316 SS | AI | 1 | JB-31208-42 |
| 3/16" x 1/8" | 316 SS | AI | 1 | JB-31208-44 |
| 1/4" x 1/8" | 316 SS | AI | 1 | JB-31208-45 |
| 1/4" x 3/8" | 316 SS | AI | 1 | JB-31208-46 |
| 3/8" x 1/8" | 316 SS | AI | 1 | JB-31208-47 |
| 3/8" x 3/16" | HDPE | AF | 10 | JB-31702-47 |
| 3/8" x 3/16" | Nylon | AG | 10 | JB-31702-45 |
| 3/8" x 1/4" | Nylon | AG | 10 | JB-31702-57 |
| 3/8" x 1/4" | 316 SS | AI | 1 | JB-31208-48 |
| 3/8" x 5/16" | 316 SS | AI | 1 | JB-30620-33 |
| 1/2" x 1/4" | Nylon | AG | 10 | JB-31702-61 |
| 1/2" x 3/8" | HDPE | AF | 10 | JB-30401-56 |
| 3/4" x 3/8" | PVDF | AH | 10 | JB-30703-96 |
| 3/4" x 1/2" | HDPE | AF | 10 | JB-30401-59 |
| 5/8" x 3/8" | HDPE | AF | 10 | JB-30401-63 |
| 5/8" x 3/8" | PVDF | AH | 10 | JB-30703-95 |
| Y connectors | | | | |
| 1/16" | HDPE | AJ | 10 | JB-30726-01 |
| 1/16" | Nylon | AK | 10 | JB-30726-21 |
| 1/16" | PP | AL | 10 | JB-40726-41 |
| 1/16" | PVDF | AO | 10 | JB-30703-90 |
| 1/16" | 316 SS | AP | 1 | JB-31209-55 |
| 3/32" | HDPE | AJ | 10 | JB-30726-02 |
| 3/32" | Nylon | AK | 10 | JB-30726-22 |
| 3/32" | PP | AL | 10 | JB-40726-42 |
| 3/32" | PVDF | AO | 10 | JB-30703-91 |
| 1/8" | HDPE | AJ | 10 | JB-30726-03 |
| 1/8" | Nylon | AK | 10 | JB-30726-23 |
| 1/8" | PP | AL | 10 | JB-40726-43 |
| 1/8" | PVDF | AO | 10 | JB-30703-92 |
| 1/8" | 316 SS | AP | 1 | JB-30620-21 |
| 4 mm | Clear PP | AM | 20 | JB-06295-10 |
| 4-6 mm | White PP | AN | 20 | JB-06296-10 |
| 3/16" | HDPE | AJ | 10 | JB-30726-04 |
| 3/16" | Nylon | AK | 10 | JB-30726-24 |
| 3/16" | PP | AL | 10 | JB-40726-44 |
| 3/16" | PVDF | AO | 10 | JB-30726-64 |
| 3/16" | 316 SS | AP | 1 | JB-30620-22 |
| 6 mm | Clear PP | AM | 20 | JB-06295-20 |
| 1/4" | HDPE | AJ | 10 | JB-30726-05 |
| 1/4" | Nylon | AK | 10 | JB-30726-25 |
| 1/4" | PP | AL | 10 | JB-40726-45 |
| 1/4" | PVDF | AO | 10 | JB-30726-65 |
| 6-8 mm | White PP | AN | 20 | JB-06296-20 |
| 5/16" | 316 SS | AP | 1 | JB-30620-23 |
| 8 mm | Clear PP | AM | 20 | JB-06295-30 |
| 8-10 mm | White PP | AN | 20 | JB-06296-00 |
| 3/8" | HDPE | AJ | 10 | JB-30726-06 |
| 3/8" | Nylon | AK | 10 | JB-30726-26 |
| 3/8" | PP | AL | 10 | JB-40726-46 |
| 3/8" | PVDF | AO | 10 | JB-30703-93 |
| 3/8" | 316 SS | AP | 10 | JB-30620-24 |
| 10 mm | Clear PP | AM | 20 | JB-06295-40 |
| 10-12 mm | White PP | AN | 20 | JB-06296-40 |
| 12 mm | Clear PP | AM | 20 | JB-06295-50 |
| 12-14 mm | White PP | AN | 20 | JB-06296-50 |
| 1/2" | HDPE | AJ | 10 | JB-30726-07 |
| 1/2" | Nylon | AK | 10 | JB-30726-27 |
| 1/2" | PP | AL | 10 | JB-40726-47 |
| 1/2" | PVDF | AO | 10 | JB-30703-94 |

FREE Certificates of Compliance

Cole-Parmer will provide a certificate of resin or elastomer compliance FREE at your request with each order of fittings, gaskets, or tubing. Certificates list your company's PO number, order reference number, catalog number, formulation, compound number, lot number (where applicable), and the

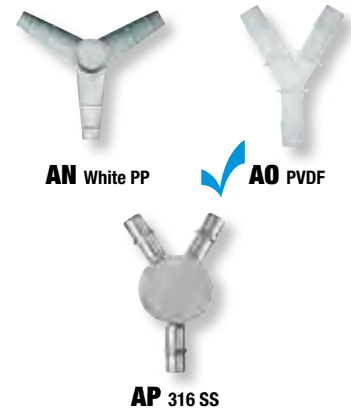
regulations and agencies the fitting, tubing, or gasket complies with, including FDA, USP, USDA, National Formulary, NSF International, GMP, and 3A. Look for the blue "check" icon throughout this catalog to identify when a certificate of compliance is available.



| Tubing ID | Material | Key | Qty/pk | Catalog |
|---|----------|-----|--------|--------------------|
| Y connectors—continued | | | | |
| 14 mm | Clear PP | AM | 20 | JB-06295-60 |
| 14–16 mm | White PP | AN | 20 | JB-06296-60 |
| 5/8" | HDPE | AJ | 10 | JB-30726-08 |
| 5/8" | Nylon | AK | 10 | JB-30726-28 |
| 5/8" | PP | AL | 10 | JB-40726-48 |
| 5/8" | PVDF | AO | 10 | JB-30726-68 |
| 16 mm | Clear PP | AM | 20 | JB-06295-70 |
| Cross connectors | | | | |
| 1/16" | 316 SS | AR | 1 | JB-31208-51 |
| 3/32" | 316 SS | AR | 1 | JB-31208-52 |
| 1/8" | 316 SS | AR | 1 | JB-31208-53 |
| 4 mm | Clear PP | AQ | 20 | JB-06297-10 |
| 3/16" | 316 SS | AR | 1 | JB-31208-54 |
| 1/4" | Black PP | AS | 5 | JB-31407-11 |
| 1/4" | Nylon | AT | 5 | JB-31408-11 |
| 6 mm | Clear PP | AQ | 20 | JB-06297-20 |
| 8 mm | Clear PP | AQ | 20 | JB-06297-30 |
| 3/8" | 316 SS | AR | 1 | JB-31208-55 |
| 10 mm | Clear PP | AQ | 20 | JB-06297-40 |
| 12 mm | Clear PP | AQ | 20 | JB-06297-50 |
| 14 mm | Clear PP | AQ | 20 | JB-06297-60 |
| NPT male threaded adapters, NPT(M) x tubing ID | | | | |
| 1/16" x 1/16" | PVDF | AZ | 10 | JB-30704-00 |
| 1/16" x 1/16" | 316 SS | BC | 1 | JB-31208-59 |
| 1/16" x 3/32" | 316 SS | BC | 1 | JB-31208-60 |
| 1/16" x 1/8" | PVDF | AZ | 10 | JB-30704-02 |
| 1/16" x 1/8" | 316 SS | BC | 1 | JB-31208-61 |
| 1/16" x 3/16" | PVDF | AZ | 10 | JB-30704-04 |
| 1/16" x 3/16" | 316 SS | BC | 1 | JB-31208-62 |
| 1/16" x 1/4" | 316 SS | BC | 1 | JB-31208-63 |
| 1/8" x 1/16" | Clear PP | AY | 25 | JB-06365-41 |
| 1/8" x 1/16" | PVDF | AZ | 10 | JB-30704-05 |
| 1/8" x 1/16" | 316 SS | BC | 1 | JB-31208-65 |
| 1/8" x 3/32" | Clear PP | AY | 25 | JB-06365-42 |
| 1/8" x 3/32" | PVDF | AZ | 10 | JB-30704-06 |
| 1/8" x 3/32" | 316 SS | BC | 1 | JB-31208-66 |
| 1/8" x 1/8" | HDPE | AU | 10 | JB-30621-26 |
| 1/8" x 1/8" | Nylon | AV | 10 | JB-30621-27 |
| 1/8" x 1/8" | PP | AX | 10 | JB-40621-28 |
| 1/8" x 1/8" | Clear PP | AY | 25 | JB-06365-43 |
| 1/8" x 1/8" | PVDF | AZ | 10 | JB-30704-07 |
| 1/8" x 1/8" | 316 SS | BC | 1 | JB-30621-30 |
| 1/8" x 5/32" | HDPE | AU | 10 | JB-31517-21 |
| 1/8" x 5/32" | Nylon | AV | 10 | JB-30621-24 |
| 1/8" x 5/32" | PP | AX | 10 | JB-40621-22 |
| 1/8" x 5/32" | PVDF | AZ | 10 | JB-30704-08 |
| 1/8" x 5/32" | PFA | BA | 1 | JB-06383-90 |
| 1/8" x 3/16" | HDPE | AU | 10 | JB-31702-04 |
| 1/8" x 3/16" | Nylon | AV | 10 | JB-31702-02 |
| 1/8" x 3/16" | Black PP | AW | 10 | JB-06444-16 |
| 1/8" x 3/16" | 316 SS | BC | 1 | JB-31208-68 |
| 1/8" x 1/4" | HDPE | AU | 10 | JB-30621-31 |
| 1/8" x 1/4" | Nylon | AV | 10 | JB-30621-32 |
| 1/8" x 1/4" | PP | AX | 10 | JB-40610-36 |
| 1/8" x 1/4" | PVDF | AZ | 10 | JB-30704-09 |
| 1/8" x 1/4" | PFA | BA | 1 | JB-06383-91 |
| 1/8" x 1/4" | Brass | BB | 5 | JB-30904-01 |
| 1/8" x 1/4" | 316 SS | BC | 1 | JB-30621-33 |

| Tubing ID | Material | Key | Qty/pk | Catalog number |
|---|----------|-----|--------|--------------------|
| NPT male threaded adapters, NPT(M) x tubing ID—cont. | | | | |
| 1/8" x 5/16" | HDPE | AU | 10 | JB-30401-72 |
| 1/8" x 5/16" | Nylon | AV | 10 | JB-30622-31 |
| 1/8" x 5/16" | PP | AX | 10 | JB-41517-27 |
| 1/8" x 5/16" | PVDF | AZ | 10 | JB-31517-26 |
| 1/8" x 3/8" | HDPE | AU | 10 | JB-30621-35 |
| 1/8" x 3/8" | Nylon | AV | 10 | JB-30621-36 |
| 1/8" x 3/8" | PP | AX | 10 | JB-40610-37 |
| 1/8" x 3/8" | PVDF | AZ | 10 | JB-30704-10 |
| 1/8" x 3/8" | Brass | BB | 5 | JB-30904-00 |
| 1/8" x 3/8" | 316 SS | BC | 1 | JB-31208-70 |
| 1/4" x 1/16" | 316 SS | BC | 1 | JB-31208-74 |
| 1/4" x 3/32" | 316 SS | BC | 1 | JB-31208-75 |
| 1/4" x 1/8" | HDPE | AU | 10 | JB-30621-42 |
| 1/4" x 1/8" | Nylon | AV | 10 | JB-30621-44 |
| 1/4" x 1/8" | PP | AX | 10 | JB-40621-45 |
| 1/4" x 1/8" | PVDF | AZ | 10 | JB-30621-43 |
| 1/4" x 1/8" | 316 SS | BC | 1 | JB-31208-76 |
| 1/4" x 5/32" | HDPE | AU | 10 | JB-30621-38 |
| 1/4" x 5/32" | Nylon | AV | 10 | JB-30621-40 |
| 1/4" x 5/32" | PP | AX | 10 | JB-40621-41 |
| 1/4" x 5/32" | PVDF | AZ | 10 | JB-30621-39 |
| 1/4" x 5/32" | 316 SS | BC | 1 | JB-31208-77 |
| 1/4" x 3/16" | HDPE | AU | 10 | JB-31702-08 |
| 1/4" x 3/16" | Nylon | AV | 10 | JB-31702-06 |
| 1/4" x 3/16" | PP | AX | 10 | JB-41517-47 |
| 1/4" x 3/16" | Black PP | AW | 10 | JB-06444-18 |
| 1/4" x 3/16" | PVDF | AZ | 10 | JB-31517-46 |
| 1/4" x 3/16" | 316 SS | BC | 1 | JB-31208-78 |
| 1/4" x 1/4" | HDPE | AU | 10 | JB-30621-46 |
| 1/4" x 1/4" | Nylon | AV | 10 | JB-30621-47 |
| 1/4" x 1/4" | PP | AX | 10 | JB-40610-38 |
| 1/4" x 1/4" | PVDF | AZ | 10 | JB-30704-11 |
| 1/4" x 1/4" | PFA | BA | 1 | JB-06383-92 |
| 1/4" x 1/4" | Brass | BB | 5 | JB-30904-10 |
| 1/4" x 1/4" | 316 SS | BC | 1 | JB-31208-79 |
| 1/4" x 5/16" | HDPE | AU | 10 | JB-30621-48 |
| 1/4" x 5/16" | Nylon | AV | 10 | JB-30621-50 |
| 1/4" x 5/16" | PP | AX | 10 | JB-40621-51 |
| 1/4" x 5/16" | PVDF | AZ | 10 | JB-30621-49 |
| 1/4" x 3/8" | HDPE | AU | 10 | JB-30621-52 |
| 1/4" x 3/8" | Nylon | AV | 10 | JB-30621-53 |
| 1/4" x 3/8" | PP | AX | 10 | JB-40610-39 |
| 1/4" x 3/8" | PVDF | AZ | 10 | JB-30704-12 |
| 1/4" x 3/8" | PFA | BA | 1 | JB-06383-93 |
| 1/4" x 3/8" | Brass | BB | 5 | JB-30904-11 |
| 1/4" x 3/8" | 316 SS | BC | 1 | JB-31208-80 |
| 1/4" x 1/2" | HDPE | AU | 10 | JB-30621-54 |
| 1/4" x 1/2" | Nylon | AV | 10 | JB-30621-55 |
| 1/4" x 1/2" | PP | AX | 10 | JB-40610-40 |
| 1/4" x 1/2" | PVDF | AZ | 10 | JB-30704-13 |
| 3/8" x 3/32" | 316 SS | BC | 1 | JB-31208-83 |
| 3/8" x 1/8" | 316 SS | BC | 1 | JB-31208-84 |
| 3/8" x 1/4" | HDPE | AU | 10 | JB-30621-56 |
| 3/8" x 1/4" | Nylon | AV | 10 | JB-30621-57 |
| 3/8" x 1/4" | Clear PP | AY | 10 | JB-40610-41 |
| 3/8" x 1/4" | PVDF | AZ | 10 | JB-30704-14 |
| 3/8" x 1/4" | Brass | BB | 5 | JB-30904-20 |
| 3/8" x 1/4" | 316 SS | BC | 1 | JB-31208-85 |
| 3/8" x 5/16" | HDPE | AU | 10 | JB-30621-58 |
| 3/8" x 5/16" | Nylon | AV | 10 | JB-30621-60 |
| 3/8" x 5/16" | PP | AX | 10 | JB-40621-61 |
| 3/8" x 5/16" | PVDF | AZ | 10 | JB-30621-59 |

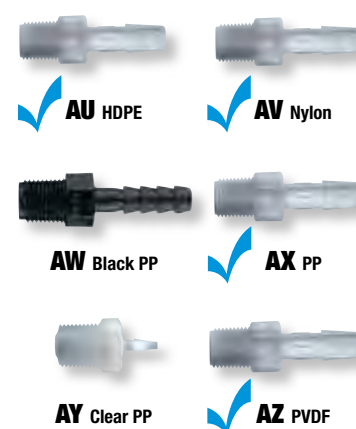
Y connectors (continued)



Cross connectors



NPT male threaded adapters



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Value Plastics® Barbed Connectors and Adapters

Ensure purity in your fluid line

- Premium craftsmanship and 100% virgin materials
- Manufactured in an ISO 14644-1 Class 8 cleanroom
- Full material traceability on all items

These barbed fittings work well with flexible tubing in low-pressure applications (typically less than 2.1 bar). All fittings are **sold in packs of 100**. Other materials and configurations available; contact us for more information.

For material descriptions, see page 179.

- **Standard barbs** are the original Value Plastics design. Good grip on tubing, relatively easy to assemble
- **Easy-to-assemble barbs** are the easiest to insert in tubing, as they don't require as much tubing expansion. Their pressure rating is lower than standard barbs.
- **Low-profile barbs** are ideal for use with semi-rigid tubing such as nylon or polyethylene
- **Wide-mouth barbs** have a 50% larger flow path than standard or easy-to-assemble barbs. Although somewhat more difficult to insert in tubing, this style allows greater flow and handles higher working pressures.



| Key | Description | Polypropylene | Polycarbonate | Nylon |
|--|--|----------------|----------------|----------------|
| | | Catalog number | Catalog number | Catalog number |
| Straight connectors, standard barb | | | | |
| A | 1/16" standard barbed | JB-15954-91 | JB-30661-01 | JB-30662-01 |
| | 3/32" standard barbed | JB-15954-92 | — | JB-30662-02 |
| | 1/8" standard barbed | JB-15954-93 | JB-30661-03 | JB-30662-03 |
| | 5/32" standard barbed | JB-15954-94 | JB-30661-04 | JB-30662-04 |
| | 3/16" standard barbed | JB-15954-95 | JB-30661-05 | JB-30662-05 |
| | 1/4" standard barbed | JB-15954-96 | JB-30661-06 | JB-30662-06 |
| Straight connectors, specialty barb | | | | |
| B | 1/8" easy-to-assemble barbed | JB-15954-97 | — | JB-30662-11 |
| C | 1/8" low-profile barbed (for rigid tubing) | JB-15954-98 | — | JB-30662-12 |
| | 5/32" low-profile barbed (for rigid tubing) | JB-15954-99 | — | JB-30662-13 |
| Reducer connectors, standard barb | | | | |
| D | 1/8" x 1/16" standard barbed | JB-15955-03 | JB-30661-31 | JB-30662-31 |
| | 1/8" x 3/32" standard barbed | JB-15955-04 | — | JB-30662-32 |
| | 5/32" x 1/8" standard barbed | JB-15955-05 | JB-30661-33 | JB-30662-33 |
| | 3/16" x 1/8" standard barbed | JB-15955-06 | JB-30661-34 | JB-30662-34 |
| | 1/4" x 1/8" standard barbed | JB-15955-07 | JB-30661-35 | JB-30662-35 |
| | 1/4" x 5/32" standard barbed | JB-15955-08 | JB-30661-36 | JB-30662-36 |
| Reducer connectors, specialty barb | | | | |
| E | 1/8" x 1/16" easy-to-assemble barbed | JB-15955-09 | JB-30661-41 | JB-30662-41 |
| | 5/32" x 1/8" easy-to-assemble barbed | JB-15955-10 | JB-30661-43 | JB-30662-43 |
| | 3/16" x 1/8" easy-to-assemble barbed | JB-15955-11 | JB-30661-44 | JB-30662-44 |
| | 1/4" x 1/8" easy-to-assemble barbed | JB-15955-12 | JB-30661-45 | JB-30662-45 |
| Elbows, standard barb | | | | |
| F | 1/16" standard barbed | JB-15955-13 | — | JB-30662-51 |
| | 1/8" standard barbed | JB-15955-14 | — | JB-30662-52 |
| | 5/32" standard barbed | JB-15955-15 | — | JB-30662-53 |
| | 3/16" standard barbed | JB-15955-16 | — | JB-30662-54 |
| | 1/4" standard barbed | JB-15955-17 | — | JB-30662-55 |
| Elbows, specialty barb | | | | |
| G | 3/32" low-profile barbed (for rigid tubing) | JB-15955-18 | — | JB-30662-56 |
| | 1/8" low-profile barbed (for rigid tubing) | JB-15955-19 | — | JB-30662-57 |
| | 5/32" low-profile barbed (for rigid tubing)—black nylon only | — | — | JB-30669-58 |
| Reducer elbows | | | | |
| H | 3/32" x 1/16" wide-mouth barbed | JB-15955-20 | — | JB-30662-61 |
| | 1/8" x 1/16" wide-mouth barbed | JB-15955-21 | — | JB-30662-62 |
| | 1/8" x 3/32" wide-mouth barbed | JB-15955-22 | — | JB-30662-63 |
| I | 1/8" x 3/32" low-profile barbed (for rigid tubing) | JB-15955-23 | — | JB-30662-65 |
| Tees, standard barb | | | | |
| J | 1/16" standard barbed | JB-15955-24 | — | JB-30662-71 |
| | 3/32" standard barbed | JB-15955-25 | — | JB-30662-72 |
| | 3/32" standard barbed—black nylon | — | — | JB-30669-72 |
| | 1/8" standard barbed | JB-15955-26 | — | JB-30662-73 |
| | 1/8" standard barbed—black nylon | — | — | JB-30669-73 |
| | 5/32" standard barbed | JB-15955-28 | — | JB-30662-74 |
| | 5/32" standard barbed—black nylon | — | — | JB-30669-74 |
| | 3/16" standard barbed | JB-15955-29 | — | JB-30662-75 |
| 1/4" standard barbed | JB-15955-30 | — | JB-30662-76 | |

Animal-Free Polypropylene: Very good chemical resistance. Temp range: -13 to 66°C (9 to 180°F). Sterilise by ethylene oxide or gamma irradiation. Meets USP Class VI requirements.

Polycarbonate: Good chemical resistance. Temp range: up to 100°C (212°F). Sterilise by ethylene oxide or gamma irradiation (will discolour to a yellow-greenish hue).

Nylon (white or black): Good chemical resistance. Temp range: -46 to 121°C (-50 to 250°F). Sterilise by autoclave (may swell due to water absorption), ethylene oxide or gamma irradiation (white nylon may discolour to a brownish hue).

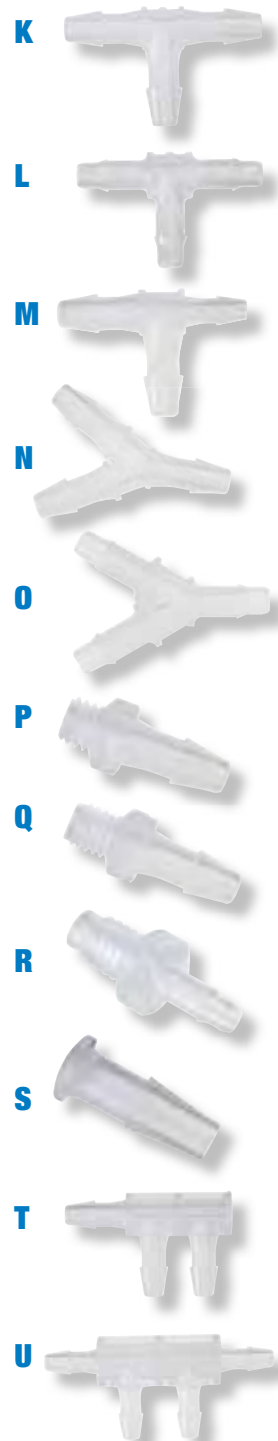
All fittings are sold in packs of 100.



| Key | Description | Polypropylene | Polycarbonate | Nylon |
|------------------------------------|--|----------------|----------------|----------------|
| | | Catalog number | Catalog number | Catalog number |
| Specialty tees | | | | |
| K | 1/8" wide-mouth barbed | JB-15955-31 | JB-30661-77 | JB-30662-77 |
| L | 1/8" low-profile barbed (for rigid tubing) | JB-15955-32 | — | JB-30662-78 |
| | 1/8" low-profile barbed (for rigid tubing)—black nylon | — | — | JB-30669-78 |
| M | 1/8" x 3/32" reducer, wide-mouth barbed | JB-15955-33 | — | JB-30662-79 |
| | 1/8" x 3/32" reducer, wide-mouth barbed—black nylon | — | — | JB-30669-79 |
| Y connectors, standard barb | | | | |
| N | 1/8" wide-mouth barbed | JB-15955-34 | — | JB-30662-81 |
| | 1/8" wide-mouth barbed—black nylon | — | — | JB-30669-81 |
| O | 5/32" wide-mouth barbed | JB-15955-35 | — | JB-30662-82 |
| | 1/16" low-profile barbed (for rigid tubing) | JB-15955-36 | — | JB-30662-83 |
| | 1/16" low-profile barbed (for rigid tubing)—black nylon | — | — | JB-30669-83 |
| | 1/8" low-profile barbed (for rigid tubing) | JB-15955-37 | — | JB-30662-84 |
| | 1/8" low-profile barbed (for rigid tubing)—black nylon | — | — | JB-30669-84 |
| | 3/16" low-profile barbed (for rigid tubing) | JB-15955-38 | — | JB-30662-85 |
| Threaded x barb adapters | | | | |
| P | 10-32 UNF with 1/4" hex x 1/16" wide-mouth barb, panel-mount | JB-15955-00 | — | JB-30662-21 |
| | 10-32 UNF with 1/4" hex x 3/32" wide-mouth barb, panel-mount | JB-15955-01 | — | JB-30662-22 |
| | 10-32 UNF with 1/4" hex x 1/8" wide-mouth barb, panel-mount | JB-15955-02 | — | JB-30662-23 |
| | 10-32 UNF with 1/4" hex x 1/8" wide-mouth barb | JB-15955-39 | — | JB-30662-91 |
| | 10-32 UNF with 1/4" hex x 3/32" wide-mouth barb | — | — | JB-30662-92 |
| Q | M5x.8 with 1/4" hex x 1/8" wide-mouth barb | JB-15955-40 | — | JB-30662-93 |
| | M6x1 with 3/16" hex x 1/8" wide-mouth barb | JB-15955-41 | — | JB-30662-94 |
| R | M6x1 with 3/16" hex x 1/8" low-profile barb (for rigid tubing) | JB-15955-42 | — | JB-30662-95 |
| Barbed plugs | | | | |
| S | 1/16" standard barbed | JB-15955-49 | — | JB-30665-11 |
| | 3/32" standard barbed | JB-15955-50 | — | JB-30665-12 |
| | 1/8" standard barbed | JB-15955-51 | — | JB-30665-13 |
| | 5/32" standard barbed | JB-15955-52 | — | JB-30665-14 |
| | 3/16" standard barbed | JB-15955-53 | — | JB-30665-15 |
| | 1/4" standard barbed | JB-15955-54 | — | JB-30665-16 |
| Manifolds | | | | |
| T | 3-port, 1/16" wide-mouth barbed | JB-15955-43 | — | JB-30665-01 |
| | 3-port, 3/32" wide-mouth barbed | JB-15955-44 | — | JB-30665-02 |
| | 3-port, 1/8" wide-mouth barbed | JB-15955-45 | — | JB-30665-03 |
| U | 4-port, double-elbow style, 1/16" wide-mouth barbed | JB-15955-46 | — | JB-30665-04 |
| | 4-port, double-elbow style, 3/32" wide-mouth barbed | JB-15955-47 | — | JB-30665-05 |
| | 4-port, double-elbow style, 1/8" wide-mouth barbed | JB-15955-48 | — | JB-30665-06 |

JB-30670-00 Panel-mount nut for 30660-21, -22, 30661-21, and 30662-21, -22; 10-32 UNF, 3/8" hex, stainless steel

JB-30670-10 Panel-mount nut for 30660-23, 30661-23, and 30662-23; 1/4-28 UNF, 7/16" hex, stainless steel

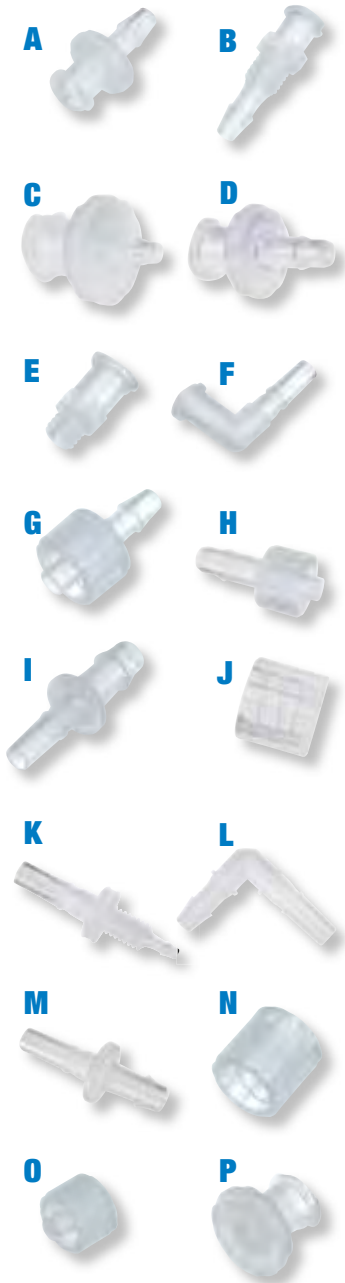


Value Plastics® Luer Fittings and Adapters

Make easy connections with no worries of contamination

- Manufactured from 100% virgin raw materials in a ISO Class 8 environment
- Full material traceability on all items
- Manufactured in compliance with ISO 594-1 standards

These fittings are inspected to be free from contaminants, and are fully traceable. All parts meet tight dimensional tolerances for increased reliability and process purity. All fittings are **sold in packs of 100**.



| Key | Description | Animal-Free Polypropylene | Polycarbonate | Nylon |
|--|--|---------------------------|----------------|----------------|
| | | Catalog number | Catalog number | Catalog number |
| Female luer x hose barb adapters | | | | |
| A | Female luer x 1/16" wide-mouth hose barb | JB-15955-78 | JB-45551-00 | JB-45552-00 |
| | Female luer x 3/32" wide-mouth hose barb | JB-15955-80 | JB-45551-02 | JB-45552-02 |
| | Female luer x 1/8" wide-mouth hose barb | JB-15955-81 | JB-45551-04 | JB-45552-04 |
| B | Female luer x 1/8" wide-mouth hose barb, panel mount | JB-15955-85 | JB-45551-34 | JB-45552-34 |
| C | Female luer x 1/16" easy-to-assemble hose barb | JB-15955-79 | JB-45551-01 | JB-45552-01 |
| D | Female luer x 1/8" low-profile hose barb (for rigid tubing) | JB-15955-82 | JB-45551-16 | JB-45552-16 |
| Female luer x threaded adapters | | | | |
| E | Female luer x 10-32 UNF thread | JB-15955-92 | JB-45551-60 | JB-45552-60 |
| | Female luer x 1/4-28 UNF thread | JB-15955-84 | — | JB-45552-29 |
| Male luer x female luer elbow | | | | |
| F | Male luer x female luer elbow, for use with separate lock ring "N" | JB-15955-93 | JB-45551-84 | JB-45552-84 |
| Male luer lock x hose barb adapters | | | | |
| G | Male luer lock x 3/32" wide-mouth barb | JB-15955-94 | JB-45554-02 | JB-45555-02 |
| | Male luer lock x 1/8" wide-mouth barb | JB-15955-95 | JB-45554-04 | JB-45555-04 |
| | Male luer lock x 5/32" wide-mouth barb | JB-15955-96 | JB-45554-06 | JB-45555-06 |
| | Male luer lock x 3/16" wide-mouth barb | JB-15955-97 | JB-45554-08 | JB-45555-08 |
| | Male luer lock x 1/16" easy-to-assemble hose barb | JB-15955-99 | JB-45554-31 | JB-45555-31 |
| H | Male luer lock x 3/16" easy-to-assemble hose barb | JB-15955-90 | JB-45551-44 | JB-45552-44 |
| | Male luer lock x 1/8" low-profile barb (for rigid tubing) | JB-15955-98 | JB-45554-11 | JB-45555-11 |
| H | Male luer lock x 3/16" low-profile barb (for rigid tubing) | JB-15955-91 | JB-45551-46 | JB-45552-46 |
| | Male luer x hose barb adapters (for use with separate rotating lock ring) | | | |
| I | Male luer x 1/16" easy-to-assemble barb | JB-15956-10 | JB-45554-40 | JB-45555-40 |
| | Male luer x 3/32" easy-to-assemble barb | JB-15956-01 | JB-45554-42 | JB-45555-42 |
| | Male luer x 1/8" easy-to-assemble barb | JB-15956-02 | JB-45554-44 | JB-45555-44 |
| | Male luer x 5/32" easy-to-assemble barb | JB-15956-04 | JB-45554-46 | JB-45555-46 |
| | Male luer x 3/16" easy-to-assemble barb | JB-15956-05 | JB-45554-48 | JB-45555-48 |
| J | Male luer x 1/4" easy-to-assemble barb | JB-15956-06 | JB-45554-50 | JB-45555-50 |
| | Rotating lock ring | JB-15956-09 | JB-45554-75 | JB-45555-75 |
| Male luer x hose barb adapters (for use with separate stationary lock ring) | | | | |
| K | Male luer x 1/16" wide-mouth barb, panel mount | JB-15955-87 | — | JB-45552-38 |
| L | Male luer x 1/8" wide-mouth barb elbow | JB-15955-86 | JB-45551-36 | JB-45552-36 |
| M | Male luer x 1/8" easy-to-assemble barb | JB-15956-03 | JB-45554-45 | JB-45555-45 |
| | Male luer x 5/32" easy-to-assemble barb | JB-15955-88 | JB-45551-40 | JB-45552-40 |
| | Male luer x 3/16" easy-to-assemble barb | JB-15955-89 | JB-45551-42 | JB-45552-42 |
| N | Stationary lock ring | JB-15956-08 | JB-45554-74 | JB-45555-74 |
| Luer plug and cap | | | | |
| O | Male luer plug, with integral lock ring | JB-15956-07 | JB-45554-56 | JB-45555-56 |
| P | Female luer cap | JB-15955-83 | JB-45551-28 | JB-45552-28 |

Accessories

- JB-30670-00 Panel-mount nut for 45550-38 and 45552-38; 10-32 UNF, 3/16" hex, stainless steel
- JB-30670-10 Panel-mount nut for 45550-34, 45551-34, 45552-34; 1/4-28 UNF, 7/16" hex, stainless steel
- JB-45509-03 Panel-mount lock nut for 45550-34, 45551-34, and 45552-34; 1/4-28 UNF, white nylon
- JB-45509-01 Color-coded lock ring for 45550-34, 45551-34, and 45552-34; white nylon

Value Plastics® Large-Bore Barbed Connectors

Get secure connections and enhanced flow

- Manufactured from 100% virgin materials
- Manufactured in an ISO 13533-1 Class 8 cleanroom
- Full material traceability on all items

Barbed fittings work with flexible tubing in low-pressure applications (typically less than 2.1 bar). See ordering table for standard availability; contact Cole-Parmer for special needs.

Animal-Free Polypropylene: Very good chemical resistance. Temp range: -13 to 66°C (9 to 180°F). Sterilise by ethylene oxide or gamma irradiation. Meets USP Class VI requirements.

Polycarbonate: Good chemical resistance. Temp range: up to 100°C (212°F). Sterilise by ethylene oxide or gamma irradiation (will discolour to a yellow-greenish hue).



| Key | Description | Animal-Free Polypropylene | | Polycarbonate | |
|------------------------|----------------------------------|---------------------------|-------------------|---------------|-------------------|
| | | Qty/ pk | Catalog number | Qty/ pk | Catalog number |
| Straight unions | | | | | |
| A | 3/8" easy-to-assemble barb | 100 | JB-15955-55 | 100 | JB-31523-83 |
| | 1/2" easy-to-assemble barb | 100 | JB-15955-56 | 100 | JB-31523-81 |
| | 5/8" easy-to-assemble barb | 50 | JB-15955-57 | 50 | JB-31523-82 |
| B | 1" flared barb | 10 | JB-15955-58 | — | — |
| | 3/8" high-flow barb | — | — | 100 | JB-31523-95 |
| Reducing unions | | | | | |
| C | 3/8 x 1/8" easy-to-assemble barb | 100 | JB-15955-59 | 100 | JB-31523-84 |
| | 3/8 x 1/4" easy-to-assemble barb | 100 | JB-15955-60 | 100 | JB-31523-85 |
| | 1/2 x 1/4" easy-to-assemble barb | 100 | JB-15955-61 | 100 | JB-31523-86 |
| | 1/2 x 3/8" easy-to-assemble barb | 100 | JB-15955-62 | 100 | JB-31523-87 |
| | 3/8 x 1/4" easy-to-assemble barb | 50 | JB-15955-63 | 50 | JB-31523-88 |
| | 5/8 x 3/8" easy-to-assemble barb | 50 | JB-15955-64 | 50 | JB-31523-89 |
| | 1 x 3/4" easy-to-assemble barb | 10 | JB-15955-65 | 10 | JB-31523-90 |
| Y connectors | | | | | |
| D | 3/8" easy-to-assemble barb | 100 | JB-15955-66 | 100 | JB-31523-91 |
| | 1/2" easy-to-assemble barb | 100 | JB-15955-67 | 100 | JB-31523-92 |
| | 5/8" flared barb | 50 | JB-15955-68 | — | — |
| | 3/4" flared barb | 50 | JB-15955-69 | — | — |
| | 1" flared barb | 10 | JB-15955-70 | — | — |
| T connectors | | | | | |
| E | 3/8" easy-to-assemble barb | 100 | JB-15955-71 | 100 | JB-31523-96 |
| | 1/2" easy-to-assemble barb | 100 | JB-15955-72 | 100 | JB-31523-97 |
| | 5/8" easy-to-assemble barb | 50 | JB-15955-73 | 50 | JB-31523-98 |
| | 3/4" flared barb | 50 | JB-15955-74 | — | — |
| | 1" flared barb | 10 | JB-15955-75 | — | — |



15955-55



31523-95



C

15955-59



D

15955-66

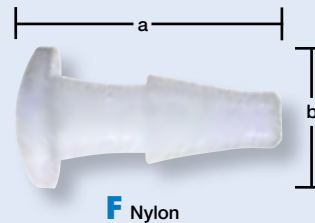


E

15955-71

F. Press-in Plugs

| Tubing ID | Material | Dimensions | | Qty/ pk | Catalog number |
|-----------|----------|------------|-------|------------|-------------------|
| | | a | b | | |
| 1/16" | Nylon | 5/16" | 5/32" | 10 | JB-31220-11 |
| 3/32" | Nylon | 13/32" | 3/16" | 10 | JB-31220-12 |
| 1/8" | Nylon | 17/32" | 5/16" | 10 | JB-31220-13 |
| 5/32" | Nylon | 5/8" | 3/16" | 10 | JB-31220-14 |
| 3/16" | Nylon | 3/4" | 3/8" | 10 | JB-31220-15 |
| 1/4" | Nylon | 1" | 7/16" | 10 | JB-31220-16 |



F Nylon

Wait! There's More...

For additional products in smaller sizes, see pages 178-179.

Cole-Parmer® Plastic Fitting Kits

Get organized today!

Organize your workstation with these convenient barbed fittings kits. Assorted fittings come in an impact-resistant plastic box with secure snap-shut latches to prevent spillage. Labeled compartments let you easily locate the fittings you want. Choose from four materials: high-density polyethylene, black nylon, natural polypropylene, and natural PVDF.



Specifications

High-Density Polyethylene (HDPE)

Very good chemical resistance.
Temp range: -65 to 190°F (-53 to 87°C)

Nylon

Good chemical resistance.
Temp range: -40 to 200°F (-40 to 93°C)

Natural Polypropylene (PP)

Very good chemical resistance.
Temp range: 0 to 275°F (-17 to 135°C)

PVDF

Excellent chemical resistance.
Temp range: -79 to 275°F (-62 to 35°C)

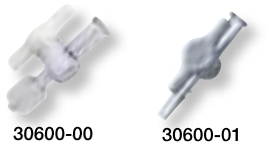
| Fitting sizes | Material | Catalog number |
|---|-------------------------|--------------------|
| Barbed connector/reducer kits | | |
| Straight: 1/16", 3/32", 1/8", 5/32", 3/16", 1/4" Reducing: 1/16" x (3/32", 1/8"); 1/8" x (1/16", 3/32", 5/32", 3/16", 1/4"); 1/4" x (5/32", 3/16", 5/16") Press-in Plugs 1/16", 3/32", 1/8" | HDPE | JB-31514-01 |
| | Nylon | JB-31514-02 |
| | PP | JB-41514-03 |
| Straight: 1/4", 3/16", 3/8", 1/2", 5/8", 3/4", 1" Reducing: 1/4" x (3/16", 3/8", 1/2", 5/8"); 3/8" x (5/16", 1/2", 5/8"); 1/2" x (9/16", 5/8"); 5/8" x 5/8" | PVDF | JB-31514-04 |
| | HDPE | JB-31514-05 |
| | Nylon | JB-31514-06 |
| | PP | JB-41514-07 |
| | PVDF | JB-31514-08 |
| | Assortment packs | |
| Mini fitting assortment pack. Contains 25 straight fittings, and 3/32" tubing ID sizes (240 pieces total) | PP | JB-06365-90 |
| T connector pack. Contains six each of the 4- to 14-mm sizes (36 pieces total) | PP | JB-06294-82 |
| Y connector pack. Contains six each of the 4- to 14-mm sizes (36 pieces total) | PP | JB-06295-82 |
| Straight/reducing connector pack. Contains two of each size of 1/16" to 1/8" fittings. (22 pieces total) | PP | JB-06460-00 |
| Assorted luer fittings (477 pieces total). See ColeParmer.in for kit composition. | PP, nylon, PC | JB-45511-00 |

Plastic Luer Stopcocks and Manifolds

Regulate flow without any leaking

Polycarbonate Stopcocks

HDPE handles rotate 360° on one-way stopcocks, 180° on three-way stopcocks, and 360° on four-way stopcocks.



| Type | Description | Pack of 10 | | Pack of 100 | |
|-----------------------------|-------------|---------------------|----------------|--------------------|----------------|
| | | Catalog number | Catalog number | Catalog number | Catalog number |
| Standard stopcocks | | | | | |
| 1-way | Male lock | JB-30600-00 | | JB-30600-05 | |
| 1-way | Male luer | JB-30600-01 | | JB-30600-06 | |
| 3-way | Male lock | JB-30600-02† | | JB-30600-07 | |
| 4-way | Male luer | JB-30600-03 | | JB-30600-08 | |
| 4-way | Male lock | JB-30600-04 | | JB-30600-09 | |
| Large-bore stopcocks | | | | | |
| 3-way | Male lock | JB-30600-23 | | JB-30600-25 | |
| 4-way | Male lock | JB-30600-12 | | JB-30600-17 | |

†Locking ring does not rotate.

High-Pressure Polycarbonate Stopcocks

Pressure rating up to 1050 psi. Pack of 10.

| Type | Description | Catalog number |
|-------|----------------------------------|--------------------|
| 2-way | Male luer lock x female luer | JB-30526-32 |
| 3-way | Female luer (2) x male luer lock | JB-30526-34 |



PVDF Stopcocks

PVDF body with polypropylene insert.

| Type | Description | Catalog number |
|--------------------------------|---------------------------------|--------------------|
| Natural PVDF, Pack of 1 | | |
| 2-way | Female luer lock | JB-31200-70 |
| 3-way | Female luer lock | JB-31200-80 |
| Black PVDF, Pack of 10 | | |
| 1-way | Male luer lock x male luer lock | JB-31200-90 |
| 1-way | Male luer lock x female luer | JB-31200-91 |
| 1-way | Female luer x female luer | JB-31200-92 |

Polycarbonate Manifolds

Manifolds have polyurethane stems, HDPE handles, and female ports.



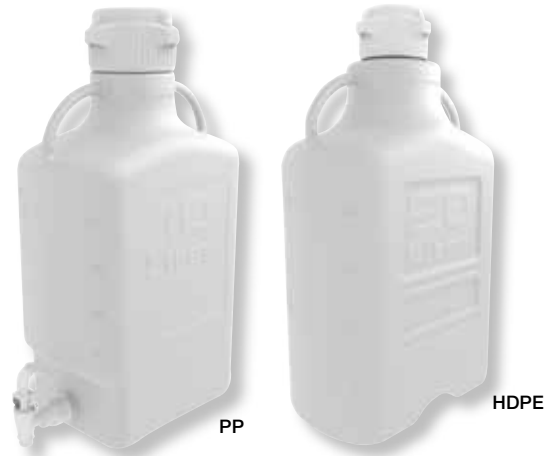
| Ports | Rotation | Individual manifolds | | Pack of 10 | |
|-------|----------|----------------------|----------------|--------------------|----------------|
| | | Catalog number | Catalog number | Catalog number | Catalog number |
| 2 | 180° | JB-06464-81 | | JB-30600-44 | |
| 3 | 360° | JB-06464-83 | | JB-30600-41 | |
| 4 | 180° | JB-06464-85 | | JB-30600-42 | |
| 5 | 360° | JB-06464-87 | | JB-30600-43 | |

Cole-Parmer® Carboys

Get the right material for your application

- Easy-open polypropylene (PP) closure provides leakproof top connections
- Simplified transporting—full-grip handles on top and bottom make it easy to lift and carry
- Chemical-resistant PP is BPA-free, heat-stable and autoclavable
- Chemical-resistant HDPE is ideal for buffers, reagents, solids and powders
- Use amber HDPE for light- or UV-sensitive products
- Transparent PET is virtually shatterproof and withstands cold temperatures
- Some models feature an autoclavable PP spigot
- Eliminate contamination with C-Flex® or Sani-Tech® high-purity closures; call for details

NEW



PP

HDPE



| Liters (gallons) | Cap size | Spigot | PP | HDPE | Amber HDPE | PET |
|------------------|----------|--------|--------------------|--------------------|--------------------|--------------------|
| | | | Catalog number | Catalog number | Catalog number | Catalog number |
| 2.5 (0.7) | 83 mm | No | JB-06059-49 | JB-06059-37 | JB-06058-73 | JB-06059-64 |
| | | Yes | JB-06059-50 | JB-06059-38 | JB-06058-74 | JB-06059-65 |
| 5 (1.3) | 83 mm | No | JB-06059-51 | JB-06059-39 | JB-06058-75 | — |
| | | Yes | JB-06059-52 | JB-06059-40 | JB-06058-76 | JB-06059-66 |
| 10 (2.6) | 83 mm | No | JB-06059-53 | JB-06059-41 | JB-06058-77 | — |
| | | Yes | JB-06059-54 | JB-06059-42 | — | — |
| 20 (5.3) | 83 mm | No | JB-06059-55 | JB-06059-43 | — | — |
| | | Yes | JB-06059-56 | JB-06059-44 | — | — |
| 20 (5.3) | 120 mm | No | JB-06059-57 | JB-06059-45 | JB-06058-78 | JB-06059-67 |
| | | Yes | JB-06059-58 | JB-06059-46 | JB-06058-79 | — |
| 40 (10.6) | 120 mm | No | JB-06059-59 | JB-06059-47 | JB-06058-80 | — |
| | | Yes | JB-06059-60 | JB-06059-48 | JB-06058-81 | — |
| 75 (19.8) | 120 mm | No | JB-06059-61 | — | — | — |

JB-06059-69 Stainless steel dolly to support 40- and 75-L carboys, max 90 kg



Amber HDPE

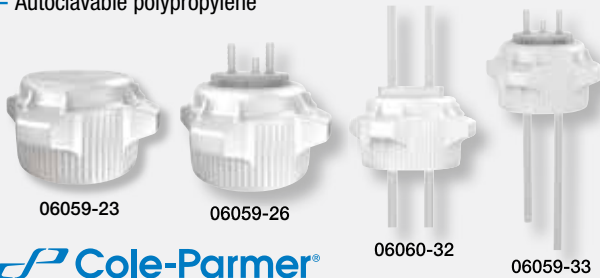
PET

Cole-Parmer® Carboy Accessories

Filling/Venting Caps

- Quick and easy aseptic liquid transfer
- Leakproof with replaceable platinum-cured silicone gasket
- Large finger grips allow for easy tightening and opening
- Autoclavable polypropylene

NEW



| Description | Qty/pk | 83 mm cap size | 120 mm cap size |
|--|--------|--------------------|--------------------|
| | | Catalog number | Catalog number |
| Closed cap | 2 | JB-06059-23 | JB-06059-28 |
| Open cap with solid adapter | 2 | JB-06059-24 | JB-06059-29 |
| Open cap with 2 x 1/4" hose barb ports | 1 | JB-06059-26 | — |
| Open cap with 2 x 1/2" hose barb ports | 1 | JB-06059-27 | — |
| Open cap with 2 x 1/4" hose barb ports and tubing | 1 | JB-06059-33 | JB-06059-35 |
| Open cap with 2 x 1/2" hose barb ports and tubing | 1 | JB-06059-34 | JB-06059-36 |
| Open cap with closed adapter | 1 | JB-06060-31 | JB-06060-34 |
| Open cap with 2 x 1/4" ID tubing lengths (68 cm L) | 1 | JB-06060-32 | JB-06060-35 |
| Open cap with 2 x 1/4" ID and 1 x 3/8" ID tubing lengths (68 cm L) | 1 | JB-06060-33 | JB-06060-36 |

Spigots/Fittings

- Goodbye leaks and contamination issues
- Convenient solution for bottom connections
- Leakproof, nondrip, hard-stop design
- Autoclavable polypropylene (PP) is easy to clean
- 1/8" female thread size also fits on Nalgene™ carboys

NEW



| Description | Thread size | Qty/pk | Catalog number |
|--|-------------|--------|--------------------|
| Up/down lever and hose barb for 3/8" to 3/4" ID tubing | 1/8" | 2 | JB-06061-60 |
| | | 1 | JB-06061-61 |
| Closed cap to stop flow | 1/8" | 1 | JB-06061-62 |
| 1/4" hose barb | 1/8" | 1 | JB-06061-63 |
| 3/8" hose barb | 1/8" | 1 | JB-06061-64 |
| 1/2" hose barb | 1/8" | 1 | JB-06061-65 |
| 3/4" hose barb | 1/8" | 1 | JB-06061-66 |
| 3/4" sanitary connection | 1/8" | 1 | JB-06061-67 |

Process Illumination and Viewing Solutions

- A range of process illumination and viewing products, mounted on the manufacturing vessels in pharma and biopharma industry, suitable for use in hazardous or safe areas in the pharma and biopharma manufacturing environment
- Engineered products to suit custom requirements
- Documentation as per industry standards



Half-light fittings for safe areas

- For application "sight and light through one sight glass"
- Power from 2 to 100 W, supply voltages 12 and 24 V
- Halogen or LED version
- For use with momentary push button, "ON-OFF" -switch as well as for continuous operation (depending on type and power)
- From stainless steel for sight glasses like DIN 11851 (series HLMR)



Sight glass light fittings STERI-LINE for sterile applications for hazardous and safe areas

- For mounting onto different metal-fused sight glasses
- Hazardous version: Classified Ex d II C T4-T6, Ex II 2 G and D
- Power from 2 to 100 W, supply voltages from 12 up to 240 V
- Halogen or LED version
- Protection mode: IP65, dust and spray water tight to EN 60529



Sight glass light fittings for hazardous areas

- Hazardous area classification to ATEX Ex II 2 G and D (gas and dust)
- Temperature classes T3 up to T6, supply voltages from 12 up to 240 V
- Halogen or LED version
- Until 100 W in temperature class T4 (series "the power package")
- Large variety of accessories (fixations, internal/external timers, etc.)



Sight glass light fittings for safe areas

- Power from 5 to 100 W, supply voltages from 12 up to 240 V
- Halogen or LED version
- Large variety of accessories (fixations, internal/external timers, "ON-OFF"- switches, etc.)
- Brilliant, glare-free illumination, even with difficult media



Metal fused sight glasses and sight glass flanges

- For Tri-Clamp®, NA - Connect™ and diverse sightglass types to DIN 28120, ANSI B, DIN 11864-1, DIN 11864-2, DIN 11864-3
- Tri-Clamp® versions available with window wipers of the series WD
- For use in sterile environments and cleanrooms
- Very high security and easy mounting



Sight glasses and hinged sight glasses

- To DIN 28120 or similar, DN 50 - 200, PN 0/2.5/ 6/10/16, also double glazed
- To DIN 28121, DN 50 - 200, PN 10/25, also double glazed
- Similar to DIN 11851, DN 50 - 150, PN 6
- Rectangular (series RSG), PN 16, D - ended (series LSG), PN 2.5/6/10/25
- Hinged, with possibility of stainless steel interior lining



Stainless steel sight glass light fittings for hazardous areas

- Hazardous area classification to ATEX Ex II 2 G and D (gas and dust)
- Temperature classes T4 up to T6, supply voltages from 12 up to 240 V
- Halogen or LED version
- Entirely from stainless steel
- Preferred application in the pharmaceutical, biochemical and cosmetic industries, also for sterile plants and in cleanrooms



Stainless steel sight glass light fittings for safe areas

- Universal use on different sight glass types due to very small dimensions
- Ideal for application "sight and light through one sight glass"
- Power from 2 to 100 W, supply voltages from 12 up to 240 V
- Halogen or LED version
- For use with momentary push button, "ON-OFF"- switch as well as for continuous operation (depending on type and power)



Trust our **expert** Application Specialists to help you find the right product.
022-6139-4444 | info@coleparmer.in



Cole-Parmer® Acrylic Variable-Area Flowmeters for Bench or Panel Mount

Don't sacrifice durability for precision

- Easily and precisely control flow of your application via manual valve
- Durable acrylic bodies with integral metering tubes for accurate readings
- Stand up to even aggressive plant environments
- Versatile—easy panel installation or move from bench to bench with optional tripod base 32462-50 (order separately at ColeParmer.in)

Specifications

Accuracy:
50-mm models: ±5% FS
100-mm models: ±3% FS
127-mm models: ±2% FS

Media type: liquids or gases

Materials of construction

| Part | 50 mm | 100 mm | 127 mm |
|----------|---------------------------------|--------------------------|--------|
| Body | Acrylic | | |
| Fittings | Brass | | PVC |
| O-rings | Buna N | | |
| Float | Black glass (BG), Aluminum (AL) | 316 Stainless steel (SS) | |

Max pressure: 100 psi (6.9 bar)
Max operating temp: 150°F (65°C)
Connections: 50-mm and 100-mm models: 1/8" NPT(F)
127-mm models: 1" NPT(F)



32461-60 flowmeter shown on tripod base 32462-50



Flowmeters with Valves; Metric-Unit Scales

| Float† | For liquid applications | | For air applications | |
|-------------------------------------|-------------------------|----------------|----------------------|----------------|
| | Flow range (mL/min) | Catalog number | Flow range (LPM) | Catalog number |
| Flowmeters with 50-mm scale | | | | |
| BG | — | — | 0.04 to 0.5 | JB-32460-40 |
| SS | 10 to 100 | JB-32460-32 | 0.1 to 1 | JB-32460-42 |
| SS | 20 to 240 | JB-32460-34 | 0.4 to 5 | JB-32460-44 |
| SS | — | — | 1 to 10 | JB-32460-46 |
| AL | — | — | 2 to 25 | JB-32460-48 |
| SS | — | — | 4 to 50 | JB-32460-50 |
| SS | — | — | 10 to 100 | JB-32460-52 |
| Flowmeters with 100-mm scale | | | | |
| SS | 4 to 50 | JB-32461-30 | 0.4 to 5 | JB-32461-50 |
| SS | 10 to 120 | JB-32461-32 | 1 to 10 | JB-32461-52 |
| BG | 25 to 225 | JB-32461-34 | 2 to 20 | JB-32461-54 |
| SS | 40 to 400 | JB-32461-36 | 3 to 30 | JB-32461-56 |
| SS | 40 to 660 | JB-32461-38 | 4 to 50 | JB-32461-58 |
| SS | 100 to 1500 | JB-32461-40 | 10 to 100 | JB-32461-60 |
| SS | 200 to 3000 | JB-32461-42 | 14 to 140 | JB-32461-62† |
| SS | 0.8 to 9 LPM | JB-32461-44† | 30 to 280 | JB-32461-64† |
| SS | 1.5 to 20 LPM | JB-32461-46† | — | — |
| Flowmeters with 127-mm scale | | | | |
| SS | 4 to 36 LPM | JB-32466-54 | 100 to 700 | JB-32466-66 |
| SS | — | — | 400 to 3400 | JB-32466-70 |

Flowmeters without Valves; Metric-Unit Scales

| Float† | For liquid applications | | For air applications | |
|-------------------------------------|-------------------------|----------------|----------------------|----------------|
| | Flow range (mL/min) | Catalog number | Flow range (LPM) | Catalog number |
| Flowmeters with 50-mm scale | | | | |
| BG | — | — | 0.04 to 0.5 | JB-32457-40 |
| BG | 10 to 100 | JB-32457-32 | 0.1 to 1 | JB-32457-42 |
| SS | 20 to 240 | JB-32457-34 | 0.4 to 5 | JB-32457-44 |
| SS | — | — | 1 to 10 | JB-32457-46 |
| Flowmeters with 100-mm scale | | | | |
| BG | 4 to 50 | JB-32458-30 | 0.4 to 5 | JB-32458-50 |
| SS | 10 to 120 | JB-32458-32 | 1 to 10 | JB-32458-52 |
| BG | 25 to 225 | JB-32458-34 | 2 to 20 | JB-32458-54 |
| SS | 40 to 400 | JB-32458-36 | 3 to 30 | JB-32458-56 |
| SS | 40 to 660 | JB-32458-38 | 4 to 50 | JB-32458-58 |
| SS | 100 to 1500 | JB-32458-40 | 10 to 100 | JB-32458-60 |
| SS | 200 to 3000 | JB-32458-42 | 14 to 140 | JB-32458-62† |
| SS | 0.8 to 9 LPM | JB-32458-44† | 30 to 280 | JB-32458-64† |
| SS | 1.5 to 20 LPM | JB-32458-46† | 80 to 560 | JB-32458-65† |
| Flowmeters with 127-mm scale | | | | |
| SS | 1 to 15 LPM | JB-32462-20 | 100 to 700 | JB-32462-30 |
| SS | 4 to 36 LPM | JB-32462-22 | 100 to 1400 | JB-32462-32 |
| SS | 5 to 75 LPM | JB-32462-24 | 400 to 3000 | JB-32462-34 |

†These models have dual scale: GPM/GPH, scfm/scfh, LPM/LPH; they also have 1/4" NPT(F) connections and use optional tripod base 32462-60 sold separately online.
‡Float material key: BG = black glass, SS = stainless steel, AL = aluminum.

Easy-View Acrylic In-Line Flowmeters

Read measurements in an unobstructed 360° view

- Flow ranges up to 50 GPM (200 LPM) with dual scales for easy reading
- Extremely durable—machined from high-quality acrylic rod stock
- One-piece, in-line body occupies less space for a clean installation

These meters are designed for use in more aggressive process environments. In addition to the machined acrylic bodies, the design utilizes SS float guides. The combination is a meter suitable for high-vibration, high-fluctuation process applications. Some versions include polypropylene end fittings reinforced with aluminum stress rings for added strength to the meters' design.



Specifications

Accuracy: ±5% of reading

Max pressure: 150 psi (10.3 bar); 130 psig (8.8 bar) for large-body models

Max operating temperature: 150°F (65°C); 130°F (54°C) for large-body models

| Materials of Construction | | |
|---------------------------|-----------------|------------|
| Part | General-purpose | Large-body |
| Body | Acrylic | |
| Fittings | PP† | PVC |
| O-rings | Viton® | |
| Guide | 316 SS | |

†Reinforced with aluminum stress rings.



Polysulfone In-Line Flowmeters

Get better results than acrylic

- Better than acrylic for aggressive fluids or high temperature and pressure applications
- Flow ranges from less than 0.1 GPM to over 130 GPM and less than 1 scfm to over 230 scfm

All meters include union connections—installing the meter and cleaning the internals is much easier. The unions also allow simple rotation of the sight-tube for easier reading all while keeping a tight thread seal on the fittings to contain aggressive fluids.

Dual scales (English and metric) reduce the need for stocking separate units for shipping to the US or elsewhere. The back side of the meter body is molded with an opaque surface to make reading easier.

Note: Polysulfone is not suited for direct exposure to sunlight.



Specifications

Accuracy:

Standard in-line: ±5% full-scale
High-capacity: ±3% full-scale

Max pressure drop: 2 psi (0.1 bar)

Max pressure:

½", ¾", and 1" NPT models: 150 psig (10.3 bar)
2" NPT models: 130 psig (8.8 bar)

Max operating temperature:

½", ¾", and 1" NPT models: 212°F (100°C)
2" NPT models: 150°F (65°C)



| Flow range | Float | Connections | Catalog number |
|---|-----------------|-------------|--|
| General-purpose flowmeters for liquids | | | |
| 0.025 to 0.25 GPM | 0.1 to 1 LPM | PVC | ¼" NPT(F) JB-32477-00 ⅜" NPT(F) JB-32477-02 |
| 0.1 to 1 GPM | 0.4 to 4 LPM | PVC | ⅜" NPT(F) JB-32477-04 |
| 0.2 to 2 GPM | 1 to 7.5 LPM | 316 SS | ½" NPT(F) JB-32477-10 |
| 0.3 to 3 GPM | 1.5 to 11.1 LPM | 316 SS | ⅜" NPT(F) JB-32477-12 ½" NPT(F) JB-32477-14 |
| 0.5 to 5 GPM | 2.0 to 20 LPM | 316 SS | ½" NPT(F) JB-32477-18 |
| 1 to 10 GPM | 4 to 38 LPM | 316 SS | ¾" NPT(F) JB-32477-20 1" NPT(F) JB-32477-22 |
| 1 to 17 GPM | 4 to 64 LPM | 316 SS | 1" NPT(F) JB-32477-26 |
| 2 to 20 GPM | 8 to 80 LPM | 316 SS | ¾" NPT(F) JB-32477-28 1" NPT(F) JB-32477-30 |
| Large-body flowmeters for liquids | | | |
| 5 to 25 GPM | 20 to 100 LPM | 316 SS | 1½" NPT(M) JB-32477-78 |
| 8 to 40 GPM | 30 to 150 LPM | | JB-32477-80 |
| 10 to 50 GPM | 40 to 200 LPM | | JB-32477-82 |

| Flow range | Float | Connections | Catalog number |
|---|-----------------|-------------|------------------------------|
| Standard in-line flowmeters for water | | | |
| 0.025 to 0.25 GPM | 0.1 to 1.0 LPM | PVC | ½" NPT(M) JB-32470-00 |
| 0.1 to 1.0 GPM | 0.4 to 4.0 LPM | 316 SS | JB-32470-01 |
| 0.2 to 2.0 GPM | 0.75 to 7.5 LPM | | ½" NPT(M) JB-32470-02 |
| 0.5 to 5.0 GPM | 1.8 to 18 LPM | | JB-32470-03 |
| 1.0 to 10.0 GPM | 5.0 to 37.5 LPM | 316 SS | ¾" NPT(M) JB-32470-04 |
| High-capacity in-line flowmeters for water | | | |
| 2.0 to 20 GPM | 7.5 to 75 LPM | 316 SS | 1" NPT(F) JB-32472-01 |
| 3.0 to 30 GPM | 12 to 115 LPM | | JB-32472-02 |
| 4.0 to 40 GPM | 15 to 155 LPM | | JB-32472-03 |
| 6.0 to 60 GPM | 30 to 230 LPM | 316 SS | 2" NPT(F) JB-32473-01 |
| 10 to 80 GPM | 40 to 300 LPM | | JB-32473-02 |
| 15 to 130 GPM | 60 to 500 LPM | | JB-32473-04 |



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JB-17080-00 NIST-traceable calibration with data for air/gas flowmeter
JB-17080-12 NIST-traceable calibration with data for liquid flowmeter

Precision Turbine Flowmeters

Monitor flow with highest accuracy and full-featured electronics

- Assembled and ready to install
- 4 to 20 mA models feature easy push-button programming and electronic lockout

These full-featured turbine meters come complete and assembled—easy to install in your process application. The electronics package is compact, low-profile and weathertight to NEMA 4 standards.

Models with display offer gallon and liter indication, as well as flow rate and two totals (cumulative and batch). Meters feature easy-to-use, well-marked terminals and can be configured to meet most desired needs. If no signal is required, a battery-powered or external-powered display is available.

Models offering 4 to 20 mA output offer the “easiest in the industry” push-button programming and feature an electronic lockout to ensure against tampering or resetting. These meters operate off the power loop, so no additional power is required.



Specifications

| | | |
|---|--|---|
| Accuracy: ±0.5% | Max pressure: 450 psi | Input power: 8.5 to 35 VDC, two-wire |
| Repeatability: ±0.1% | Display: 6-digit LCD, ½"H | Wetted parts: 316 SS housing, shaft, and rotor supports; PTFE sleeve bearings; acetal thrust bearings; CD4MCu SS rotor |
| Temperature range: –100 to 185°F (–74 to 85°C) | Output signal: 4 to 20 mA or scaled pulse | |

| Flow range | Connections | Flow diameter | Max particulate size | Meters with display | | Meters without display | |
|-------------------|--------------|---------------|----------------------|---------------------|--------------------|------------------------|---------------------|
| | | | | No output | 4 to 20 mA output | 4 to 20 mA output | Scaled pulse output |
| | | | | Cat. no. | Cat. no. | Cat. no. | Cat. no. |
| 0.6 to 6.0 GPM | ¾" sanitary | ½" | 420 µm | JB-32610-64 | JB-32610-71 | JB-32610-78 | JB-32610-85 |
| 0.8 to 6.0 GPM | 1" sanitary | ½" | 420 µm | JB-32610-65 | JB-32610-72 | JB-32610-79 | JB-32610-86 |
| 1.6 to 16.0 GPM | 1½" sanitary | ¾" | 420 µm | JB-32610-66 | JB-32610-73 | JB-32610-80 | JB-32610-87 |
| 2.32 to 23.0 GPM | 1½" sanitary | ¾" | 420 µm | JB-32610-67 | JB-32610-74 | JB-32610-81 | JB-32610-88 |
| 6.7 to 67.0 GPM | 1½" sanitary | 1" | 420 µm | JB-32610-68 | JB-32610-75 | JB-32610-82 | JB-32610-89 |
| 17.7 to 177.0 GPM | 1½" sanitary | 1½" | 1000 µm | JB-32610-69 | JB-32610-76 | JB-32610-83 | JB-32610-90 |
| 33.0 to 330.0 GPM | 2" sanitary | 2" | 1410 µm | JB-32610-70 | JB-32610-77 | JB-32610-84 | JB-32610-91 |

Cole-Parmer® Heavy-Duty Flowmeters/Totalizers

Battery powered—no wiring required

- Display flow rate and accumulated flow in gallons or liters
- Record a cumulative volume plus a resettable volume

To conserve power, the six-digit display automatically turns on with flow and then turns off four minutes after flow ceases. Internal parts are simple to replace for easy maintenance. Meters operate on two lithium batteries (included). Remote installation of the flowmeter body is possible using the optional remote installation kit 05609-93 (order separately below).



APPLICATIONS

- ✓ Pilot plant
- ✓ Full-scale process

Cole-Parmer®



Specifications

| | | |
|--|--|--|
| Repeatability: ±0.1% of reading | Wetted materials: 316 SS housing, PVDF rotor and supports, tungsten carbide shaft, 316 SS retainers, and ceramic bearings | Display: 6-digit LCD, ½"H (with floating decimal) |
| Maximum pressure: 450 psig (31 bar) | | Approvals: EEx II 3 G IIC T4 |
| Operating temp: 14 to 140°F (–10 to 60°C) | | |

| Flow range | Connections | Max particulate size | Accuracy | Catalog number |
|-------------------------------|--------------|----------------------|------------------|--------------------|
| 1 to 10 GPM (3.8 to 37.9 LPM) | ¾" sanitary | 125 µm | ±2% of reading | JB-05609-05 |
| 2 to 20 GPM (7.6 to 75.7 LPM) | 1" sanitary | 125 µm | ±2.0% of reading | JB-05609-11 |
| 5 to 50 GPM (18.9 to 190 LPM) | 1½" sanitary | 125 µm | ±1.5% of reading | JB-05609-17 |
| 10 to 100 GPM (38 to 380 LPM) | 2" sanitary | 500 µm | ±1% of reading | JB-05609-25 |
| 20 to 200 GPM (6 to 760 LPM) | 2½" sanitary | 500 µm | ±1% of reading | JB-05609-33 |

JB-05610-70 Calibration container; HDPE, 5-gal. (19 L) capacity

JB-05610-96 Replacement battery kit

JB-05609-93 Remote installation kit. Mount display up to 100 feet (30 m) from sensor—ideal for measuring flow in hot pipes (up to 250°F/121°C) or in inaccessible areas. Kit includes a sensor cover with 10-ft (3-m) cable, remote display housing, and installation hardware

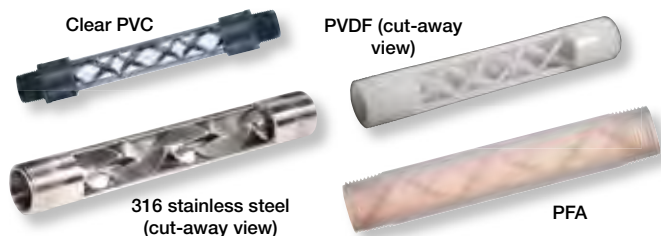
JB-05609-91 Output module, pulse output. Module provides a digital open collector output for interfacing with compatible instrumentation

JB-05609-92 Output module, 4 to 20 mA or 5 to 20 volts. Module provides an output for interfacing with compatible instrumentation

JB-17080-12 NIST-traceable calibration

In-Line Pipe Mixers

Install these mixers directly into your process line to achieve a 100% mixed output—mixing elements are welded inside the pipe. All mixers have threaded ends. Choose PVC, 316 stainless steel, PVDF, or PFA. The clear PVC mixers are ideal for a visual check of your mixing processes. Models with removable elements are available on request—contact your local representative for details.



| NPT(M) | Pipe ID, in. (mm) | No. of elements | Mixer length, in. (mm) | Catalog number |
|--|-------------------|-----------------|------------------------|--------------------|
| Clear PVC schedule 40 pipe mixers | | | | |
| 3/8" | 0.473 (12) | 6 | 6 1/2 (165) | JB-04669-85 |
| | | 12 | 11 (279) | JB-04669-87 |
| 1/2" | 0.602 (15.3) | 6 | 7 (178) | JB-04669-89 |
| | | 12 | 12 (305) | JB-04669-91 |
| 3/4" | 0.804 (20.4) | 6 | 9 (229) | JB-04669-92 |
| | | 12 | 15 (381) | JB-04669-93 |
| 1" | 1.029 (26.1) | 6 | 11 (279) | JB-04669-94 |
| | | 12 | 18 (457) | JB-04669-95 |
| 1 1/2" | 1.590 (40.4) | 6 | 15 (381) | JB-04669-96 |
| | | 12 | 28 (711) | JB-04669-97 |
| 2" | 2.047 (52) | 6 | 19 (483) | JB-04669-98 |
| | | 12 | 35 (889) | JB-04669-99 |
| Standard PVC schedule 80 pipe mixers | | | | |
| 1/2" | 0.62 (15.7) | 6 | 5 (127) | JB-04669-00 |
| | | 12 | 10 (254) | JB-04669-06 |
| 3/4" | 0.742 (18.8) | 6 | 7 (178) | JB-04669-02 |
| | | 12 | 14 (356) | JB-04669-08 |
| " | 0.957 (24.3) | 6 | 10 (254) | JB-04669-04 |
| | | 12 | 19 (483) | JB-04669-10 |
| 1 1/2" | 1.50 (38.1) | 6 | 15 (381) | JB-04669-78 |
| | | 12 | 26 (660) | JB-04669-79 |
| 2" | 1.939 (49.2) | 6 | 18 (457) | JB-04669-83 |
| | | 12 | 33 (838) | JB-04669-81 |
| 316 stainless steel schedule 40 pipe mixers | | | | |
| 1/4" | 0.364 (9.2) | 6 | 3 (76.2) | JB-04669-05 |
| | | 12 | 6 (152) | JB-04669-07 |
| 3/8" | 0.493 (12.5) | 6 | 4 (101) | JB-04669-09 |
| | | 12 | 8 (203) | JB-04669-11 |
| 1/2" | 0.62 (15.7) | 6 | 5 (127) | JB-04669-12 |
| | | 12 | 10 (254) | JB-04669-18 |
| 3/4" | 0.82 (20.8) | 6 | 7 (178) | JB-04669-14 |
| | | 12 | 13 (330) | JB-04669-20 |
| 1" | 1.05 (26.7) | 6 | 9 (229) | JB-04669-16 |
| | | 12 | 17 (439) | JB-04669-22 |
| 1 1/2" | 1.61 (40.9) | 6 | 13 (330) | JB-04669-23 |
| | | 12 | 26 (660) | JB-04669-24 |
| 2" | 2.067 (52.5) | 6 | 17 (432) | JB-04669-25 |
| | | 12 | 33 (838) | JB-04669-26 |
| PVDF schedule 80 pipe mixers | | | | |
| 1/2" | 0.546 (13.9) | 6 | 5 (127) | JB-04669-28 |
| | | 12 | 9 (229) | JB-04669-29 |
| 3/4" | 0.742 (18.8) | 6 | 6 (152) | JB-04669-30 |
| | | 12 | 12 (305) | JB-04669-34 |
| 1" | 0.957 (24.3) | 6 | 8 (203) | JB-04669-32 |
| | | 12 | 15 (381) | JB-04669-36 |
| 1 1/2" | 1.50 (38.1) | 6 | 12 (305) | JB-04669-38 |
| | | 12 | 24 (610) | JB-04669-40 |
| 2" | 1.939 (49.2) | 6 | 16 (406) | JB-04669-42 |
| | | 12 | 31 (787) | JB-04669-44 |
| PFA schedule 80 pipe mixers | | | | |
| 1/2" | 0.546 (13.9) | 6 | 5 (127) | JB-04668-20 |
| | | 12 | 9 (229) | JB-04668-22 |
| 3/4" | 0.742 (18.8) | 6 | 6 (152) | JB-04668-24 |
| | | 12 | 12 (305) | JB-04668-26 |
| 1" | 0.957 (24.3) | 6 | 8 (203) | JB-04668-27 |
| | | 12 | 15 (381) | JB-04668-29 |

In-Line Tube Mixers

These mixers consist of a series of fixed right- and left-hand elements. Tube and mixing elements are made of 316 stainless steel—ideal for mixing high-viscosity fluids such as epoxies. Mixers have plain ends.



| Tube OD, in. (mm) | No. of elements | Tube ID, in. (mm) | Mixer length, in. (mm) | Viscosity (cps) | Catalog number |
|-------------------|-----------------|-------------------|------------------------|-----------------|--------------------|
| 3/8 (5) | 17 | 0.13 (3.3) | 4 7/8 (124) | 0 to 200 | JB-04669-50 |
| | 21 | | 6 (152) | 0 to 200 | JB-04669-52 |
| | 27 | | 7 1/2 (190) | 200 to 750 | JB-04669-54 |
| 1/4 (6) | 21 | 0.19 (4.8) | 7 (178) | 0 to 200 | JB-04669-56 |
| | 27 | | 9 1/4 (235) | 200 to 750 | JB-04669-58 |
| | 34 | | 11 1/2 (292) | 750 and up | JB-04669-60 |
| 3/8 (10) | 21 | 0.32 (8.1) | 11 (279) | 0 to 200 | JB-04669-62 |
| | 27 | | 14 (356) | 200 to 750 | JB-04669-64 |
| | 32 | | 17 (438) | 750 and up | JB-04669-66 |
| 1/2 (13) | 15 | 0.43 (10.9) | 11 1/2 (302) | 0 to 200 | JB-04669-68 |
| | 21 | | 16 3/8 (416) | 0 to 200 | JB-04669-70 |
| | 32 | | 24 3/4 (629) | 750 and up | JB-04669-72 |

In-Line Sanitary Mixers



Removable mixing element for thorough cleaning.

These mixers are made of 316 stainless steel for low- or high-viscosity food processing. All internal surfaces are ground and polished to a sanitary (#4) finish and have removable elements for cleaning and visual inspection.

Helical Design Mixers are best for high-viscosity (>1500 cps) fluids, and when fluids are moving more slowly through the mixer. Excellent for combining products into fluids such as yogurt, mayonnaise, and ice cream.

Blade Design Mixers are best for low viscosity (<1500 cps) fluids. The faster the fluid moves, the faster (and more thorough) the mixing. Great for mixing products into water or water-like fluids.

| Tri-Clamp® size, in. (mm) | No. of elements | Pipe ID, in. (mm) | Helical design | | Blade design | |
|---------------------------|-----------------|-------------------|------------------|--------------------|------------------|--------------------|
| | | | Length, in. (mm) | Catalog number | Length, in. (mm) | Catalog number |
| 1/2 (13) | 6 | 0.37 (9.4) | 5 1/2 (140) | JB-04668-75 | 4 (102) | JB-04668-28 |
| | 12 | | 10 1/2 (267) | JB-04668-76 | 8 (203) | JB-04668-30 |
| 3/4 (19) | 6 | 0.62 (15.7) | 7 (178) | JB-04668-77 | 6 1/2 (165) | JB-04668-32 |
| | 12 | | 13 (330) | JB-04668-78 | 11 (279) | JB-04668-34 |
| 1 (25) | 6 | 0.87 (22.1) | 9 (229) | JB-04668-79 | 7 (178) | JB-04668-36 |
| | 12 | | 18 (457) | JB-04668-80 | 14 (356) | JB-04668-38 |
| 1 1/2 (38) | 6 | 1.37 (34.8) | 14 (356) | JB-04668-81 | 12 (305) | JB-04668-40 |
| | 12 | | 27 (686) | JB-04668-82 | 24 (610) | JB-04668-42 |
| 2 (51) | 6 | 1.87 (47.5) | 18 (457) | JB-04668-83 | 15 (381) | JB-04668-44 |
| | 12 | | 36 (914) | JB-04668-84 | 30 (762) | JB-04668-46 |

JB-30800-74 Sanitary clamp for 1/2" (13 mm) or 3/4" (19 mm) sizes

JB-30800-75 Sanitary clamp for 1" (25 mm) or 1 1/2" (38 mm) sizes

JB-30800-76 Sanitary clamp for 2" (51 mm) size

Cole-Parmer® Two- and Three-Way Direct Lift Solenoid Valves

Ideal with high-purity or corrosive fluids—made of inert PTFE

- Minimize trapped liquids with minimal dead volume
- Mount almost anywhere—lightweight and compact

Models with a 1/16" orifice have mounting holes at the bottom only and models with a 5/32" orifice have mounting holes at the top and bottom. Optional mounting clip 01540-50 can be used to mount valves with a 1/16" orifice in any position.



Mounting clip
01540-50



Mounting flange
01540-55



Specifications

Vacuum rating: 26" Hg **Maximum fluid temperature:** 158°F (70°C) **Lead wire length:** 15" (38 cm)

| Ports NPT(F) | Orifice | Max psi | Response time | Watts | 12 VDC | | 24 VDC | |
|---|---------|------------|------------------|-------|----------------|----------------|----------------|----------------|
| | | | | | Catalog number | Catalog number | Catalog number | Catalog number |
| Two-way solenoid valves; normally closed | | | | | | | | |
| 1/4-28 | 1/16" | 30 | 20 ms | 4.0 | JB-01540-01 | JB-01540-02 | | |
| 1/4-28 | 1/16" | 60 | 25 ms | 8.0 | JB-01540-03 | JB-01540-04 | | |
| | 5/32" | 18 | 30 ms | 8.0 | JB-01540-07 | JB-01540-08 | | |
| Two-way solenoid valves; normally open | | | | | | | | |
| 1/4-28 | 1/16" | 30 | 20 ms | 4.0 | JB-01540-09 | JB-01540-10 | | |
| Three-way solenoid valves | | | | | | | | |
| 1/4-28 | 1/16" | 30 | 20 ms | 4.0 | JB-01540-11 | JB-01540-12 | | |
| 1/4-28 | 1/16" | 60 | 25 ms | 8.0 | JB-01540-13 | JB-01540-14 | | |
| | 5/32" | 18 | 30 ms | 8.0 | JB-01540-17 | JB-01540-18 | | |

JB-01540-50 Mounting clip for two- and three-way valves

JB-01540-55 Mounting flange for two- and three-way valves

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Cole-Parmer® Solenoid Two-Way Pinch Valves

Specifically designed for Masterflex® pump tubing

- Use with tubing that has durometer rating of 50 or less such as C-Flex® or silicone—7.25 psi max
- Excellent for clean processes—fluid stays contained within tubing
- Use for on/off flow control applications



98306-02



98306-16

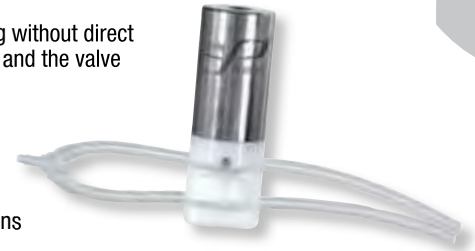


| Tube size | Response time | Watts | 12 VDC valves | | 24 VDC valves | |
|------------------------|---------------|-------|----------------|----------------|----------------|----------------|
| | | | Catalog number | Catalog number | Catalog number | Catalog number |
| Normally closed | | | | | | |
| L/S® 14 | 30 to 50 msec | 10 | JB-98306-00 | JB-98306-02 | | |
| L/S 16 | | | JB-98306-08 | JB-98306-10 | | |
| L/S 25 | | | JB-98306-16 | JB-98306-18 | | |
| L/S 17 | | | JB-98306-24 | JB-98306-26 | | |
| Normally open | | | | | | |
| L/S 14 | 30 to 50 msec | 10 | JB-98306-04 | JB-98306-06 | | |
| L/S 16 | | | JB-98306-12 | JB-98306-14 | | |
| L/S 25 | | | JB-98306-20 | JB-98306-22 | | |
| L/S 17 | | | JB-98306-28 | JB-98306-30 | | |

Cole-Parmer® Solenoid-Operated 2- and 3-Way Pinch Valves

No contamination of valve

- Control flow in your tubing without direct contact between the fluid and the valve
- Fast response time
- Low-power consumption and high-cycle life
- Excellent for sanitary and pharmaceutical applications



What's included: 15" 26-gauge PTFE-coated lead wires. Two-way valves include a 12" length of silicone tubing; three-way valves include two 6" (15.2 cm) lengths of tubing with a "Y" connector.



| Tubing size (ID x OD) | Max pressure | Watts | 12 VDC | | 24 VDC | |
|---|------------------|-------|----------------|----------------|----------------|----------------|
| | | | Catalog number | Catalog number | Catalog number | Catalog number |
| Two-way pinch valves; normally closed | | | | | | |
| 1/32" x 3/32" | 15 psi (1bar) | 2.6 | JB-98302-00 | JB-98302-10 | | |
| 1/16" x 1/8" | 15 psi (1bar) | 2.6 | JB-98302-02 | JB-98302-12 | | |
| 1/8" x 1/4" | 20 psi (1.4 bar) | 4.0 | JB-98302-06 | JB-98302-16 | | |
| Two-way pinch valves; normally open | | | | | | |
| 1/32" x 3/32" | 15 psi (1bar) | 2.6 | JB-98302-20 | JB-98302-30 | | |
| 1/16" x 1/8" | 15 psi (1bar) | 2.6 | JB-98302-22 | JB-98302-32 | | |
| 1/8" x 1/4" | 20 psi (1.4 bar) | 4.0 | JB-98302-26 | JB-98302-36 | | |
| Three-way pinch valves; one normally open, one normally closed | | | | | | |
| 1/32" x 3/32" | 15 psi (1bar) | 2.6 | JB-98302-40 | JB-98302-48 | | |
| 1/16" x 1/8" | 15 psi (1bar) | 2.6 | JB-98302-42 | JB-98302-50 | | |
| 1/8" x 1/4" | 20 psi (1.4 bar) | 4.0 | JB-98302-46 | JB-98302-54 | | |

JB-01540-50 Mounting clip for 2- and 3-way valves

JB-01540-55 Mounting flange for 2- and 3-way valves

Cole-Parmer® Barbed Check Valves

Prevent backflow to protect your sensitive equipment

- Corrosion- and chemical-resistant PVDF and Viton® construction
- Install in any position

Miniature hose barb check valves fit securely onto flexible tubing lines to prevent backflow. Autoclavable.

NEW



| Tubing ID | Operating temperature | Operating pressure | Qty/pk | Catalog number |
|-----------|--------------------------------|--------------------|--------|----------------|
| 1/8" | -40 to 259°F (-40 to 126°C) | 0 to 50 psi | 6 | JB-98766-49 |
| 3/16" | | | | JB-98766-50 |
| 1/4" | | | | JB-98766-51 |
| 3/8" | | | | JB-98766-52 |

Sanitary Plastic Ball Valves

Precision machined and tested to ensure leak-free connections

- Tri-Clamp® connections are easy to plumb into sanitary fluid paths
- Smooth flow path minimizes turbulence and pressure loss
- FDA 21 CFR 177.1520 compliant; NSF listed
- Valve design permits full flow and pressure in either direction



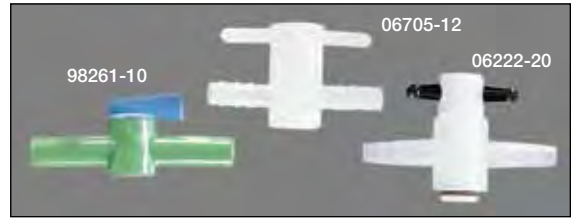
These industry standard valves feature PTFE bearings and seats to virtually eliminate friction and minimize wear. Fully concentric polished ball further ensures leak-free performance.

| Clamp size | Cv | Max working pressure at 70°F (21°C) | Maximum temperature | Catalog number |
|--|-----|-------------------------------------|---------------------|----------------|
| Polypropylene valve body and EPDM seals | | | | |
| 3/4" mini | 20 | 140 psi (9.5 bar) | 180°F (82°C) | JB-30532-01 |
| 1" maxi | 40 | | | JB-30532-03 |
| 1" Ladish | 40 | | | JB-30532-05 |
| 1 1/2" | 100 | 120 psi (8.6 bar) | | JB-30532-07 |
| 2" | 120 | | | JB-30532-09 |
| PVDF valve body and EPDM seals | | | | |
| 3/4" mini | 20 | 240 psi (16.3 bar) | 280°F (138°C) | JB-30532-11 |
| 1" maxi | 40 | | | JB-30532-13 |
| 1" Ladish | 40 | | | JB-30532-15 |
| 1 1/2" | 100 | | | JB-30532-17 |
| 2" | 120 | | | JB-30532-19 |

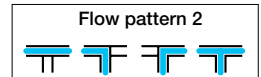
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Two- and Three-Way Stopcocks with Hose Barb Connections

Easily adjust flow



PP stopcocks have plugs made of PTFE and are autoclavable. Maximum temperature is 275°F (135°C); maximum pressure is 2 psi. HDPE stopcocks are rated for 203°F (95°C); maximum pressure is 7 psi. PVDF stopcocks are rated for 464°F (240°C); maximum pressure is 5 psi.



| Tube ID | Orifice | Material | Catalog number |
|---|---------|----------|----------------|
| Two-way stopcocks | | | |
| 1/4" to 5/16" | 2 mm | PP | JB-06222-20 |
| 1/4" to 5/16" | 4 mm | | JB-06222-40 |
| 10 mm | 6.8 mm | HDPE | JB-98261-10 |
| 14 mm | 10.7 mm | | JB-98261-20 |
| 16 mm | 12.7 mm | | JB-98261-30 |
| Three-way stopcocks; follow flow pattern 2 | | | |
| 1/4" to 5/16" | 2 mm | PP | JB-06225-20 |
| 1/4" to 5/16" | 4 mm | | JB-06225-40 |
| 6 mm | 4 mm | PVDF | JB-06705-10 |
| 8 mm | 6 mm | | JB-06705-12 |
| 10 mm | 8 mm | | JB-06705-14 |

High-Purity Plastic Diaphragm Valves

Eliminate leaks

- Fully drainable mechanical valves are easy to maintain
- Models with PVDF body offer additional chemical resistance
- Handle maximum viscosity of 400 cSt



Specifications

Wetted parts: polypropylene or PVDF body, EPDM diaphragm

| Connections | Cv | Working pressure | Temperature range | Catalog number |
|---|------|-----------------------------------|------------------------------|----------------|
| High-purity polypropylene valves | | | | |
| 3/4" | 4.0 | 60 to 125 psi (4.1 to 8.6 bar) | -5 to 175°F (-20 to 79°C) | JB-98520-00 |
| 1" | 12.3 | | | JB-98520-01 |
| 1 1/2" | 21.0 | | | JB-98520-02 |
| 2" | 29.2 | | | JB-98520-03 |
| High-purity PVDF valves | | | | |
| 3/4" | 4.0 | 60 to 125 psi (4.1 to 8.6 bar) | -5 to 210°F (-20 to 99°C) | JB-98520-10 |
| 1" | 12.3 | | | JB-98520-11 |
| 1 1/2" | 21.0 | | | JB-98520-12 |

Single-Use Solutions by Cole-Parmer

Reduce Risk of Cross-Contamination—switch to single-use technology for aseptic fluid transfer

Rely on us for end-to-end single-use customizable solutions:

- Bioprocess 2-D and 3-D (cubic and cylindrical) bags and liners
- EZ Top® container, siphon sets, bottle/carboy closures
- ADI-free sanitary fittings, adapters, clamps, quick-connects
- Sensors (and monitors) for pressure, temperature, flow, pH, conductivity, UV and turbidity
- Systems and open-architecture automation solutions for upstream and downstream processes



Ensure process integrity with quality biopharma connectors



Single-use instrumentation and automated systems for downstream process applications

Also available are other ancillary products that store, protect and transport your valuable product-filled 2-D and 3-D bags and liners with metallic (SS316 and 316L) or polymeric (PP, HDPE, HDPE+ABS) bioprocess containers.

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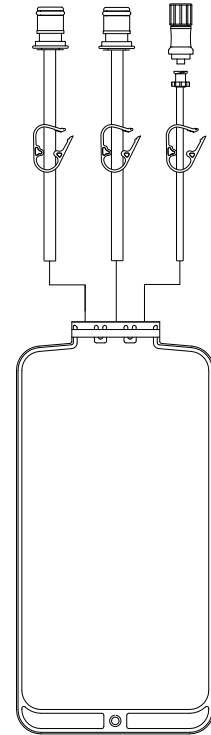
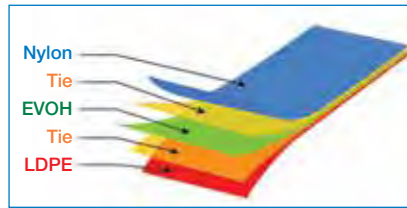
Talk to our fluid handling team application experts TODAY!



2-D Single-Use Bioprocess Bags

Increase efficiency in batch processing, sampling and product storage

- Free of any animal-derived components to meet process and regulatory requirements
- Manufactured in a Class 10,000 (ISO Class 7) facility
- Needle-free sampling port for added safety
- Integrated handle on 2- through 20-L capacities
- Sterilised by gamma irradiation (SAL 10⁻⁶)
- May be used with sterile welder or sealer
- Custom capacities available up to 200 L
- Typical applications: buffer and media storage, bioreactor feed and harvest, intermediate and final product hold/storage, fraction collection, and product sampling



15946-08

Easily integrate single-use bags into your existing bioprocess applications—minimise the risk of cross-contamination and reduce cleaning and turnaround time. Offers outstanding biocompatibility, chemical compatibility, and barrier and strength properties. Film materials are low-density polyethylene (LDPE) as the fluid contact material and ethyl vinyl alcohol (EVOH) as the gas barrier layer.

Bags maintain integrity at temperatures ranging from -80 to 60°C. Sterilised by gamma irradiation, ports are capped and covered, and systems are double-bagged for integrity.



Specifications

Tube formulation on each port:
ADCF C-Flex® (clear)

Multilayer film thickness
Capacities from 50 mL to 1 L: 7 mil
Capacities from 2 L to 20 L: 12 mil

For compatible drums, please contact our Application Specialists.

| Capacity | Port 1 | Port 2 | Port 3 | Qty/pk | Catalog number |
|--|---|---|---|--------|--------------------|
| Two ports: 305 mm (12") tubing length on all ports | | | | | |
| 50 mL | 3.2 x 6.4 x 305 mm (1/8" x 1/4" x 12"); male luer lock, luer cap, pinch clamp | 3.2 x 6.4 x 305 mm (1/8" x 1/4" x 12"); female luer lock + needle-free sampling port, luer cap, pinch clamp | — | 20 | JB-15946-01 |
| 150 mL | | | | 20 | JB-15946-02 |
| 250 mL | | | | 20 | JB-15946-03 |
| 500 mL | | | | 20 | JB-15946-04 |
| Three ports: 153 mm (6") tubing length on all ports | | | | | |
| 50 mL | 6.4 x 11.1 x 153 mm (1/4" x 7/16" x 6"); MPC insert, port cover, pinch clamp | 6.4 x 11.1 x 153 mm (1/4" x 7/16" x 6"); MPC insert, port cover, pinch clamp | 3.2 x 6.4 x 153 mm (1/8" x 1/4" x 6"); female luer lock + needle-free sampling port, luer cap, pinch clamp | 20 | JB-15946-05 |
| 150 mL | | | | 20 | JB-15946-06 |
| 250 mL | | | | 20 | JB-15946-07 |
| 500 mL | | | | 20 | JB-15946-08 |
| 1 L | | | | 20 | JB-15946-09 |
| 2 L | | | | 20 | JB-15946-10 |
| 3 L | | | | 20 | JB-15946-11 |
| 5 L | | | | 20 | JB-15946-12 |
| 10 L | | | | 10 | JB-15946-13 |
| 20 L | | | | 10 | JB-15946-14 |
| Three ports: 153 mm (6") tubing length on ports 1 and 2; 508 mm (20") tubing length on port 3 | | | | | |
| 50 mL | 6.4 x 11.1 x 153 mm (1/4" x 7/16" x 6"); MPC insert, port cover, pinch clamp | 6.4 x 11.1 x 153 mm (1/4" x 7/16" x 6"); MPC insert, port cover, pinch clamp | 3.2 x 6.4 x 508 mm (1/8" x 1/4" x 20"); female luer lock + needle-free sampling port, luer cap, pinch clamp | 20 | JB-15946-15 |
| 150 mL | | | | 20 | JB-15946-16 |
| 250 mL | | | | 20 | JB-15946-17 |
| 500 mL | | | | 20 | JB-15946-18 |
| 1 L | | | | 20 | JB-15946-19 |
| 2 L | | | | 20 | JB-15946-20 |
| 3 L | | | | 20 | JB-15946-21 |
| 5 L | | | | 20 | JB-15946-22 |
| 10 L | | | | 10 | JB-15946-23 |
| 20 L | | | | 10 | JB-15946-24 |
| Three ports: 508 mm (20") tubing length on all ports | | | | | |
| 50 mL | 6.4 x 11.1 x 508 mm (1/4" x 7/16" x 20"); MPC insert, port cover, pinch clamp | 6.4 x 11.1 x 508 mm (1/4" x 7/16" x 20"); MPC insert, port cover, pinch clamp | 3.2 x 6.4 x 508 mm (1/8" x 1/4" x 20"); female luer lock + needle-free sampling port, luer cap, pinch clamp | 20 | JB-15946-25 |
| 150 mL | | | | 20 | JB-15946-26 |
| 250 mL | | | | 20 | JB-15946-27 |
| 500 mL | | | | 20 | JB-15946-28 |
| 1 L | | | | 20 | JB-15946-29 |
| 2 L | | | | 20 | JB-15946-30 |
| 3 L | | | | 20 | JB-15946-31 |
| 5 L | | | | 20 | JB-15946-32 |
| 10 L | | | | 10 | JB-15946-33 |
| 20 L | | | | 10 | JB-15946-34 |

Note: The 3-port bags feature MPC-series quick-disconnect insert (male) fitting.

3-D Single-Use Bioprocess Bags (50 to 500 L) and Tank Liners (20 to 500 L)

Assure a cross-contamination free process

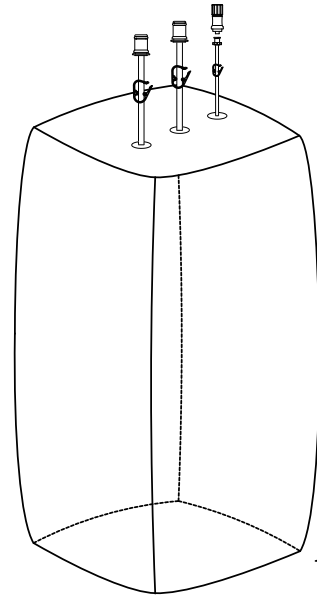
- Ideal for cylindrical and rectangular tanks, drums, and plastic totes
- Free of any animal-derived components to meet process and regulatory requirements
- Manufactured in a Class 10000 (ISO Class 7) facility
- Needle-free sampling port for added safety
- Sterilized by gamma irradiation (SAL 10⁻⁶)
- Standard designs include top or bottom drain and facilitate mixing via recirculation loop
- Custom capacities available up to 1500 L with up to 4-port configurations

Sterile, single-use bags and liners offer outstanding biocompatibility, chemical compatibility, and barrier and strength properties. Product design minimises the risk of cross-contamination and reduces cleaning and process turn-around time and process validation.

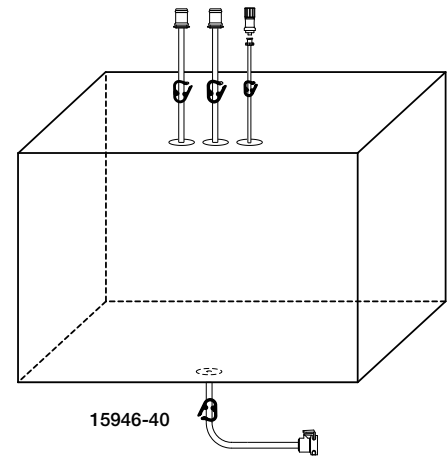
Film materials are low-density polyethylene (LDPE) as the fluid contact material, ethyl vinyl alcohol (EVOH) as the gas barrier layer, and a nylon outer layer. Products are certified to be free of animal-derived components and pass USP Class VI testing.

Bioprocess bags maintain integrity at temperatures ranging from -80 to 60°C. Sterilised by gamma irradiation, ports are capped and covered, and systems are double-bagged for integrity. Choose from three- and four-port bags, from 50 to 500 L, and either cylindrical or rectangular shape. The four-port bags feature a bottom port for mixing and recirculation.

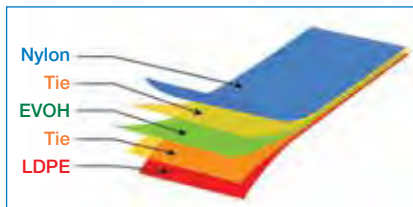
Liners are ready to use; sterile and pyrogen-free and used in conjunction with PP or HDPE bioprocess containers.



15946-37



15946-40



ANIMAL DERIVED
INGREDIENT FREE

STERILE

For compatible drums, please contact our Application Specialists.

Specifications

Tube formulation on each port: ADCF C-Flex® (clear)

Multilayer film thickness: 12 mil

| Capacity | Port 1 | Port 2 | Port 3 | Port 4 (bottom) | Qty/pk | Catalog number |
|---|--|--|---|--|--------|--------------------|
| Three-port bags for cylindrical tanks; 762 mm (30") tubing length on all ports | | | | | | |
| 50 L | 12.7 x 19.1 x 762 mm (½" x ¾" x 30"); MPX insert, MPX cap, pinch clamp | 12.7 x 19.1 x 762 mm (½" x ¾" x 30"); MPX insert, MPX cap, pinch clamp | 3.2 x 6.4 x 762 mm (⅛" x ¼" x 30"); female luer lock + needle-free sampling port, luer cap, pinch clamp | — | 10 | JB-15946-35 |
| 100 L | | | | | 10 | JB-15946-36 |
| 200 L | | | | | 10 | JB-15946-37 |
| 300 L | | | | | 4 | JB-15946-38 |
| 500 L | | | | | 4 | JB-15946-39 |
| Four-port bags for rectangular tanks; 762 mm (30") tubing length on all ports | | | | | | |
| 200 L | 12.7 x 19.1 x 762 mm (½" x ¾" x 30"); MPX insert, MPX cap, pinch clamp | 12.7 x 19.1 x 762 mm (½" x ¾" x 30"); MPX insert, MPX cap, pinch clamp | 3.2 x 6.4 x 762 mm (⅛" x ¼" x 30"); female luer lock + needle-free sampling port, luer cap, pinch clamp | 12.7 x 19.1 x 762 mm (½" x ¾" x 30"); MPX insert, MPX cap, pinch clamp | 4 | JB-15946-40 |
| 500 L | | | | | 4 | JB-15946-41 |

Liners for Cylindrical Tanks

| Capacity | Base OD | Height | Qty/bx | Catalog number |
|----------|-------------------|--------------------|--------|--------------------|
| 20 L | 27.94 cm (11.00") | 38.43 cm (15.13") | 20 | JB-15946-42 |
| 30 L | 31.60 cm (12.44") | 45.72 cm (18.00") | 20 | JB-15946-43 |
| 40 L | 33.96 cm (13.37") | 51.74 cm (20.37") | 20 | JB-15946-44 |
| 50 L | 34.62 cm (13.63") | 70.18 cm (27.63") | 20 | JB-15946-45 |
| 100 L | 49.68 cm (19.56") | 75.87 cm (29.87") | 20 | JB-15946-46 |
| 200 L | 55.88 cm (22.00") | 91.77 cm (36.13") | 10 | JB-15946-47 |
| 300 L | 60.81 cm (23.94") | 122.10 cm (48.07") | 10 | JB-15946-48 |
| 400 L | 72.06 cm (28.37") | 112.40 cm (44.25") | 10 | JB-15946-49 |
| 500 L | 80.34 cm (31.63") | 125.25 cm (49.31") | 10 | JB-15946-50 |

Cylindrical Tanks with Cover, HDPE and PP Sturdy design complies with FDA 21 CFR 177.1520

- Use with or without single-use liners
- Flat-bottom models sold below; contact us for conical-bottom options
- Capacities range from 19 to 1893 L
- Stepped-flange design contains dripping
- Get easier sampling of liquids—tanks over 114 L are designed for near-total drainage
- No separate part number for lid—all tanks include lid of same wall thickness
- Rated for use with 1.8 specific gravity media

High-Density Polyethylene (HDPE) Tanks come with or without a needle-type polypropylene spigot. Spigot has 1 1/8"-12 female screw thread. Spigot is mounted on a welded polyethylene boss and accepts 3/8" ID tubing.

Polypropylene (PP) Tanks offer good stress-crack and chemical resistance. Maximum service temperature is 220°F (104°C).

Black HDPE Tanks are manufactured with a pigmentation that protects the tank from UV light and can be used outdoors without deterioration from sunlight. Black color protects photo-sensitive media.

Choose tanks with spigots to dispense chemicals.



ISO 9001:2008
CERTIFIED SUPPLIER

| Liters | Dimension (H x OD) [†] | Graduations (L) | Shpg wt (kg) | HDPE tanks | | HDPE tanks with spigot | | PP tanks | | Black HDPE tanks | |
|--------|---------------------------------|-----------------|------------------|----------------|-------|------------------------|-------|----------------|-------|------------------|-------|
| | | | | Catalog number | Wall | Catalog number | Wall | Catalog number | Wall | Catalog number | Wall |
| 19 | 15" x 11" | 2 | 3 | JB-06317-50 | 3/16" | JB-06317-51 | 3/16" | JB-06317-53 | 3/16" | — | — |
| 28 | 18" x 12" | N/A | 4 | JB-06317-55 | 3/16" | JB-06317-56 | 3/16" | JB-06317-58 | 3/16" | — | — |
| 38 | 20" x 13" | N/A | 4 | JB-06317-60 | 3/16" | JB-06317-61 | 3/16" | JB-06317-63 | 3/16" | — | — |
| 57 | 27" x 13" | 4 | 5 | JB-06317-65 | 3/16" | JB-06317-66 | 3/16" | JB-06317-68 | 3/16" | — | — |
| 114 | 30" x 18" | 10 | 8 | JB-06317-70 | 3/16" | JB-06317-71 | 3/16" | JB-06317-73 | 3/16" | JB-06970-00 | 3/16" |
| 208 | 36" x 22" | 10 | 14 [‡] | JB-06317-75 | 1/4" | JB-06317-76 | 1/4" | JB-06317-78 | 1/4" | JB-06970-02 | 1/4" |
| 303 | 48" x 24" | 20 | 19 [‡] | JB-06317-80 | 1/4" | — | — | JB-06317-83 | 1/4" | JB-06970-04 | 1/4" |
| 379 | 44" x 28" | 20 | 22 [‡] | JB-06317-10 | 1/4" | — | — | JB-06317-13 | 1/4" | JB-06970-06 | 1/4" |
| 568 | 49" x 31" | 40 | 35 [‡] | JB-06317-20 | 1/4" | — | — | JB-06317-23 | 1/4" | JB-06970-08 | 1/4" |
| 757 | 51" x 36" | 100 | 62 [‡] | JB-06317-31 | 1/4" | — | — | JB-06317-34 | 1/4" | JB-06970-10 | 1/4" |
| 1041 | 49" x 42" | 100 | 88 [‡] | JB-06317-41 | 1/4" | — | — | — | — | JB-06970-12 | 1/4" |
| 1363 | 49" x 48" | 100 | 93 [‡] | JB-06317-85 | 1/4" | — | — | JB-06317-88 | 1/4" | JB-06970-14 | 1/4" |
| 1893 | 62" x 53" | 100 | 272 [‡] | JB-06318-86 | 5/16" | — | — | — | — | — | — |

[†]Measured at bottom of tank. Add 2" for approximate OD at top of tank.

[‡]Ship by motor freight only.

EZ Top® Container Closures Aseptic fluid transfer and sampling

- Silicone elastomers and noncytotoxic thermoplastic materials comply with USP Class VI requirements
- Also available in C-Flex® high-purity MOC—contact us for details
- Easily retrofits to existing aseptic sampling tools
- Autoclavable and sterilizable; presterilized (gamma irradiated) products available
- Compatible with both glass and plastic bottles, carboys and stainless steel vessels

Unique container closure technology ensures contact areas are virtually crevice-free reducing cross-contamination possibility and product loss. Can be completely customised to meet your specific application requirements—please call for details.

What's included: GL 45 threaded PP cap with silicone closure insert and silicone tubing. GL83 and 120 options also available. Bottles and carboys are not included; order separately.

| No. of ports | Tubing (ID x OD) | Thread size | Qty/pk | Catalog number |
|--------------|------------------|-------------|--------|----------------|
| 2 | 1/8" x 3/16" | GL 45 | 10 | JB-15945-94 |
| | 3/16" x 3/8" | | | JB-15945-95 |
| | 5/16" x 1/2" | | | JB-15945-96 |
| 3 | 1/8" x 3/16" | GL 45 | 10 | JB-15945-97 |
| | 1/8" x 1/4" | | | JB-15945-98 |
| | 3/16" x 3/8" | | | JB-15945-99 |
| | 5/16" x 1/2" | | | JB-15946-00 |



Container not included

Custom design cost-effective options available.

When you *think*
of single-use
biopharmaceutical
supplies, *think*
Saint-Gobain.

C-Flex® Tubing

**Custom Single-Use
Solutions**



**Bio-Simplex™
Erlenmeyer Flask System**



**Bio-Simplex™
Manifold System**



Custom Assemblies

- Scale up from lab and research to process lines!
- Everything you need: manifolds, tubing assemblies, flasks, carboys, and more!
- Wide range of components for maximum design flexibility!

Aseptic Product Transfer Systems

Innovative, customizable solutions for sterile transfer

- Provides safe, contained transfer of products in to and out of isolators
- Consists of two main components: the alpha and beta assemblies
- Alpha assembly is fixed and normally mounted on cell wall of the contained environment
- Beta assembly is always mobile and connected to a container, bag or process component
- Once the assemblies connect, toxic or sterile materials are rapidly transferred in or out of isolator without compromising containment, maintaining product and operator safety



CRTP (Clean Rapid Transfer Ports)

- Transfer solution for life science applications wherein cleanliness and cleanability are critical
- Utilizes double door technology featuring minimal handle rotation to break beta container seal
- Streamlined interlock system with interchangeable beta mounts prevents breaking containment
- Available in sizes of 105, 190, 270 and 350 mm

Sterile Liquid Transfer Port (Beta)

- Used with Clean Rapid Transfer Port (alpha) to enable efficient aseptic liquid transfer
- Engineered to utilize standard Steam-In-Place (SIP) processes and proven Rapid Transfer Port (RTP) technology, enabling efficient aseptic transfer of liquids from sterile product devices through a barrier wall into a cleanroom or isolator
- Available in sizes of 105 and 190 mm

Single-Use Tyvek[®] Beta Bag

- Sterilisable, efficient, cost-effective solution for aseptic transfer
- Utilizes a Tyvek[®] bag, available in single or double layers and various lengths, mounted to a flange



Contact our Application Specialists
to customize the perfect solution for
your aseptic transfer needs

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Bioprocess Containers

User-friendly alternative for storage and transport of product-filled single-use 3-D bags

- Collapsible and stackable design provides optimum cleanroom space utilization
- Plastic hence lighter, easier and safer for operator handling
- Smooth surface inhibits bacterial growth and can be jet-washed
- Compatible with 3-D bags from all manufacturers
- Offered for storage and shipment, ranging from 50 to 1000 L capacities
- Reusable and recyclable as individual panels can be replaced
- Enhances overall operational and shipping (logistics) efficacy

CLEANROOM Bioprocess Storage Containers enhance storage capability within controlled environments. These hygienically designed containers are foldable for efficient storage and offer great accessibility via open access for cleaning.

GENESIS Bioprocess Shipping Containers improve your shipping efficiency. These collapsible, foldable and reusable all-plastic containers are compatible with majority of single-use 3-D bags in use throughout the industry. Suitable for shipment via land, sea, or air or for the ultimate storage solution. Unique dimensions maximize units fitting into standard shipping containers.

CLEANSTAQ storage solution allows building of a bank of storage containers in multiple stacks of two or three depending on container capacity. A revolutionary design means once assembled it eliminates the need to transport, lift or lower containers for access to internal contents. Based on 800 x 600 mm (80 x 60 cm) footprint built for manufacturing user interface it is the ultimate solution for cleanroom optimization. Call our expert Application Specialist team for more information.



15959-35



15959-27

| Volume | Internal dimensions (cm) | External dimensions (cm) | Folded height (mm) | Max load (kg) | | Max stacking capacity | | Materials of construction | Catalog number |
|--|--------------------------|--------------------------|--------------------|---------------|--------|-----------------------|--------|--|--------------------|
| | | | | Dynamic | Static | Dynamic | Static | | |
| Cleanroom bioprocess storage containers | | | | | | | | | |
| 50 L | 74 x 54 x 14.6 | 80.9 x 60.9 x 49.8 | 40.3 | 600 | 1500 | 2 | 4 | Polypropylene | JB-15959-25 |
| 250 L | 74 x 54 x 66 | 80.9 x 60.9 x 96.5 | 53.5 | 600 | 1500 | 2 | 4 | Polypropylene | JB-15959-26 |
| 500 L | 113 x 72 x 70 | 120 x 80 x 104 | 57.5 | 1260 | 4200 | 2 | 4 | HDPE base, ABS plastic sidewalls and lid | JB-15959-27 |
| 600 L | 105.1 x 103.1 x 64 | 115.5 x 115.5 x 98 | 62.9 | 2250 | 4360 | 2 | 4 | Polypropylene | JB-15959-28 |
| 1000 L | 105.1 x 103.1 x 94 | 115.5 x 115.5 x 129.4 | 62.9 | 3200 | 4500 | 2 | 4 | Polypropylene | JB-15959-29 |
| Genesis bioprocess shipping containers | | | | | | | | | |
| 100 L | 74 x 54 x 33.5 | 80.9 x 60.9 x 64 | 53.5 | 600 | 1500 | 2 | 4 | Polypropylene | JB-15959-31 |
| 200 L | 74 x 54 x 53.5 | 80.9 x 60.9 x 83.3 | 40.3 | 600 | 1500 | 2 | 4 | Polypropylene | JB-15959-30 |
| 250 L | 74 x 54 x 66 | 80.9 x 60.9 x 96.5 | 53.5 | 600 | 1500 | 2 | 4 | Polypropylene | JB-15959-32 |
| 500 L | 113 x 72 x 70 | 120 x 80 x 104 | 57.5 | 1260 | 4200 | 2 | 4 | HDPE base, ABS plastic sidewalls and lid | JB-15959-33 |
| 600 L | 105.1 x 103.1 x 64 | 115.5 x 115.5 x 98 | 62.9 | 2250 | 4360 | 2 | 4 | Polypropylene | JB-15959-34 |
| 1000 L | 105.1 x 103.1 x 94 | 115.5 x 115.5 x 129.4 | 62.9 | 3200 | 4500 | 2 | 4 | Polypropylene | JB-15959-35 |

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BASIC
MEASURING



DATA LOGGER
MONITORING



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MONITORING



THERE'S A TRACEABLE SOLUTION FOR EVERY LEVEL OF MONITORING

TEMPERATURE
HUMIDITY
CO₂
RPM & AIR SPEED
SOUND

Traceable® Products come with multi-point calibration on an individually-numbered Traceable® Certificate which assures accuracy from our ISO/IEC 17025:2005 (1750.01) calibration laboratory accredited by A2LA.

See product range on pages 309–311, 314–315



Wi-Fi Connected Monitoring
Always Accurate, Always Calibrated
Always Traceable®.

- Connect to your data via smartphone, tablet, or PC using TraceableLIVE wireless capability
- Cloud-based interface sends email, text, and push notifications
- No software required—web, Android™, Apple® iOS data visibility
- Get accurate, reliable measurements with included NIST-traceable calibration

To learn more about our Traceable products visit:
ColeParmer.in/traceable

BioShell® Suspension Packs and Insulated Shipping Containers

Protect your product-filled single-use 2-D bags and accessories

- Reusable and recyclable polycarbonate shell accommodates both liquid and frozen bags
- Equipped with UV protection shell and film to protect light-sensitive products
- Stackable design increases storage efficiency and saves space
- Versatile container has room for accessories such as tubing, connectors, filters and data loggers
- Compatible with single-use 2-D bags from all manufacturers
- Eliminate product damage due to temperature fluctuations throughout the cold chain distribution process
- Visibility—bags, tubing, accessories are in plain sight for checks on possible stress point corrections
- Customizable



The BioShell suspension pack is a universal storage container that protects single-use 2-D bags during handling, freezing, storage, and transportation. Bags are tightly enveloped in a durable suspension film that absorbs shocks during impact, preventing damage to the bag by eliminating contact with the outer shell.

Use the insulated shipper specifically designed to ensure that frozen BioShell suspension packs remain undamaged and within a specific temperature, as low as -80°C , during transportation. Insulated shipper consists of an outer box containing high-performance insulation foam panels combined with specialty film. A tray containing dry ice or phase-change materials helps to achieve the required temperatures during transport.

Insulated shippers are customizable to meet users' transportation and temperature requirements. Numerous in-house tests have been conducted on the BioShell and insulated shipper at ISTA certified facilities to ensure quality and function of the design (including simulated accidental drop as well as distribution tests). Test data available for review.

| Description | Qty | Catalog number |
|--|-----|----------------|
| Suspension pack, holds bags up to 8 L | 32 | JB-15960-78 |
| Insulated shipper for 15960-78 | 8 | JB-15960-80 |
| Suspension pack, holds bags up to 20 L | 20 | JB-15960-79 |
| Insulated shipper for 15960-79 | 8 | JB-15960-81 |



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PendoTECH Process Control Systems from Cole-Parmer

Normal Flow Filtration



Tangential Flow Filtration

Screening

(~1L or less)



Screening System



TFF Benchtop System



5 Station TFF Screening System

Process Development / Scale-up

(~ 1 to 5L)



VF-DF System



TFF Compact Cart



Pilot

(~ >5L)



VF-DF Pilot Cart



TFF Pilot Cart

In-Line Single Use Sensors



Pressure



Conductivity



Temperature



UV Absorbance



Turbidity



Cole-Parmer® Single-Use Pump Technologies

Widest range to use across multiple bioprocessing unit processes

- From peristaltic pumps for fermentation (upstream) and rotary piston pulseless pumps for product filling to quaternary-piston diaphragm pumps for downstream processes such as tangential flow filtration (TFF) and chromatography
- From unique air-operated silicone diaphragm pumps for continuous perfusion (upstream) and product transfer applications to magnetically-driven centrifugal pumps for product pooling or media preparation via recirculation in single-use 3-D bags and TFF

Cole-Parmer Pulseless Disposable Pump Head for Masterflex® L/S® Drives

- Deliver flow rates up to 500 mL/min at speeds up to 100 rpm
- Pump fluids with viscosities up to 70 cps; pressure up to 2.5 bar
- Ideal for dosing and filling applications



Masterflex® Drives Powering Quattroflow™ Pumps

- Delivers flow rates up to 2.5 L/min (QF150) and 15 L/min (QF1200)
- Recommended for TFF, chromatography and SMB purification



PuraLev® Levitronix Pumps

- Delivers flow rates up to 7 L/min (i30SU) and 15 L/min (i100SU) at 1.0 bar pressure
- Suitable for UF, DF, virus and depth filtration



PendoTECH Magma Pumps

- Delivers up to 0.04 to 0.2 L/min (MAPS-10), 0.2 to 1.1 L/min (MAPS-50), 0.7 to 3.5 L/min and 2.7 to 13.6 L/min (MAPS-700)
- Perfect for liquid transfer operations where low shear, sanitary/sterile pumping is required, e.g. pumping mammalian cells and perfusion



LEVIFLOW® Single-Use Precision Ultrasonic Flowmeters

Be ultraclean with your high-purity fluids

NEW

- Avoid contamination—no moving or obtrusive parts
- Nonintrusive design won't affect the working fluid
- Easily configure flow sensor parameters via software
- Integrated sanitary clamp fittings for one-time use



These noninvasive ultrasonic flowmeter systems are designed for use in applications where cleanliness and precision are a necessity! The starter kit includes components to get a system in place, then just choose a flow sensor at your desired flow range and sterility.

Starter kit includes a single-channel flow converter with DSP for processing the sensor's signals, connection cables for meter to PC and meter to flow sensor, power supply and cord, and configuration software on a USB stick. Converter also features a 4-digit LED display indicating the flow value.



REQUIRED System Components

- 1) Starter kit
- 2) Flow sensor

Flow sensors feature integral sanitary Tri-Clamp® connections and polypropylene (FDA, USP VI, ADI-free) wetted material; sterile models are gamma irradiated. Sensors are IP65 rated and have a watertight connection box. Accuracy is ±1%.

1. Starter Kit



| Fluid temperature | Power | Catalog number |
|--------------------------|-------------|--------------------|
| 50 to 140°F (10 to 60°C) | 24 VDC ±10% | JB-24500-07 |

2. Single-Use Flow Sensors

| ±1% accuracy at flow range | Connection size | Sterile | Catalog number |
|----------------------------|-----------------|---------|--------------------|
| 35 to 800 mL/min | ¾" Tri-Clamp | No | JB-24500-08 |
| | | Yes | JB-24500-09 |
| 1.7 to 8 L/min | ¾" Tri-Clamp | No | JB-24500-10 |
| | | Yes | JB-24500-11 |
| 0.08 to 8 L/min | ¾" Tri-Clamp | No | JB-24500-12 |
| | | Yes | JB-24500-13 |
| 4.7 to 20 L/min | ½" Tri-Clamp | No | JB-24500-14 |
| | | Yes | JB-24500-15 |
| 18.8 to 80 L/min | 1" Tri-Clamp | No | JB-24500-16 |
| | | Yes | JB-24500-17 |

LEVIFLOW® Integrated Ultrasonic Flowmeter

Simple, compact design reduces cabling and setup time

- Noninvasive flow measurement eliminates contamination
- Requires no special maintenance due to lack of moving parts
- Easily configure flow sensor parameters with PC software
- No corner or dead zones with straight-through flow path



This integrated ultrasonic flowmeter is designed for noninvasive flow measurement of high-purity fluids found in the semiconductor and chemical industries. Flow is sensed by two piezoelectric transducers mounted at both ends of the measuring path of the fluid stream, generating and receiving an ultrasonic wave. The wave going in direction of the flow (with-stream wave) is accelerated and the wave going against (against-stream wave) the flow direction is slowed down. The two waves are processed by a signal converter. The difference of the transmit time of both waves is proportional to the velocity of the fluid.

The flowmeter consists of a ¾" (9.5 mm) PFA tube (9.52 mm OD, 6.38 mm ID), a flow sensor, and an integrated converter with a digital signal processor (DSP) containing special algorithms, which increase the robustness of the measurement against bubbles. Simple, compact design features one connection cable, an analog and digital output, a two-wire RS-485 bus to communicate with a computer, high/low LED alarm indicators, LED flow indicator, and zero adjustment activation button.

What's included: 16.4-ft (5-m) PVC extension cable.



Specifications

Operating temperature: 32 to 122°F (0 to 50°C)
Fluid temperature: 50 to 176°F (10 to 80°C)
Max pressure: 5 bar (72.5 psi)
Wetted materials: PFA
Housing material: PPS (body), FKM (sealing gaskets), PEEK™ (screws), and PET (label)
Output: MODBUS®, RS-485, and 0 to 20 mA
Dimensions (L x W x H): 11¾" x 7/8" x 2¼" (30 x 2.1 x 5.7 cm)
Power: 24 VDC

| Flow range (LPM) | Accuracy of reading at 68°F (20°C) water | Kinematic viscosity | Catalog number |
|------------------|--|---------------------|--------------------|
| 0 to 10 | >1.7 L/min: ±2%; <1.7 L/min: ±34 mL/min | 0.36 to 1.3 cSt | JB-24500-21 |

Accessories

JB-24500-22 USB to RS-485 adapter for computer communications

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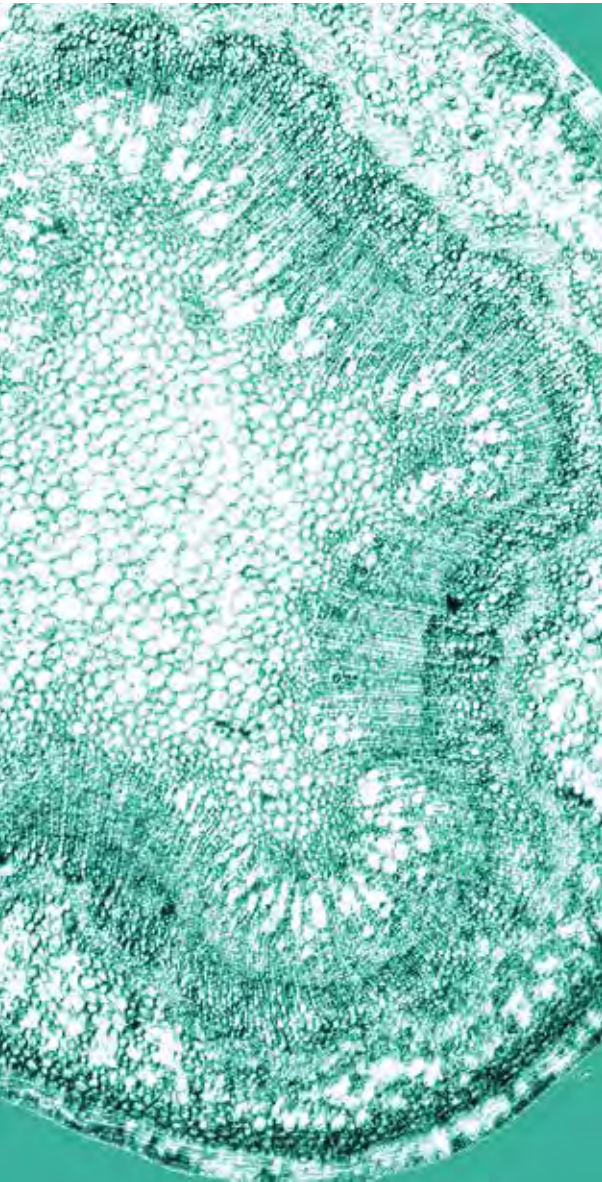
End-to-end selection includes single-use bioprocess bags, liners, EZ Top® container closures, ADI-free sanitary adapters, sanitary fittings, clamps and more.

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Bioprocessing Solutions for Cell Culture Scale-Up

From research and process development to large-scale biomanufacturing, rely on Cole-Parmer for a comprehensive range of cell analysis, production and storage solutions. Our end-to-end solutions help accelerate productivity in quality vaccine and biologics production and in easing the burden of regulatory compliance.

| | |
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| Centrifuges | 205–207 |
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Continuous Analysis



Culture

Thawing
Harvesting
Separating
Sub-culturing
Scale Up



Manipulate

Gene Transfection
Clonal Dilution



Assay

Cell Plating
Development & Optimisation
Screening

Stuart® Programmable Microcentrifuge

Compact, yet powerful

- Small footprint accommodates up to 12 tubes or two 8-tube strips (order strip rotor separately)
- Variable speed up to 15,000 rpm provides gentle to intense spinning for greater versatility
- Digital timer and rpm display ensure accurate and repeatable results
- Last run memory is ideal for routines—no need to reprogram after every run
- Software allows for remote operation and data acquisition
- Safety features include antimicrobial protection, locking lid, and unbalanced load detection

What's included: fixed-angle rotor, tube adapters (0.2 and 0.5 mL), software and USB cable, and power adapter with three plugs (US, UK, and EU).

NEW



stuart

Specifications

Rotor (included): fixed-angle, 12 x 0.2- to 2.0-mL tubes

| Speed range | Max RCF x g | Timer | Power | | Catalog number |
|-------------------|-------------|-------------------|------------|-------|----------------|
| | | | VAC | Hz | |
| 500 to 15,000 rpm | 15,596 | 30 sec to 999 min | 100 to 240 | 50/60 | JB-85230-00 |

Accessories

- JB-85230-06 Strip tube rotor, holds 2 x 0.2-mL 8-tube strips
- JB-85230-04 Replacement 0.2-mL tube adapters. Pack of 12
- JB-85230-05 Replacement 0.5-mL tube adapters. Pack of 12
- JB-17050-02 NIST-traceable calibration with data for centrifuges

Argos Technologies® CapLock™ Microcentrifuge Tube

Make sure your samples stay secure with double-locking cap

- Polypropylene is autoclavable at 121°C and freezable to –100°C
- Free of RNase, DNase, endotoxins, and human DNA
- Certified TSE/BSE free

Argos TECHNOLOGIES



| Capacity (mL) | Max RCF (x g) | Sterile | Qty/pk | Catalog number |
|---------------|---------------|---------|--------|----------------|
| 1.5 | 30,000 | No | 1000 | JB-04395-57 |

Argos Technologies® 5-mL Microcentrifuge Tubes

Perfect for medium-sized samples

- Easy-open attached cap eliminates hand fatigue and maintains sample integrity
- Polypropylene handles autoclaving to 120°C and freezing to –90°C
- Certified RNase-, DNase-, and pyrogen-free



Argos TECHNOLOGIES

These graduated 5-mL tubes were designed to fill the gap for samples too large for standard microcentrifuge tubes and too small to pipette without contamination from a 15-mL conical tube. Use in centrifuges that accept 15-mL tubes.

| Capacity (mL) | Max RCF (x g) | Sterile | Color | Qty/pk | Catalog number |
|---------------|---------------|---------|---------|--------|----------------|
| 5 | 5000 | No | Natural | 200 | JB-04395-47 |
| | | Yes† | Natural | 200† | JB-04395-48 |
| | | No | Blue | 200 | JB-04395-49 |
| | | No | Yellow | 200 | JB-04395-50 |
| 5 | 5000 | No | Green | 200 | JB-04395-51 |
| | | No | Pink | 200 | JB-04395-52 |
| | | No | Black | 200 | JB-04395-53 |

†Sterile tubes are packaged as 10 bags of 20 tubes.

JB-04395-54 Acrylic tube rack holds 10 x 5-mL microcentrifuges

Argos Technologies® Microcentrifuge

Visualize running samples from across the room

- Change color of illuminated LED light ring to personalize sample spinning
- Versatile rotors (included) suit many standard lab needs including 5-mL microtubes
- Operate in continuous, pulsed, or timed mode

This compact, versatile benchtop centrifuge is ideal for quick two-speed spindowns. An outer ring of colored LED lights illuminate when the unit is active, and can be easily viewed through the transparent lid even in a dark room.

Choose from three colors of light while your samples spin



Argos TECHNOLOGIES

Specifications

Rotors (included): one of each rotor listed below.



| Speed range | Power | | Catalog number |
|-----------------------|-------|----|----------------|
| | VAC | Hz | |
| 6000 rpm and 9200 rpm | 220 | 60 | JB-22999-51 |

Replacement Rotors

| Type | Capacity | Max RCF x g | | Catalog number |
|-------------|--|-------------|-------------|----------------|
| | | At 6000 rpm | At 9200 rpm | |
| Fixed-angle | 8 x 1.5-mL tubes* | 2012 | 4731 | JB-22999-53 |
| | 4 x 5.0-mL tubes | 2414 | 5677 | JB-22999-55 |
| Strip | Two 8 x 0.2-mL PCR strips or 16 x 0.2-mL PCR tubes | 1509 | 3549 | JB-22999-54 |

*Use adapters for 8 x 0.5-mL tubes.

JB-22999-56 Replacement adapters for 0.5-mL tubes. Pack of 8. . . . \$44.00

Cole-Parmer® FS-3500 Portable Centrifuges

Don't be tied down—portable design goes where you need it

- No more struggling—stainless steel handle for easy carrying
- Easily plugs into car—included 12 volt adapter with optional AC adapter also available
- Spin safely—dual latch lid for ensuring unit is secure
- Spin samples from 2 to 15 mL—fixed-angle rotor accepts optional adapters for other size tubes



Specifications

Rotor (included): fixed angle; six-place for models 17415-01 and -02; eight-place for models 17415-11 and -12

| Description | Speed range | Max RCF x g | Timer | Power | Catalog number |
|---|-------------|-------------|-----------------|--------|--------------------|
| Six-place portable centrifuge | 3500 rpm | 1640 | 0 to 30 minutes | 12 VDC | JB-17415-01 |
| Six-place portable centrifuge with 18-place tube holder | | | | | JB-17415-02 |
| Eight-place portable centrifuge | | | | | JB-17415-11 |
| Eight-place portable centrifuge with 18-place tube holder | | | | | JB-17415-12 |

Accessories

- JB-17415-22 Power adapter**, 110 VAC
- JB-17415-23 Power adapter**, 220 VAC
- JB-17415-26 Small tube adapters** for 2-mL tubes. Pack of 2
- JB-17415-27 Greiner tube lift adapters**. Pack of 12
- JB-17415-29 Optional tube holder**, 18-place

Cole-Parmer® MS-3400 Centrifuge

Be more productive and more versatile

- Rotor options accommodate tube sizes from 0.5 to 50 mL
- Glove-friendly digital keypad interface keeps you safe from chemicals
- No annoying noise—centrifuge runs quietly

Two-line digital display shows status, time, rpm and RCF(g), and the 60-minute timer signals when run is complete. Easily repeat previous settings for quick testing. Stainless steel interior chamber is easily accessible for cleaning and will withstand years of use.



Specifications

Rotor (included): four-place swinging bucket **Noise level:** <50 dBA

| Speed range | Max RCF x g | Maximum tube size | Timer | Power | | Catalog number |
|--|-------------|-------------------|------------|-------|----|--------------------|
| | | | | VAC | Hz | |
| 500 to 4000 rpm | 2508 | 28 x 118 mm | 60 minutes | 220 | 50 | JB-17414-22 |
| MS-3400 with complete set of tube adapters (17414-31, -32, -33) | | | | | | |
| 500 to 4000 rpm | 2508 | Various | 60 minutes | 220 | 50 | JB-17414-24 |

Optional Tube Adapters

| Capacity | Qty/pk | Catalog number |
|----------------------------|--------|--------------------|
| 5- to 15-mL tubes | 2 | JB-17414-31 |
| 3.5- to 6.5-mL tubes | 2 | JB-17414-32 |
| 0.5- to 3-mL tubes | 2 | JB-17414-33 |
| 2-mL small tubes | 2 | JB-17415-26 |
| Greiner tube lift adapters | 12 | JB-17415-27 |

- JB-17414-38 Tube shield**. Pack of 2
- JB-17414-37 Tube holder**, 24-place

Cole-Parmer® FS-3400 Centrifuge

Eliminate “dancing” on lab counter

Centrifuge includes a fixed-angle rotor to spin tubes up to 10-mL. Model features a 30-minute timer, suction cup rubber feet which firmly anchor them to the benchtop, and a stainless steel guard bowl to protect against spills. A safety lid latch cuts power to the motor if the lid is raised. Centrifuge accepts tubes up to 17 mm in diameter.

Specifications

Rotor (included): fixed-angle, 6 x 10-mL tubes



| Speed range | Max RCF x g | Timer | Power | | Catalog number |
|-------------|-------------|-----------------|-------|----|--------------------|
| | | | VAC | Hz | |
| 3400 rpm | 1350 | 0 to 30 minutes | 220 | 50 | JB-83058-42 |

Optional Rotor

| Capacity | Catalog number |
|-----------|--------------------|
| 8 x 10 mL | JB-83058-04 |

Optional Tube Adapters

| Capacity | Qty/pk | Catalog number |
|------------------|--------|--------------------|
| 4- to 5-mL tubes | 2 | JB-83058-08 |
| 2-mL tubes | 10 | JB-83058-10 |

- JB-83058-06 Tube shield**. Pack of 2



Cole-Parmer® MP and MPR Series Multipurpose Centrifuges

Rugged construction without sacrificing reliable performance

- Extra-thick stainless steel chamber and zinc-coated alloy and steel frame increase durability for inorganic separations requiring strong solvents
- Industrial-grade inverter drive (VFD) and brushless motor provide a long service life
- User-accessible service sections allow on-site maintenance
- Programmable memory quickly administers routine tests and accommodates multiple users
- Pulse feature lets you perform very short runs to 90 seconds, perfect for fast pelleting

This Cole-Parmer multipurpose (MP and MPR) series of benchtop centrifuges features advanced safety elements, including lid with multipoint lock and gas struts, emergency lid release during power failure, and barrier ring to protect the chamber. Multiple sensors prevent damage to centrifuge in case of misuse or malfunction: lid lock detector ensures lid is secure before running, imbalance detector guarantees samples are loaded correctly, and overspeed and motor overheating sensors warn of mechanical or electronic failures.

Basic models feature three LED displays showing temperature, rpm, and time. Memory supports ten programs including acceleration and deceleration rates. Advanced models feature a large touch-screen LCD with memory for 108 programs. The refrigerated models (MPR) deliver accurate cooling to protect your valuable samples from heat.

Basic MP16 and MPR16 models include a fixed-angle rotor holding eight 50-mL tubes—perfect for civil, environmental, and water supply engineering applications.

Basic MPR315 model adds the automatic rotor recognition function. Automatic rotor recognition provides safety and convenience when different rotors are used. The installed rotor is recognized at the beginning of a run and is automatically limited to its rated maximum speed.

Advanced MPR115 model adds automatic rotor recognition function. Plus, the large intuitive touch-screen LCD is simple to navigate, saving you time in the lab. Programmable memory supports 108 programs including acceleration and deceleration rates for routine tasks, or use the W2t functionality normally found only on ultracentrifuges.



MPR16



MPR115



| Model | Interface | Max speed (rpm) | Max RCF x g | Max capacity | Timer | Rotors included | 230 VAC, 50 Hz |
|--|-----------|-----------------|-------------|--------------|--|---|----------------|
| | | | | | | | Catalog number |
| Nonrefrigerated MP model | | | | | | | |
| MP16 | Basic | 6000 | 4800 | 1 L | 0 to 99 minutes, 10-second increments | Fixed-angle rotor (17406-09) | JB-17406-55 |
| Refrigerated MPR models, 15.8 to 104°F (–9 to 40°C) | | | | | | | |
| MPR16 | Basic | 6000 | 4800 | 1 L | 0 to 99 minutes, 10-second increments | Fixed-angle rotor (17406-09) | JB-17406-25 |
| MPR315 | Basic | 15,000 | 22,000 | 3 L | 0 to 99 minutes, 1-second increments | Fixed-angle rotor (17406-03) and swing-out rotor (17406-01) with buckets (17406-02) and adapters (17406-04) | JB-17406-17 |
| MPR115 | Advanced | 15,000 | 22,000 | 1 L | 0 to 9999 minutes, 1-second increments | Fixed-angle rotor (17406-13) and swing-out rotor (17406-11) with buckets (17406-12) and adapters (17406-14) | JB-17406-19 |

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Stuart® Digital Colony Counter

Long-lasting antimicrobial coating inhibits bacterial growth

NEW



Counter shown with optional magnifier

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- Each count is confirmed with an audible beep and counter advance on digital display
- Enhance counting of translucent or hard-to-see colonies with the supplied black background filter
- Compatible with felt tip markers for pressure-sensitive counting
- Reduce eye strain—sub-stage white LED illumination allows glare-free viewing
- Record count results to a printer or computer via USB cable
- Easily view small colonies with optional screw-in magnifiers

Versatile digital colony counter lets you use any implement to capture a count from 0 to 999. Simply place your petri dish on the electronic pressure pad and touch the dish with a felt tip pen to mark each colony. Pressure can be adjusted to accommodate multiple users.

Get fast and accurate counting. Every time a colony is marked, the unit will register the count with a beep and the cumulative count is shown on the digital display; the audible tone can be turned on or off. Convenient built-in function calculates the average colony counts over multiple plates. Count results and statistics, including standard deviation, can be sent directly to a printer or computer using the supplied USB cable.

What's included: black/white background filter, one Wolffhuegel graticule, two 50- to 90-mm dish centering adapters, and power cord.



Specifications

| | |
|---|---|
| Count: 0 to 999 | Digital display: 3-digit LED |
| Dish size: up to 3½" (90 mm) | Dimensions (W x H x D): 12¼" x 5½" x 11⅓" (31 x 14 x 30 cm) |
| Light source: energy-efficient, white LEDs | |

| With IQ/OQ documentation | Power (VAC, Hz) | Catalog number |
|--------------------------|-----------------|--------------------|
| No | 90 to 240, | JB-14212-04 |
| Yes | 50/60 | JB-14212-06 |

- JB-03012-99 Printer** with 90–250 VAC adapter
- JB-14212-60 Magnifier**, 1.7x
- JB-14212-61 Magnifier**, 3x

Electronic Colony Counter Pen

Count and register colonies with ease



- Store up to 35 sample counts in memory
- Felt-tip markers work on plastic or glass
- Cost-effective, accurate, and simple to use

This handheld device marks, counts, and gives an audible and visual alert each time a count is registered on the easy-to-read, backlit digital display. Store up to 35 sample counts in memory and display the sum total of all colonies counted. The audible alert can be turned off if desired and the counting function locked to prevent errors during breaks between counting.

Lightweight, pen-style design reduces the likelihood of error, combining all aspects of counting into one motion. Error is further reduced when counting both up and down to verify sample counts. Long-lasting felt-tip markers work on plastic or glass and are oil and water resistant. Ink marks are removable with ethyl alcohol.

What's included: protective storage case, red and black felt-tip markers, and 3 V lithium battery.



| Description | Catalog number |
|--|--------------------|
| Handheld electronic colony counter pen | JB-14212-03 |

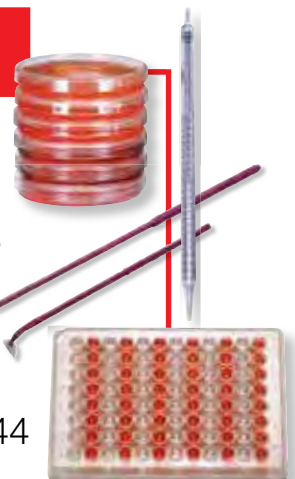
JB-14212-05 Replacement felt-tip pen, red

JB-14212-07 Replacement felt-tip pen, black

JB-14212-09 Replacement battery, 3 V button cell

Search

We offer a wide variety of plastic consumables for your cell & tissue culture needs.



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Stuart® Clear Incubators

Get full visibility of your samples

- Easy access to working chamber via hinged front door
- Each side panel features two 10-mm diameter ports for introducing gases or cables

Clear acrylic top and sides make it easy to view your sample from all sides—ideal for plant propagation, simulation of tropical conditions, and corrosion testing. These incubators do not have a base so they can be placed directly over complete instruments; order base separately. Forced air circulation and electronic temperature control ensure accurately maintained conditions. The analog model has a calibrated knob to set the temperature, while the digital model with LCD lets you set and view chamber temperature. Both models have a push switch preset at 37°C. Safety feature cuts off heat at 72°C.



stuart®

01110-02

Specifications

| | |
|---|--|
| Capacity: 60 L | Temperature accuracy at 37°C: ±0.1°C |
| Temperature range: ambient +5°C to 60°C | Chamber dimensions (W x H x D): 45 x 38 x 38 cm |
| | Overall dimensions (W x H x D): 60 x 39 x 39 cm |



| Type | Power (VAC, Hz) | Catalog number |
|---------|-----------------|----------------|
| Analog | 230, 50 | JB-01110-02 |
| Digital | 230, 50 | JB-01110-08 |

Please contact our Application Specialists for help in selecting the best incubator for your application.

JB-01110-97 Base plate for incubators

JB-01110-98 Shelf rack system, plastic coated; two shelves

JB-01110-99 Tray for incubator

Stuart® Hybridization Incubator/Shaker

Versatile—features both rotisserie and rocking motions

- Forced air circulation combined with microprocessor control results in excellent temperature uniformity
- Up-and-over door offers easy access to the chamber
- Ideal for nucleic acid hybridization applications such as Northern (RNA) blots, Southern (DNA) blots, and Western (protein) blots
- Choose your desired accessories to create a complete package

This compact hybridization incubator has two integral shakers. Rotisserie shaker has a rotational speed from 2 to 10 rpm while the platform shaker has a rocking speed from 5 to 70 oscillations/minute. The gentle rocking action is ideal for the washing stage of most hybridization procedures. Double-glazed smoked acrylic and polycarbonate door provides radiation protection. Stainless steel interior is easy to clean. Safety features include overtemperature protection and power cut-off.

Hybridization bottles (order separately) are made from Pyrex® borosilicate glass and are autoclavable. Thermoplastic polyester caps are rigid and will not distort during repeated heating in the incubator. PTFE insert makes a tight seal preventing leakage.

What's included: rotisserie 39454-95.



stuart®



Specifications

| | |
|---|---|
| Temperature range: ambient +8°C to 80°C | Temperature variation: ±0.5°C |
| Temperature fluctuation: ±0.1°C at 37°C | Chamber dimensions (W x H x D): 28.6 x 20 x 23 cm |
| | Overall dimensions (W x H x D): 38 x 43.5 x 38 cm |

Accessories

| Description | Catalog number |
|-------------------------------|----------------|
| Rotisseries | |
| Holds seven 40-mm dia bottles | JB-39454-95† |
| Holds two 75-mm dia bottles | JB-39454-96 |
| Hybridization bottles | |
| 40 mm OD x 260 mm L | JB-39454-97 |
| 40 mm OD x 170 mm L | JB-39454-99 |
| 75 mm OD x 260 mm L | JB-39454-98 |

†Included with hybridization incubator.

| Capacity | Power (VAC, Hz) | Catalog number |
|----------|-----------------|----------------|
| 20 L | 230, 50 | JB-39454-05 |

Stuart® Shaking Incubators

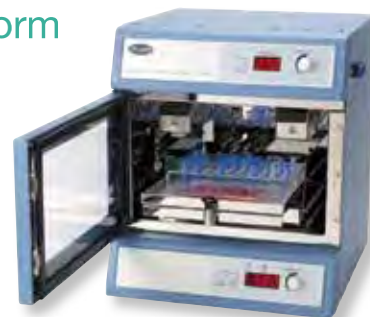
Easily reach samples at the back with retractable platform

- Microprocessor controlled shaking speed ensures accuracy
- Forced air circulation provides uniform temperature inside the entire chamber
- Orbital shaking motion ensures even mixing while promoting bacterial growth
- Set and view temperature and speed on the digital display; timer can be set from 1 second to 9 days
- Built-in USB connection and dedicated software allow long-term monitoring of temperature via a PC
- Order models with IQ/OQ (Installation Qualification/Operational Qualification) documentation to help you comply with regulatory agency requirements

A. Microplate Incubator Shaker provides high-speed orbital shaking action between 250 and 1250 rpm. The tight 1.5 mm orbit allows even the smallest vessel to be mixed well. Stainless steel water tray helps maintain a humidity level up to 80% for minimal sample evaporation. Platform with nonslip mat holds up to four microplates.

B. Incubator Shakers provide orbital shaking motion between 30 to 300 rpm with a gentle start action. Smoked acrylic windows in the door and sides let you view your samples easily. The 51-L model secures flasks up to 1-L capacity, typically accommodating 12 x 250 mL, 9 x 500 mL, or 4 x 1000 mL Erlenmeyer flasks. The 115-L model secures flasks up to 2-L capacity, typically accommodating 6 x 2000 mL, 8 x 1000 mL, or 15 x 500 mL Erlenmeyer flasks.

C. Refrigerated Incubator Shaker has all the features of the incubator shakers above plus the ability to operate at temperatures down to 15°C below ambient (minimum 5°C) when combined with a recirculating cooler (12122-04)—ideal for cell-based protein expression. Viewing windows are double glazed to prevent condensation buildup during sub-ambient use.



| Capacity | Temperature range | Temperature accuracy | Orbit dia. | Platform size | Dimensions (W x H x D) | | Power | Catalog number |
|---|----------------------------|----------------------|------------|----------------|------------------------|-----------------------|---------|-----------------------------|
| | | | | | Chamber | Overall | | |
| A. Microplate incubator shaker | | | | | | | | |
| Four microplates or two microtube racks | Ambient +7°C to 60°C | ±0.5°C at 37°C | 1.5 mm | 22 x 22 cm | 30.7 x 19 x 30 cm | 36.1 x 43 x 40.5 cm | 230, 50 | JB-79520-10 JB-79520-12† |
| B. Incubator shakers | | | | | | | | |
| 51 L | Ambient +5°C to 60°C | ±0.5°C | 16 mm | 33.5 x 33.5 cm | 42.2 x 29.7 x 40.8 cm | 45 x 52.2 x 47.4 cm | 230, 50 | JB-79520-04 JB-79520-06† |
| 115 L | Ambient +5°C to 60°C | ±0.5°C | 16 mm | 52.6 x 39 cm | 62.3 x 39.5 x 46.5 cm | 67.5 x 64.2 x 54.2 cm | 230, 50 | JB-79520-16 JB-79520-18† |
| C. Refrigerated incubator shaker (not shown) | | | | | | | | |
| 115 L | 15°C below ambient to 60°C | ±0.5°C | 16 mm | 52.6 x 39 cm | 62.3 x 39.5 x 46.5 cm | 67.5 x 64.2 x 54.2 cm | 230, 50 | JB-79520-22 JB-79520-24† |

†These models come with comprehensive IQ/OQ documentation to help you comply with regulatory agency requirements.

Racks for Models B and C

| Capacity | Catalog number |
|-----------------------------|----------------|
| 64 x 1.5 mL microtubes | JB-79520-96 |
| 25 x 15 mL centrifuge tubes | JB-79520-97 |
| 12 x 50 mL centrifuge tubes | JB-79520-98 |
| 16 x 30 mL tubes | JB-79520-99 |

Accessories for Model C only

JB-12122-04 Refrigerated recirculating bath, –20 to 100°C; 230 VAC, 50 Hz

Please see pages 274–278 for additional Baths & Circulators.

Stuart® Microplate Incubator

Overcome blocked air circulation

- Prevent samples from drying out with built-in water tray
- Acrylic door opens upwards for easy access to the interior

Stuart microplate incubator uses forced air circulation to blow preheated air across the shelves for excellent temperature distribution. In conventional incubators, microplates often block the air circulation resulting in uneven temperature in the chamber. Set and view the temperature on the bright LED display. Stainless steel chamber has four slide-out shelves, each accommodating 6 plates (or 12 stacked in two layers).



Specifications

| | |
|---|--|
| Temperature range: ambient + 8°C to 80°C | Chamber dimensions (W x H x D): 25 x 20 x 23 cm |
| Temperature uniformity at 37°C: ±0.5°C | Overall dimensions (W x H x D): 38 x 43.5 x 38 cm |

| Capacity | Power (VAC, Hz) | Catalog number |
|----------|-----------------|----------------|
| 20 L | 230, 50 | JB-39065-15 |



Please see page 9 for cell culture plates and flasks.

Cole-Parmer® Compound Professional Microscopes

Multiple head styles for versatile viewing

– Objectives provide superb optical clarity and resolution

Each features widefield 10x eyepieces with oil immersion DIN achromatic objectives and coarse and fine focus controls. The inclined head rotates 360°. The 140 x 135 mm stage has a built-in, low position graduated mechanical specimen holder and coaxial controls.

Trinocular model “D” (not shown) features a vertical tube for mounting a 35-mm camera or video camera (adapter required—order at right) and includes a third 10x eyepiece.

What’s included: an Abbe N.A. 1.25 condenser, rack and pinion control, iris diaphragm, filter holder, and blue filter.



A

B



| Key | Total magnification | Head | Eyepiece diameter | Illuminator(s) | Power (VAC, Hz) | Catalog number |
|-----|------------------------|------------|-------------------------|-----------------------|-----------------|----------------|
| A | 40x, 100x, 400x, 1000x | Monocular | 23.3 mm ID x 28.0 mm OD | 12 V, 20 watt halogen | 220, 50 | JB-48923-01 |
| B | 40x, 100x, 400x, 1000x | Binocular | 23.3 mm ID x 28.0 mm OD | 12 V, 20 watt halogen | 220, 50 | JB-48923-02 |
| C | 40x, 100x, 400x, 1000x | Trinocular | 23.3 mm ID x 28.0 mm OD | 12 V, 20 watt halogen | 220, 50 | JB-48923-03 |

Accessories

- JB-48922-62 Darkfield attachment for “A through D”
- JB-48923-31 Camera adapter, 35 mm; includes 2.5x photolens
- JB-48923-32 Camera adapter, video; includes 0.5x lens

Compound Microscopes with LCD Tablet Display and Camera

Include everything you need to view and capture images

- Edit images directly on the tablet touchscreen
- View images comfortably on large, 8" display
- Share images with others using built-in Wi-Fi

These microscopes are an all-in-one image capture solution—built-in 8" (20.3 cm) LCD display allows you to view your specimen while the internal camera captures the image. Edit, measure, and annotate saved images directly on the touchscreen or on a computer with the included software. Display features an Android™ operating system and a micro-SD card for additional memory. Wi-Fi signal connects to a computer for image download and sharing.

Siedentopf binocular head allows for easy adjustability and the 20-mm eyepieces provide an increased field of view. Choose from semi-plan, plan, and phase contrast models; semi-plan and plan versions include an Abbe condenser; the phase-contrast version has a multi-phase, rack and pinion condenser.

What's included: software, 4 GB Micro SD card, calibration slide, and dust cover.

Specifications

| | | |
|--|--|--------------------------|
| Display resolution: 1280 x 800 | Imaging sensor: 1/2.5" CMOS, 5.0 megapixels | Cables: USB, HDMI |
| Stage dimensions (W x D): 142 mm x 140 mm | Output: USB, HDMI, SD card, Wi-Fi | |

| Total magnification | Head | Eyepiece | Illumination | Power | Catalog number |
|---|------------|---------------------|-------------------|-------------|----------------|
| 40x, 100x, 400x, 1000x (semi-plan) | Trinocular | Widefield 10x/20 mm | 3 W LED, variable | 110/220 VAC | JB-48925-11 |
| 40x, 100x, 400x, 1000x (plan) | | | | | JB-48925-12 |
| 40x, 100x, 400x, 1000x (phase contrast) | | | | | JB-48925-13 |

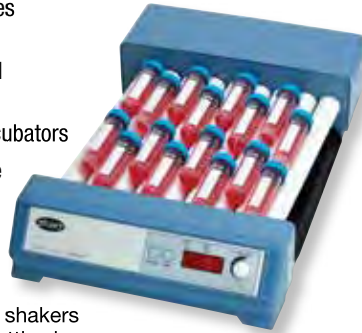


Stuart® Roller Shakers

Gently perform complete mixing

- Rocking and rolling action creates minimum aeration
- Ideal for viscous substances and liquid-solid suspensions
- Safe for use in cold rooms or incubators
- Expand capacity and save space with optional stacking kit

The 6-roller units offer space-saving footprint—ideal for incubators. The 9-roller units provide higher throughput. Both shakers accommodate most tube and bottle sizes.



Specifications

| | |
|--|--|
| Timer (digital models only): 1 second to 9 hours | Overall dimensions (W x H x D): 6-rollers: 59.5 x 11 x 25.5 cm 9-rollers: 59.5 x 11 x 37.5 cm |
| Ambient temperature: 4 to 60°C | |

| Speed range | Number of rollers | Power | | Catalog number |
|-----------------------------|-------------------|-------|----|--------------------|
| | | VAC | Hz | |
| Analog shakers | | | | |
| Fixed at 33 rpm | 6 | 230 | 50 | JB-04653-02 |
| | 9 | 230 | 50 | JB-04653-04 |
| Digital shakers | | | | |
| Adjustable from 5 to 60 rpm | 6 | 230 | 50 | JB-04653-06 |
| | 9 | 230 | 50 | JB-04653-08 |

JB-04653-09 Stacking system, allows up to three shakers to be stacked to save space. Pack of 4 magnetized stacking blocks

Stuart® Wrist-Action Shaker

Eliminate wrist strain

- Vigorous mixing action simulates hand shaking
- Ideal for extractions



Features two side arms with adjustable clamps. Holds eight flasks or bottles up to 500 mL capacity. Use for prolonged continuous shaking or set built-in analog timer to 60 minutes. Electronic feedback controller ensures a constant speed, irrespective of load.



Specifications

| | |
|--|----------------------------------|
| Speed range: 80 to 800 oscillations/min | Timer range: 10 to 60 min |
|--|----------------------------------|

| Max load | Shaking amplitude | Dimensions (H x W x D) | Power | | Catalog number |
|---------------|-------------------|------------------------|-------|----|--------------------|
| | | | VAC | Hz | |
| 6.6 lb (3 kg) | 1/16" (1.5 mm) | 78 x 27 x 24 cm | 220 | 60 | JB-51900-01 |
| | | | 230 | 50 | JB-51900-02 |

Stuart® Tube Rotators

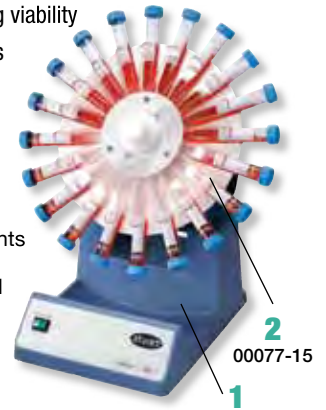
Gentle and effective mixing—ideal for biological suspensions

- Suspend cultures without compromising viability
- Fully adjustable rotation angle optimizes mixing for any sample

Fixed-speed rotator offers easy repeatable operation at 20 rpm for routine tasks.

Variable-speed rotator is best suited to more dynamic laboratory environments with different or changing protocols requiring 2 to 40 rpm. Features a digital speed display and timer providing better repeatability for optimal results.

Discs. Mix and match from six tube holder discs (order separately). Quickly and easily remove and replace tube holders without tools. Use two tube holders simultaneously with the optional dual disc adapter.



1. Rotator Drive



| Speed range | Speed control | Timer | Dimensions (W x H x D) | Power | | Catalog number |
|-------------|---------------|---------------|----------------------------|-------|----|--------------------|
| | | | | VAC | Hz | |
| 20 rpm | — | — | 7 7/8" x 9 1/16" x 10 5/8" | 230 | 50 | JB-07650-11 |
| 2 to 40 rpm | Digital | 1–999 minutes | (20 x 23 x 27 cm) | 230 | 50 | JB-07650-13 |

2. Tube Holder Discs

| Description | Tube diameter | No. of tubes | Catalog number |
|------------------------------|---------------|--------------|--------------------|
| 1.5-mL micro tube holder | 10 to 11.5 mm | 46 | JB-00077-11 |
| Test tube holder | 9 to 20 mm | 20 | JB-00077-15 |
| 50-mL centrifuge tube holder | 25 to 35 mm | 12 | JB-00077-13 |
| Culture tube holder | 12 mm | 63 | JB-00077-17 |
| Culture tube holder | 16 mm | 63 | JB-00077-19 |
| Culture tube holder | 26 mm | 30 | JB-00077-21 |

JB-00077-23 Dual disc adapter. Stacks two discs for increased capacity
JB-00077-25 Additional clips for micro tube holder 00077-11. Pack of 20

Stuart® Microtiter Plate Shakers

Mix small volumes with high-speed vibration

- Perfect for microwell plates
- Digital display ensures protocol repeatability

Shaker combines high speed with a tiny orbit to produce vigorous shaking. For routine tasks, use the saved time-and-speed program. Four-plate model is ideal for small-scale applications, or use in incubators and fume hoods. Eight-plate model is suited for high throughput benchtop applications. Optional tube holders accommodate microcentrifuge tubes (order online).



Specifications

| | |
|-------------------------------------|--------------------------------|
| Speed range: 250 to 1250 rpm | Timer: 1 to 999 minutes |
| Orbit size: 1/16" (1.5 mm) | |

| Number of plates held | Max load | Platform dimensions (L x W) | Power | | Catalog number |
|-----------------------|---------------|--------------------------------------|-------|----|--------------------|
| | | | VAC | Hz | |
| 4 | 2.2 lb (1 kg) | 8 5/8" x 8 5/8" (22 x 22 cm) | 230 | 50 | JB-51707-06 |
| | | | 230 | 50 | JB-51707-04 |
| 8 | 4.4 lb (2 kg) | 12 1/16" x 12 1/16" (30.6 x 30.6 cm) | 230 | 50 | |

Cole-Parmer® Orbital Shakers

Designed for problem-free continuous use

- Smooth, uniform circular motion—perfect for both multiwell plates and large flasks
- Fit into environmental chambers and incubators for culturing and aeration applications
- Easily set and read speed and time on the digital display



Cole-Parmer®

Compact Shaker is ideal for smaller sample sizes of 0.5 to 5 mL in multiwell plates, dishes, and petri dishes. Included flat platform holds up to four standard-sized microwell plates on a nonslip rubber mat. Or order the optional expansion platform to double the plate capacity to eight plates. Choose the optional cradle-type platform with adjustable rubber bars to securely hold four 250-mL flasks or any combination of vessel sizes for maximum flexibility.

Large-Capacity Shaker includes a cradle-type platform with four adjustable rubber bars to hold a variety of bottles and flasks; accommodates twelve 250-mL, nine 500-mL, six 1000-mL, or two 2000-mL Erlenmeyer flasks. A larger cradle platform with six bars is available. Or order the optional flat platform for processing up to twelve standard microwell plates simultaneously.

Specifications

Speed range: 30 to 300 rpm **Timer:** 1 to 999 minutes
Orbit size: 5/8" (16 mm) dia



| Platform dimensions | Max load | Overall dimensions (W x H x D) | Power | | Catalog number |
|---|------------------|---|-------|----|--------------------|
| | | | VAC | Hz | |
| Compact shaker | | | | | |
| 8 ²¹ / ₃₂ " x 8 ²¹ / ₃₂ " (22 x 22 cm) | 6.6 lb (3 kg) | 9 ¹ / ₂ " x 5 ¹ / ₂ " x 11 ⁷ / ₈ " (24 x 14 x 30 cm) | 230 | 50 | JB-51700-14 |
| Large-capacity shaker | | | | | |
| 13 ³ / ₁₆ " x 13 ³ / ₁₆ " (33.5 x 33.5 cm) | 22 lb (10 kg) | 14 ¹ / ₈ " x 10 ⁵ / ₈ " x 16 ¹ / ₂ " (36 x 27 x 42 cm) | 230 | 50 | JB-51700-16 |

For Compact Shaker

- JB-51700-97 Cradle platform** with four rubber securing bars
- JB-51700-98 Expansion platform** with nonslip rubber mat. Holds 8 microwell plates
- JB-51700-99 Plastic cover**

For Large-Capacity Shaker

- JB-51700-95 Cradle platform** with six rubber securing bars, measures 20" x 20" (51 x 51 cm). Max speed is 150 rpm
- JB-51700-96 Flat platform** with nonslip rubber mat. Holds 12 microwell plates

Stuart® Slow-Speed Rocking Shakers

Preserve viability with gentle swirling or rocking

- Adjust tilt angle for optimal mixing
- Built-in timer and digital speed display provide reproducible results



Gyrational motion shakers delicately swirl solutions for low-foaming requirements such as cell culturing, DNA extractions, and histological staining procedures. **See-saw shakers** produce a rolling wave in your vessel, perfect for culture flasks and Petri dishes.

stuart®

Choose small 3-kg capacity for tight spaces. Larger 10-kg capacity shakers suit larger laboratories and high-throughput applications. Optional tier system triples capacity and is held in place with magnets, so it easily disassembles for cleaning.



Specifications

Speed range: 5 to 70 rpm

Angle of tilt:

Gyratory models: 3° to 12°
See-saw models: 7°

| Max load | Platform dimensions (L x W) | Power | | Catalog number |
|-------------------------------------|-----------------------------|-------|----|--------------------|
| | | VAC | Hz | |
| Gyratory shakers (not shown) | | | | |
| 3 kg | 23.5 x 23.5 cm | 230 | 50 | JB-51900-26 |
| 10 kg | 35.5 x 35.5 cm | 230 | 50 | JB-51900-28 |
| See-saw shakers | | | | |
| 3 kg | 23.5 x 23.5 cm | 230 | 50 | JB-51900-30 |
| 10 kg | 35.5 x 35.5 cm | 230 | 50 | JB-51900-32 |

- JB-51700-94 Optional tier system** for small-capacity rockers
- JB-51700-93 Optional tier system** for large-capacity rockers

Digital Vortex Mixer with Infrared Sensor

Reduce repetitive strain on your wrists

- Digital control of speed and time for high repeatability
- Variable speeds up to 3000 rpm for applications from gentle mixing to vigorous vortexing
- Large, clear display shows elapsed time and speed
- Quiet operation with soft-start feature and controlled ramping
- Easy-to-clean housing offers excellent chemical resistance
- Four anti-sliding feet provide enhanced stability
- Optional accessories accommodate a broad range of vessels



What's included: standard pop-off cup for single test tube and a 6-ft (1.8-m) power cord with plug.



| Speed | Timer range | Power | | Catalog number |
|---------------|-----------------|---------|-------|--------------------|
| | | VAC | Hz | |
| 0 to 3000 rpm | 0 to 999:59 min | 100/240 | 50/60 | JB-86579-04 |

Jenway® 74-Series Spectrophotometers

Day In, Day Out Spectroscopy Just Got Easier!

Intuitive Touchscreen Interface

Large, 7" HD color display makes navigation easy. The touchscreen is fast and responsive, even with gloves.



Versatile Sample Chamber

Large, domed lid provides easy access, even for tall multi-cell chambers or tubes.



Memory & USB Ports

10 GB onboard storage lets you store methods and results, with easy-access USB ports to transfer data or connect a printer.



CPLive™ Connectivity

Keep your data secure and easily accessible with CPLive connectivity—results are automatically uploaded and stored in the cloud.

Transfer and store all your spectrophotometry protocols and results to one place, and effortlessly share with colleagues. Simultaneously manage multiple devices through your free CPLive account, via tablet or computer. Or, use the CPLive app on your smartphone.

Learn more at ColeParmer.in/CPLive



| Description | 7410 Visible wavelength | 7415 UV/visible wavelength | 7415 Nano UV/visible wavelength |
|----------------------------|-------------------------------------|----------------------------|---|
| Catalog number | JB-83056-21 | JB-83056-22 | JB-83056-23 |
| Min sample size | 3 mL | 3 mL | 0.5 µL (at 0.2 mm), 1.0 µL (at 0.5 mm) |
| Bandwidth | 5 nm | 5 nm | |
| Wavelength range | 320 to 1000 nm | 198 to 1000 nm | |
| Wavelength accuracy | ±2 nm | ±2 nm | |
| Wavelength reproducibility | ±0.5 nm | ±0.5 nm | |
| Photometric range | 0 to 199.9%, -0.300 to 2.500 A | | |
| Photometric accuracy | ±1%T, ±0.01 Abs at 1.000 Absorbance | | |
| Source lamp | Tungsten halogen lamp | Xenon lamp | |

Specifications

- Quantitation range:** -300 to 9999
- Kinetics measurement time:** 2 to 9999 seconds
- Spectrum scan interval:** Selectable 1, 2, 5 or 10 nm
- Output:** USB Type A x 2, USB Type B x 1, Ethernet (RJ45) connection
- Internal memory:** 10GB for results and methods
- Power:** 100 to 240 VAC, 50/60 Hz

Jenway Genova Plus and Genova Nano UV/Vis Spectrophotometers

Versatile—get life science specific analysis as well as standard functions

- Meet the requirements of any busy laboratory—ideal for DNA, RNA, and protein measurements, but function as standard spectrophotometers
- Detects DNA concentrations as low as 2 ng/ μ L
- Save your methods and results to USB memory stick
- Icon-driven software with large graphical display and intuitive navigation

Genova Plus Spectrophotometer (model 83070-00) offers enhanced optics dedicated to life science analysis, allowing the measurement of DNA concentrations and purity ratios using wavelengths recorded at 260, 280 and 230 nm, with an optional correction at 320 nm. Or use as a standard spectrophotometer with measurement modes for photometrics, concentration, multi-wavelength, spectrum scanning, quantitation, and kinetics.

This life science spectrophotometer is preprogrammed with methods for protein analysis in addition to nucleic acid concentrations. The OD measurement mode lets you measure optical density at 600 nm for cell harvesting. The purity scan across the entire wavelength range from 198 to 1000 nm displays any distorted peaks, easily identifying impurities.

Optional accessories let you choose the best way to measure your samples. The TrayCell accessory (83070-29) enables you to measure sample volumes as low as 0.7 μ L and is ideal for RNA, DNA, and protein measurements requiring 1:10 or 1:50 dilutions.

Genova Nano Spectrophotometer (model 83070-02) offers the same features as the Genova Plus but adds a preinstalled pedestal platform which allows you to measure sample volumes as low as 0.5 μ L—conserving your precious samples. Measuring small sample volumes eliminates the need to perform dilutions or use cuvettes, saving you time and money.

The versatile Genova Nano measures sample volumes with a high degree of accuracy and reproducibility in less than 6.5 seconds. Its stainless steel read head with an embedded quartz lens uses the natural surface tension of the droplet to form the bond between the read head surfaces for optimal results. When your reading is complete, simply wipe the sample with a microfiber cloth to remove all trace of the sample. The ease of cleaning allows faster changeover between samples, increasing sample throughput.

What's included: Model 83070-00 includes a 10 x 10 mm cuvette holder, micro-cuvette holder, 4 GB USB memory stick, 100 disposable micro-cuvettes, and universal power supply. Model 83070-02 includes a micro-volume accessory, 10 x 10 mm cuvette holder, micro-cuvette holder, 4 GB USB memory stick, and universal power supply.

Specifications

Measurement time: <6.5 seconds

Sample pedestal material of construction (model 83070-02): stainless steel and quartz



| Description | Genova Plus | Genova Nano |
|---------------------------|---|--|
| Catalog number | JB-83070-00 | JB-83070-02 |
| Sample mode(s) | Cuvette | Cuvette and pedestal |
| Minimum sample size | 0.7 μ L [†] | 0.5 μ L at 2.0 mm, 1.0 μ L at 0.5 mm |
| Maximum sample size | 5 mL | 5.0 μ L |
| Bandwidth | 5 nm (spectral) | |
| Path length | 10 mm | 0.2 or 0.5 mm (auto-ranging) |
| Wavelength | Transmittance | 0 to 199.9% |
| | Range | 198 to 1000 nm |
| | Resolution | \pm 2 nm |
| | Accuracy | 1 nm |
| Source lamp | Press-to-read Xenon lamp | |
| Detector | Photo-diode detector | |
| Detection limit | — | 2.0 ng/ μ L (dsDNA) at 0.2 mm pathlength |
| Measurement | Range | –0.300 to 2.500 A (10–mm pathlength equivalent = –15.0 to 125.0 A) |
| | Precision | — |
| | Accuracy | \pm 1% T, \pm 0.01 A at 1.000 A |
| Maximum concentration | — | 6000 ng/ μ L (dsDNA) |
| DNA measurement modes | dsDNA, ssDNA, RNA, oligonucleotides, 260/280, 260/230, variable ratio | |
| Protein measurement modes | BCA, Bradford, Lowry, Biuret, Direct UV | |
| Memory | Up to 312 methods (including preprogrammed methods) | |
| Input/Output | USB, analog, RS-232, and optional integral printer | |
| Power (VAC, Hz) | 90 to 260, 50 to 60 | |

[†]The 0.7 μ L sample volume requires TrayCell accessory 83070-29 sold separately at right.



Spectrophotometer
83070-02

Jenway®



Accessories

JB-83070-29 TrayCell accessory for Genova Plus (83070-00), for microvolume samples from 0.7 μ L to 5 μ L

JB-83070-31 Automatic eight-cell cuvette holder for multiple sample measurements. Accepts 10 x 10 mm pathlength cuvettes

JB-83070-33 Sipper pump, requires flow-through cuvette

JB-83070-35 Peltier temperature controller, 20 to 50°C

JB-83070-37 Combined sipper pump/Peltier temperature control

JB-83070-39 Printer for instant results. Fits into top of spectrophotometer to save space

JB-83070-41 Replacement cuvette holder, 10 x 10 mm pathlength

JB-83070-43 Test tube and cuvette holder, 13/16/24-mm diameter x 100 mm height; compatible with 10-mm square cuvettes

JB-83070-45 Test tube and cuvette holder, 13-mm dia; compatible with 10-mm square cuvettes

JB-83070-51 Water-heated cuvette holder, 10 x 10 mm pathlength (requires heated circulating bath for operating temperatures from 5 to 50°C)

Jenway® Cuvettes for Spectrophotometry

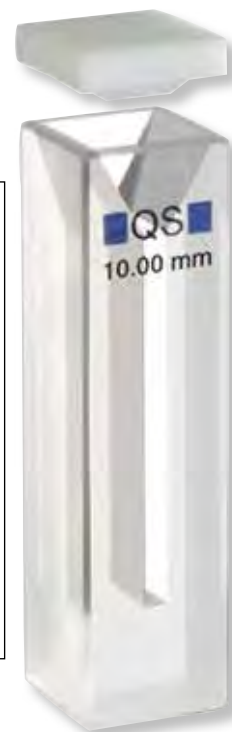
Choice of materials to fit your research needs

- Sample volume 0.7 µL to 40 mL
- Ideal for chemical or biological analysis
- TrayCell cuvette option also available

NEW

Jenway offers a wide selection of glass, quartz, and disposable plastic cuvettes for measuring liquid samples. The glass and quartz cuvettes are available in a range of pathlengths from 10 to 100 mm, including micro-volume and flow-through cuvettes. Glass cuvettes are suitable for measurements in the visible region whereas quartz cuvettes may be used in both the UV and visible regions.

TrayCell 83070-29 is a fiber optic cuvette which can be used for microvolume samples as low as 0.7 µL of sample which is ideal for DNA, RNA and protein measurements. Fits all standard 10 x 10 mm cuvette holders and micro-cuvette holders.



| Description | Minimum volume | Maximum volume | Pathlength (mm) | Wavelength range (nm) | Qty/pk | Catalog number |
|---|----------------|----------------|-----------------|-----------------------|--------|----------------|
| Glass – Visible only | 2 mL | 3.8 mL | 10 | 360 to 2500 | 1 | JB-99610-30 |
| Glass – Visible only | 4 mL | 7 mL | 20 | 360 to 2500 | 1 | JB-83070-40 |
| Glass – Visible only | 8 mL | 14 mL | 40 | 360 to 2500 | 1 | JB-99610-31 |
| Glass – Visible only | 9 mL | 17.5 mL | 50 | 320 to 2500 | 1 | JB-99610-32 |
| Glass – Visible only | 19 mL | 35 mL | 100 | 340 to 2500 | 1 | JB-83070-42 |
| Glass – Visible only – Micro | 300 µL | 800 µL | 10 | 320 to 2500 | 1 | JB-83070-44 |
| Glass – Visible only – Semi micro | 600 µL | 1.4 mL | 10 | 320 to 2500 | 1 | JB-83070-46 |
| Glass – Visible only – Semi micro – Black walls | 600 µL | 1.4 mL | 10 | 320 to 2500 | 1 | JB-83070-96 |
| Glass – Visible only – Flow through | 80 µL | | 10 | 320 to 2500 | 1 | JB-83070-50 |
| Quartz – UV and visible | 2 mL | 3.8 mL | 10 | 200 to 2500 | 1 | JB-83070-76 |
| Quartz – UV and visible – Long pathlength | 9 mL | 17.5 mL | 50 | 200 to 2500 | 1 | JB-83070-90 |
| Quartz – UV and visible – Long pathlength | 16 mL | 40 mL | 100 | 200 to 2500 | 1 | JB-83070-92 |
| Quartz – UV and visible – Ultra micro | 70 µL | 1.5 mL | 10 | 200 to 2500 | 1 | JB-83070-82 |
| Quartz – UV and visible – Ultra micro | 120 µL | 1.4 mL | 10 | 200 to 2500 | 1 | JB-83070-88 |
| Quartz – UV and visible – Micro | 300 µL | 800 µL | 10 | 200 to 2500 | 1 | JB-83070-84 |
| Quartz – UV and visible – Semi micro | 600 µL | 1.4 mL | 10 | 200 to 2500 | 1 | JB-83070-86 |
| Quartz – UV and visible – Semi micro – Black walls | 600 µL | 1.4 mL | 10 | 200 to 2500 | 1 | JB-83070-94 |
| Quartz – UV and visible – Flow through | 1.5 mL | | 10 | 200 to 2500 | 1 | JB-83070-48 |
| Quartz – UV and visible – Flow through | 80 µL | | 10 | 200 to 2500 | 1 | JB-83070-52 |
| Plastic – Visible only | 2.5 mL | 4.5 mL | 10 | 340 to 900 | 100 | JB-99610-33 |
| Plastic – Visible only – Semi micro | 1.5 mL | 3.0 mL | 10 | 340 to 900 | 100 | JB-99610-34 |
| Plastic – UV and visible | 2.5 mL | 4.5 mL | 10 | 230 to 900 | 100 | JB-83070-32 |
| Plastic – UV and visible – Semi micro | 1.5 mL | 3.0 mL | 10 | 230 to 900 | 100 | JB-83070-34 |
| Plastic – UV and visible – Micro (to be used with micro cuvette holder 83056-82) | 70 µL | 550 µL | 10 | 230 to 900 | 100 | JB-83070-38 |
| TrayCell fiber optic cuvette with two caps | 0.7 µL | 5 µL | 1 or 0.2 | 190 to 1100 | 1 | JB-83070-29 |

Note: The center height of all cuvettes (where applicable) is 15 mm.

Get the confidence.
Request **FREE** samples* today!

022-6139-4444 | info@coleparmer.in

*T&C apply



Cole-Parmer® 130-Watt Ultrasonic Processors

Keep amplitude constant even under varying loads

- Use for samples from 150 µL to 150 mL
- Maintain sample control with pulser feature—allows sample to settle after each burst
- Adhere to protocols with programmable unit
- No need to constantly adjust power supply with autotune

Model 04714-53 incorporates a pulsing button directly on the handpiece. These units can run continuously or in the pulse mode when the button or foot switch is depressed.

Model 04714-51 features a timer that controls the processing time from 1 second to 10 hours and an independent on/off pulser (1 to 59 seconds) to enable safe treatment of temperature-sensitive samples at high intensities.

What's included: converter, tool kit, and 6-ft (1.8-m) cord with European plug. Model 04714-53 also includes a 1/8" (3 mm) titanium probe and tip. Model 04714-51 also includes a 1/4" (6 mm) titanium probe and tip.



Ultrasonic processor 04714-53 with thumb pulse button

Cole-Parmer®

Specifications

Power: 220 VAC, 50/60 Hz



| Description | Sample volume | Catalog number |
|--|------------------|--------------------|
| Ultrasonic processor | 150 µL to 150 mL | JB-04714-53 |
| Ultrasonic processor with timer and pulser | 150 µL to 150 mL | JB-04714-51 |

Cole-Parmer® 500- and 750-Watt Ultrasonic Processors

Don't worry about over heating

- Prevent over heating with independent on/off pulser
- Easy-to-use menu for intuitive guidance
- Process samples from 250 µL to 19 L/hr with continuous flow cell
- Reproducible results with energy monitor

Ultrasonic Processors

- Deliver 500 or 750 watts at 20 kHz
- Use 500-watt model for small samples, 750-watt model for larger volumes
- Autotuning
- Monitor elapsed time, duration of processing, and power
- Adjustable energy intensity with variable amplitude control and monitor digitally and graphically

Ultrasonic Processors with Temperature Controller and Energy Controller

- Same features as above plus integral temperature controller, energy controller, and memory

What's included: converter, tool kit, foot switch connection, 13-mm dia probe 04710-31 with replaceable tip, and a 1.8-m cord with plug.



750-watt ultrasonic processor 04711-65

Cole-Parmer®

Call our Applications team for proper probe as per sample volume.

Order stand 04712-92 and clamp 04714-91 below.

Specifications

Power: 230 VAC, 50/60 Hz



| Description | Sample volume | Frequency | 500-watt ultrasonic processors | 750-watt ultrasonic processors |
|--|--------------------|-----------|--------------------------------|--------------------------------|
| | | | Catalog number | Catalog number |
| Ultrasonic processor | 250 µL to 19 L/hr† | 20 kHz | JB-04711-75 | JB-04711-65 |
| Ultrasonic processor with temperature controller and energy controller | | 20 kHz | JB-04711-35 | JB-04711-45 |

†Maximum volume using continuous flow cell 04710-91 (order separately online.)

JB-04710-48 Sound-abating enclosure. Measures 14"W x 30"H x 14"D (35.6 x 76.2 x 35.6 cm). Support rod and converter clamp included

JB-04712-05 Foot switch for hands-free operation; 6-ft (1.8-m) cable included. CE-marked

JB-04712-92 Stand. 24"H x 1/2"-dia (61.0 x 1.3 cm) stainless steel rod and 9"L x 5 1/2"W (22.9 x 14.0 cm) cast-iron base

JB-04714-91 Converter clamp secures converter onto 1/2"-dia rod; made of chemical-resistant reinforced plastic

JB-04711-50 Stainless steel temperature probe for models 04711-35 and -45. CSA-approved

Techne® Electronic Ice Bucket

Waterless—no more floating tubes

- Ceramic-coated beads maintain a stable 4°C temperature for the entire working day
- Beads are chemically resistant and can be autoclaved at 134°C

Electronic ice bucket is ideal for chilling or incubating samples for long periods of time without any melting water, keeping the tubes clean and dry. Ceramic-coated beads maintain the temperature and support the sample vessels for as long as necessary. The unit features Isotemp® temperature control zone that ensures all contents of the bucket are kept at an even temperature, whether cold or warm. As a time-saving option, the bucket of beads can be incubated in the refrigerator overnight and simply inserted into the unit as and when required.

What's included: aluminium bucket, bag of ceramic-coated beads, dark plastic lid, and power cord.

NEW



| Model | Noice |
|-----------------------|--|
| Catalog number | JB-24120-00 |
| Temperature range | 0 to 40°C |
| Temperature accuracy | ±1°C |
| Cooling technology | Peltier |
| Display resolution | 0.1°C |
| Temperature display | Orange LED, 5 digits, °C or °F |
| Bucket capacity | 60 x 1.5-mL microtubes (approximately) |
| Power | 100–230 VAC, 50/60 Hz |

JB-24120-99 Replacement ceramic-coated beads, 1.7 kg

Wait! There's More...

Reassure your temperature out-turns by using a Digi-Sense® Refrigerator/Freezer Data Logger with TraceableLIVE® offered on **page 310**.

Techne® Cooling/Heating Block

Safely cool your biological samples

- Fast cool-down time so ready to use when you need it
- Count-up/count-down timer with audible alarm can be programmed for up to nine days
- Choose from a wide range of interchangeable block inserts

Cooling/heating block is ideal for chilling samples at sub-ambient temperatures from 0 to 40°C. Isotemp® temperature control zone ensures all contents of the unit are kept at an even temperature, whether cold or warm. Integrated count-up/count-down timer with audible alarm can be programmed for up to nine days

Aluminium inserts provide a temperature stability of ±0.2°C for precise control of reaction temperature. Unit holds two single-width or one double-width inserts; order separately on page 281.

What's included: dark plastic lid and power cord.

NEW



| Model | Blockice |
|---------------------------|--------------------------------|
| Catalog number | JB-36620-17 |
| Temperature range | 0 to 40°C |
| Temperature accuracy | ±1°C |
| Uniformity between blocks | ±0.2°C |
| Display resolution | 0.1°C |
| Cooling technology | Peltier |
| Cool-down time to 4°C | 30 minutes |
| Temperature display | Orange LED, 5 digits, °C or °F |
| Power | 100–230 VAC, 50/60 Hz |



REQUIRED System Components

- 1) Cooling/heating block . . . **this page**
- 2) Block inserts. **281**

PCRmax Alpha Cyclers

Easily create, modify and access programs, saving time

- Flexible—your choice of one, two, or four block capacities in 96-well, 384-well, or mixed formats
- Independently control each block for simplified temperature and space optimization
- Software allows quick access to commonly used protocols

These compact thermal cyclers deliver reproducible results every run—with little to no training needed. Features include a clear responsive touch screen, secure user-specific programming, adjustable heated lid, and active sample cooling for sharper amplification.

Choose dual-block systems to save bench space and money. Control each block separately for added versatility or run on the same program to increase throughput. Each block also has its own independent heated lid—no interruption of assays running at different settings.

Specifications

Block temperature range: 10 to 100°C (4°C final hold)
Maximum heating rate: 3.4°C per second
Block uniformity at 55°C: ±0.3°C
Temperature accuracy at 50°C: ±0.25°C
Type: thermal system, six Peltier elements
Thermal gradient: 29°C maximum, 1°C minimum
Heated lid temperature: 35 to 115°C, or off
Heated lid pressure: adjustable
Maximum number of programs stored: 1000
Data transfer: USB port
Power: 100 to 230 VAC, 50/60 Hz



PCRmax®



| Model | Model | Block format | Catalog number |
|----------------|--------------|---------------------------------------|--------------------|
| Alpha Cycler 1 | 7" 1080p HD | (1) 384-well block | JB-93945-00 |
| | | (1) 96-well blocks | JB-93945-02 |
| Alpha Cycler 2 | 10" 1080p HD | (2) 384-well blocks | JB-93945-28 |
| | | (2) 96-well blocks | JB-93945-22 |
| | | (1) 384-well block, (1) 96-well block | JB-93945-20 |

PCRmax Eco 48 Real-Time PCR System

Save time and money with unique plate geometry

- Fast cycling—runs 40 cycles in 20 minutes when optimised
- Uses four colors for easy multiplexing
- Offers ±0.1°C temperature uniformity

NEW

Compact footprint with MIQE compliant open licence software for publishing your data. High-resolution melt (HRM) functionality is standard and can discriminate class IV SNP 99.9% of the time. The PCRmax Eco 48 features industry-leading ±0.1°C temperature uniformity (recorded at 95°C no settle time).

Fastest block-based qPCR system with the ability to run 40 cycles in 20 minutes (or less when optimised). With an open platform, it can utilise any chemistry, dye or PCR reagent. No need to run triplicates, to compensate for poor thermal uniformity of block. Calibrated for SYBR®, FAMTM, HEXTM, VICTM, ROXTM and Cy⁵ fluorescent dyes.

What's included: dock and squeegee, EcoControl and EcoStudy software USB stick, 50 PCR plates, 50 plate seals, Ethernet cable, and power cord.



PCRmax®

For more information, please visit ColeParmer.in/PCRmax

| Temperature range | Temperature accuracy | Ramp rate | Block uniformity | Block description | Memory | Power | Catalog number |
|-------------------|----------------------|-----------|------------------|--|--|--------------------------|--------------------|
| 35 to 100°C | ±0.25°C | 5.5°C/sec | ±0.1°C | Proprietary hollow silver/gold block, Peltier-based system with conductive fluid, 48 wells | Unit saves the run data of last experiment, or unlimited via USB | 100 to 240 VAC, 50/60 Hz | JB-93947-00 |

Worthington Storage Dewars

Get maximum holding times with superior construction

- Maximum insulation with sealed vacuum space between inner and outer shells and advanced insulation
- Durable, lightweight aluminum construction
- Reduce liquid nitrogen loss with necktube core design
- Move larger capacity Dewars easily with optional roller base; order separately on page 221.

03773-51



| Capacity (L) | Neck ID | Static holding time† | Evaporation (L/day)† | Outer dim. (H x dia) | Catalog number |
|--------------|------------------|----------------------|----------------------|--------------------------------------|--------------------|
| 4 | 1 3/16" (3.0 cm) | 10 days | 0.40 | 17" x 7 5/8" (43.2 x 19.4 cm) | JB-03773-51 |
| 5 | 5 5/8" (14.3 cm) | 6 days | 0.77 | 17 1/2" x 7 5/8" (43.2 x 19.4 cm) | JB-03773-53 |
| 10 | 2" (5.1 cm) | 45 days | 0.22 | 23 1/2" x 11 3/8" (59.7 x 28.9 cm) | JB-03773-55 |
| 25 | 2 1/2" (6.4 cm) | 109 days | 0.23 | 25 1/4" x 15 5/8" (65.5 x 39.7 cm) | JB-03773-57 |
| 35 | 2 1/2" (6.4 cm) | 152 days | 0.23 | 26 1/16" x 18 1/16" (66.8 x 47.8 cm) | JB-03773-59 |
| 50 | 2 1/2" (6.4 cm) | 122 days | 0.41 | 32 3/8" x 18 1/16" (82.2 x 47.8 cm) | JB-03773-61 |

†Static holding times and evaporation rates are nominal.

JB-03773-63 Dipper removes 12 mL of liquid nitrogen from 10-, 25-, 35-, and 50-liter Dewars without tipping the flask

JB-03773-70 Tipping stand supports the weight of the Dewar while you safely tip the unit. For model 03773-57 only

JB-03773-67 Liquid nitrogen withdrawal system for models 03773-57, -59, and -61

Insulated Containers

Store samples properly

A. Tabletop Ice Storage Chest has dry ice sublimation rate less than 2.5 lb per day at full 50 lb capacity. Chest is constructed from rugged polyethylene; molded bottom won't scratch tabletop.



B

B. Insulated Field Carrier has efficient, 2 1/4"-thick polyurethane foam insulation core and rugged, double-wall polyethylene construction. Includes carrying handle, hinged lid, and adjustable latches.

C. Large-Capacity Dry Ice Storage Chests contain extra-thick foam plastic insulation core. Six days for 90 lb of dry ice to sublimate to 5 lb in model 03721-02; 10 days for 155 lb in model 03721-00; and 15 days for 215 lb in model 03720-00.



| Key | Capacity | | Inside dimensions (L x W x H) | | Catalog number |
|----------|----------|-----|-------------------------------|--------------------|--------------------|
| | cu ft | lb | in. | cm | |
| A | — | — | 11 1/2 x 9 3/4 x 9 1/4 | 29.2 x 24.8 x 23.5 | JB-03719-00 |
| B | — | — | 16 5/8 x 10 1/4 x 10 3/4 | 42.2 x 26.0 x 27.3 | JB-03720-20 |
| C | 1.6 | 90 | 15 1/4 x 14 x 15 1/4 | 38.7 x 35.6 x 38.7 | JB-03721-02 |
| | 2.5 | 155 | 17 3/8 x 16 3/8 x 16 1/2 | 44.1 x 42.8 x 41.9 | JB-03721-00 |
| | 5 | 215 | 21 x 13 1/2 x 24 | 53.3 x 34.3 x 61.0 | JB-03720-00 |

JB-03721-10 Dolly for 03721-00 and -02 containers

JB-03720-10 Dolly for 03720-00 container

Lab-Grade Dewar Flasks

Move samples with less spillage

- Weighted base reduces spillage
- Dewars feature low heat conductivity, high vacuum and vented polyethylene stopper for minimal evaporation



| Volume (mL) | Dimensions† (in., cm) | | | | Catalog number |
|-------------|-----------------------|--------------|---------------|----------------|--------------------|
| | ID | OD | Depth | Ht | |
| 350 | 2 1/16 (7.2) | 3 (8.6) | 4 7/8 (12.4) | 6 3/16 (15.7) | JB-03766-10 |
| 665 | | | 7 1/16 (19.5) | 9 1/2 (24.1) | JB-03766-20 |
| 1000 | 2 1/16 (7.2) | 3 (8.6) | 11 7/8 (30.1) | 13 3/16 (33.8) | JB-03766-30 |
| 1900 | 4 1/16 (11.9) | 5 7/8 (14.9) | 7 1/2 (19.1) | 9 7/8 (25.1) | JB-03767-10 |
| 4300 | 5 5/8 (14.3) | 7 (17.8) | 12 (30.5) | 14 3/8 (36.6) | JB-03767-20 |

†All dimensions are ±0.2".

Cole-Parmer® Transportable Dewar Flasks

Keep lid on tight

- Insulated lid locks in place with two spring clips
- Rugged design features galvanized steel plate with baked enamel finish



| Volume (L) | Dimensions (in., cm) | | | | Catalog number |
|------------|----------------------|---------------|----------------|---------------|--------------------|
| | ID | OD | Depth | Ht | |
| 1 | 4 (10.2) | 5 5/8 (14.9) | 6 (16.8) | 7 5/16 (18.6) | JB-03772-10 |
| 2 | 5 1/2 (14.0) | 6 5/16 (16.0) | 6 11/16 (16.9) | 8 1/2 (21.6) | JB-03772-20 |
| 4 | 5 1/2 (14.0) | 6 5/16 (16.0) | 12 3/16 (31.0) | 14 3/8 (36.6) | JB-03772-40 |

All-Plastic Dewar Flasks

Implosion proof

- Safe to use with LN₂, dry ice, solvent mixtures, and hot fluids, will not implode
- Double-wall HDPE construction with broad base for reduced spills
- Keep lid in place with metal tabs



| Volume (L) | Dimensions (in., cm) | | | | Catalog number |
|------------|----------------------|--------------|---------------|---------------|--------------------|
| | ID | OD | Depth | Ht | |
| 1 | 3 3/4 (9.5) | 6 1/4 (15.9) | 7 1/2 (19.1) | 9 (22.9) | JB-06726-20 |
| 2 | 4 3/4 (12.1) | 7 1/4 (18.4) | 9 (22.9) | 10 1/4 (26.0) | JB-06726-40 |
| 4 | 5 3/4 (14.6) | 9 (22.9) | 11 1/4 (28.6) | 12 3/4 (32.4) | JB-06726-60 |
| 10 | 7 3/4 (19.7) | 12 (30.5) | 15 1/2 (39.4) | 18 (45.7) | JB-06726-80 |

Dewars with Canister Storage Systems

No need to replenish LN₂ for 11 months

- Safely store samples up to 11 months without the need to replenish LN₂
- Store samples in vapor or liquid phase depending on LN₂ level
- Durable, lightweight aluminum construction
- Maintain temperatures for -184°C at necktube core to -196°C at liquid nitrogen level

Each Dewar comes with canisters or racks to hold any combination of cryogenic vials, tubes, or sample containers. Canister handles are numbered for easy identification and trouble-free sample retrieval. To transport your Dewars easily, order an optional roller base below. Use measuring rod 03778-60 (sold below) to determine and maintain correct liquid nitrogen level.



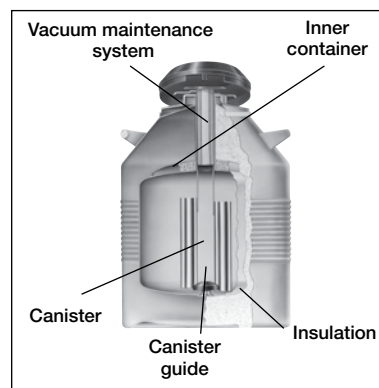
03779-64



03779-12

| Capacity (L) | Neck ID (cm) | Included canisters (L x ID) (cm) | Static holding time† | Evaporation rate (L/day)† | Outer dimensions (H x dia) (cm) | Catalog number |
|------------------------------|--------------|----------------------------------|----------------------|---------------------------|---------------------------------|--------------------|
| Dewars with canisters | | | | | | |
| 20 | 9.2 | Six 27.9 x 7.0 | 87 days | 0.23 | 61.8 x 39.7 | JB-03779-12 |
| 20.7 | 5.1 | Six 27.9 x 3.8 | 230 days | 0.09 | 65.6 x 39.7 | JB-03778-36 |
| 34 | 5.1 | Six 27.9 x 3.8 | 340 days | 0.10 | 66.8 x 47.8 | JB-03778-41 |
| 34 | 9.2 | Six 27.9 x 7.0 | 200 days | 0.17 | | JB-03779-31 |
| 35 | 11.9 | Ten 27.9 x 6.7 | 130 days | 0.27 | | JB-03779-41 |
| 35 | 11.9 | Six 27.9 x 9.3 | 130 days | 0.27 | | JB-03779-51 |
| Dewars with racks | | | | | | |
| 35 | 11.9 | Six rack - 750 vials | 130 days | 0.27 | 66.8 x 47.8 | JB-03779-60 |
| 81 | 21.6 | Six rack - 3000 vials | 106 days | 0.76 | 73.1 x 68.3 | JB-03779-62 |
| 130 | 21.6 | Six rack - 4800 vials | 153 days | 0.85 | 89.2 x 68.3 | JB-03779-64 |
| 165 | 21.6 | Six rack - 6000 vials | 194 days | 0.84 | 99.1 x 68.3 | JB-03779-66 |

†Static holding times and evaporation rates are nominal.



- JB-03778-60 Measuring rod.** Graduated in inches and cm
- JB-03773-65 Roller base** for Dewars with 39.7 cm dia base
- JB-03773-71 Roller base** for Dewars with 47.8 cm dia base
- JB-15958-00 Roller base** for 03779-62, -64, -66
- JB-15958-01 Level alarm** for 03779-62
- JB-15958-02 Level alarm** for 03779-64

- JB-15958-03 Level alarm** for 03779-66
- JB-15958-04 Transfer hose,** GGA295 to 3/8" NPT, 4 ft (1.2 m)
- JB-15958-05 Transfer hose,** GGA295 to 3/8" NPT, 6 ft (1.8 m)
- JB-15958-06 Phase separator,** 3/8" NPT
- JB-15958-07 Polycarbonate box.** Case of 24

Cryogenic Shippers

Transport cryogenic samples safely!

- Shippers provide long liquid nitrogen holding times
- Adsorbent filler prevents spills and leaks

Sturdy aluminum shell and positive-closure cap protect contents. Inner storage canister is constructed of heavy-duty stainless steel.

What's included: one canister. The 4.4-L shipper holds 17 canes (102 tubes; 6 per cane); the 6.4-L shipper holds 83 canes (498 tubes; 6 per cane).

| Capacity (L) | Neck ID (cm) | Static holding time† | Evaporation (L/day)† | Outer dimensions (H x dia) (cm) | Catalog number |
|--------------|--------------|----------------------|----------------------|---------------------------------|--------------------|
| 4.4 | 7.2 | 30 days | 0.18 | 46.7 x 23.4 | JB-44300-08 |
| 6.4 | 21.6 | 11 days | 0.60 | 68.2 x 39.4 | JB-44300-10 |

†Static holding times and evaporation rates are nominal.



44300-08



44300-10

See page 36 for cryogenic labels and vials.

Cole-Parmer® StableTemp™ -86°C ULT Freezers

Optimized for maximum efficiency even in the most extreme ambient conditions

- Eye-level controls for quick programming and easy viewing
- Individually sealed inner doors minimize frost buildup and temperature loss when open
- Outer door has four gaskets for maximum thermal efficiency and robust door latch
- Heated pressure equalization port for easy door opening

NEW

These ULT upright and chest freezers are designed to meet your cold storage needs down to -86°C. Built with temperature stability and energy savings in mind, each is designed for optimal efficiency with minimal temperature loss. High-performance insulation panels minimize heat gain, improving temperature stability.

Separate inner storage chambers have their own insulated doors which provide independent access to storage space, minimizing frost buildup inside the chambers and maximum protection of stored samples.

Microprocessor controller is simple to use with push-button control and has an easy-to-read operational status display. Large LED shows internal temperature, set temperature, ambient temperature, and input voltage for quick viewing of operation parameters. Controller allows you to set a user password for operation, delay starting, and high and low temperature alarm.

Multiple alarm features mean you are always aware of any operation errors. Other features include USB port for temperature data downloading, sample port for external temperature probe and compact casters for easy moving.



44260-11



44260-26

StableTemp



| Type | Capacity | Temperature range | Dimensions (cm) | | Door type | No. of doors | No. of shelves | Power (VAC, Hz) | Shpg wt (kg) | Catalog number |
|-----------------------|----------|-------------------|---------------------|---------------------|-----------|--------------|----------------|-----------------|--------------|--------------------|
| | | | Interior | Exterior | | | | | | |
| Conventional upright | 338 L | -86 to -40°C | 46.5 x 63 x 116.5 | 81.2 x 89.3 x 184.6 | Solid | 1 | 3 | 230, 50 | 278 | JB-44260-01 |
| | 486 L | -86 to -40°C | 63 x 59 x 131 | 198 x 94.5 x 90 | Solid | 1 | 3 | 230, 50 | 310 | JB-44260-04 |
| | 728 L | -86 to -40°C | 76.6 x 71.6 x 131 | 104.1 x 98 x 198 | Solid | 1 | 3 | 230, 50 | 385 | JB-44260-17 |
| | 828 L | -86 to -40°C | 87 x 71.6 x 131 | 114.5 x 98 x 198 | Solid | 1 | 3 | 230, 50 | 410 | JB-44260-21 |
| Energy-saving upright | 338 L | -86 to -40°C | 46.5 x 63 x 116.5 | 81.2 x 89.3 x 184.6 | Solid | 1 | 3 | 230, 50 | 278 | JB-16340-01 |
| | 486 L | -86 to -40°C | 63 x 59 x 131 | 198 x 94.5 x 90 | Solid | 1 | 3 | 230, 50 | 310 | JB-16340-02 |
| | 578 L | -86 to -40°C | 62 x 131 x 71.6 | 89.5 x 198 x 98 | Solid | 1 | 3 | 230, 50 | 329 | JB-44260-11 |
| | 625 L | -86 to -40°C | 76 x 63 x 131 | 103.5 x 90 x 198 | Solid | 1 | 3 | 230, 50 | 323 | JB-16340-03 |
| | 728 L | -86 to -40°C | 76.6 x 71.6 x 131 | 104.1 x 98 x 198 | Solid | 1 | 3 | 230, 50 | 385 | JB-16340-04 |
| | 828 L | -86 to -40°C | 87 x 71.6 x 131 | 114.5 x 98 x 198 | Solid | 1 | 3 | 230, 50 | 410 | JB-16340-05 |
| Energy-saving chest | 100 L | -86 to -40°C | 47 x 45 x 48 | 76.9 x 82.5 x 112 | Solid | 1 | — | 230, 50 | 160 | JB-16340-06 |
| | 420 L | -86 to -40°C | 136.7 x 65.2 x 46.2 | 213 x 102 x 87 | Solid | 1 | — | 230, 50 | 357 | JB-44260-26 |

Cole-Parmer® StableTemp™ -40°C Low-Temperature Freezers

LED digital display for easy observation

- Forced-air cooling with internal fan for maximum temperature uniformity and stability
- Cooling fan is permanently lubricated for long life
- Automatic defrost maintains optimum cooling capacity (model 16340-10)

NEW

Upright freezers are scientifically designed to minimize moisture accumulation. Controller with digital display is conveniently mounted in the front panel and recessed to prevent an accidental setting change. Multiple alarm system for safe and reliable operation and alerts temperature rise or power loss. Freezers have built-in microprocessor controlled PT100 sensor with remote alarm port. Superior refrigeration system for pull-down time from 25°C ambient to -40°C in 170 minutes and warm-up time from 25°C ambient -40°C to -20°C is 160 minutes.



16340-07

StableTemp



| Type | Capacity | Temperature range | Dimensions (cm) | | Door type | No. of doors | No. of shelves | Power (VAC, Hz) | Shpg wt (kg) | Catalog number |
|-----------------|----------|-------------------|-------------------|-------------------|-----------|--------------|----------------|-----------------|--------------|--------------------|
| | | | Interior | Exterior | | | | | | |
| Manual defrost | 278 L | -40 to -20°C | 52 x 43.5 x 123 | 74.5 x 67.5 x 181 | Solid | 1 | 6 | 230, 50 | 135 | JB-16340-07 |
| | 348 L | -40 to -20°C | 53.5 x 61 x 122.8 | 76.5 x 81 x 186 | Solid | 2 | 4 | 230, 50 | 145 | JB-16340-08 |
| | 490 L | -40 to -20°C | 68.5 x 61 x 122.8 | 91.5 x 81 x 186 | Solid | 2 | 4 | 230, 50 | 200 | JB-16340-09 |
| Air circulation | 420 L | -40 to -10°C | 68.5 x 61 x 102.8 | 95 x 89 x 190 | Solid | 1 | 4 | 230, 50 | 225 | JB-16340-10 |

Cole-Parmer® StableTemp™ -20°C Low-Temperature Freezers

NEW

Low-temperature storage for your demanding needs

- Heavy-duty refrigeration system to give you maximum reliability
- Ensure sample safety by monitoring temperature with internal thermometer
- Automatic defrosting

Upright lab freezer is of robust construction and easy mobility with door opening heaters, preventing condensation from building up. The high-density polyurethane foam insulation provides energy savings, with this unit receiving the energy-saving features. Microprocessor control and LED digital display for clear observation. Multiple alarm system for safe and reliable operation.

StableTemp



16340-12

16340-11



| Type | Capacity | Temperature range | Dimensions (cm) | | Door type | No. of doors | No. of shelves | Power (VAC, Hz) | Shpg wt (kg) | Catalog number |
|----------------|----------|-------------------|--------------------|---------------------|-----------|--------------|----------------|-----------------|--------------|--------------------|
| | | | Interior | Exterior | | | | | | |
| Direct cooling | 92 L | -25 to -10°C | 43.5 x 41.0 x 63.5 | 59.7 x 61.0 x 86.0 | Solid | 1 | 3 | 230, 50 | 51 | JB-16340-11 |
| | 262 L | -25 to -10°C | 48 x 46.5 x 143 | 65.7 x 68.5 x 166.5 | Solid | 1 | 7 | 230, 50 | 88 | JB-16340-12 |

Cole-Parmer® StableTemp™ Combination Refrigerator/Freezer

NEW

Excellent performance with fast cooling speed

- USB interface for data download
- Independent displays for refrigerator and freezer sections
- Multiple alarms to detect malfunctions

Designed for optimal performance, this upright unit is capable of recording temperature data for up to one month automatically. Optional remote alarm and monitor via Internet.

StableTemp



16340-14

16340-13



| Type | Capacity | Temperature range | Dimensions (cm) | | Door type | No. of doors | No. of shelves | Power (VAC, Hz) | Shpg wt (kg) | Catalog number |
|-------------|--------------------------------------|------------------------------------|--|-----------------|---------------|--------------|----------------|-----------------|--------------|--------------------|
| | | | Interior | Exterior | | | | | | |
| Combination | Refrigerator: 185 L Freezer: 97 L | Ref: 2 to 8°C Frz: -40 to -25°C | Ref: 60.5 x 51 x 72 Frz: 51.5 x 46.5 x 44 | 73.6 x 66 x 181 | Glass & solid | 2 | 4 | 230, 50 | 160 | JB-16340-13 |
| | | | | | Solid | 2 | 4 | 230, 50 | 160 | JB-16340-14 |

Cole-Parmer® StableTemp™ Laboratory Refrigerators

Safe cold storage in convenient compact sizes

- Forced-air cooling with internal fan for maximum temperature uniformity and stability
- Automatic defrost maintains optimum cooling capacity
- Multiple alarm system for safe and reliable operation

Designed to meet the demanding requirements of everyday use, these upright refrigerators with microprocessor controller provide energy-efficient, safe, and reliable storage of temperature-sensitive items in a variety of applications. Complete temperature alarm system features an audible buzzer and visible flashing light that will alert for failure due to high or low temperature, sensor error, door ajar, low battery, or power failure. Available with safety lock to prevent unauthorized access.

StableTemp



16340-15

16340-19

16340-16



| Type | Capacity | Temperature range | Dimensions (cm) | | Door type | No. of doors | No. of shelves | Power (VAC, Hz) | Shpg wt (kg) | Catalog number |
|--------------|----------|-------------------|--------------------|--------------------|-----------|--------------|----------------|-----------------|--------------|--------------------|
| | | | Interior | Exterior | | | | | | |
| Countertop | 68 L | 2 to 8°C | 41.5 x 38.5 x 50.5 | 49.5 x 58 x 66 | Solid | 1 | 2 | 230, 50 | 40 | JB-16340-15 |
| | | | | | Glass | 1 | 2 | 230, 50 | 40 | JB-16340-16 |
| Undercounter | 118 L | 2 to 8°C | 51.5 x 41.5 x 63 | 59.7 x 63.5 x 83.5 | Solid | 1 | 3 | 230, 50 | 46 | JB-16340-17 |
| | | | | | Glass | 1 | 3 | 230, 50 | 46 | JB-16340-18 |
| Upright | 290 L | 2 to 8°C | 53 x 55.5 x 108 | 66.5 x 71 x 166.5 | Glass | 1 | 5 | 230, 50 | 127 | JB-16340-19 |
| | 390 L | 2 to 8°C | 53 x 55.5 x 138 | 66.5 x 71 x 196.5 | Glass | 1 | 7 | 230, 50 | 139 | JB-16340-20 |
| | 610 L | 2 to 8°C | 68 x 64 x 140 | 78 x 84 x 194.5 | Glass | 1 | 6 | 230, 50 | 227 | JB-16340-21 |
| | 890 L | 2 to 8°C | 103 x 59 x 142.5 | 113 x 75.5 x 198 | Glass | 2 | 12 | 230, 50 | 279 | JB-16340-22 |
| | 1378 L | 2 to 8°C | 132 x 70 x 150 | 144 x 91 x 198 | Glass | 2 | 12 | 230, 50 | 360 | JB-16340-23 |



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Analytical Lamps & Instrument Spares

OEM equivalent deuterium lamps, HCL lamps & spares for all leading manufacturers' instruments



| | |
|--------------------------------|---------|
| Deuterium Lamps | 225 |
| Protein Purification | 226-229 |
| Metals Analysis | 230-232 |
| Electronic Syringe | 234 |
| GC Capillary Columns | 235-238 |
| Sample Preparation | 239-240 |
| Solvent Delivery | 241-242 |
| Chemical Waste Solution | 243-246 |
| SPE Microplates | 246 |
| AccuStandard Quality Standards | 247 |



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Kinesis Deuterium Lamps

Achieve reliable and optimal results with high-performance D2 lamps

- Come with same warranty as that offered by instrument manufacturers
- Pre-aligned and tested to ISO 9001 procedures
- Most comprehensive range—supplying lamps for more than 90% of all leading instruments worldwide
- Same bare lamps are used (where available) as those used in instrument manufacturers' lamps and so offer OEM Equivalent Lamps
- Economical—prices are typically 30% below instrument manufacturers' lamps
- Known for consistent operation, trouble-free performance, and long-term value

Cole-Parmer offers a comprehensive range of fully traceable and certified Kinesis D2 lamps, delivering a long lifetime, excellent stability, and high output. Each D2 lamp meets the highest quality standards and strictest safety regulations and is fully traceable throughout every step of the production process. Rejection is as low as 0.1%. Applications include HPLC UV detectors, SOx /NOx analyzers, capillary electrophoresis, UV-Vis spectrophotometers, fluoro spectrometers, and atomic absorption spectrophotometers.

Superior Quality Control

- Kinesis D2 lamps are manufactured in an ISO-accredited facility
- Unique serial number for each lamp
- Kinesis lamps are individually tested
- Test results are recorded against unique serial numbers
- Full traceability of each lamp from manufacturer through to customer delivery



NEW

Deuterium Lamps

Save Big!

On bulk orders

| Instrument brand | Fits models | Type | Catalog number |
|--------------------|---|-----------|----------------|
| Applied Biosystems | 757, 759, 783A, 785A, 1000S, 980, 120A, 130A | Standard | JB-11941-10 |
| | 1100 VWD, 1200, 1260 | Long life | JB-11941-11 |
| | 8453 | Standard | JB-11941-12 |
| Agilent | 1100/1200 DAD (to fit G1315/1365 A & B series detectors) | Long life | JB-11941-13 |
| | 1100/1200 DAD (to fit G1315/1365 C & D series detectors) | Long life | JB-11941-14 |
| | 1260, 1290 DAD (8-pin) | Long life | JB-11941-15 |
| | | Standard | JB-11941-16 |
| Biotage® | SP1/4, Isolera™ | Standard | JB-11941-16 |
| Dionex™ | UltiMate™ VWD 3000, 3000RS, 3100, 3400 | Long life | JB-11941-17 |
| Dionex/Gynkotek | UVD 160, 170S, 170U, 320, 340S, 340U | Long life | JB-11941-20 |
| Gilson® | 170 DAD | Standard | JB-11941-18 |
| | 170 DAD | Long life | JB-11941-19 |
| Interchim | PuriFlash (PF) 215, PF430, PF450, PF800, PF4100, PF1, SP2 | Standard | JB-11941-21 |
| Merck Hitachi | LaChrom L Series, LaChrom Elite, U Series | Long life | JB-11941-22 |
| Perkin Elmer® | Series 200 | Standard | JB-11941-23 |
| | Labmbda 2 to 45, 800, 900, Bio, 55X series, LC480 | Standard | JB-11941-24 |
| Unicam | Thermo Unicam 4225 | Standard | JB-11941-25 |
| Shimadzu | SPD-10A, AVR, AV, AVVP, M10AVP, M20A, 20A, 20AV | Long life | JB-11941-26 |
| | UV series | Long life | JB-11941-27 |
| | LC2010 | Long life | JB-11941-28 |
| Thermo | TSP UV100, 150, 200, 1000, 2000, 3000 | Standard | JB-11941-29 |
| | TSP SA6510, SP770, SP970, SP8480XR, SP8773XR | Standard | JB-11941-30 |
| | UV50, 100, 200, 9050, Prostar 310 | Long life | JB-11941-31 |
| Varian | Prostar 325, 335 | Long life | JB-11941-33 |
| | Prostar 330 DAD | Long life | JB-11941-32 |
| | Prostar 340, 345 | Standard | JB-11941-34 |
| | | Standard | JB-11941-34 |
| Waters | 996, 2996 PDA | Long life | JB-11941-35 |
| | 2487 | Long life | JB-11941-36 |

For the complete range, refer to our Chromatography price list or reach our application support team.

Diba Omnifit® EZ and EZ SolventPlus™ Glass Columns

for FPLC and LPLC

Easier assembly and height adjustments

- Precision borosilicate glass for inertness, visibility, and performance
- Fixed or adjustable end pieces of PTFE with dual O-rings for secure seal
- Superior frit placement for bed support and even distribution of sample flow
- PEEK™ column threads offer outstanding durability—won't chip or break
- Reusable columns let you pack your own media specific to your application
- Excellent price/performance value for great chromatography results
- Improved antiroll features

These industry-leading Omnifit EZ and EZ SolventPlus glass chromatography columns are ergonomically designed for even easier use and better performance.

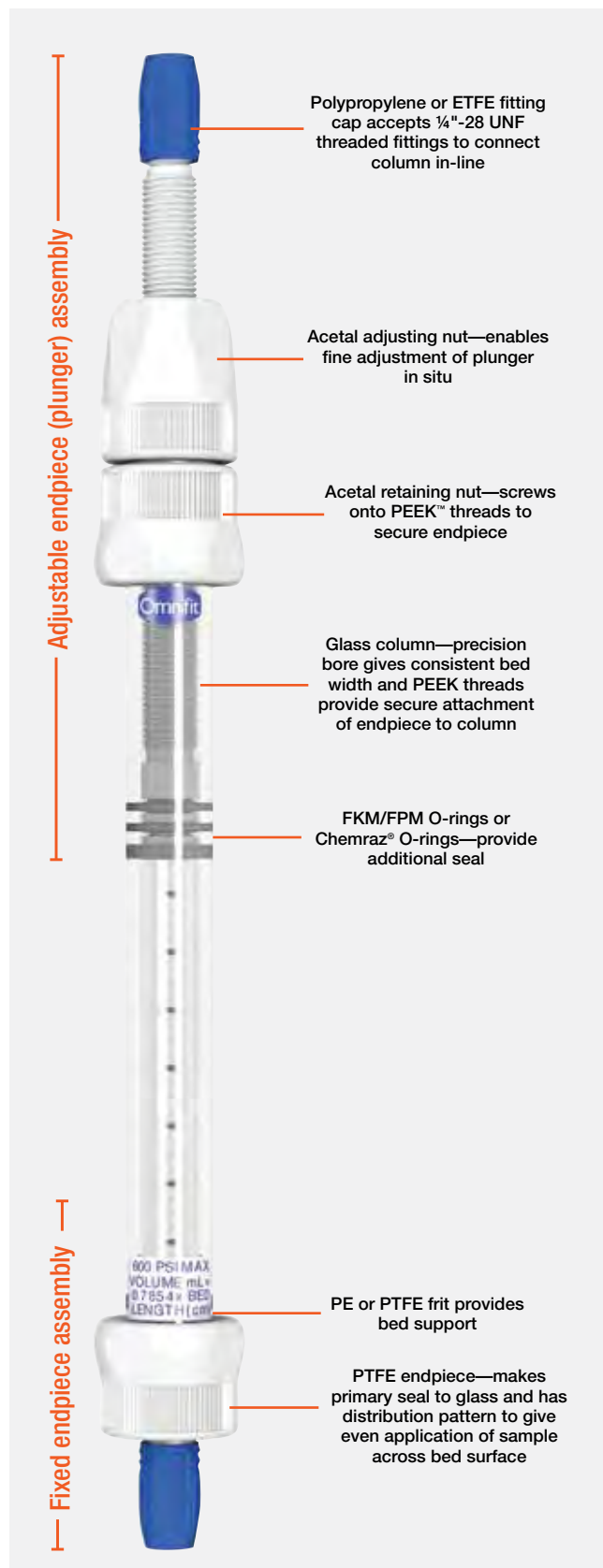
EZ columns are ideal for low- to medium-pressure applications and are resistant to many solvents used in liquid chromatography; order on page 227. Choose EZ SolventPlus columns for techniques using organic solvents such as reversed phase chromatography; order on page 228.

Three endpiece configurations available to suit your application—one fixed and one adjustable, two adjustable, or two fixed. Each adjustable endpiece gives you the flexibility to modify the bed length up to 80 mm in height (up to 160 mm with two adjustable endpieces). Once in place, fine adjustments can be made to position the endpiece to cause minimal disturbance to the packed bed.

Complete columns are supplied assembled and ready for use, with tubing and fittings to connect the column into an existing system.

Components are also available to buy separately (page 229) giving you complete flexibility to replace lost or worn parts, or to use columns across a number of applications. This modular approach gives Omnifit EZ columns an extremely long life and great flexibility in use—you can mix and match column sizes with different endpiece types to your specific requirements.

NEW



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EZ Glass Columns

- Designed to suit the majority of standard laboratory chromatography applications
- Ideal for aqueous systems and compatible with solvents used in common LC applications such as protein purification
- Compatible with a variety of bulk media

Ergonomically designed EZ columns are easy to use yet provide excellent results. Columns are ideal for low- to medium-pressure applications and are resistant to many solvents used in liquid chromatography. Modular design gives you the flexibility to mix and match column sizes with different endpiece types to meet your specific requirements.

Each complete EZ column assembly includes:

- Glass tube and two endpieces of your choice, preassembled with 25 µm PE frits
- Two 1/16" OD PTFE tubing assemblies with 1/4-28 UNF fitting (PP) at one end; 2- and 0.5-m lengths
- Click-N-Seal® 10-32 conical port fitting
- Additional frits: two 10 µm PE, two 10 µm PTFE, two 30 µm PTFE

Configurations

- Two fixed endpieces (nonadjustable) is a cost-effective option when height adjustment is not important.
- One fixed endpiece and one adjustable endpiece (plunger) lets you adjust the bed height by 80 mm. Minimizes the risk of disturbance to the packed bed.
- Two adjustable endpieces gives maximum flexibility in bed height. With an adjustable endpiece at both ends of the column, you gain 160 mm of adjustment, offering a wide range of bed lengths and volumes.

Specifications

| | |
|-----------------------|---|
| Operating parameters | |
| Operating temperature | 4 to 40° C |
| pH stability | 1 to 14 |
| Chemical stability | Resistant to aqueous solutions and most solvents used in liquid chromatography. Not resistant to acetone, ketones, chlorinated hydrocarbons, aliphatic ester, phenol, >10% NaOH, >10% HCl, >5% acetic acid, or strong mineral acid. |
| Materials | |
| Glass column | Borosilicate glass |
| Endpiece and plunger | PTFE |
| Threaded ends | PEEK™ |
| Frit (bed support) | PE |
| O-ring | FKM/FPM |
| Adjusting nut | Acetal |
| Retaining nut | Acetal |
| Connection cap | Glass-filled PP |
| Fitting nuts | Glass-filled PP |
| Operating pressures | |
| 6.6 mm | 900 psi (60 bar) |
| 10 mm | 600 psi (40 bar) |
| 15 mm | 300 psi (20 bar) |
| 25 mm | 150 psi (10 bar) |
| 35 mm | 150 psi (10 bar) |
| 50 mm | 100 psi (6.7 bar) |

Ordering Information

| Description | Length / Bore | 6.6 mm | 10 mm | 15 mm | 25 mm | 35 mm | 50 mm |
|---|---------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Complete EZ column with 2 fixed endpieces | 50 mm | JB-11942-92 | — | — | — | — | — |
| | 100 mm | JB-11942-95 | JB-11943-10 | JB-11943-28 | JB-11943-46 | — | — |
| | 150 mm | JB-11942-98 | JB-11943-13 | JB-11943-31 | JB-11943-49 | JB-11943-64 | — |
| | 250 mm | JB-11943-01 | JB-11943-16 | JB-11943-34 | JB-11943-52 | JB-11943-67 | JB-11943-76 |
| | 330 mm | JB-11943-04 | JB-11943-19 | JB-11943-37 | JB-11943-55 | JB-11943-70 | JB-11943-79 |
| | 400 mm | JB-11943-07 | JB-11943-22 | JB-11943-40 | JB-11943-58 | JB-11943-73 | JB-11943-82 |
| Complete EZ column with 1 fixed and 1 adjustable endpiece | 50 mm | — | JB-11943-25 | JB-11943-43 | JB-11943-61 | — | JB-11943-85 |
| | 100 mm | JB-11942-91 | — | — | — | — | — |
| | 100 mm | JB-11942-94 | JB-11943-09 | JB-11943-27 | JB-11943-45 | — | — |
| | 150 mm | JB-11942-97 | JB-11943-12 | JB-11943-30 | JB-11943-48 | JB-11943-63 | — |
| | 250 mm | JB-11943-00 | JB-11943-15 | JB-11943-33 | JB-11943-51 | JB-11943-66 | JB-11943-75 |
| | 330 mm | JB-11943-03 | JB-11943-18 | JB-11943-36 | JB-11943-54 | JB-11943-69 | JB-11943-78 |
| Complete EZ column with 2 adjustable endpieces | 400 mm | JB-11943-06 | JB-11943-21 | JB-11943-39 | JB-11943-57 | JB-11943-72 | JB-11943-81 |
| | 500 mm | — | JB-11943-24 | JB-11943-42 | JB-11943-60 | — | JB-11943-84 |
| | 50 mm | JB-11942-90 | — | — | — | — | — |
| | 100 mm | JB-11942-93 | JB-11943-08 | JB-11943-26 | JB-11943-44 | — | — |
| | 150 mm | JB-11942-96 | JB-11943-11 | JB-11943-29 | JB-11943-47 | JB-11943-62 | — |
| | 250 mm | JB-11942-99 | JB-11943-14 | JB-11943-32 | JB-11943-50 | JB-11943-65 | JB-11943-74 |
| Complete EZ column with 2 adjustable endpieces | 330 mm | JB-11943-02 | JB-11943-17 | JB-11943-35 | JB-11943-53 | JB-11943-68 | JB-11943-77 |
| | 400 mm | JB-11943-05 | JB-11943-20 | JB-11943-38 | JB-11943-56 | JB-11943-71 | JB-11943-80 |
| | 500 mm | — | JB-11943-23 | JB-11943-41 | JB-11943-59 | — | JB-11943-83 |
| | 500 mm | — | — | — | — | — | — |

Diba Omnifit® EZ and EZ SolventPlus™ Glass Columns

for FPLC and LPLC (continued)

NEW

EZ SolventPlus™ Glass Columns

- Designed for maximum chemical compatibility
- Ideal for techniques using organic solvents such as reversed phase chromatography, but equally compatible with aqueous solvent systems

EZ SolventPlus columns have only the most chemically inert materials in the fluid path—borosilicate glass, PTFE, ETFE, and Chemraz®—ensuring the utmost chemical resistance. Modular design gives you the flexibility to mix and match column sizes with different endpiece types to meet your specific requirements.

Each complete EZ SolventPlus column assembly includes:

- Glass tube and two endpieces of your choice, preassembled with 30 µm PE frits
- Two 1/16" OD PTFE tubing assemblies with 1/4-28 UNF fitting (ETFE) at one end; 2- and 0.5-m lengths
- Click-N-Seal® 10-32 conical port fitting
- Additional frits: two 10 µm PE, two 10 µm PTFE, two 30 µm PTFE

Configurations

- Two fixed endpieces (nonadjustable) is a cost-effective option when height adjustment is not important.
- One fixed endpiece and one adjustable endpiece (plunger) lets you adjust the bed height by 80 mm. Minimizes the risk of disturbance to the packed bed.
- Two adjustable endpieces gives maximum flexibility in bed height. With an adjustable endpiece at both ends of the column, you gain 160 mm of adjustment, offering a wide range of bed lengths and volumes.



Specifications

| | |
|-----------------------|---|
| Operating parameters | |
| Operating temperature | 4 to 40° C |
| pH stability | 1 to 14 |
| Chemical stability | Resistant to aqueous solutions and most solvents used in standard and reverse phase chromatography including toluene, DMSO, pyridine, formamide, dimethyl formamide, ethylene dichloride, and chloroform. |
| Materials | |
| Glass column | Borosilicate glass |
| Endpiece and plunger | PTFE |
| Threaded ends | PEEK™ |
| Frit (bed support) | PTFE |
| O-ring | Chemraz® |
| Adjusting nut | Acetal |
| Retaining nut | Acetal |
| Connection cap | ETFE |
| Fitting nuts | ETFE |
| Operating pressures | |
| 6.6 mm | 900 psi (60 bar) |
| 10 mm | 600 psi (40 bar) |
| 15 mm | 300 psi (20 bar) |
| 25 mm | 150 psi (10 bar) |
| 35 mm | 150 psi (10 bar) |
| 50 mm | 100 psi (6.7 bar) |

Ordering Information

| Description | Length / Bore | 6.6 mm | 10 mm | 15 mm | 25 mm | 35 mm | 50 mm |
|---|---------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Complete EZ SolventPlus column with 2 fixed endpieces | 50 mm | JB-11943-88 | — | — | — | — | — |
| | 100 mm | JB-11943-91 | JB-11944-06 | JB-11944-24 | JB-11944-42 | — | — |
| | 150 mm | JB-11943-94 | JB-11944-09 | JB-11944-27 | JB-11944-45 | JB-11944-60 | — |
| | 250 mm | JB-11943-97 | JB-11944-12 | JB-11944-30 | JB-11944-48 | JB-11944-63 | JB-11944-72 |
| | 330 mm | JB-11944-00 | JB-11944-15 | JB-11944-33 | JB-11944-51 | JB-11944-66 | JB-11944-75 |
| | 400 mm | JB-11944-03 | JB-11944-18 | JB-11944-36 | JB-11944-54 | JB-11944-69 | JB-11944-78 |
| | 500 mm | — | JB-11944-21 | JB-11944-39 | JB-11944-57 | — | JB-11944-81 |
| Complete EZ SolventPlus column with 1 fixed and 1 adjustable endpiece | 50 mm | JB-11943-87 | — | — | — | — | — |
| | 100 mm | JB-11943-90 | JB-11944-05 | JB-11944-23 | JB-11944-41 | — | — |
| | 150 mm | JB-11943-93 | JB-11944-08 | JB-11944-26 | JB-11944-44 | JB-11944-59 | — |
| | 250 mm | JB-11943-96 | JB-11944-11 | JB-11944-29 | JB-11944-47 | JB-11944-62 | JB-11944-71 |
| | 330 mm | JB-11943-99 | JB-11944-14 | JB-11944-32 | JB-11944-50 | JB-11944-65 | JB-11944-74 |
| | 400 mm | JB-11944-02 | JB-11944-17 | JB-11944-35 | JB-11944-53 | JB-11944-68 | JB-11944-77 |
| | 500 mm | — | JB-11944-20 | JB-11944-38 | JB-11944-56 | — | JB-11944-80 |
| Complete EZ SolventPlus column with 2 adjustable endpieces | 50 mm | JB-11943-86 | — | — | — | — | — |
| | 100 mm | JB-11943-89 | JB-11944-04 | JB-11944-22 | JB-11944-40 | — | — |
| | 150 mm | JB-11943-92 | JB-11944-07 | JB-11944-25 | JB-11944-43 | JB-11944-58 | — |
| | 250 mm | JB-11943-95 | JB-11944-10 | JB-11944-28 | JB-11944-46 | JB-11944-61 | JB-11944-70 |
| | 330 mm | JB-11943-98 | JB-11944-13 | JB-11944-31 | JB-11944-49 | JB-11944-64 | JB-11944-73 |
| | 400 mm | JB-11944-01 | JB-11944-16 | JB-11944-34 | JB-11944-52 | JB-11944-67 | JB-11944-76 |
| | 500 mm | — | JB-11944-19 | JB-11944-37 | JB-11944-55 | — | JB-11944-79 |

Replacement Parts and Accessories

The glass tubes and accessories listed below are compatible with the Omnifit EZ and EZ SolventPlus chromatography columns. The modular design offers the ultimate flexibility—you can mix and match column sizes with different endpiece types to your specific requirements.

Replacement glass columns are available in a wide range of bore sizes and lengths. This not only enables you to replace a column should breakage occur, but allows you to obtain several different length columns to use with endpieces you already have for that bore size. Use the packing sleeves to join two columns for filling and packing.

| Description | Length / Bore | 6.6 mm | 10 mm | 15 mm | 25 mm | 35 mm | 50 mm |
|---|---------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Replacement glass tubes for EZ and EZ SolventPlus columns | 50 mm | JB-11942-27 | — | — | — | — | — |
| | 100 mm | JB-11942-28 | JB-11942-33 | JB-11942-39 | JB-11942-45 | — | — |
| | 150 mm | JB-11942-29 | JB-11942-34 | JB-11942-40 | JB-11942-46 | JB-11942-51 | — |
| | 250 mm | JB-11942-30 | JB-11942-35 | JB-11942-41 | JB-11942-47 | JB-11942-52 | JB-11942-55 |
| | 330 mm | JB-11942-31 | JB-11942-36 | JB-11942-42 | JB-11942-48 | JB-11942-53 | JB-11942-56 |
| | 400 mm | JB-11942-32 | JB-11942-37 | JB-11942-43 | JB-11942-49 | JB-11942-54 | JB-11942-57 |
| Replacement endpieces for EZ columns | Adjustable | JB-11942-00 | JB-11942-01 | JB-11942-02 | JB-11942-03 | JB-11942-04 | JB-11942-05 |
| | Fixed | JB-11942-08 | JB-11942-09 | JB-11942-10 | JB-11942-11 | JB-11942-12 | JB-11942-13 |
| Replacement endpieces for EZ SolventPlus columns | Adjustable | JB-11942-59 | JB-11942-60 | JB-11942-61 | JB-11942-62 | JB-11942-63 | JB-11942-64 |
| | Fixed | JB-11942-66 | JB-11942-67 | JB-11942-68 | JB-11942-69 | JB-11942-70 | JB-11942-71 |
| Replacement frits (PE) for EZ columns | 25 µm | JB-11944-98 | JB-11945-04 | JB-11945-10 | JB-11945-16 | JB-11945-22 | JB-11945-28 |
| Replacement frits (PTFE) for EZ SolventPlus columns | 5 µm | JB-11944-95 | JB-11945-01 | JB-11945-07 | JB-11945-13 | JB-11945-19 | JB-11945-25 |
| | 10 µm | JB-11944-96 | JB-11945-02 | JB-11945-08 | JB-11945-14 | JB-11945-20 | JB-11945-26 |
| | 20 µm | JB-11944-97 | JB-11945-03 | JB-11945-09 | JB-11945-15 | JB-11945-21 | JB-11945-27 |
| | 30 µm | JB-11944-99 | JB-11945-05 | JB-11945-11 | JB-11945-17 | JB-11945-23 | JB-11945-29 |
| | 50 µm | JB-11945-00 | JB-11945-06 | JB-11945-12 | JB-11945-18 | JB-11945-24 | JB-11945-30 |
| Replacement O-rings (FKM/FPM) for EZ columns | — | JB-11945-46 | JB-11945-48 | JB-11945-50 | JB-11945-52 | JB-11945-54 | JB-11945-56 |
| Replacement O-rings (Chemraz®) for EZ SolventPlus columns | — | JB-11945-45 | JB-11945-47 | JB-11945-49 | JB-11945-51 | JB-11945-53 | JB-11945-55 |
| Packing sleeves for EZ and EZ SolventPlus columns | — | JB-11942-15 | JB-11942-16 | JB-11942-17 | JB-11942-18 | JB-11942-19 | JB-11942-20 |

Bed Heights and Volumes

| ID (mm) | Length (mm) | 2 fixed endpieces | | 1 fixed and 1 adjustable endpiece | | | | 2 adjustable endpieces | | | |
|---------|-------------|-------------------|---------|-----------------------------------|------|-------------|-------|------------------------|------|-------------|-------|
| | | Bed height (cm) | | Bed height (cm) | | Volume (mL) | | Bed height (cm) | | Volume (mL) | |
| | | Min/Max | Min/Max | Min | Max | Min | Max | Min | Max | Min | Max |
| 6.6 | 50 | 2.0 | 0.7 | 0.2 | 2.0 | 0.1 | 0.7 | 0.2 | 2.0 | 0.1 | 0.7 |
| 6.6 | 100 | 7.0 | 2.4 | 0.2 | 7.0 | 0.1 | 2.4 | 0.2 | 7.0 | 0.1 | 2.4 |
| 6.6 | 150 | 12.0 | 4.1 | 3.8 | 12.0 | 1.4 | 4.1 | 3.8 | 12.0 | 0.1 | 4.1 |
| 6.6 | 250 | 22.0 | 7.5 | 13.8 | 22.0 | 4.8 | 7.5 | 13.8 | 22.0 | 2.1 | 7.5 |
| 6.6 | 330 | 30.0 | 10.3 | 21.8 | 30.0 | 7.5 | 10.3 | 21.8 | 30.0 | 4.8 | 10.3 |
| 6.6 | 400 | 37.0 | 12.7 | 28.8 | 37.0 | 9.9 | 12.7 | 28.8 | 37.0 | 7.2 | 12.7 |
| 10 | 100 | 7.0 | 5.5 | 0.2 | 7.0 | 0.2 | 5.5 | 0.2 | 7.0 | 0.2 | 5.5 |
| 10 | 150 | 12.0 | 9.4 | 3.8 | 12.0 | 3.1 | 9.4 | 3.8 | 12.0 | 0.2 | 9.4 |
| 10 | 250 | 22.0 | 17.3 | 13.8 | 22.0 | 11.0 | 17.3 | 13.8 | 22.0 | 4.7 | 17.3 |
| 10 | 330 | 30.0 | 23.6 | 21.8 | 30.0 | 17.3 | 23.6 | 21.8 | 30.0 | 11.0 | 23.6 |
| 10 | 400 | 37.0 | 29.1 | 28.8 | 37.0 | 22.8 | 29.1 | 28.8 | 37.0 | 16.5 | 29.1 |
| 10 | 500 | 47.0 | 36.9 | 38.8 | 47.0 | 30.6 | 36.9 | 38.8 | 47.0 | 24.3 | 36.9 |
| 15 | 100 | 7.0 | 12.4 | 0.2 | 7.0 | 0.4 | 12.4 | 0.2 | 7.0 | 0.4 | 12.4 |
| 15 | 150 | 12.0 | 21.2 | 3.8 | 12.0 | 7.1 | 21.2 | 3.8 | 12.0 | 0.4 | 21.2 |
| 15 | 250 | 22.0 | 38.9 | 13.8 | 22.0 | 24.7 | 38.9 | 13.8 | 22.0 | 10.6 | 38.9 |
| 15 | 330 | 30.0 | 53.0 | 21.8 | 30.0 | 38.9 | 53.0 | 21.8 | 30.0 | 24.7 | 53.0 |
| 15 | 400 | 37.0 | 65.4 | 28.8 | 37.0 | 51.2 | 65.4 | 28.8 | 37.0 | 37.1 | 65.4 |
| 15 | 500 | 47.0 | 83.1 | 38.8 | 47.0 | 68.9 | 83.1 | 38.8 | 47.0 | 54.8 | 83.1 |
| 25 | 100 | 7.0 | 34.4 | 0.2 | 7.0 | 1.2 | 34.4 | 0.2 | 7.0 | 1.2 | 34.4 |
| 25 | 150 | 12.0 | 58.9 | 3.8 | 12.0 | 19.6 | 58.9 | 3.8 | 12.0 | 1.2 | 58.9 |
| 25 | 250 | 22.0 | 108.0 | 13.8 | 22.0 | 68.7 | 108.0 | 13.8 | 22.0 | 29.5 | 108.0 |
| 25 | 330 | 30.0 | 147.3 | 21.8 | 30.0 | 108.0 | 147.3 | 21.8 | 30.0 | 68.7 | 147.3 |
| 25 | 400 | 37.0 | 181.6 | 28.8 | 37.0 | 142.4 | 181.6 | 28.8 | 37.0 | 103.1 | 181.6 |
| 25 | 500 | 47.0 | 230.7 | 38.8 | 47.0 | 191.4 | 230.7 | 38.8 | 47.0 | 152.2 | 230.7 |
| 35 | 150 | 12.0 | 115.5 | 3.8 | 12.0 | 38.5 | 115.5 | 3.8 | 12.0 | 2.3 | 115.5 |
| 35 | 250 | 22.0 | 211.7 | 13.8 | 22.0 | 134.7 | 211.7 | 13.8 | 22.0 | 57.7 | 211.7 |
| 35 | 330 | 30.0 | 288.6 | 21.8 | 30.0 | 211.7 | 288.6 | 21.8 | 30.0 | 134.7 | 288.6 |
| 35 | 400 | 37.0 | 356.0 | 28.8 | 37.0 | 279.0 | 356.0 | 28.8 | 37.0 | 202.0 | 356.0 |
| 50.5 | 250 | 22.0 | 440.7 | 13.8 | 22.0 | 280.4 | 440.7 | 13.8 | 22.0 | 120.2 | 440.7 |
| 50.5 | 330 | 30.0 | 600.9 | 21.8 | 30.0 | 440.7 | 600.9 | 21.8 | 30.0 | 280.4 | 600.9 |
| 50.5 | 400 | 37.0 | 741.1 | 28.8 | 37.0 | 580.9 | 741.1 | 28.8 | 37.0 | 420.6 | 741.1 |
| 50.5 | 500 | 47.0 | 941.4 | 38.8 | 47.0 | 781.2 | 941.4 | 38.8 | 47.0 | 620.9 | 941.4 |

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| Element | Base metal | Matrix | 1000 µg/mL / 100 mL | 1000 µg/mL / 250 mL | 10,000 µg/mL / 100 mL |
|--------------|---|-----------------------|---------------------|---------------------|-----------------------|
| | | | Catalog number | Catalog number | Catalog number |
| Aluminum | Al | HNO ₃ | JB-15961-94 | JB-15961-93 | JB-15963-89 |
| Arsenic | As | HNO ₃ | JB-15962-51 | JB-15962-50 | JB-15966-14 |
| Barium | BaSalt | HNO ₃ | JB-15962-90 | JB-15962-89 | JB-15966-32 |
| Boron | H ₃ BO ₃ | H ₂ O | JB-15963-74 | JB-15963-73 | — |
| Cadmium | Cd | HNO ₃ | JB-15963-79 | JB-15963-78 | JB-15966-74 |
| Calcium | CaCO ₃ | HNO ₃ | JB-15963-82 | JB-15963-81 | JB-15966-75 |
| Cerium | CeO ₂ | HNO ₃ | JB-15961-97 | JB-15961-96 | JB-15963-92 |
| Cesium | Cs ₂ CO ₃ | HNO ₃ | JB-15961-99 | JB-15961-98 | JB-15963-93 |
| Chromium | Cr | HNO ₃ | JB-15962-01 | JB-15962-00 | JB-15963-95 |
| Chromium +6 | K ₂ Cr ₂ O ₇ | H ₂ O | JB-15962-05 | JB-15962-03 | JB-15963-96 |
| Copper | Cu | HNO ₃ | JB-15962-09 | JB-15962-08 | JB-15963-98 |
| Dysprosium | Dy ₂ O ₃ | HNO ₃ | JB-15962-12 | JB-15962-11 | — |
| Erbium | Er ₂ O ₃ | HNO ₃ | JB-15962-13 | — | — |
| Europium | Eu ₂ O ₃ | HNO ₃ | JB-15962-14 | — | — |
| Gadolinium | Gd ₂ O ₃ | HNO ₃ | JB-15962-15 | — | — |
| Gallium | Ga | HNO ₃ | JB-15962-17 | JB-15962-16 | JB-15963-99 |
| Germanium | Ge | HNO ₃ + HF | JB-15962-26 | — | — |
| Germanium | (NH ₄) ₂ GeF ₆ | HNO ₃ | JB-15962-24 | — | — |
| Hafnium | Hf | HNO ₃ + HF | JB-15962-30 | — | — |
| Iridium | IrSalt | HCl | JB-15962-37 | JB-15962-36 | — |
| Iron | Fe | HNO ₃ | JB-15962-39 | JB-15962-38 | JB-15966-07 |
| Lanthanum | La ₂ O ₃ | HNO ₃ | JB-15962-42 | JB-15962-41 | — |
| Lead | Pb | HNO ₃ | JB-15962-44 | JB-15962-43 | JB-15966-11 |
| Magnesium | Mg | HNO ₃ | JB-15962-59 | JB-15962-58 | JB-15966-15 |
| Manganese | Mn acetate | HNO ₃ | JB-15962-62 | JB-15962-61 | JB-15966-18 |
| Mercury | Hg | HNO ₃ | JB-15962-65 | JB-15962-64 | JB-15966-20 |
| Molybdenum-2 | Mo | HCl | JB-15962-68 | JB-15962-67 | — |
| Molybdenum-3 | Mo | HNO ₃ + HF | JB-15962-71 | JB-15962-70 | — |
| Neodymium | Nd ₂ O ₃ | HNO ₃ | JB-15962-76 | JB-15962-75 | — |
| Nickel | Ni | HNO ₃ | JB-15962-78 | JB-15962-77 | JB-15966-24 |
| Niobium | Nb | HNO ₃ + HF | JB-15962-81 | JB-15962-80 | JB-15966-26 |
| Palladium | Pd | HCl | JB-15962-85 | JB-15962-84 | JB-15966-28 |
| Phosphorus | NH ₄ H ₂ PO ₄ | HNO ₃ | JB-15962-87 | JB-15962-86 | JB-15966-29 |
| Platinum | Pt | HCl | JB-15962-93 | JB-15962-92 | JB-15966-35 |
| Potassium | KNO ₃ | HNO ₃ | JB-15962-95 | JB-15962-94 | JB-15966-36 |
| Praseodymium | Pr ₆ O ₁₁ | HNO ₃ | JB-15962-97 | — | — |
| Rhenium | Re | HNO ₃ | JB-15962-99 | JB-15962-98 | JB-15966-39 |
| Rubidium | RbNO ₃ | HNO ₃ | JB-15963-03 | — | JB-15966-41 |
| Ruthenium | (NH ₄) ₂ RuCl ₆ | HCl | — | JB-15963-04 | — |
| Samarium | Sm ₂ O ₃ | HNO ₃ | JB-15963-06 | — | — |
| Selenium | Se | HNO ₃ | JB-15963-11 | JB-15963-10 | JB-15966-44 |
| Silicon | Na ₂ SiO ₃ | H ₂ O | JB-15963-16 | JB-15963-15 | JB-15966-46 |
| Silicon-F | (NH ₄) ₂ SiF ₆ | H ₂ O | JB-15963-19 | JB-15963-18 | JB-15966-48 |
| Silver | Ag | HNO ₃ | JB-15963-22 | JB-15963-21 | JB-15966-49 |
| Sodium | Na ₂ CO ₃ | HNO ₃ | JB-15963-25 | JB-15963-24 | JB-15966-50 |
| Strontium | SrSalt | HNO ₃ | JB-15963-28 | JB-15963-27 | JB-15966-53 |
| Sulfur | H ₂ SO ₄ | H ₂ O | JB-15963-31 | JB-15963-30 | JB-15966-54 |
| Tantalum | Ta | HNO ₃ + HF | JB-15963-34 | JB-15963-33 | — |
| Tellurium | Te | HCl | JB-15963-36 | JB-15963-35 | JB-15966-57 |
| Thallium | Tl | HNO ₃ | JB-15963-41 | JB-15963-40 | JB-15966-59 |
| Thorium | ThO ₂ | HNO ₃ | JB-15963-44 | JB-15963-43 | — |
| Tin | Sn | HCl | JB-15963-49 | JB-15963-48 | JB-15966-61 |
| Tin | Sn | HNO ₃ + HF | JB-15963-52 | JB-15963-51 | JB-15966-62 |
| Titanium | Ti | HCl | JB-15963-54 | JB-15963-53 | — |
| Titanium-3 | Ti | HNO ₃ + HF | JB-15963-57 | JB-15963-56 | — |
| Tungsten | W | HNO ₃ + HF | JB-15963-59 | JB-15963-58 | JB-15966-65 |
| Uranium | U ₃ O ₈ or UO ₂ | HNO ₃ | JB-15963-61 | JB-15963-60 | JB-15966-66 |
| Vanadium | NH ₄ VO ₃ | HNO ₃ | JB-15963-63 | JB-15963-62 | JB-15966-67 |
| Ytterbium | Yb ₂ O ₃ | HNO ₃ | JB-15963-64 | — | — |
| Zinc | Zn | HNO ₃ | JB-15963-69 | JB-15963-68 | JB-15966-71 |
| Zirconium | Zr | HNO ₃ + HF | JB-15963-72 | JB-15963-71 | JB-15966-73 |

Note: Starting sources and purities are subject to change. Contact us for additional volumes and other packaging options. Hazardous shipping rates apply.

Find even more standards on next page

Environmental Express® Internal Solutions for ICP and ICP-MS



Metals Analysis

| Element | Base metal | Matrix | 1000 µg/mL / 100 mL | 1000 µg/mL / 250 mL | 10,000 µg/mL / 100 mL |
|-----------|--|-----------------------|---------------------|---------------------|-----------------------|
| | | | Catalog number | Catalog number | Catalog number |
| Beryllium | Be acetate | HNO ₃ | JB-15963-14 | JB-15970-09 | JB-15966-45 |
| Bismuth | Bi | HNO ₃ | JB-15963-46 | JB-15963-45 | JB-15966-60 |
| Cobalt | Co | HNO ₃ | JB-15962-07 | JB-15962-06 | JB-15963-97 |
| Germanium | Ge | HNO ₃ + HF | JB-15962-26 | JB-15962-25 | JB-15966-03 |
| Gold | Au | HCl | JB-15962-28 | JB-15962-27 | JB-15966-04 |
| Holmium | Ho ₂ O ₃ | HNO ₃ | JB-15962-32 | JB-15962-31 | — |
| Indium | In | HNO ₃ | JB-15962-34 | JB-15962-33 | JB-15966-05 |
| Lithium | Li ₂ CO ₃ | HNO ₃ | JB-15962-47 | JB-15962-46 | JB-15966-13 |
| Lithium-6 | ⁶ Li ₂ CO ₃ | HNO ₃ | JB-15962-49 | JB-15962-48 | — |
| Lutetium | Lu ₂ O ₃ | HNO ₃ | JB-15962-57 | — | — |
| Rhodium | RhCl ₃ | HCl | — | JB-15963-00 | JB-15966-40 |
| Scandium | Sc ₂ O ₃ | HNO ₃ | JB-15963-08 | JB-15963-07 | JB-15966-42 |
| Terbium | Tb ₄ O ₇ | HNO ₃ | JB-15963-39 | JB-15963-38 | JB-15966-58 |
| Thulium | Tm ₂ O ₃ | HNO ₃ | JB-15963-47 | — | — |
| Yttrium | Y ₂ O ₃ | HNO ₃ | JB-15963-66 | JB-15963-65 | JB-15966-68 |

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Fill out the Specifications for your Custom Blend below: Please add concentrations next to elements needed.

Volume: _____ Preferred Matrix: _____

Does the Standard require ISO Guide 34 certification (circle one) YES NO

| Element | Concentration µg/mL | Element | Concentration µg/mL | Element | Concentration µg/mL |
|-----------------|---------------------|-------------------|---------------------|----------------|---------------------|
| Aluminum (Al) | | Indium (In) | | Samarium (Sm) | |
| Antimony (Sb) | | Iridium (Ir) | | Scandium (Sc) | |
| Arsenic (As) | | Iron (Fe) | | Selenium (Se) | |
| Barium (Ba) | | Lead (Pb) | | Silicon (Si) | |
| Beryllium (Be) | | Lithium (Li) | | Silver (Ag) | |
| Bismuth (Bi) | | Lithium 6 (Li+6) | | Sodium (Na) | |
| Boron (B) | | Lutetium (Lu) | | Strontium (Sr) | |
| Cadmium (Cd) | | Magnesium (Mg) | | Sulfur (S) | |
| Calcium (Ca) | | Manganese (Mn) | | Tantalum (Ta) | |
| Carbon (C) | | Mercury (Hg) | | Tellurium (Te) | |
| Cerium (Ce) | | Molybdenum (Mo) | | Terbium (Tb) | |
| Cesium (Cs) | | Neodymium (Nd) | | Thallium (Tl) | |
| Chromium (Cr) | | Nickel (Ni) | | Thorium (Th) | |
| Cobalt (Co) | | Niobium (Nb) | | Thulium (Tm) | |
| Copper (Cu) | | Osmium (Os) | | Tin (Sn) | |
| Dysprosium (Dy) | | Palladium (Pd) | | Titanium (Ti) | |
| Erbium (Er) | | Phosphorus (P) | | Tungsten (W) | |
| Europium (Eu) | | Platinum (Pt) | | Uranium (U) | |
| Gadolinium (Gd) | | Potassium (K) | | Vanadium (V) | |
| Gallium (Ga) | | Praseodymium (Pr) | | Ytterbium (Yb) | |
| Germanium (Ge) | | Rhenium (Re) | | Yttrium (Y) | |
| Gold (Au) | | Rhodium (Rh) | | Zinc (Zn) | |
| Hafnium (Hf) | | Rubidium (Rb) | | Zirconium (Zr) | |
| Holmium (Ho) | | Ruthenium (Ru) | | | |



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eVol Electronic Syringe Starter Kit, NMR Edition includes: handle, universal charger, stand, and three syringes (5 µL syringe with 11.5 cm needle, 50 µL syringe with 18 cm needle, and 500 µL syringe with 11.5 cm and 18 cm needles) with bevel-tipped stainless steel needles.



| Description | Catalog number |
|--|----------------|
| eVol XR electronic syringe starter kit | JB-15974-25 |
| eVol electronic syringe starter kit, NMR edition | JB-15974-27 |
| eVol charger | JB-15974-22 |
| eVol charging stand | JB-15974-23 |
| eVol replacement battery | JB-15974-24 |

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Choose your right column:

| Phase | Column | Description | See page |
|--|---------------|--|----------|
| 100% Dimethyl polysiloxane | BP1 | An industry standard nonpolar phase suitable for all routine analyses. | 237 |
| | SolGel-1ms | Robust high temperature nonpolar phase for mass spectrometry applications. | 237 |
| | BPX1 | 100% polydimethylsiloxane nonpolar column range for simulated distillation in the petroleum industry. | 237 |
| | BP1 PONA | A nonpolar phase for PONA analysis. | 237 |
| 5% Phenyl methylpolysiloxane | BP5 | A general-purpose phase with excellent high-temperature characteristics. Popular column range used for a wide variety of applications. | 237 |
| | BP5MS | Optimized silphenylene content for general-purpose MS analyses. Perfect for your 5% MS analysis. Nonpolar, 5% equivalence. | 237 |
| 5% Phenyl polysilphenylene-siloxane | BPX5 | MS-Premium, low bleed column range with a maximum temperature up to 370°C. Suitable for trace analysis of pesticides, drugs, hydrocarbons and phenols. The BPX5 phase has been designed for robustness and is suitable for over 80% of all routine analyses performed by chromatographers. | 237 |
| 5% Phenyl polycarborane-siloxane | HT5 | Unique high-temperature phase suited for simulated distillation and other petroleum applications. This column is the highest temperature column available with a maximum temperature up to 480°C. | 237 |
| 8% Phenyl polycarborane-siloxane | HT8 | Unique high-temperature phase suited for the analysis of polychlorinated biphenyl (PCB) congeners. The unique polarity of this phase gives excellent separation of PCB congeners. | 237 |
| 35% Phenyl polysilphenylene-siloxane | BPX35 | MS-Premium, low bleed column range with a maximum temperature up to 360°C. Especially suited for trace analysis of herbicides and aromatic compounds. | 238 |
| | BPX608 | Maximum temperature 370°C. Optimized for ECD. Ideal for the analysis of organochlorine herbicides and pesticides. | — |
| 50% Phenyl Polysilphenylene-siloxane | BPX50 | MS-Premium, low bleed columns with a maximum temperature up to 350°C. Suited for a range of EPA methods and pharmaceutical applications. | 238 |
| 70% Cyanopropyl polysilphenylene-siloxane | BPX70 | MS-Premium, low bleed column range with a maximum temperature up to 260°C. The polarity has been designed for fatty acid methyl ester (FAME) analysis. | 238 |
| 90% Cyanopropyl polysilphenylene-siloxane | BPX90 | MS-Premium, low bleed column range with a maximum temperature up to 280°C. Extremely polar phase for the fast separation of aromatics, perfumes, petrochemicals and other compounds that are difficult to resolve using conventional columns. | 238 |
| Polyethylene glycol (PEG) | SolGel-WAX | Robust, high-temperature polar WAX phase. Less susceptible to damage by oxygen than conventional wax phases. | 236 |
| | BP20 (Wax) | A very polar phase suited to the analysis of alcohols, ketones and aldehydes. Also offers excellent separation of aromatic isomers such as the xylene isomers. | 236 |
| Treated polyethylene glycol (PEG) | BP21 (FFAP) | A very polar nitroterephthalic acid modified PEG phase suited to the analysis of free fatty acids. | 236 |
| 14% Cyanopropylphenyl polysiloxane | BP10 (1701) | This phase has been selected with a polarity suited for the separation of organochlorine pesticides listed in EPA 608 and 8081 methods. | 236 |
| Cyanopropylphenyl polysiloxane (volatiles) | BPX-VOLATILES | A polar phase used for EPA volatile organics analysis (EPA 624, SW-846 8240/8260), alcohol analysis and for USP G43. Maximum temperature 290/300°C. | 236 |
| | BP624 | A polar phase used for EPA volatile organics analysis (EPA 624, SW-846 8240/8260), alcohol analysis and for USP G43. | 236 |
| Permethylated beta cyclodextrin (chiral) | CYDEX-B | Chiral columns for the separation of enantiomeric compounds found in natural products. | 236 |

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Application areas: recommended for highly active compounds

Operating temperature:
0.25 to 1.0 µm film thickness: 30 to 260/280°C

Suitable replacement for: DB-Wax, Rtx-Wax, Stabilwax, HP20M, HP-Wax, HP-INNOWax, Supelcowax-10, AT-Wax, Nukol, CP Wax 52CB, VB-WAX, ZB-WAX.

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 30 x 0.53 x 1 | JB-15976-20 |
| 30 x 0.32 x 0.25 | JB-15976-23 |
| 60 x 0.32 x 0.25 | JB-15976-24 |
| 60 x 0.25 x 0.25 | JB-15976-25 |
| 30 x 0.25 x 0.25 | JB-15976-29 |
| 30 x 0.32 x 0.25 | JB-15976-31 |

BP20 (Wax)

Application areas: alcohol, free acids, fatty acid methyl esters, aromatics, solvents, essential oils

Operating temperature:
0.1 to 1.0 µm film thickness: 20 to 260/280°C
>1.0 µm film thickness: 20 to 240/260°C

Suitable replacement for: DB-Wax, HP-20M, Supelcowax 10, CB-Wax, Stabilwax, Carbowax, HP-Innowax, Rtx-WAX, PE-WAX, RH-WAX, ZB-WAX, TRWAX

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 25 x 0.22 x 0.25 | JB-15975-24 |
| 30 x 0.22 x 0.25 | JB-15975-26 |
| 60 x 0.22 x 0.25 | JB-15975-27 |
| 30 x 0.25 x 0.25 | JB-15975-28 |
| 60 x 0.25 x 0.25 | JB-15975-29 |
| 30 x 0.25 x 1 | JB-15975-38 |
| 25 x 0.32 x 1 | JB-15975-40 |

BP21 (FFAP)

Application areas: volatile free acids, fatty acid methyl esters, alcohols, aldehydes, acrylates, ketones

Operating temperature:
0.25 to 1.0 µm film thickness: 35 to 240/250°C

Suitable replacement for: DB-FFAP, HP-FFAP, Stabilwax-DA, CPWax-58CB

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 25 x 0.22 x 0.25 | JB-15975-51 |
| 30 x 0.25 x 0.25 | JB-15975-52 |
| 60 x 0.25 x 0.25 | JB-15975-53 |
| 25 x 0.32 x 0.25 | JB-15975-54 |
| 30 x 0.53 x 0.5 | JB-15975-59 |
| 30 x 0.53 x 1 | JB-15975-60 |

BP10 (1701)

Application areas: environmental analyses (EPA methods 608 and 8081), pesticides/herbicides, drugs of abuse, pharmaceuticals

Operating temperature:
0.25 to 0.5 µm film thickness: -20 to 280/300°C
1.0 µm film thickness: -20 to 260/280°C

Suitable replacement for: DB-1701, Rtx-1701, SPB-7, HP-1701, CP-Sil 19CB, 007-1701, PE-1701, SP-1701

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 25 x 0.22 x 0.25 | JB-15975-11 |
| 30 x 0.25 x 0.25 | JB-15975-12 |
| 30 x 0.32 x 0.25 | JB-15975-13 |
| 25 x 0.32 x 0.5 | JB-15975-14 |
| 30 x 0.32 x 1 | JB-15975-15 |

BPX-VOLATILES

Application areas: environmental analyses, volatile organics, alcohol analysis, USP G43

Operating temperature:
1.0 to 3.0 µm film thickness: 0 to 290/300°C

Suitable replacement for: DB-VRX, HP-624, OPTIMA 624, ELITE-624, 007-624, RTX-VOLATILES, SPB-624, TRV1, CPSIL 13 CB, VOCOL, VB-624, CP-624

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 30 x 0.25 x 1.4 | JB-15976-58 |
| 60 x 0.25 x 1.4 | JB-15976-59 |
| 30 x 0.32 x 1.8 | JB-15976-60 |
| 60 x 0.32 x 1.8 | JB-15976-61 |
| 30 x 0.53 x 3 | JB-15976-62 |

BP624

Application areas: EPA method 624, drinking water volatiles, chlorinated hydrocarbons, solvents

Operating temperature:
1.0 to 3.0 µm film thickness: 0 to 230/240°C

Suitable replacement for: DB-624, OV-624, AT-624, HP-VOC, CP-Select624CB, 007-624, Rtx-Volatiles, VOCOL, ZB-624

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 30 x 0.22 x 1.2 | JB-15976-47 |
| 30 x 0.32 x 1.8 | JB-15976-48 |
| 30 x 0.53 x 3 | JB-15976-50 |
| 30 x 0.25 x 1.4 | JB-15976-52 |
| 60 x 0.25 x 1.4 | JB-15976-54 |

CYDEX-B

Application areas: separation of enantiomeric compounds found in natural products

Operating temperature:
30 to 220/240°C

Suitable replacement for: Cyclodex-B, Rt-BDEXm

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 25 x 0.22 x 0.25 | JB-15976-55 |
| 50 x 0.22 x 0.25 | JB-15976-56 |

NEW

BP1 / BP1 PONA

Application areas: suitable for analysis of hydrocarbons, aromatics, pesticides, phenol, herbicides, amines

Operating temperature:

0.1 to 1.0 µm film thickness: -60 to 340/360°C
1.5 to 3.0 µm film thickness: -60 to 300/320°C
4.0 to 5.0 µm film thickness: -60 to 280/300°C

Suitable replacement for: DB-1, DB-Petro, HP-1, HP-1MS, Rtx-1, Ultra-1, SPB-1, SPB-1 Sulfur, Petrocol DH, CP-Sil 5CB, VB-1, ZB-1, VF-1ms.

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 30 x 0.25 x 0.25 | JB-15974-33 |
| 25 x 0.22 x 0.25 | JB-15974-36 |
| 30 x 0.22 x 0.25 | JB-15974-38 |
| 25 x 0.32 x 0.25 | JB-15974-42 |
| 30 x 0.32 x 0.25 | JB-15974-44 |

SolGel-1ms

Application areas: recommended for highly active compounds

Operating temperature:

0.25 µm film thickness: 0 to 340/360°C

Suitable replacement for: DB-1, DB-Petro, HP-1, HP-1MS, Rtx-1, Ultra-1, SPB-1, SPB-1 Sulfur, Petrocol DH, CP-Sil 5CB, VB-1, ZB-1, VF-1ms.

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 60 x 0.25 x 0.25 | JB-15976-27 |
| 30 x 0.25 x 0.25 | JB-15976-28 |
| 30 x 0.32 x 0.25 | JB-15976-31 |

BPX1

Application areas: ASTM methods D2887 and D6532

Operating temperatures (polyimide clad):

0.1 to 0.9 µm film thickness: 30 to 400°C
2.65 µm film thickness: 30 to 370°C

Suitable replacement for: DB-2887, DB-HT Sim Dis, HP-1, Petrocol 2887, Petrocol EX2887, Rtx-2887

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 10 x 0.53 x 0.1 | JB-15976-35 |
| 10 x 0.1 x 0.1 | JB-15976-19 |

BP5

Application areas: aromatics, pesticides, herbicides, drugs of abuse, hydrocarbons, GC/MS applications

Operating temperature:

0.25 to 1.5 µm film thickness: -60 to 320/340°C
>1.5 µm film thickness: -60 to 280/300°C

Suitable replacement for: DB-5, Rtx-5, HP-5, Ultra-2, PTE-5, SPB-5, MDN-5, CP-Sil 8CB, VB-5, ZB-5

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 25 x 0.22 x 0.25 | JB-15974-93 |
| 30 x 0.25 x 0.25 | JB-15974-98 |
| 60 x 0.25 x 0.25 | JB-15974-99 |
| 30 x 0.25 x 1 | JB-15975-06 |

BP5MS

Application areas: 5% GC-MS analyses

Operating temperature: -40 to 330/350°C

Suitable replacement for: DB-5ms, ZB-5ms, Rxi-5Sil MS, VF-5ms, CP-Sil 8 CB

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 20 x 0.18 x 0.18 | JB-15975-18 |
| 15 x 0.25 x 0.25 | JB-15975-19 |
| 30 x 0.25 x 0.25 | JB-15975-20 |
| 30 x 0.32 x 0.25 | JB-15975-21 |

BPX5

Application areas: ultra trace analyses, pesticides/herbicides, hydrocarbons, solvents, phenols, amines, GC/MS and other specific detector applications

Operating temperature:

0.25 to 1.0 µm film thickness: -40 to 360/370°C
1.5 µm film thickness: -40 to 350/360°C

Suitable replacement for: DB-5, DB-5ms, DB-5.625, XTI-5, Rtx-5ms, Ultra-2, HP-5, HP-5MS, HP5-TA, SPB-5, MDN-5S, CP-Sil8CB, Rxt-Sil 5MS, AT-5ms, VB-5, ZB-5, VF-5ms

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 30 x 0.25 x 0.25 | JB-15974-61 |
| 60 x 0.25 x 0.25 | JB-15974-63 |
| 25 x 0.22 x 0.25 | JB-15974-68 |
| 50 x 0.22 x 0.25 | JB-15974-69 |
| 30 x 0.32 x 0.25 | JB-15974-88 |
| 60 x 0.32 x 0.25 | JB-15974-89 |
| 30 x 0.32 x 1 | JB-15974-90 |

HT5

Application areas: simulated distillation, general hydrocarbon profiles, pesticides/herbicides, GC/MS applications

Operating temperature (polyimide clad):

0.1 to 0.5 µm film thickness: 10 to 380/400°C

Suitable replacement for: MXT-1 Sim Dist, HT-Sim, DistCB, MXT-500

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 25 x 0.22 x 0.1 | JB-15975-80 |
| 30 x 0.25 x 0.1 | JB-15975-82 |
| 25 x 0.22 x 0.1 | JB-15975-83 |
| 25 x 0.32 x 0.1 | JB-15975-85 |
| 25 x 0.32 x 0.1 | JB-15975-87 |
| 25 x 0.53 x 0.15 | JB-15975-93 |

HT8

Application areas: PCB congener analyses, nitro-substituted aromatics, polynuclear aromatic hydrocarbons, pesticides/herbicides

Operating temperature:

0.1 to 1.0 µm film thickness: -20 to 360/370°C

Suitable replacement for: none (unique ultrahigh-temperature column)

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 25 x 0.22 x 0.25 | JB-15975-96 |
| 50 x 0.22 x 0.25 | JB-15975-97 |
| 30 x 0.25 x 0.25 | JB-15975-98 |
| 25 x 0.32 x 0.25 | JB-15975-99 |
| 60 x 0.25 x 0.25 | JB-15976-01 |

See next page for more...

NEW**SGE forte™ Capillary Columns for Gas Chromatography (continued)****BPX35**

Application areas: environmental analyses, pesticides/herbicides, drugs of abuse, pharmaceuticals, polynuclear aromatic hydrocarbons, GC/MS applications

Operating temperature:

0.1 to 1 µm film thickness: 10 to 330/360°C

Suitable replacement for: DB-35, DB-35ms, Rtx-35, HP-35, HP-35MS, SPB-35, MDN-35

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 30 x 0.25 x 0.25 | JB-15976-04 |
| 60 x 0.25 x 0.25 | JB-15976-05 |
| 25 x 0.22 x 0.25 | JB-15976-07 |
| 30 x 0.32 x 0.25 | JB-15976-09 |

BPX50

Application areas: EPA methods 604, 608, 8060, 8081, triazines/herbicides, drug screening, steroids and a variety of pharmaceutical applications

Operating temperature:

0.1 to 1 µm film thickness: 80 to 330/350°C

Suitable replacement for: OV-17, SP-2250, DB-17, DB-17ms, DB-17ht, Rtx-50, SPB-50, HP-50+, HP-17

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 30 x 0.15 x 0.15 | JB-15976-12 |
| 20 x 0.18 x 0.18 | JB-15976-13 |
| 15 x 0.25 x 0.25 | JB-15976-14 |
| 30 x 0.25 x 0.25 | JB-15976-15 |
| 60 x 0.25 x 0.25 | JB-15976-16 |
| 30 x 0.32 x 0.25 | JB-15976-17 |

BPX70

Application areas: fatty acid methyl esters, carbohydrates, pharmaceuticals, GC/MS applications

Operating temperature:

0.2 to 0.5 µm film thickness: 50 to 250/260°C

Suitable replacement for: DB-23, Rtx-2330, SP-2330, CP-Sil 88, SP2380, HP-23

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 25 x 0.22 x 0.25 | JB-15975-67 |
| 25 x 0.32 x 0.25 | JB-15975-69 |
| 30 x 0.22 x 0.25 | JB-15975-71 |
| 60 x 0.22 x 0.25 | JB-15975-72 |
| 30 x 0.32 x 0.25 | JB-15975-73 |
| 30 x 0.25 x 0.25 | JB-15975-76 |
| 60 x 0.25 x 0.25 | JB-15975-77 |

BPX90

Application areas: ideal for fast separation of fragrances, aromatics, petrochemical, pesticides, PCBs and isomers of fatty acid methyl esters (FAMES)

Operating temperature:

0.25 to 0.50 µm film thickness: 80 to 280°C

Suitable replacement for: none (unique to SGE)

| Length (m) x ID (mm) x film thickness (µm) | Catalog number |
|--|--------------------|
| 15 x 0.25 x 0.25 | JB-15975-62 |
| 30 x 0.25 x 0.25 | JB-15975-63 |
| 60 x 0.25 x 0.25 | JB-15975-64 |

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Kinesis TELOS® QuEChERS Extraction Kits

Quickly and economically extract the required analytes into solution

- Extraction and Cleanup Kits for all sample types
- Full AOAC 2007.01 and EN 15662 method compatibility
- User-friendly salt packs for easy transfer to centrifuge tube
- Homogenizer beads for complex matrices
- Custom kit manufacturing

NEW

Salt-assisted extraction kits are the first stage cleanup for many sample types. This initial crude extraction and partitioning step uses organic solvent and salt solution to extract the required analytes into solution. Salt pack helps transfer salt to the centrifuge tube quickly and easily with minimal waste.

This initial step often extracts a range of interferences that are then removed during the subsequent cleanup stage (see TELOS QuEChERS Cleanup Kits on next page). Select from extraction kits without tubes, kits with 50-mL centrifuge tubes, or kits with tubes and glass homogenizer beads. Beads aid in breaking up more complex sample types.



Kinesis

| Methodology | Description | Qty/pk | Catalog number |
|--|---|--------|----------------|
| 4 g MgSO₄ (anhydrous), 1 g NaAc (anhydrous) | | | |
| AOAC 2007.01 | Extraction kit without tube | 50 | JB-06478-96 |
| | Extraction kit with 50-mL centrifuge tube | 50 | JB-06478-95 |
| | Extraction kit with 50-mL centrifuge tube and glass homogenizer beads | 50 | JB-06478-97 |
| 6 g MgSO₄ (anhydrous), 1.5 g NaAc (anhydrous) | | | |
| AOAC 2007.01 | Extraction kit without tube | 50 | JB-06478-89 |
| | Extraction kit with 50-mL centrifuge tube | 50 | JB-06478-88 |
| | Extraction kit with 50-mL centrifuge tube and glass homogenizer beads | 50 | JB-06478-90 |
| 6 g MgSO₄ (anhydrous), 1.5 g NaAc.3H₂O | | | |
| AOAC 2007.01 | Extraction kit without tube | 50 | JB-06478-83 |
| | Extraction kit with 50-mL centrifuge tube | 50 | JB-06478-82 |
| | Extraction kit with 50-mL centrifuge tube and glass homogenizer beads | 50 | JB-06478-84 |
| 4 g MgSO₄ (anhydrous), 1 g NaCl, 0.5 g disodium citrate sesquihydrate (TSCD), 1 g sodium citrate (DHS) | | | |
| EN 15662 | Extraction kit without tube | 50 | JB-06479-01 |
| | Extraction kit with 50-mL centrifuge tube | 50 | JB-06479-00 |
| | Extraction kit with 50-mL centrifuge tube and glass homogenizer beads | 50 | JB-06479-02 |
| 4 g MgSO₄ (anhydrous), 1 g NaCl | | | |
| — | Extraction kit without tube | 50 | JB-06478-93 |
| | Extraction kit with 50-mL centrifuge tube | 50 | JB-06478-92 |
| | Extraction kit with 50-mL centrifuge tube and glass homogenizer beads | 50 | JB-06478-94 |
| 6 g MgSO₄ (anhydrous), 1.5 g NaCl | | | |
| — | Extraction kit without tube | 50 | JB-06478-86 |
| | Extraction kit with 50-mL centrifuge tube | 50 | JB-06478-85 |
| | Extraction kit with 50-mL centrifuge tube and glass homogenizer beads | 50 | JB-06478-87 |

Accessories

| Description | Qty/pk | Catalog number |
|------------------------------|--------|----------------|
| Empty centrifuge tube, 2 mL | 100 | JB-06478-59 |
| Empty centrifuge tube, 15 mL | 50 | JB-06478-61 |
| Empty centrifuge tube, 50 mL | 50 | JB-06478-63 |
| Glass homogenizer beads | 50 | JB-06478-57 |
| | 500 | JB-06478-58 |

Kinesis TELOS® QuEChERS Cleanup Kits

Get cleaner samples

- Extraction and Cleanup Kits for all sample types
- Full AOAC 2007.01 and EN 15662 method compatibility
- User-friendly salt packs for easy transfer to centrifuge tube
- Custom kit manufacturing

NEW

These kits are optimized for the cleanup of the sample. Having performed the initial sample prep with a TELOS QuEChERS Extraction Kit (see previous page), a more advanced cleanup is often required for the removal of interferences such as pigments, organic acids, and fats.

The removal of these interferences is carried out using a combination of three different SPE sorbents (see below). Each cleanup kit comes with 2-mL or 15-mL centrifuge tubes, depending on the sample volume and methodology followed. Anhydrous magnesium sulfate is also present to remove any excess water.

TELOS PSA: removes organic acids

TELOS C18: removes nonpolar interferences, including fats

TELOS PestiCarb: removes pigments, including chlorophyll and carotenoids



Kinesis

| Methodology | Sorbents | Included tube size | Qty/pk | Catalog number |
|--|--|--------------------|--------|--------------------|
| General cleanup kits | | | | |
| AOAC 2007.01 | 150 mg MgSO ₄ (anhydrous) and 50 mg PSA | 2 mL | 100 | JB-06479-04 |
| | 1.2 g MgSO ₄ (anhydrous) and 400 mg PSA | 15 mL | 50 | JB-06479-07 |
| EN 15662 | 150 mg MgSO ₄ (anhydrous) and 25 mg PSA | 2 mL | 100 | JB-06479-05 |
| | 900 mg MgSO ₄ (anhydrous) and 150 mg PSA | 15 mL | 50 | JB-06479-06 |
| Removal of fats and proteins | | | | |
| AOAC 2007.01 | 150 mg MgSO ₄ (anhydrous), 50 mg PSA, and 50 mg C18 | 2 mL | 100 | JB-06478-65 |
| | 1.2 g MgSO ₄ (anhydrous), 400 mg PSA, and 400 mg C18 | 15 mL | 50 | JB-06478-68 |
| EN 15662 | 150 mg MgSO ₄ (anhydrous), 25 mg PSA, and 25 mg C18 | 2 mL | 100 | JB-06478-66 |
| | 900 mg MgSO ₄ (anhydrous), 150 mg PSA, and 150 mg C18 | 15 mL | 50 | JB-06478-77 |
| NYT 1380-2007 | 300 mg MgSO ₄ (anhydrous), 100 mg PSA, and 100 mg C18 | 15 mL | 50 | JB-06478-67 |
| Removal of pigments | | | | |
| AOAC 2007.01 | 150 mg MgSO ₄ (anhydrous), 50 mg PSA, and 50 mg PestiCarb | 2 mL | 100 | JB-06479-09 |
| | 1.2 g MgSO ₄ (anhydrous), 400 mg PSA, and 400 mg PestiCarb | 15 mL | 50 | JB-06479-14 |
| EN 15662 | 150 mg MgSO ₄ (anhydrous), 25 mg PSA, and 2.5 mg PestiCarb | 2 mL | 100 | JB-06479-10 |
| | 150 mg MgSO ₄ (anhydrous), 25 mg PSA, and 7.5 mg PestiCarb | 2 mL | 100 | JB-06479-11 |
| | 900 mg MgSO ₄ (anhydrous), 150 mg PSA, and 15 mg PestiCarb | 15 mL | 50 | JB-06479-13 |
| | 900 mg MgSO ₄ (anhydrous) and 50 mg PestiCarb | 15 mL | 50 | JB-06479-12 |
| Removal of fats, proteins, and pigments | | | | |
| AOAC 2007.01 | 150 mg MgSO ₄ (anhydrous), 50 mg PSA, 50 mg C18, and 50 mg PestiCarb | 2 mL | 100 | JB-06478-78 |
| | 1.2 g MgSO ₄ (anhydrous), 400 mg PSA, 400 mg C18, and 400 mg PestiCarb | 15 mL | 50 | JB-06478-80 |
| — | 900 mg MgSO ₄ (anhydrous), 150 mg PSA, 150 mg C18, and 150 mg PestiCarb | 15 mL | 50 | JB-06478-79 |

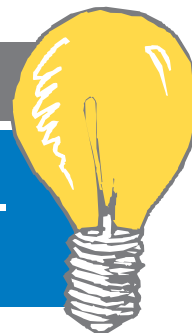
Accessories

| Description | Qty/pk | Catalog number |
|------------------------------|--------|--------------------|
| Empty centrifuge tube, 2 mL | 100 | JB-06478-59 |
| Empty centrifuge tube, 15 mL | 50 | JB-06478-61 |
| Empty centrifuge tube, 50 mL | 50 | JB-06478-63 |

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Cole-Parmer® VapLock™ Solvent Delivery Bottle Caps

Reduce chemical evaporation and exposure to hazardous vapors

NEW

- Maintain the cleanliness and purity of your valuable HPLC mobile phases
- Use with semi-rigid tubing equal to or less than 1/8" (3.2 mm) OD
- Quick solvent changes—designed to prevent twisting of tubing when cap is removed or attached
- Inert PTFE body is chemically compatible with laboratory solvent
- Autoclavable

For a closed-system solvent reservoir, the container first requires a bottle cap with ports to fit the specific tubing sizes removing solvent from the bottle. VapLock solvent caps provide versatile, leak-resistant connections where mobile phase tubing may be attached securely.

Create a closed system using solvent reservoir caps to prevent hazardous vapors from escaping into the lab. Caps accept standard 1/4"-28 UNF(M) fittings to easily connect semi-rigid tubing. Anti-twist design allows the inner body of the cap to rotate independently preventing tubes from tangling when caps are removed or attached. Caps are constructed of PTFE body and PP collar† and are autoclavable.

†Does not come in contact with liquid under normal circumstances.



Bottle Caps with Threaded Port have ports angled at 10° tilt for more accessible tubing connections.

| Bottle thread | Number of ports | Material | Catalog number |
|-----------------|--------------------|----------|--------------------|
| G25 | 2 x 1/4"-28 UNF(F) | PTFE/PP | JB-12018-54 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-55 |
| GL32 | 2 x 1/4"-28 UNF(F) | PTFE/PP | JB-12018-51 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-52 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-53 |
| WAKO 38 mm | 2 x 1/4"-28 UNF(F) | PTFE/PP | JB-12018-39 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-40 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-41 |
| Nalgene™ 38-430 | 2 x 1/4"-28 UNF(F) | PTFE/PP | JB-12018-27 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-28 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-29 |
| GL38 | 2 x 1/4"-28 UNF(F) | PTFE/PP | JB-12018-15 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-16 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-17 |
| GL45 | 2 x 1/4"-28 UNF(F) | PTFE/PP | JB-12018-03 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-04 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-05 |



Solvent Delivery

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12018-00



12018-13



12018-09



12018-07

Cole-Parmer® VapLock™ Solvent Delivery Bottle Caps (continued)

NEW

Bottle Caps with Stainless Steel Thread Inserts minimize cross-threading and damage to soft PTFE ports.

| Bottle thread | Number of ports | Material | Catalog number |
|-----------------|--------------------|------------|--------------------|
| GL32 | 2 x 1/4"-28 UNF(F) | PTFE/PP/SS | JB-12018-48 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-49 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-50 |
| WAKO 38 mm | 2 x 1/4"-28 UNF(F) | PTFE/PP/SS | JB-12018-36 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-37 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-38 |
| Nalgene™ 38-430 | 2 x 1/4"-28 UNF(F) | PTFE/PP/SS | JB-12018-24 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-25 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-26 |
| GL38 | 2 x 1/4"-28 UNF(F) | PTFE/PP/SS | JB-12018-12 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-13 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-14 |
| GL45 | 2 x 1/4"-28 UNF(F) | PTFE/PP/SS | JB-12018-00 |
| | 3 x 1/4"-28 UNF(F) | | JB-12018-01 |
| | 4 x 1/4"-28 UNF(F) | | JB-12018-02 |



Bottle Caps with Integrated Air Inlet Valve and Filter permit air to enter the bottle for vacuum displacement while solvent is pumped to the instrument. Valves are made of PTFE and 300-series SS components and feature a 50 µm PTFE filter to reduce particulate contamination. Select from FFKM, EPDM, or Viton® valve seal options.

| Bottle thread | Number of ports | Material | Catalog number |
|----------------|--------------------|------------------|--------------------|
| WAKO 38 mm | 2 x 1/4"-28 UNF(F) | PTFE/PP/SS/FFKM | JB-12018-44 |
| | | PTFE/PP/SS/EPDM | JB-12018-42 |
| | | PTFE/PP/SS/Viton | JB-12018-46 |
| | 4 x 1/4"-28 UNF(F) | PTFE/PP/SS/FFKM | JB-12018-45 |
| | | PTFE/PP/SS/EPDM | JB-12018-43 |
| | | PTFE/PP/SS/Viton | JB-12018-47 |
| Nalgene 38-430 | 2 x 1/4"-28 UNF(F) | PTFE/PP/SS/FFKM | JB-12018-32 |
| | | PTFE/PP/SS/EPDM | JB-12018-30 |
| | | PTFE/PP/SS/Viton | JB-12018-34 |
| | 4 x 1/4"-28 UNF(F) | PTFE/PP/SS/FFKM | JB-12018-33 |
| | | PTFE/PP/SS/EPDM | JB-12018-31 |
| | | PTFE/PP/SS/Viton | JB-12018-35 |
| GL38 | 2 x 1/4"-28 UNF(F) | PTFE/PP/SS/FFKM | JB-12018-18 |
| | | PTFE/PP/SS/EPDM | JB-12018-19 |
| | | PTFE/PP/SS/Viton | JB-12018-20 |
| | 4 x 1/4"-28 UNF(F) | PTFE/PP/SS/FFKM | JB-12018-21 |
| | | PTFE/PP/SS/EPDM | JB-12018-22 |
| | | PTFE/PP/SS/Viton | JB-12018-23 |
| GL45 | 2 x 1/4"-28 UNF(F) | PTFE/PP/SS/FFKM | JB-12018-08 |
| | | PTFE/PP/SS/EPDM | JB-12018-06 |
| | | PTFE/PP/SS/Viton | JB-12018-10 |
| | 4 x 1/4"-28 UNF(F) | PTFE/PP/SS/FFKM | JB-12018-09 |
| | | PTFE/PP/SS/EPDM | JB-12018-07 |
| | | PTFE/PP/SS/Viton | JB-12018-11 |

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Protect lab personnel
from hazardous
solvent vapors

- Minimize chemical exhaust from solvent reservoir bottles and waste containers—ideal for HPLC and other analytical testing instruments
- Avoid costly fines by maintaining regulatory compliance
- Achieve repeatable results and ensure the purity of the process
- Simply attach to any standard solvent bottle and waste container
- Versatile—large selection of components provides a solution for any system



HPLC Solvent Delivery

Cole-Parmer® VapLock™ Bottle Caps prevent hazardous vapors escaping into the laboratory and maintain the cleanliness and purity of your valuable HPLC mobile phases.



Maintain a Safe

Protects the Environment and Your Analytical Results

Prevent hazardous VOC's evaporating from your HPLC solvent reservoir into the laboratory. The container remains securely closed and no air is allowed into your HPLC, so your analyses are not compromised by contamination and solvent composition change by evaporation.

STEP
1

Easy to Use and Change Your Bottles

Bottles are removed without movement and tangling of your tubes for simple quick solvent changes.



Maintain a Safe and Compliant System

Help you face safety/quality inspections without anxiety!

Easy to Connect and Reliable

The cap creates a tight seal against the solvent reservoir. Inlet tubing is connected into threaded connection ports creating a perfect seal. Filtered air enters the container to replace fluid withdrawn. A built in check valve prevents solvent vapor from escaping into the work place. All materials are HPLC solvent compatible.

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Safe Collection of Solvent Waste

Cole-Parmer® VapLock™ Waste Manifold kits

connect to any HPLC system. All waste solvent is contained in a fully enclosed and sealed system. Hazardous solvent vapors are absorbed and prevented from entering your environment.

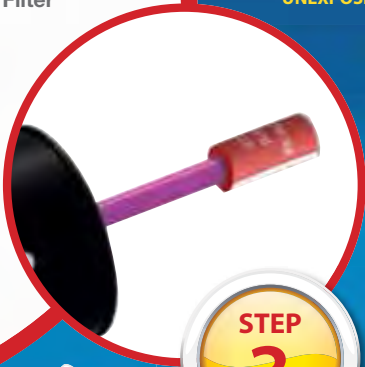
HPLC Workplace



Improvised solvent collection methods compromise laboratory safety



Breakthrough Filter Indicator



Informative

The activated carbon filter adsorbs hazardous solvent vapors. A breakthrough indicator shows when the carbon filter is fully loaded and needs to be replaced.



Waste Manifold

The manifold has a free spinning collar allowing for a quick disconnect and prevents any tangling of solvent lines connected to the HPLC system.

Simple

The Waste Manifold attaches to your HPLC solvent waste container creating a gas tight seal.



Adaptable

Each manifold offers multiple connection ports for any waste line to be securely connected from your HPLC.

Kits include all fittings required.

Cole-Parmer VapLock™ Waste Collection Kits

Secured, compliant, easy-to-use solvent disposal system

- Effective means of solvent delivery with fully enclosed and sealed system
- Exhaust filter absorbs solvent vapors to prevent escaping to the environment, choose filter with breakthrough indicator to know when to replace
- Manifolds include multiple connection ports to adapt to the HPLC system; free spinning collar allows quick disconnect
- Includes everything needed for closed waste containment



Use the waste collection kits to minimize leaks, spills, and vapor escape from solvent waste containers. Waste kits include a manifold, exhaust filter, adapters, plugs, and tubing—everything you need to install on a typical HPLC instrument. Manifold allows solvent waste to be collected from multiple effluent streams. Exhaust filter minimizes exposure to harmful chemical vapors. Fittings and tubing provide leaktight connections minimizing spills and leaks. Select from various cap sizes to fit your laboratory or industrial solvent waste containers.

What's included: 10-port waste manifold - (3) ¼" NPT polypropylene plugs, (6) ¼-28 PTFE plugs, (1) ½" NPT polypropylene plug, (1) organic vapor filter, (2) 2.2 mm OD hard-wall tubing connections, (1) 2.5 mm OD hard-wall tubing connection, (3) ⅝" OD hard-wall tubing connections, (2) ¼" OD hard-wall tubing connections, (3) barbed tubing connection ¼" ID tubing x ¼" NPT polypropylene, (1) barbed tubing connection ⅝" ID tubing x ¼" NPT polypropylene, (1) barbed tubing connection ⅝" ID tubing x ¼" NPT polypropylene, (1) barb-to-barb Y connector with ¼" (6.25 mm) barbs, polypropylene, (1) hard-wall tube extension with union connections and 5-ft length of ⅝" OD PTFE tubing, (1) filter adapter ¼" NPT x ½" NPT polypropylene, (1) breakthrough color indicator for VapLock organic vapor filter.

Note: Container not included

| Cap size | Material manifold | Catalog number |
|-------------|-------------------|--------------------|
| GL45 | PP | JB-12018-74 |
| | PTFE | JB-12018-75 |
| DIN 50 | PP | JB-12018-86 |
| | PTFE | JB-12018-87 |
| 70 mm RIEKI | PP | JB-12019-22 |
| | PTFE | JB-12019-23 |
| 83B | PP | JB-12019-40 |
| | PTFE | JB-12019-41 |

Kinesis TELOS® neo™ MicroPlate™ SPE 96-Well Microplates

50 µL elution volume for minimal sample dilution and reduced evaporation time

- Versatile 96-well format for small volume biological fluid samples
- Optimized well geometry for 5 and 10 mg sorbent masses
- Use with vacuum or positive pressure

The internal diameter, frit design, and sorbent material of the TELOS MicroPlate 96-well plates allow for maximum recovery with minimal sample dilution and reduced evaporation time. A well packed with 5 mg sorbent allows analytes to be eluted in as little as 50 µL. Full or partially populated plates can be processed using either vacuum or positive pressure.

Select from populated plates or loose wells. Populated plates come with 96 wells already in place and are ideal for high throughput assays. Use the loose wells for assays when the sample numbers vary, populating the base plate with only the required number of wells. Order base plates separately to use with the loose wells. The method development kit includes a base plate, sealing strips and 20 wells of each of five SPE sorbents to build a method development plate to meet your needs.



| Sorbent | Interaction | Sorbent mass | Populated plates (1/pk) | | Loose wellst (100/pk) |
|---------|------------------------------------|--------------|-------------------------|--------------------|-----------------------|
| | | | Catalog number | Catalog number | |
| PRP | Nonpolar | 5 mg | JB-06474-21 | JB-06474-20 | |
| | | 10 mg | JB-06474-13 | JB-06474-12 | |
| PCX | Mixed-mode, strong cation exchange | 5 mg | JB-06474-15 | JB-06474-14 | |
| | | 10 mg | JB-06474-09 | JB-06474-04 | |
| WCX | Mixed-mode, weak cation exchange | 5 mg | JB-06474-05 | JB-06474-16 | |
| | | 10 mg | JB-06474-06 | JB-06474-17 | |
| PAX | Mixed-mode, strong anion exchange | 5 mg | JB-06474-02 | JB-06474-01 | |
| | | 10 mg | JB-06474-07 | JB-06474-10 | |
| WAX | Mixed-mode, weak anion exchange | 5 mg | JB-06474-18 | JB-06474-62 | |
| | | 10 mg | JB-06474-03 | JB-06474-08 | |

*Loose wells require a base plate.

JB-06474-19 TELOS MicroPlate method development kit for loose wells, 10 mg. Contains 20 x 10 mg wells of TELOS neo PRP, PCX, WCX, PAX, and WAX; base plate; base plate sealing strips; and well removing tool

JB-06474-60 TELOS MicroPlate base plates. Required for loose wells. Pack of 5

JB-06474-11 TELOS MicroPlate base plate sealing strips. Pack of 24
JB-06474-61 Well removing tool

Eliminate Impurities at Every Step of your Drug Development Process

Cole-Parmer brings to you world-class quality standards—compliant with USP, FDA, ICH guidelines

- Over 1200 references in the USP-NF are there to monitor impurities and physical properties:

232 – Elemental Impurities – Limits

2322 – Elemental Contaminants in Dietary Supplements

233 – Elemental Impurities – Procedures

- Exceptional quality—manufactured and tested at highest industry standards—**ISO 9001:2015, ISO 17034:2016, ISO/IEC 17025:2017**
- Over 40,000 standards (over 10,000 listed and 30,000 formulated custom standards)
- These standards help you to meet USP-NF, FDA Guidelines (232, 233)
- Customised solution for diverse customers

Organic

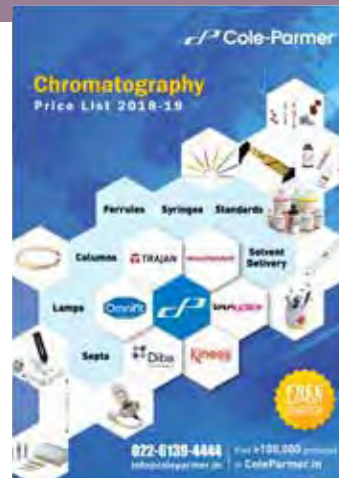
PCBs, PBDEs, Dioxins, Furans, PAHs, Pesticides, VOCs, Functional Groups, EPA Methods (500, 600, 1300, 1600, 8000 series), CLP, Regional Methods, Explosives, Plastic Additives, Food, Allergens, Dyes, PFOAs, Custom Formulation, and Custom Synthesis

Inorganic

ICP, ICP/MS, AA, Ion Chromatography, Wet Chemistry, ICP Multi-Element (QC, SDWA, TCLP, MISA, CLP, EPA, Alternate Source, EU, ASTM), ICP/MS Multi-Element (Calibration, QC, EPA), Organo Metallica

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- Regulatory compliance, system validation, audit trails for product quality
- Equipment and supplies for sample preparation to analysis, in rigid as well as controlled environments
- Instruments are designed with a perfect blend of accuracy and precision with ease of use and low maintenance
- Get application expertise and wide range of solutions for your toughest of applications

| | |
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Oakton® pHTestr® 50 Pocket Tester

Bring the performance of your lab instruments into the field

- High ± 0.01 pH accuracy—suitable for most ASTM and EPA test procedures
- Clog-resistant, double-junction pH electrode sensor is dependable and long-lasting!
- Use with confidence—even with demanding samples containing sulfides, heavy metals, organics, Tris buffer, or protein solutions
- Save money—replaceable sensor module lets you use tester body over and over again
- Set up and calibrate quickly with easy-to-navigate interface
- Don't let temperature interfere—automatic temperature compensation minimizes impact
- Recessed, glass pH bulb protects against breakage
- Leakproof, stabilizing cap—use to calibrate, stand upright, and store sensor



OAKTON®

ISO9001:2008
CERTIFIED SUPPLIER



| Model | | pHTestr 50 |
|--------------------------|-------------|---|
| Catalog number | | JB-35634-15 |
| Range | pH | -1.00 to 15.00 pH |
| | Temperature | 32 to 140°F (0 to 60°C) |
| Resolution | pH | 0.01 pH |
| | Temperature | 0.1°F/°C |
| Accuracy | pH | ± 0.01 pH |
| | Temperature | $\pm 0.9^\circ\text{F}$ (0.5°C) + 1 LSD from 32 to 122°F (0 to 50°C); $\pm 1.8^\circ\text{F}$ (1.0°C) + 1 LSD from 122 to 140°F (50 to 60°C) |
| Temperature compensation | | Automatic, 32 to 140°F (0 to 60°C) |
| Calibration | | Up to 3 points |
| Buffer recognition | | USA 4.01, 7.00, 10.01; NIST 4.01, 6.86, 9.18 |
| Power | | Four AAA 1.5 V batteries (included) |

JB-35634-17 Replacement sensor for pH50

Oakton® PCTSTestr™ 50 Multiparameter Pocket Tester

One tester measures it all!

- Versatile tester combines up to five measurements in one pocket-sized meter
- Parameters include pH, conductivity, TDS, salinity, and temperature
- Compatible with a wide range of samples with long-life pH electrode and stainless steel pin-style conductivity sensor
- Features up to 3-point pH calibration with NIST or USA autobuffer recognition, user-adjustable temperature coefficient, and self-adjusting TDS and salinity factor
- Leakproof cap functions as a sample/calibration cup, hydrating cup and as a stabilizing base to stand the meter upright
- Easy-to-replace sensor module lets you use tester body over and over again



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| Model | | PCTSTestr 50 |
|--------------------------|--------------|---|
| Catalog number | | JB-35634-35 |
| Range | pH | -1.00 to 15.00 pH |
| | Conductivity | 0.0 to 200.0 μS , 200 to 2000 μS ; 2.00 to 20.00 mS |
| | TDS | 0.0 to 100.0 ppm, 100 to 1000 ppm; 0.10 to 10.00 ppt (TDS factor 0.5) |
| | Salinity | 0.00 to 10.00 ppt |
| | Temperature | 32 to 140°F (0 to 60°C) |
| Resolution | pH | 0.01 pH |
| | Conductivity | 0.1 μS , 1 μS ; 0.01 mS |
| | TDS | 0.1 ppm, 1 ppm; 0.01 ppt |
| | Salinity | 0.10 ppt |
| | Temperature | 0.1°F/°C |
| Accuracy | pH | ± 0.01 pH |
| | Conductivity | $\pm 1\%$ full-scale |
| | TDS | $\pm 1\%$ full-scale |
| | Salinity | $\pm 1\%$ full-scale |
| | Temperature | $\pm 0.9^\circ\text{F}$ (0.5°C) from 32 to 122°F (0 to 50°C); $\pm 1.8^\circ\text{F}$ (1.0°C) from 122 to 140°F (50 to 60°C) |
| Temperature compensation | | Automatic, 32 to 144°F (0 to 60°C) |
| Calibration | | 3 points (pH, conductivity, TDS); 1 point (salinity) |
| Buffer recognition | | USA 4.01, 7.00, 10.01; NIST 4.01, 6.86, 9.18 |
| Power | | Four AAA 1.5 V batteries (included) |

JB-35634-37 Replacement sensor

Oakton® CTSTestr™ 50 Pocket Testers

Get benchtop accuracy in the field

- Measure conductivity, TDS, and salinity ($\pm 1\%$ FS accuracy)
- Save money—replaceable sensor lets you use tester body over and over again
- Set up and calibrate quickly with easy-to-navigate interface
- Selectable TDS factor adds versatility
- Leakproof, stabilizing cap—use to calibrate, stand upright, and store sensor
- Waterproof IP67 rated and factory calibrated

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| Model | | CTSTestr 50P (pin-style sensor) | CTSTestr 50C (cup-style sensor) |
|--------------------------|--------------|---|---------------------------------|
| Catalog number | | JB-35634-55 | JB-35634-65 |
| Range | Conductivity | 0.0 to 200.0 μS , 200 to 2000 μS ; 2.00 to 20.00 mS | |
| | TDS | 0.0 to 100.0 ppm, 100 to 1000 ppm; 0.10 to 10.00 ppt (TDS factor 0.5) | |
| | Salinity | 0.00 to 10.00 ppt | |
| | Temperature | 32 to 140°F (0 to 60°C) | |
| Accuracy | | $\pm 1\%$ full-scale (conductivity, TDS, and salinity) | |
| Calibration | | Up to 3 points (conductivity and TDS); 1 point (salinity) | |
| TDS factor | | 0.40 to 1.00 (selectable) | |
| Temperature compensation | | Automatic | |
| Power | | Four AAA 1.5 V batteries (included) | |



Oakton® Waterproof CON 150 Meter

Get more for your money

- Best value for an IP67-rated waterproof meter
- Know the status of your probe—intuitive, user-friendly icon displays cell constant
- Get quick and easy electrode attachment to a beaker or container with Grip-Clip™ holder
- Recall more data with expanded data logging for up to 150 data sets
- Versatile power supply—battery or AC

Rugged, waterproof housing is ideal for use in any environment. View more data simultaneously with large, three-line LCD providing conductivity or TDS measurement with temperature. Get faster calibration with auto-ranging and auto-cal functions for one calibration point per measurement range.

Features include adjustable conductivity-to-TDS factor, selectable temperature coefficient, ready (stability) indicator, smart averaging, hold function, calibration alarm (visible), battery life indicator, and probe status.

Meter includes: conductivity cell (K = 1.0), holder, and two batteries.
Kit adds: two calibration standards and hard carrying case.



Oakton® Waterproof CON 450 Meter

Easy to read in any environment

- Intuitive, user-friendly icon displays cell constant
- Easily attach electrode to a beaker or container with Grip-Clip™ holder
- Download and analyze up to 500 data sets with USB or RS-232 output
- ATC—more accuracy even in fluctuating temperatures

Waterproof, IP67-rated meter is ideal for even the harshest environments. View the main measurement simultaneously with temperature on backlit display. Get faster calibration with auto-cal function, which permits one calibration point per measurement range.

Features include adjustable conductivity-to-TDS factor, selectable temperature coefficient, ready (stability) indicator, smart averaging, hold function, calibration alarm, battery life-indicator, and electrode status.

Meter includes: conductivity cell (K = 1.0), holder, and batteries.

Kit adds: calibration standards and hard carrying case.



Easy one-button data logging



| Description | CON 150 meter with probe | CON 150 meter kit |
|-------------------------------|---|---------------------------------------|
| Catalog number | JB-35607-32 | JB-35607-90 |
| Precalibrated cat. no. | JB-35607-34 | JB-35607-91 |
| Range | Conductivity | 0 to 200 mS |
| | TDS | 0 to 200 ppt |
| | Temperature | -17.0 to 230.0°F (-10.0 to 110.0°C) |
| Resolution | Conductivity | 0.01 µS to 0.1 mS |
| | TDS | 0.01 ppm to 0.1 ppt |
| | Temperature | 0.1°F/°C |
| Accuracy | Conductivity | ±1% full-scale |
| | TDS | ±1% full-scale |
| | Temperature | ±0.9°F (±0.5°C) |
| Calibration | Conductivity | Auto/manual; 1 point/range |
| | TDS | Auto/manual; 1 point/range |
| | Temperature | Offset 0.1 increments |
| | Temperature compensation | Automatic or manual from -10 to 110°C |
| Conductivity-to-TDS factor | 0.4 to 1.0 | |
| Data logging | Stores up to 150 data sets | |
| Power | Two AA batteries (included); universal power adapter (optional) | |

- JB-35608-55 Conductivity cell, K = 0.1**
- JB-35608-50 Replacement conductivity cell, K = 1.0**
- JB-35608-51 Conductivity cell, K = 10**
- JB-35614-51 Hard carrying case**
- JB-35420-72 Optional power adapter, 110/220 VAC**
- JB-17090-30 NIST-traceable calibration with data for conductivity meter**



| Description | CON 450 meter with probe | CON 450 meter kit |
|----------------------------------|--|-------------------------------------|
| Catalog number | JB-35608-32 | JB-35608-80 |
| Precalibrated cat. number | JB-35608-34 | JB-35608-81 |
| Range | Conductivity | 0 to 200 mS |
| | TDS | 0 to 200 ppt |
| | Salinity | 0 to 50 ppt |
| | Temperature | -17.0 to 230.0°F (-10.0 to 110.0°C) |
| Resolution | Conductivity | 0.01 µS to 0.1 mS |
| | TDS | 0.01 ppm to 0.1 ppt |
| | Salinity | 0.01 |
| | Temperature | 0.1°F/°C |
| Accuracy | Conductivity | ±1% full-scale |
| | TDS | ±1% full-scale |
| | Salinity | ±1% full-scale |
| | Temperature | ±0.9°F (±0.5°C) |
| Calibration | Conductivity | Auto/manual; 1 point/range |
| | TDS | Auto/manual; 1 point/range |
| | Salinity | Auto/manual; 1 point/range |
| | Temperature | ±5.0° offset |
| Temperature compensation | Automatic or manual from -10 to 110°C | |
| Data logging | Stores up to 500 data sets | |
| Output | USB or RS-232 | |
| Power | Two AA batteries (included); AC adapter (optional) | |

- JB-35608-55 Conductivity cell, K = 0.1**
- JB-35608-50 Replacement conductivity cell, K = 1.0**
- JB-35608-51 Conductivity cell, K = 10**
- JB-35614-51 Hard carrying case**
- JB-35630-53 Data cable for USB connectivity**
- JB-35420-01 Data cable for RS-232 connectivity**
- JB-15944-89 Portable printer, thermal**



Oakton® Waterproof pH 150 Meter

Get more for your money!

- Intuitive, user-friendly icons show electrode status as pH slope
- Get quick and easy electrode attachment to a beaker or container with Grip-Clip™ holder
- Recall more data with expanded data logging for up to 150 data sets
- mV offset for calibration of ORP standards, zeroing mV value, and pH diagnostics
- Use as a benchtop meter as well—built-in stand or wall-mount option



View more simultaneously with large, three-line LCD providing pH or mV measurement with temperature and calibration % slope. Get faster calibration with auto buffer recognition which identifies the correct pH buffer. Be more accurate with up to six calibration points from USA, NIST, and DIN pH buffer sets and automatic temperature compensation (ATC).

Additional features include ready (stability) indicator, smart averaging, hold function, calibration alarm (visible), battery-life indicator, and electrode status.

Meter with probe includes: Grip-Clip holder, "All-in-One" pH electrode (35808-71), and two AA batteries.

Meter kit further adds: pH buffers, storage solution, rinse solution, and hard carrying case.

Oakton® Waterproof pH 450 Meter

Easy-to-read measurements

- Use it in any environment with backlit display and rugged design
- Intuitive, user-friendly icons show electrode status as pH slope
- Easily attach electrode to a beaker or container with Grip-Clip™ holder
- Download/ analyze up to 500 data sets with USB or RS-232 output
- Use as a benchtop meter as well—built-in stand and wall-mount option



Waterproof, IP67-rated meter is ideal for even the harshest environments. View the main measurement simultaneously with temperature and calibration data with % slope on the large, backlit LCD. Be more accurate with up to six calibration points from USA, NIST, DIN, and custom pH buffers. Automatic temperature compensation (ATC) ensures measurement accuracy even in fluctuating temperatures.

Additional features include ready (stability) indicator, smart averaging, hold function, calibration alarm (visible), battery-life indicator, and electrode status.

Meter with probe includes: Grip-Clip holder, "All-in-one" pH/temperature electrode (model 35808-71), and two AA batteries.

Meter kit further adds: pH buffer solutions, storage solution, rinse solution, and hard carrying case.



| Description | Meter with probe | Meter kit |
|--------------------------|---|--|
| Model | pH 150 | |
| Catalog number | JB-35614-30 | JB-35614-90 |
| Precalibrated cat. no. | JB-35614-33 | JB-35614-91 |
| Range | pH | -2.00 to 16.00 |
| | mV | ±2000 mV |
| | Temperature | -17.0° to 230.0° F (-10.0° to 110.0°C) |
| Resolution | pH | 0.01 |
| | mV | 0.1 mV ±999.9 mV; 1 mV beyond |
| | Temperature | 0.1°F/C |
| Accuracy | pH | ±0.01 |
| | mV | ±0.2 mV ±2 LSD or ±0.5% of reading; whichever is greater |
| | Temperature | ±0.9°F (±0.5°C) |
| Calibration | pH | Up to 6 points: USA, NIST, DIN |
| | mV | ±200 mV |
| Temperature compensation | Offset 0.1 increments | |
| Temperature compensation | Automatic or manual from -10 to 110°C | |
| Data logging | Stores up to 150 data sets | |
| Power | Two AA batteries (included); universal adapter (optional) | |



| Description | Meter with probe | Meter kit |
|--------------------------|---|--|
| Model | pH 450 | |
| Catalog number | JB-35618-30 | JB-35618-90 |
| Precalibrated cat. no. | JB-35618-33 | JB-35618-91 |
| Range | pH | -2.00 to 16.00 |
| | mV | ±2000 mV |
| | Ion | 0.0 to 19,999 |
| | Temperature | -17.0 to 230.0°F (-10.0 to 110.0°C) |
| Resolution | pH | 0.01 |
| | mV | 0.1 mV ±999.9 mV; 1 mV beyond |
| | Ion | 0.01 |
| | Temperature | 0.1°F/°C |
| Accuracy | pH | ±0.01 |
| | mV | ±0.2 mV ±2 LSD or ±0.5% of reading; whichever is greater |
| | Ion | ±0.5% full-scale (monovalent); ±1% full-scale (divalent) |
| | Temperature | ±0.9°F (±0.5°C) |
| Calibration | pH | Up to 6 points: USA, NIST, DIN |
| | mV | ±200 mV |
| | Ion | Up to 6 points |
| | Temperature | Offset 0.1 increments |
| Temperature compensation | Automatic or manual from -10 to 110°C | |
| Output | USB or RS-232 | |
| Data logging | 500 data sets | |
| Power | Two AA batteries (included) or optional universal power adapter | |

JB-35808-71 Replacement "All-in-One" combination pH electrode with built-in ATC; single-junction, epoxy body, BNC connector

JB-59001-65 Replacement pH electrode, single-junction, epoxy body

JB-35618-05 ATC probe. Use with any standard pH electrode for temperature compensation

JB-35614-51 Hard carrying case, for 150/450 meters

JB-35420-72 Optional power adapter, 110/220 VAC

JB-17106-20 NIST-traceable calibration with data for pH meter

JB-35808-71 Replacement "All-in-One" combination pH electrode with built-in ATC; single-junction, epoxy body, BNC connector

JB-59001-65 Replacement pH electrode, single-junction, epoxy body

JB-35618-05 ATC probe. Use with any standard pH electrode for temperature compensation

JB-35614-51 Hard carrying case, for 150/450 meters

JB-15944-89 Portable printer, thermal

JB-35420-72 Optional power adapter, 110/220 VAC

JB-17106-20 NIST-traceable calibration with data for pH meter

Oakton® Advanced Benchtop pH 2700 and pH/Ion 2700 Meters

Don't be out of compliance—meets GLP requirements!

- All calibration and stored data is stamped with time and date!
- Oversize, informative display shows all readings and measurement stability indicator
- Be more accurate—high 0.001 pH resolution with ± 0.002 pH accuracy
- Store and recall up to 500 sets of data—send data to a computer via the RS-232 port
- Meters automatically calculate and display electrode slope and offset—ideal for checking electrode quality
- Data logging intervals can be programmed into the meter for convenient continuous monitoring
- Calibrate up to 6 points for pH using USA, NIST, DIN, or custom buffer sets
- Prevent changes to meter setup and calibration with optional password protection
- View readings under dim conditions with bright backlight
- Informative display shows pH, Ion, Redox measurements together with temperature, electrode status, cal points, time and date all at once!
- Cal-due alarm lets you know when recalibration is necessary for measurement accuracy
- Visual stability indicator informs you when measurements have stabilized, eliminating guesswork

What's included: ATC probe 35613-13, pH electrode 35805-04, and 60 mL of electrode fill solution, 240 V power adapter.



OAKTON®

35420-20
pH 2700 meter

Don't Forget...

Calibration buffer solutions

For a complete offering of calibration buffer solutions, see pages 258–259.



Specifications

| | | |
|--------------------------|------------------|--|
| Range | pH | -2.000 to 20.000 |
| | mV / Rel mV | ± 2000 |
| | ISE [†] | 0.001 to 19,999 ppm |
| | Temperature | 32.0 to 212.0°F (0.0 to 100.0°C) |
| Resolution | pH | 0.001 / 0.01 / 0.1 |
| | mV / Rel mV | 0.1 mV |
| | ISE [†] | 2 or 3 digits |
| | Temperature | 0.1°F or °C |
| Accuracy | pH | $\pm 0.002 + 1$ LSD |
| | mV / Rel mV | ± 0.2 mV |
| | ISE [†] | $\pm 0.5\%$ of rdg (monovalent); $\pm 1\%$ of rdg (divalent) |
| | Temperature | $\pm 0.5^\circ\text{F}$ ($\pm 0.3^\circ\text{C}$) |
| Calibration | pH | Up to 6 points with autobuffer recognition |
| | mV / Rel mV | Up to ± 150 mV offset adjustment |
| | ISE [†] | Up to 8 concentration standards |
| Temperature compensation | | Automatic or manual from 32 to 212°F (0 to 100°C) |
| Buffer recognition | | USA, NIST, DIN or custom buffer sets |
| Slope control | | 80 to 120% |
| Data logging | | 500 data sets with time-and-date stamp |
| Output | | RS-232 |
| Display | | 3¼" x 2⅞" (83 x 62 mm) graphic LCD, backlit |
| Dimensions (L x W x H) | | 6⅞" x 6⅞" x 2¾" (155 x 175 x 69 mm) |
| Power | | 110/240 VAC, 50/60 Hz |

[†]Ion 2700 model only

| Model | Description | Catalog number |
|----------|-------------|--------------------|
| pH 2700 | Meter kit | JB-35420-20 |
| Ion 2700 | | JB-35421-00 |

Accessories

JB-15945-54 High-precision pH electrode, single junction, refillable, glass body, 3.3-ft (1-m) cable

JB-35630-53 USB cable

JB-35613-13 Replacement ATC probe

Portable Printer

Create permanent records of your data from Oakton meters with RS-232 output! This printer's compact size and rechargeable battery pack make it the perfect printer for both field use and crowded benchtop space. Includes printer cable, recharger, case, and one roll of paper.



JB-15944-89 Portable printer, thermal

Oakton® Benchtop CON 2700 Meter

Don't waste your valuable bench space

- No more squinting—large display allows for reading across the room
- Get the best resolution—autoranging feature reads 0 to 200.0 mS across five ranges
- More accurate—adjustable temperature coefficient, selectable cell constant, and automatic temperature compensation
- Store up to 500 readings for later retrieval

Oakton CON 2700 meter has advanced features for GLP-compliant readings—all calibration and stored data are stamped with time/date. Advanced setup options let you customize the meter to your needs. Informative display shows measurements together with temperature, electrode status, calibration points, time, and date all at once! Programmable functions include data logging intervals, limit alarms, and password protection. Data is easily exported to a computer via RS-232 port (order cable and adapter separately below).

What's included: conductivity/temperature probe 35412-10, electrode stand, and universal 100/240 VAC power supply.



Create permanent records of your data. Portable printer 15944-89, with rechargeable battery pack, is ideal for field and laboratory use.



Features water-resistant keypad and pull-out reference guide.

| Description | | CON 2700 meter |
|----------------------------|---|--|
| Catalog number | | JB-35412-00 |
| Range | Conductivity | 0.0 to 20.00, 0 to 200.0, 0 to 2000 µS; 0 to 20.00, 0 to 500.0 mS |
| | TDS | 0.050 to 500.0 ppt |
| | Salinity | 0.0 to 80.0 ppt |
| | Resistivity | 2.000 Ω to 20.0 MΩ |
| | Temperature | 32.0 to 212°F (0.0 to 100.0°C) |
| Resolution | Conductivity | 0.01, 0.1 µS; 0.001, 0.01, 0.1 mS |
| | TDS | 0.01, 0.1 ppm; 0.001, 0.01, 0.1 ppt |
| | Salinity | 0.01, 0.1 ppm; 0.001, 0.01, 0.1 ppt |
| | Resistivity | 0.01 MΩ; 0.001, 0.01 kΩ; 0.01, 0.1 Ω |
| | Temperature | 0.1°F or °C |
| Accuracy | Conductivity | ±1% full-scale |
| | TDS | ±1% full-scale |
| | Salinity | ±1% full-scale |
| | Resistivity | ±1% full-scale |
| | Temperature | ±0.5°F (±0.3°C) |
| Temperature compensation | Automatic or manual, adjustable from 0.0 to 10% per °F/°C | |
| Cell constant (K) | 0.010 to 10.000 | |
| Conductivity-to-TDS factor | Adjustable from 0.4 to 1.0 | |
| Data logging | 500 data sets | |
| Output | RS-232 | |
| Power | 100/240 VAC with universal adapter (included) | |

Conductivity Probes

| Cell constant (K) | Body/electrode | Catalog number |
|-----------------------------------|------------------------|----------------|
| 2-cell conductivity probes | | |
| 0.1 | Epoxy/platinum | JB-35608-72 |
| 1.0 | Ultem®/stainless steel | JB-35608-74 |
| 1.0 | Glass/platinum | JB-35608-76 |
| 10 | Epoxy/platinum | JB-35608-78 |
| 4-cell conductivity probes | | |
| 0.1 | Epoxy/platinum | JB-35608-90 |
| 1.0 | Epoxy/graphite | JB-35412-10 |
| 1.0 | Glass/platinum | JB-35608-92 |
| 10 | Epoxy/platinum | JB-35608-94 |

Oakton® Benchtop pH 700 Meter

- Simple calibration with 3-point automatic pH buffer recognition
- Compact with large display
- Find out more at ColeParmer.in



Accessories

- JB-35420-01 RS-232 cable for 2700 series meters
- JB-35630-53 USB cable for 2700 series meters
- JB-15944-89 Portable printer, thermal

Oakton® Benchtop PC 700 and PC 2700 Meters

Get all the readings you need in one compact unit

- Economical PC 700 for basic laboratory use
- Advanced PC 2700 for research grade use with ion capability

PC 700 Meter features pH auto-buffer recognition for both USA and NIST buffer sets, automatic or manual temperature compensation, and selectable temperature units. Previous calibration points, electrode slope and offset, and conductivity/TDS cell constants are stored in memory for quick and easy retrieval. Store up to 100 data sets in the meter's memory for retrieval later.

PC 2700 Meter meets GLP requirements—meter stamps all calibration and stored data with time/date. Nonvolatile memory stores up to 500 data sets to simplify documenting large volumes of pH, mV, ISE, conductivity, TDS, salinity, or resistivity measurements. Data is easily exported to a computer via RS-232 port. Order RS-232 and optional RS-232-to-USB adapter separately below.

Meter only includes: universal 110/240 VAC power supply and electrode stand.

Meter with probes adds: combination pH electrode 35805-04 and conductivity/temperature probe 35608-74 (PC 700) or 35412-10 (PC 2700).



Advanced features on PC 2700 for GLP compliance

OAKTON®

ISO9001:2008
CERTIFIED SUPPLIER



Meter only

| Model | PC 700 | | PC 2700 | | |
|----------------------------|-----------------------------------|---|---|--|---|
| | Description | Meter only | Meter with pH and conductivity/temperature probes | Meter only | Meter with pH and conductivity/temperature probes |
| Catalog number | | JB-35413-20 | JB-35413-00 | JB-35414-20 | JB-35414-00 |
| Range | pH | -2.00 to 16.00 | | -2.000 to 20.000 | |
| | mV/Rel mV | ±2000 | | ±2000.0 | |
| | ISE | — | | 0.001 to 19999 ppm | |
| | Conductivity | 0.0 µS to 200 mS | | 0.050 µS to 500.0 mS | |
| | TDS | 0.00 ppm to 100.0 ppt @ 0.5 factor (200.0 ppt @ 1.0 factor) | | 0.050 to 500.0 ppt | |
| | Salinity | — | | 0.0 to 80.0 ppt | |
| | Resistivity | — | | 2.000 Ω to 20.0 MΩ | |
| Temperature | 32.0 to 212°F (0.0 to 100.0°C) | | 32.0 to 212°F (0.0 to 100.0°C) | | |
| Resolution | pH | 0.01 pH | | 0.001, 0.01, 0.1 pH | |
| | mV/Rel mV | 0.1 within ±199.9 mV, 1 beyond ±199.9 mV | | 0.1 mV | |
| | ISE | — | | 2 or 3 digits | |
| | Conductivity | 0.01, 0.1, 1 µS; 0.01, 0.1 mS | | 0.01, 0.1 µS; 0.001, 0.01, 0.1 mS | |
| | TDS | 0.01, 0.1, 1 ppm; 0.01 0.1 ppt | | 0.01, 0.1 ppm; 0.001, 0.01, 0.1 ppt | |
| | Salinity | — | | 0.1 ppt | |
| | Resistivity | — | | 0.01 mΩ, 0.001, 0.01 kΩ, 0.01, 0.1 Ω | |
| Temperature | 0.1°F or °C | | 0.1°F or °C | | |
| Accuracy | pH | ±0.01 pH | | ±0.002 pH | |
| | mV/Rel mV | ±0.2 within ±199.9 mV, ±2 beyond 199.9 mV | | ±0.2 mV | |
| | ISE | — | | 0.5% full scale (monovalent), 1% full scale (divalent) | |
| | Conductivity | ±1% full-scale | | ±1% full-scale | |
| | TDS | ±1% full-scale | | ±1% full-scale | |
| | Salinity | — | | ±1% full-scale | |
| | Resistivity | — | | ±1% full-scale | |
| Temperature | ±0.9°F (±0.5°C) | | ±0.5°F (±0.3°C) | | |
| Calibration | pH | Up to 5 points (USA or NIST buffer sets) | | Up to 6 (USA, NIST, DIN, or custom buffer sets) | |
| | ISE | — | | Up to 8 points | |
| | Conductivity/TDS | 5 points (one point per range) | | 5 points (one point per range) | |
| Temperature compensation | Automatic or manual | | Automatic or manual | | |
| Conductivity cell constant | Fixed at K = 1.0 cm ⁻¹ | | Fixed at K = 1.0 cm ⁻¹ | | |
| Conductivity-to-TDS factor | Adjustable from 0.4 to 1.0 | | Adjustable from 0.4 to 1.0 | | |
| Data logging | 100 data sets | | 500 data sets | | |
| Output | — | | RS-232 | | |
| Power | 110/240 VAC universal adapter | | 110/240 VAC universal adapter | | |

Accessories

JB-35805-04 Replacement combination pH electrode; double-junction, glass body, refillable, 3.3-ft (1-m) cable

JB-35608-74 Replacement conductivity/temperature probe for 700-series meter; 2-cell, K = 1.0, Ultem®/stainless steel with ATC

JB-35412-10 Replacement conductivity/temperature probe for 2700-series meter; 4-cell, K = 1.0, epoxy/graphite

JB-35420-01 RS-232 cable for 2700-series meter

JB-22050-58 RS-232 to USB adapter (requires 35420-01 cable)

JB-15944-89 Portable printer, thermal

Star™ A-Series Benchtop pH and Conductivity Meter Kits

Don't second-guess readings—stable readings locked in with Auto-Read™ function

- Get more data with large display—temperature, electrode status, mode, calibration data, and more
- Be more accurate with improved stability algorithm, ATC temperature calibration, selectable cell constant and reference temperatures
- Multilanguage interface supports English, Spanish, French, Italian, German and Chinese
- GLP-related features include extended data sets with time-and-date stamp and electrode verification
- Individual method passwords provide better security
- Feature RS-232 and USB for connectivity
- Conductivity meters meet all US Pharmacopoeia (USP) requirements

All kits include: data analysis software, electrode arm with redesigned probe holder and universal power adapter.

Star A211 and A214 meter kits add: ROSS™ Triode pH/ATC electrode 05718-28; ATC probe; Star stirring probe; and 475 mL each of 4, 7, 10 buffers and storage solution.

Star A212 meter kit adds: conductivity probe (K = 0.475) and 1413 µS conductivity standard (five 60-mL bottles).

Star A215 meter kit adds: conductivity probe (K = 1), 1413 µS conductivity standard (five 60-mL bottles), ROSS™ Triode pH/ATC electrode, and pH 4, 7, 10 buffers and storage solution (475-mL bottles).



Meter only

| Model | A211 pH meter kit | A212 Cond meter kit | A214 pH/ion meter kit | A215 pH/Cond meter kit |
|--------------------------|--------------------|---|----------------------------|---|
| Catalog number | JB-58825-24 | JB-19704-24 | JB-58825-28 | JB-58825-38 |
| Parameters | pH/mV/temperature | Conductivity/TDS/salinity/resistivity/temperature | pH/mV/ion/temperature | pH/mV/conductivity/TDS/salinity/resistivity/temperature |
| Range | pH | — | —2.000 to 20.000 | —2.000 to 20.000 |
| | mV | ±2000.0 mV | — | ±2000.0 mV |
| | ISE | — | — | 0 to 19999 |
| | Conductivity | — | 0.001 µS to 3000 mS | — |
| | TDS | — | 0 to 200 ppt | — |
| | Salinity | — | 0.01 to 80.0 ppt NaCl | — |
| | Resistivity | — | 2 Ω to 100 MΩ | — |
| Resolution | Temperature | 23 to 221°F (–5 to 105°C) | 23 to 221°F (–5 to 105°C) | 23 to 221°F (–5 to 105°C) |
| | pH | 0.1, 0.01, 0.001 | — | 0.1, 0.01, 0.001 |
| | mV | 0.1 | — | 0.1 |
| | ISE | — | — | 3 significant digits |
| | Conductivity | — | 0.001 µS | — |
| | TDS | — | 4 significant digits | — |
| | Salinity | — | 0.01 | — |
| Accuracy | Resistivity | — | 2 Ω | 2 Ω |
| | Temperature | 0.1 | 0.1 | 0.1 |
| | pH | ±0.002 | — | ±0.002 |
| | mV | ±0.2 or 0.05% of reading | — | ±0.2 or 0.05% of reading |
| | ISE | — | — | ±0.2 mV or 0.05% of reading |
| | Conductivity | — | ±0.5% of reading ± 1 digit | — |
| | TDS | — | ±0.5% of reading ± 1 digit | — |
| Temperature compensation | Salinity | — | ±0.1 | ±0.1 |
| | Resistivity | — | 0.5% of reading ± 1 digit | 0.5% of reading ± 1 digit |
| | Temperature | ±0.1 | ±0.1 | ±0.1 |
| | Calibration points | Automatic or manual | Automatic or manual | Automatic or manual |
| | Buffer recognition | Up to 5 | Up to 5 | Up to 5 |
| Data logging | USA, NIST, and DIN | — | USA, NIST, and DIN | |
| Output | — | 2000 points with time/date stamp | — | |
| Power | — | RS-232, USB | — | |
| | — | 100 to 240 VAC (power adapter included) or four AA batteries (not included) | — | |

Accessories

JB-58825-50 Electrode arm

JB-58825-51 Base for electrode arm

JB-58822-03 Replacement AC power adapter

JB-19704-70 Orion DuraProbe conductivity probe, K = 0.475

JB-19704-46 Conductivity calibration kit, resistor set

JB-05718-34 ROSS Triode pH/ATC electrode

JB-55350-68 pH buffer kit. Includes 473 mL each of 4, 7, 10 buffers and storage solution, and 60 mL of cleaning solution

JB-09376-01 Batteries, AA. Pack of 4

Jenway® Benchtop pH and pH/Conductivity Meters

Ideal for quality control and GLP applications

- 3510 is a versatile, simple-to-use pH meter that is ideal for routine analysis
- 3520 dynamic pH meter offers a comprehensive range of features and functions
- 3540 provides a simultaneous display of pH and conductivity

3510 pH Meter

With up to three decimal place resolution and a choice of up to three calibration points, model 3510 provides you with added flexibility where future demands for enhanced performance may be required. A choice of pH calibration buffers to DIN, JIS and NIST standards can be used for automatic calibration, as well as manually entered buffer values. The pH measurement meter also has the ability to store up to 32 results.

3520 Advanced pH Meter

Ideal for quality control and GLP applications. Up to three decimal place resolution with automatic or manual buffer selection. Storage of up to 500 results with RS-232 connection to printer or PC or IrDA communication making it suitable for the broadest range of GLP-based applications. Built-in data logger can store, print or output readings based on a wide range of trigger options, making this model suitable for monitoring and controlling pH levels.

3540 Combined pH/Conductivity Meter

Ideal for use in all laboratories where pH and conductivity analyses are required. The setup menu gives quick and easy access to the whole range of instrument, pH and conductivity measurement options. Two independent channels prevent interference between probes. Calibration of both channels is automatic, with the option to select 1, 2 or 3 calibration points. Additional modes for resistivity, salinity, TDS and mV. GLP functions include user and sample batch identity, calibration reminder, security setup and date/time stamping of results.

pH meter kits include: glass combination pH electrode (99960-35), electrode stand and holder, ATC probe (99959-71), BNC shorting plug, pH buffers (4, 7 and 10) and power supply.

pH/conductivity meter kit includes: glass combination pH electrode (99960-35), glass conductivity probe (K=1, 01491-11), electrode stand and holder, ATC probe (99959-71), BNC shorting plug, pH buffers (4, 7 and 10) and power supply.

NEW

Please see pages 258–259 for a variety of pH buffers and conductivity solutions.

Call us for application-specific pH electrodes such as life science, Tris buffer, and high-temperature applications.



| Model | 3510 | 3520 | 3540 |
|------------------------------|---|---|---|
| Catalog number | JB-35459-02 | JB-35459-08 | JB-99959-96 |
| pH range | -2.000 to 19.999 | -2.000 to 20.000 | -2.000 to 20.000 |
| pH resolution | 0.001 / 0.01 / 0.1 | 0.001 / 0.01 / 0.1 | 0.001 / 0.01 / 0.1 |
| pH accuracy | ±0.003 | ±0.003 | ±0.003 |
| Calibration | 1, 2 or 3 points; user selectable | 1, 2 or 3 points; user selectable | 1, 2 or 3 points; user selectable |
| Automatic buffer recognition | Jenway (2.00, 4.00, 7.00, 9.20 and 10.00), DIN, NIST, JIS | Jenway (2.00, 4.00, 7.00, 9.20 and 10.00), DIN, NIST, JIS | Jenway (2.00, 4.00, 7.00, 9.20 and 10.00), DIN, NIST, JIS |
| mV range | ±1999.9 mV | ±1999.9 mV | ±1999.9 mV |
| mV resolution | 0.1 / 1 mV | 0.1 / 1 mV | 0.1 mV |
| mV accuracy | ±0.2 mV | ±0.2 mV | ±0.2 mV |
| Conductivity range | — | — | Autoranging from 0.01 µS to 1.999 S |
| Conductivity resolution | — | — | 0.01 µS to 1 mS |
| Conductivity accuracy | — | — | ±0.5 ± 2 digits |
| Temperature range | -10 to 105°C | -10 to 105°C | -10 to 105°C |
| Temperature resolution | 0.1°C | 0.1°C | 0.1°C |
| Temperature accuracy | ±0.5°C | ±0.5°C | ±0.5°C |
| ATC range | 0 to 100°C | 0 to 100°C | 0 to 100°C |
| GLP | — | Yes | Yes |
| Memory | 32 readings | 500 readings | 500 readings (250 for each mode) |
| Outputs | Analog and RS-232 | Analog, RS-232 and IrDA | Analog, RS-232 and IrDA |
| Connectors | BNC | BNC | BNC (pH) and 7-pin DIN (conductivity) |
| Power | 230 VAC, 50/60 Hz | 230 VAC, 50/60 Hz | 230 VAC, 50/60 Hz |

VERSA STAR™ Advanced Electrochemistry Meter

Configure to your exact needs

- Customize the four measurement channels as you need—meter automatically recognizes module changes
- Intuitive multilanguage interface on large, color graphic LCD
- Nonvolatile memory holds up to 2000 data points with time-and-date stamp
- Simple data transfer and meter updates with included software and USB and RS-232 ports
- Select from five interchangeable parameter modules:
 - pH/temperature
 - Conductivity/temperature
 - Dissolved oxygen/RDO/temperature
 - pH/ISE/temperature
 - pH/temperature with LogR technology (advanced electrode diagnostics and temperature-compensated pH readings)

This advanced electrochemistry meter provides the versatility to operate up to four measurement channels at the same time. Simply choose from five parameter modules to customize the meter as you need it for now—and change out modules at a later time. Meter automatically recognizes the module changes, so there's no need to turn unit off.

Easily set the large, color graphic LCD to show all four channels or customize with only the information you need. Display shows readings with temperature, connections, time, date, sample ID, user ID and calibration data. Plain language screen prompts, soft keys, and a multilanguage interface which supports English, Spanish, French, Italian, German, and Chinese.

What's included: data analysis software, electrode arm with redesigned holder, and universal AC power adapter.



Specifications

| | Range | Resolution | Accuracy |
|----------------------------------|------------------------------------|-------------------------|--|
| pH | -2.000 to 20.000 | 0.1, 0.01, 0.001 | ±0.002 |
| mV | ±2000.0 | 0.1 | ±0.2 or 0.05% of reading |
| ISE | 0 to 19999 | 4 significant figures | ±0.2 or 0.05% of reading |
| Conductivity | 0.001 µS to 3000 mS | 4 significant figures | 0.5% of reading ± 1 digit |
| TDS | 0 to 200 ppt | 4 significant figures | 0.5% of reading ± 1 digit |
| Salinity/Resistivity | 0.01 to 80.0 ppt; 2 Ω to 100 MΩ | 0.01 ppt; 2 <ohm>-cm | ±0.1; 0.5% of reading ± 1 digit |
| Dissolved oxygen (polarographic) | 1 to 90 mg/L; 0 to 600% saturation | 0.01, 0.1 mg/L; 0.1, 1% | ±0.2 mg/L; ±2% |
| Dissolved oxygen (RDO) | 0 to 50 mg/L; 0 to 500% saturation | 0.01, 0.1 mg/L; 0.1, 1% | ±0.2 up to 20 mg/L, 10% of reading from 20 to 50 mg/L; ±2% |
| Temperature | 23 to 221°F (-5 to 105°C) | 0.1 | ±0.1 |
| Temperature compensation | | | Automatic or manual |
| Calibration points | | | Up to 6 |
| Buffer recognition | | | USA, NIST, and DIN |
| Data logging | | | 2000 data points, time-and-date stamped |
| Output | | | USB, RS-232 |
| Power | | | 90 to 260 VAC, 50/60 Hz (power adapter included) or four AA batteries (not included) |

| Description | Meters | | Kits |
|---|----------------|----------------|----------------|
| | Catalog number | Catalog number | Catalog number |
| Meter only (no module) | JB-58825-80 | | — |
| Meter with pH module | JB-58825-81 | | JB-58825-82 |
| Meter with conductivity module | JB-58825-83 | | JB-58825-84 |
| Meter with DO/RDO module | JB-58825-85 | | JB-58825-86 |
| Meter with pH LogR module | JB-58825-93 | | JB-58825-94 |
| Meter with pH/ISE module | JB-58825-87 | | JB-58825-88 |
| Meter with two pH/ISE modules | JB-58825-89 | | JB-58825-90 |
| Meter with pH and conductivity modules | JB-58825-91 | | JB-58825-92 |
| Meter with pH/ISE, conductivity, and DO/RDO modules | JB-58825-95 | | JB-58825-96 |
| Meter with two pH/ISE, one conductivity, and one DO/RDO modules | JB-58825-97 | | JB-58825-98 |

Interchangeable Parameter Modules

JB-58825-21 pH module includes mV and temperature measurements. With 6-point calibration with automatic recognition of NIST, USA, and DIN buffers

JB-58825-23 Conductivity module includes TDS, salinity, resistivity, and temperature measurements. With selectable reference temperatures and 6 calibration points

JB-58825-25 DO/RDO module includes BOD and temperature measurements for polarographic or RDO optical probes. With barometric pressure and salinity factor corrections

JB-58825-27 pH/ISE module includes mV and temperature measurements. With 6-point calibration, auto-blank, timed end point, and low concentration stability

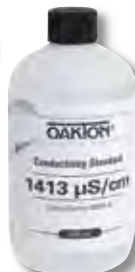
JB-58825-29 pH with LogR module includes mV and temperature measurements. Provides temperature-compensated pH readings without a temperature sensor. With advanced electrode diagnostics

Convenient meter kits contain all the probes, solutions, and accessories you need to start measuring right out of the box.

Oakton® Calibration Solutions

Save money while calibrating

- KCl, NaCl, and 442 conversions printed right on the bottle
- Temperature corrections at hand—printed right on the bottle



| Conductivity (µS) | Conductivity-to-TDS calibration values | | | Catalog number |
|-------------------|--|----------|---------|----------------|
| | ppm KCl | ppm NaCl | ppm 442 | |
| 23 | 11.6 | 10.7 | 14.74 | JB-00653-23 |
| 84 | 40.38 | 38.04 | 50.5 | JB-00653-16 |
| 447 | 226 | 215 | 300 | JB-00653-47 |
| 1413 | 745 | 702 | 1000 | JB-00653-18 |
| 1500 | 757 | 737 | 1050 | JB-00653-15 |
| 2070 | 1045 | 1041 | 1500 | JB-00653-27 |
| 2764 | 1382 | 1414 | 2062 | JB-00653-20 |
| 8974 | 5101 | 4487 | 7608 | JB-00653-89 |
| 12,880 | 7447 | 7230 | 11,367 | JB-00606-10 |
| 15,000 | 8759 | 8532 | 13,455 | JB-00653-50 |
| 80,000 | 52,168 | 48,384 | 79,688 | JB-00653-32 |

Conductivity Calibration Pouches

Calibrate on the go!

- Single-use pouches for easy calibrations
- Quick-reference conversion table printed on each pack
- Sold in packs of 20



| Conductivity (µS) | Conductivity-to-TDS calibration values | | | Catalog number |
|-------------------|--|----------|---------|----------------|
| | ppm KCl | ppm NaCl | ppm 442 | |
| 10 | 4.8 | 4.7 | 7.0 | JB-35653-09 |
| 447 | 226 | 216 | 300 | JB-35653-10 |
| 1413 | 745 | 702 | 1000 | JB-35653-11 |
| 2764 | 1382 | 1414 | 2062 | JB-35653-12 |
| 15,000 | 8759 | 8532 | 13,445 | JB-35653-13 |
| Rinse solution | — | — | — | JB-35653-00 |

Cole-Parmer® Extended-Life Conductivity Standards

Extend shelf life to 5 years!

- Sealed, metal-lined storage envelope eliminates transpiration—store standards up to 5 years before opening
- Open sealed envelope to begin the 1-year shelf life—bottle and Certificate of Analysis have a convenient marking area to write the new expiration date
- NIST-traceable calibration report from an ISO Guide 34 and ISO 17025 accredited laboratory included with each 17-oz (500-mL) bottle



| Conductivity (µS) | Resistivity (MΩ) | Conductivity-to-TDS calibration values (ppm KCl) | Catalog number |
|-------------------|------------------|--|----------------|
| 2 | 0.5 | 0.3 | JB-00651-41 |
| 10 | 0.1 | 4.4 | JB-00651-42 |
| 100 | 0.01 | 51 | JB-00651-43 |
| 147 | 0.007 | 73 | JB-00651-44 |
| 1000 | 0.001 | 524 | JB-00651-45 |
| 1413 | 0.00071 | 745 | JB-00651-46 |
| 10,000 | 0.0001 | 5695 | JB-00651-47 |
| 100,000 | 0.00001 | 65,611 | JB-00651-48 |

Oakton® Traceable® Conductivity Solutions, NIST-Traceable Reference Materials

Trust your standards—high accuracy

- Up to ±0.25% accuracy verified by an ISO Guide 34 and ISO 17025 accredited lab



A. Batch-Tested Bottles, 500 mL

- Easy calibration with included instructions and temperature compensation chart
- Includes NIST-traceable certificate and batch testing information

B. Individually Tested Bottles, 500 mL

- Each bottle individually calibrated—NIST-traceable certificate included with serial number and testing information
- Easy calibration with step-by-step instructions and included temperature compensation chart

C. One-Shot® Vials, pack of six 100 mL vials

- Fresh solution each time you calibrate—single-use vials eliminate contamination
- Grab it and go—convenient for field use; calibrate right in vial
- Includes NIST-traceable calibration report and temperature compensation chart



| Conductivity (µS) | Resistivity (MΩ) | TDS (ppm) | Catalog number |
|--|------------------|-----------|----------------|
| A. Batch tested, one 500 mL bottle | | | |
| 100 | 0.01 | 66 | JB-00652-26 |
| 1000 | 0.001 | 666 | JB-00652-28 |
| 1413 | 0.00071 | 933 | JB-00652-30 |
| 10,000 | 0.0001 | 6666 | JB-00652-32 |
| 100,000 | 0.00001 | 66,666 | JB-00652-34 |
| 150,000 | 0.0000066 | 100,000 | JB-00652-53 |
| 200,000 | 0.000005 | 133,333 | JB-00652-55 |
| B. Individually tested, one 500 mL bottle | | | |
| 100 | 0.01 | 66 | JB-00652-46 |
| 1000 | 0.001 | 666 | JB-00652-48 |
| 1413 | 0.00071 | 933 | JB-00652-50 |
| 10,000 | 0.0001 | 6666 | JB-00652-52 |
| 100,000 | 0.00001 | 66,666 | JB-00652-54 |
| 150,000 | 0.0000066 | 100,000 | JB-00652-56 |
| 200,000 | 0.000005 | 133,333 | JB-00652-58 |
| C. One-Shot®, pack of six 100 mL vials | | | |
| 100 | 0.01 | 66 | JB-00652-64 |
| 1000 | 0.001 | 666 | JB-00652-66 |
| 1413 | 0.00071 | 933 | JB-00652-68 |
| 10,000 | 0.0001 | 6666 | JB-00652-70 |
| 100,000 | 0.00001 | 66,666 | JB-00652-72 |
| 150,000 | 0.0000066 | 100,000 | JB-00652-76 |
| 200,000 | 0.000005 | 133,333 | JB-00652-78 |
| Assortment† | — | — | JB-00652-74 |

† Assortment has one 100-mL vial each of 10, 100, 1000, 1413, 10,000, and 100,000 µS.



On bulk orders

Oakton® pH Buffer Solutions

Keep your readings accurate with these quality buffers

- Standardized against NIST-traceable pH references for meters with 0.01 resolution



Save by ordering larger sizes or by the case!



| pH | 60-mL bottle | 500-mL bottle | | 1-L bottle | 4-L bottle | |
|-------|--------------------------|-----------------------|---------------------------|-----------------------|-----------------------|--------------------------|
| | Catalog number (pk of 5) | Catalog number (each) | Catalog number (cs of 12) | Catalog number (each) | Catalog number (each) | Catalog number (cs of 4) |
| 1.68 | JB-00653-07 | JB-00654-01 | — | — | — | — |
| 4.01 | JB-00653-08 | JB-00654-00 | JB-05942-21 | JB-05942-22 | JB-05942-24 | JB-05942-25 |
| 6.86 | JB-00653-11 | JB-00654-03 | — | — | — | — |
| 7.00 | JB-00653-09 | JB-00654-04 | JB-05942-41 | JB-05942-42 | JB-05942-44 | JB-05942-45 |
| 9.18 | JB-00653-12 | JB-00654-07 | — | — | — | — |
| 10.01 | JB-00653-10 | JB-00654-08 | JB-05942-61 | JB-05942-62 | JB-05942-64 | JB-05942-65 |
| 12.46 | JB-00653-13 | JB-00654-12 | — | — | — | — |

Oakton® pH Buffer Pack

Maintain accuracy and your budget

- Save money by purchasing buffer pack—includes 500 mL bottle of pH 4, 7, and 10 NIST-traceable buffers



Oakton® Traceable® One-Shot™ pH Buffer Solutions

NEW

- Eliminate cross-contamination with convenient, single-use vials
- Include NIST-traceable calibration report stating accuracy at 25°C to ±0.010 pH
- Pack contains six 100-mL vials—choose clear or colored solutions



| pH | Clear pH buffer solutions | Colored pH buffer solutions | |
|--------|---------------------------|-----------------------------|----------------|
| | Catalog number | Color | Catalog number |
| 4.005 | JB-00655-30 | Red | JB-98767-77 |
| 7.000 | JB-00655-32 | Yellow | JB-98767-78 |
| 7.416 | JB-00655-36 | — | — |
| 10.012 | JB-00655-34 | Blue | JB-98767-79 |

| Description | Qty/pk | Catalog number |
|----------------|-----------|----------------|
| pH buffer pack | 3 bottles | JB-05942-10 |

Oakton® Traceable® pH Buffers, NIST-Traceable Reference Materials

- Calibrated by ISO Guide 34 and ISO 17025 accredited laboratory—includes NIST-traceable certificate
- 100% compatible with all makes of pH meters and all accreditation analysis requirements
- Easy calibrations—include instructions and temperature compensation chart

NEW



Oakton® pH Buffer Pouches

Keep your accuracy even on the go!

- Single-use pouch—just tear, dip, calibrate
- Standardized to NIST-traceable pH references
- Sold in pack of 20 pouches



| pH | Catalog number |
|----------------|----------------|
| 4.01 | JB-35653-01 |
| 7.00 | JB-35653-02 |
| 10.00 | JB-35653-03 |
| Rinse solution | JB-35653-00 |

| pH | 500-mL bottle | 1-L bottle | 4-L bottle |
|----------------------------|----------------|----------------|----------------|
| | Catalog number | Catalog number | Catalog number |
| Colorless buffers | | | |
| 4.005 | JB-00651-00 | JB-00651-30 | JB-00651-70 |
| 7.000 | JB-00651-02 | JB-00651-32 | JB-00651-72 |
| 10.012 | JB-00651-04 | JB-00651-34 | JB-00651-74 |
| Color-coded buffers | | | |
| 4.005 (red) | JB-00651-06 | JB-00651-36 | JB-00651-76 |
| 7.000 (yellow) | JB-00651-08 | JB-00651-38 | JB-00651-78 |
| 10.012 (blue) | JB-00651-10 | JB-00651-40 | JB-00651-80 |

JB-35653-04 Buffer pouch assortment pack; contains five pouches each of pH 4, 7, and 10 buffers and rinse solution

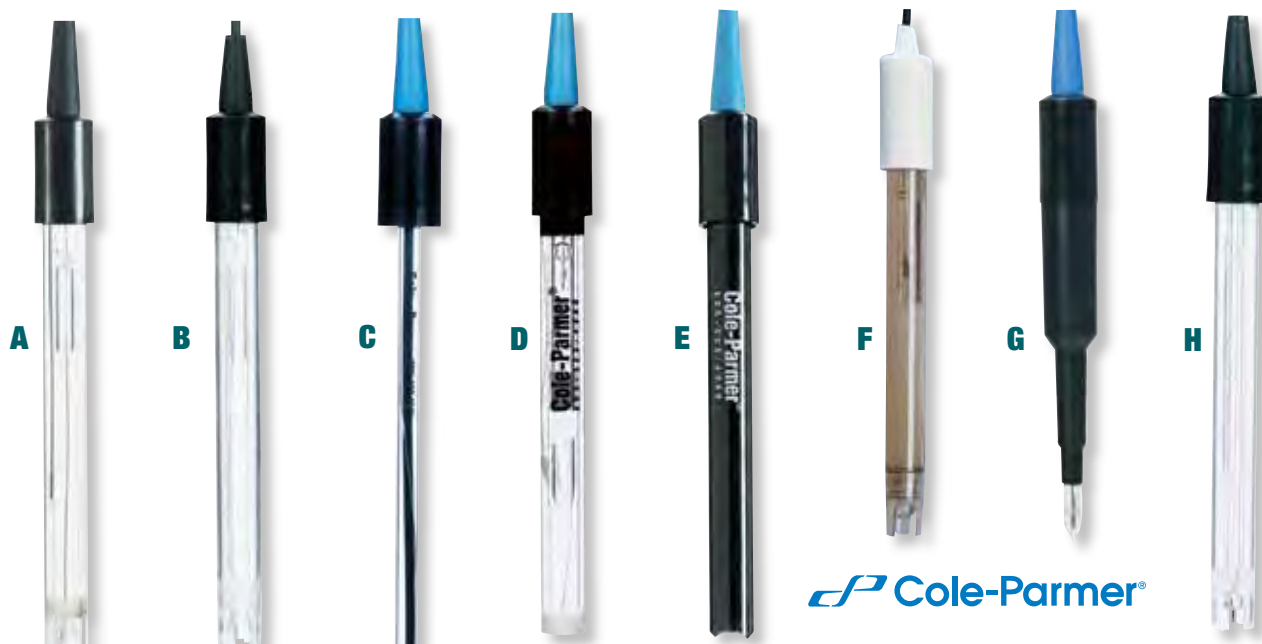
Cole-Parmer® Epoxy-Body Combination pH and ORP Electrodes

Get fast, stable readings

- Impact resistant—epoxy-body housing for added strength
- Ideal for your general-purpose applications in the lab or field
- Compatible with most brands of pH meter

These electrodes are ideal for prolonged pH or ORP readings. Electrodes with sealed, gel-filled design require virtually no maintenance. Electrodes with PTFE reference-junction offer extended electrode life. All listed electrodes have Ag/AgCl reference cells.

What's included: 3.3-ft (1-m) cable with BNC connector.



| Key | Description | Reference junction | Type | Maximum temperature | Length x dia (mm) | Catalog number |
|---|---|--------------------|--------------|---------------------|-------------------|--------------------|
| General-purpose pH electrodes | | | | | | |
| A | General purpose | Single | Sealed | 176°F (80°C) | 127 x 12 | JB-59001-65 |
| | For dirty samples | Double | | | | JB-59001-70 |
| B | General purpose, refillable | Single | Refillable† | 176°F (80°C) | 148 x 12 | JB-05992-30 |
| | For dirty samples, refillable | Double | | | | JB-05991-12 |
| C | Extra-long neck for test tube sampling | Single | Sealed | 176°F (80°C) | 220 x 6 | JB-05990-45 |
| D | Flat tip for surface or low-volume sampling | Single | Sealed | 176°F (80°C) | 127 x 12 | JB-05990-65 |
| PTFE reference-junction pH electrodes (clog resistant) | | | | | | |
| E | General purpose | Single | Sealed | 212°F (100°C) | 110 x 12 | JB-05992-00 |
| | For dirty samples | Double | | | | JB-05992-02 |
| Special-purpose pH electrodes | | | | | | |
| F | Coiled-cable for dirty samples | Double | Sealed | 176°F (80°C) | 140 x 12 | JB-05993-28 |
| G | Spear-tip for dirty samples | | | | 110 x 10 | JB-59002-24 |
| ORP electrodes | | | | | | |
| A | General purpose | Single | Sealed | 176°F (80°C) | 127 x 12 | JB-59001-75 |
| | For dirty samples | Double | | | | JB-59001-77 |
| H | General purpose, refillable | Single | Refillable†† | 176°F (80°C) | 155 x 12 | JB-05990-55 |

†Use fill solution 05992-48 ††Use fill solution 05992-47

JB-05992-48 Reference fill solution, 4 M KCl. Two 125-mL bottles

JB-05992-47 Reference fill solution, 3.8 M KCl with AgCl. Two 125-mL bottles

JB-05983-25 Adapter, BNC to US standard plug meter

Wait, there's more!

Browse **100,000+** products plus find **Technical Resources** at ColeParmer.in

Cole-Parmer® Glass-Body Combination pH and ORP Electrodes

Faster response and increased stability across 0 to 14 pH range

- More durable—dome bulb for better protection from breakage
- Withstand higher temperatures and chemical attack
- Get more stability in low-ionic strength solutions
- Resistant to Na⁺ ion interferences
- Compatible with most brands of pH meters

Available as refillable or sealed design for single, double, and annular Ag/AgCl junctions. Single-junction is ideal for clean samples; double junction is compatible with sulfates, Tris, and proteins; and annular junction is ideal for dirty samples.

What's included: 3.3-ft (1-m) cable and BNC connector.



| Key | Description | Reference junction | Type | Maximum temperature | Length x dia (mm) | Catalog number |
|--------------------------------------|--|--------------------|-------------|---------------------|-------------------|--------------------|
| General-purpose pH electrodes | | | | | | |
| A | General-purpose, laboratory | Single | Refillable | 212°F (100°C) | 154 x 12 | JB-05991-22 |
| | General-purpose for TRIS, sulfates, proteins | Double | | | 154 x 12 | JB-59001-34 |
| B | Rugged, low maintenance | Single | Sealed | 212°F (100°C) | 123 x 9.5 | JB-05991-81 |
| | Rugged for TRIS, sulfates, proteins | Double | | | 124 x 9.5 | JB-59001-36 |
| C | General-purpose, thin neck | Single | Refillable† | 212°F (100°C) | 154 x 8 | JB-05991-42 |
| D | Long neck for small test tubes | | | | 210 x 6 | JB-05991-61 |
| E | Long neck for large test tubes | | | | 210 x 8 | JB-05991-51 |
| F | Extra-long neck for flasks and bottles | | | | 326 x 8 | JB-05990-40 |
| Special-purpose pH electrodes | | | | | | |
| G | High temperature, KNO ₃ gel | Double | Sealed | 248°F (120°C) | 130 x 12 | JB-05998-30 |
| H | Spear tip for piercing semisolids and foods | Single | Sealed | 212°F (100°C) | 159 x 8 | JB-05998-20 |
| I | Soil electrode, eliminates "suspension effect" | Annular | Refillable† | 212°F (100°C) | 145 x 12 | JB-05992-62 |
| J | Flat-tip for surface or low volume sampling | Double | Refillable† | 212°F (100°C) | 130 x 12 | JB-05991-44 |
| ORP electrodes | | | | | | |
| A | General purpose | Single | Sealed | 212°F (100°C) | 110 x 12 | JB-05991-08 |
| | For dirty samples | Double | | | | JB-05991-18 |

†Use fill solution 05992-47.

Accessories

JB-05992-47 Reference fill solution for refillable electrodes, 3.8 M KCl with AgCl. Two 125-mL bottles

JB-05983-25 Adapter, BNC to US standard plug meter

Use and Care of Electrodes

Handling—Rinse between samples with distilled or deionized water only and gently blot (never wipe) dry with a lab wipe.

Refillable Electrodes—When adding filling solution, fill up to, but not past, the refill hole. When measuring, leave the refill hole open for proper flow through the reference junction.

Calibration—Using NIST-traceable pH buffers will align the two half cells of the electrode and pH meter. It is important to use fresh buffer. Use pH 7 (for offset) and at least one other buffer (for slope) to frame the pH range of your samples.

Storage—Always keep your pH electrode moist by storing it in 4 M KCL solution. If 4 M KCL is not available, use a pH 4 or 7 buffer solution. (**Note:** Do not store electrode in distilled or deionized water.)

After storage, if you notice white KCl crystals forming outside your electrode, simply rinse the electrode and blot dry with a lab wipe before use.

Protective Bottle—Electrodes are shipped with a protective bottle over the glass bulb. Remove the bottle by unscrewing the cap before using your electrode. For long-term storage just fill the bottle with enough 4 M KCL solution to cover the glass bulb and replenish as needed to keep the bulb moist.

Cole-Parmer® pH Microelectrode

Ideal where sample volume is critical

- Unique sensor technology for faster response, increased stability, and greater durability
- 3-mm diameter tip fits into microtubes and small lab vessels with sample volume of 50 μL
- Response time is 0.01 pH units in 10 seconds
- Compatible with most brands of pH meters that accept standard BNC connections



Cole-Parmer®

What's included: 3.3-ft (1-m) cable and BNC connector.

| Applications | Type | pH range | Max temperature | Length x dia | Catalog number |
|------------------------|------------------------------------|----------|-----------------|-----------------------|--------------------|
| Small-diameter vessels | Glass, single-junction, refillable | 0 to 14 | 70°C | 60 x 12 mm, 60 x 3 mm | JB-15945-56 |

Cole-Parmer® pH Semi-Microelectrode

Precise readings from samples as small as 200 μL

- Offers faster response and increased stability
- 6-mm dia tip easily fits into microtubes and other small vessels
- Stable, accurate readings within 0.01 pH units in just 10 seconds
- Compatible with most pH meters using standard BNC connections



Cole-Parmer®

What's included: 3.3-ft (1-m) cable and BNC connector.

| Applications | Type | pH range | Max temperature | Length x dia | Catalog number |
|------------------------|-----------------------------------|----------|-----------------|-----------------------|--------------------|
| Small-diameter vessels | Glass, single-junction refillable | 0 to 14 | 70°C | 60 x 12 mm, 40 x 6 mm | JB-15945-55 |

Need Help Selecting?

Trust our **expert** Application Specialists to help you find the right product.

022-6139-4444
info@coleparmer.in

Cole-Parmer® High-Precision pH Electrode

Fast, stable readings even at extreme pH values

- Get accurate, reliable, and fast readings for all 5-point calibration needs
- Stable readings to 0.01 pH units in just 10 seconds
- Effective in low-ionic strength samples
- Compatible with most pH meters that accept standard BNC connections



Cole-Parmer®

What's included: 3.3-ft (1-m) cable and BNC connector.

| Applications | Type | pH range | Max temperature | Length x dia | Catalog number |
|-----------------------------|-----------------------------------|----------|-----------------|--------------|--------------------|
| General purpose, laboratory | Glass, single-junction refillable | 0 to 14 | 70°C | 120 x 12 mm | JB-15945-54 |

Oakton® Combination pH and ORP Electrodes

Don't sacrifice performance for price!

- Use with all Oakton pH meters
- Won't break—epoxy electrodes resist impact and are extremely durable
- Glass electrodes resist aggressive chemicals

Choose junction and tip style based on your application. All electrodes feature Ag/AgCl reference cells.

What's included: direct-connect models include a BNC connector. Other models add a 3.3-ft (1-m) cable.

OAKTON®



| Key | Description | Reference junction | Type | Maximum temperature | Length x dia(mm) | Catalog number |
|--|--|--------------------|------------|---------------------|------------------|----------------|
| Glass-body combination pH electrodes | | | | | | |
| A | For dirty samples | Double | Refillable | 212°F (100°C) | 110 x 12 | JB-35805-04 |
| B | Speare tip for piercing semi-solids and foods, for dirty samples | | Sealed | | 110 x 8 | JB-35805-18 |
| Epoxy-body combination pH electrodes | | | | | | |
| C | General-purpose | Single | Sealed | 158°F (70°C) | 110 x 12 | JB-35805-05 |
| D | General-purpose, direct connect | Single | Sealed | 176°F (80°C) | 155 x 12 | JB-35804-00 |
| E | For dirty samples | Double | Sealed | 176°F (80°C) | 110 x 12 | JB-35805-01 |
| F | For dirty samples, direct connect | Double | Sealed | 176°F (80°C) | 155 x 12 | JB-35804-02 |
| G | For dirty samples, flushable junction | Double | Refillable | 176°F (80°C) | 110 x 12 | JB-35805-09 |
| Epoxy-body combination ORP electrodes | | | | | | |
| H | General-purpose | Single | Sealed | 176°F (80°C) | 110 x 12 | JB-35805-13 |
| | For dirty samples | Double | | | | JB-35805-15 |

Accessories

JB-35803-74 Reference fill solution for refillable electrodes. 4 M KCl. 125-mL bottle

Oakton® “All-in-One” pH/Temperature Electrodes

Get more out of your Oakton pH meter

- Get accurate, reliable pH readings
- No more worrying about temperature fluctuations—thermistor automatically compensates for temperature
- Use with virtually all Oakton handheld and benchtop units

Glass “all-in-one” electrode is refillable for accurate and stable pH measurements. Double-junction design ensures long life with dirty, troublesome samples such as wastewater or Tris buffer. **Epoxy “all-in-one” electrodes** are sealed for low maintenance and can withstand rugged applications. Epoxy electrodes are available with single-junction for clean aqueous samples or double-junction for dirty samples.

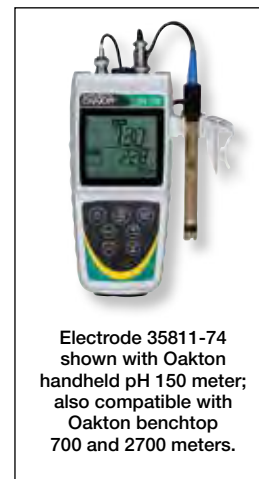
What's included: 3.3-ft (1-m) cable with BNC pH connection, and 2.5-mm mini-audio plug ATC connection.

OAKTON®

| Description | Type | pH range | Max temperature | Length x dia (mm) | Catalog number |
|------------------------|------------|----------|-----------------|-------------------|----------------|
| Glass, double-junction | Refillable | 0 to 14 | 230°F (110°C) | 115 x 12 | JB-35811-74 |
| Epoxy, single-junction | Sealed | | 176°F (80°C) | | JB-35811-71 |
| Epoxy, double-junction | Sealed | | 176°F (80°C) | | JB-35811-72 |

Accessories

JB-05992-47 Reference fill solution for glass electrode; 3.8 M KCl with Ag/Cl. Pack of two 125-mL bottles



Electrode 35811-74 shown with Oakton handheld pH 150 meter; also compatible with Oakton benchtop 700 and 2700 meters.

Cole-Parmer® Combination Ion-Selective Electrodes and Solutions

Save money and frustration—cost effective and easy to use

– Easily fit into small spaces—no additional reference electrode is needed

Electrodes are double-junction combination ion-selective electrodes and are convenient to use in places where two electrodes won't fit. Use with a meter that has a resolution of 0.1 mV for the most accurate results; a meter with direct readings in ppm is preferred. For monitoring ions not listed below or for more electrode application information, call our Application Specialists.

Economy Epoxy Electrodes have a durable epoxy body and are well-suited for portable field applications. Outer reference chamber is silver-free and resists contamination. These electrodes are refillable.

Laboratory Glass Electrodes are double-junction in design, with a glass body that provides high-quality measurements for your laboratory applications. Improved glass seal enhances performance and reliability. Sealed inner junctions and refillable outer junctions accommodate special reference fill solutions—ideal for low-concentration measurements.

What's included: a 15-mL bottle of reference solution, a reference filling pipette, and a 3.3-ft (1-m) cable and BNC connector. Solid-state electrodes also have twelve polishing strips.



Epoxy solid-state chloride electrode 27504-08

Glass solid-state fluoride electrode 27502-19

Epoxy glass membrane sodium electrode 27504-30

“Fast and stable.”



| Ion-selective electrode | Type | Concentration range | Temperature/pH range† | Interferences‡ | Economy epoxy electrodes | Laboratory glass electrodes |
|--|----------------|---|-----------------------|--|---------------------------------------|-----------------------------|
| | | | | | Catalog number | Catalog number |
| Ammonia (NH ₃) | | | | | See page 264 for ordering information | |
| Ammonium (NH ₄ ⁺) | PVC membrane | 5 x 10 ⁻⁶ to 1.0 M (0.1 to 18,000 ppm) | 0 to 50°C/4 to 10 | K ⁺ | JB-27504-00 | JB-27502-03 |
| Bromide (Br ⁻) | Solid-state | 5 x 10 ⁻⁶ to 1.0 M (0.4 to 79,900 ppm) | 0 to 80°C/2 to 14 | S ⁻² , I ⁻ , CN ⁻ ; high Cl ⁻ and NH ₃ levels | JB-27504-02 | JB-27502-05 |
| Cadmium (Cd ⁺²) | Solid-state | 10 ⁻⁷ to 10 ⁻¹ M (0.01 to 11,200 ppm) | 0 to 80°C/2 to 12 | Ag ⁺ , Hg ⁺² , Cu ⁺² ; high Pb ⁺² and Fe ⁺² levels | JB-27504-04 | JB-27502-07 |
| Calcium (Ca ⁺²) | PVC membrane | 5 x 10 ⁻⁶ to 1.0 M (0.2 to 40,000 ppm) | 0 to 50°C/3 to 10 | Pb ⁺² , Hg ⁺² , Cu ⁺² , Ni ⁺² , Fe ⁺² , Mg ⁺² , Zn ⁺² , Ba ⁺² , K ⁺ , Na ⁺ | JB-27504-06 | JB-27502-09 |
| Chloride (Cl ⁻) | Solid-state | 5 x 10 ⁻⁵ to 1.0 M (1.8 to 35,500 ppm) | 0 to 80°C/2 to 12 | S ⁻² , I ⁻ , CN ⁻ , Br ⁻ , OH ⁻ , NH ₃ , S ₂ O ₃ ⁻² | JB-27504-08 | JB-27502-13 |
| Copper (Cu ⁺²) | Solid-state | 10 ⁻⁸ to 10 ⁻¹ M (0.0006 to 6350 ppm) | 0 to 80°C/2 to 12 | Ag ⁺ , Hg ⁺² , high Cl ⁻ , Br ⁻ , Fe ⁺² , and Cd ⁺² levels | JB-27504-10 | JB-27502-15 |
| Cyanide (CN ⁻) | Solid-state | 5 x 10 ⁻⁶ to 10 ⁻² M (0.1 to 260 ppm) | 0 to 80°C/11 to 13 | S ⁻² , I ⁻ , Br ⁻ , Cl ⁻ | JB-27504-12 | JB-27502-17 |
| Fluoride (F ⁻) | Solid-state | 10 ⁻⁶ to saturated (0.02 to saturated) | 0 to 80°C/5 to 8 | OH ⁻ | JB-27504-14 | JB-27502-19 |
| Iodide (I ⁻) | Solid-state | 5 x 10 ⁻⁸ to 1.0 M (0.006 to 127,000 ppm) | 0 to 80°C/0 to 14 | S ⁻² , CN ⁻ , Br ⁻ , Cl ⁻ , NH ₃ , S ₂ O ₃ ⁻² | JB-27504-18 | JB-27502-23 |
| Lead (Pb ⁺²) | Solid-state | 10 ⁻⁶ to 10 ⁻¹ M (0.2 to 20,700 ppm) | 0 to 80°C/3 to 8 | Ag ⁺² , Hg ⁺² , Cu ⁺² , high Cd ⁺² and Fe ⁺² levels | JB-27504-20 | JB-27502-25 |
| Nitrate (NO ₃ ⁻) | PVC membrane | 7 x 10 ⁻⁶ to 1.0 M (0.5 to 62,000 ppm) | 0 to 50°C/2.5 to 11 | ClO ₄ ⁻ , I ⁻ , CN ⁻ , BF ₄ ⁻ | JB-27504-22 | JB-27502-31 |
| Perchlorate (ClO ₄ ⁻) | PVC membrane | 7 x 10 ⁻⁶ to 1.0 M (0.7 to 98,000 ppm) | 0 to 50°C/2.5 to 11 | NO ₃ ⁻ , NO ₂ ⁻ , CN ⁻ , ClO ₃ ⁻ , I ⁻ | JB-27504-24 | JB-27502-35 |
| Potassium (K ⁺) | PVC membrane | 10 ⁻⁶ to 1.0 M (0.04 to 39,000 ppm) | 0 to 50°C/2 to 12 | Cs ⁺ , NH ₄ ⁺ , Tl ⁺ , H ⁺ , Ag ⁺ , Li ⁺ , Na ⁺ , Tris1 ⁺ | JB-27504-26 | JB-27502-39 |
| Silver/Sulfide (Ag ⁺ /S ⁻²) | Solid-state | 10 ⁻⁷ to 1.0 M (Ag ⁺ , S ⁻²) (0.01 to 107,900 ppm Ag ⁺ ; 0.003 to 32,100 ppm S ⁻²) | 0 to 80°C/2 to 12 | Hg ⁺² | JB-27504-28 | JB-27502-41 |
| Sodium (Na ⁺) | Glass membrane | 10 ⁻⁶ M to saturated (0.02 ppm to saturated) | 0 to 80°C/5 to 12 | H ⁺ , K ⁺ , Li ⁺ , Ag ⁺ , NH ₄ ⁺ , Rb ⁺ , Cs ⁺ , Tl ⁺ | JB-27504-30 | JB-27502-43 |
| Surfactant (X ⁺ /X ⁻) | PVC membrane | 10 ⁻⁵ to 5 x 10 ⁻² M (1.0 to 12,000 ppm) | 2 to 12 | Similar types of surfactants | JB-27504-32 | JB-27502-45 |
| Water hardness (Ca ⁺² /Mg ⁺²) | PVC membrane | 10 ⁻⁵ to 1.0 M (0.4 to 40,000 ppm as Ca ⁺²) | 0 to 50°C/5 to 10 | Cu ⁺² , Zn ⁺² , Ni ⁺² , Fe ⁺² | JB-27504-34 | JB-27502-49 |

†Optimal pH range for direct measurement.

‡These ions are listed in order of decreasing concentrations of interference.

Solution Kits sold separately below include all of the solutions needed for accurate measurements. Each kit includes one reference filling pipette, one 60-mL bottle of reference fill solution, one 475-mL bottle of 1000 ppm standard solution, and one 475-mL bottle of ionic strength adjustor (except models 27502-69 and 27502-91, which come in a one-gallon bottle).

Replacement ionic strength adjustors come in 475-mL bottles (except model 27503-58, which comes in a one-gallon bottle).



Solution kit 27502-63 and ISA bottle 27503-51

Cole-Parmer® Ammonia Ion-Selective Electrodes

Combines reference electrode and half-cell

- Fast and accurate readings in less than 30 seconds
- Save money with easily changeable membranes
- Measure concentrations to 17,000 ppm

Single-junction ammonia electrodes feature durable, epoxy bodies. The electrode with loose membranes is for users who prefer that style of installation. The electrode with pre-membraned caps makes electrode membrane replacement easier. Use electrodes with almost any existing meter.

What's included: 3.3-ft (1-m) cable and BNC connector, 15 mL of electrolyte, replacement membrane, and filling pipette. Order standards, ionic strength adjustors, and fill solution separately below.



Cole-Parmer®

“Excellent performance.”



| Type | Concentration range | Temp/pH range† | Interferences | Catalog number |
|---|--|--------------------|-----------------|--------------------|
| Electrode with loose membranes | | | | |
| Gas sensing | 5 x 10 ⁻⁷ to 1.0 M (0.01 to 17,000 ppm) | 0 to 50°C/above 11 | Volatile amines | JB-27502-00 |
| Electrode with pre-membraned cap | | | | |
| Gas sensing | 5 x 10 ⁻⁷ to 1.0 M (0.01 to 17,000 ppm) | 0 to 50°C/above 11 | Volatile amines | JB-27512-00 |

†Optimal pH range for direct measurement

Accessories

- JB-27503-00 Ammonia standard**, 0.1 M NH₄Cl, 475-mL bottle
- JB-27503-93 Ammonia standard**, 1000 ppm ammonia as nitrogen, 475-mL bottle
- JB-27503-94 Ammonia standard**, 100 ppm ammonia as nitrogen, 475-mL bottle
- JB-05730-51 Ionic strength adjustor**, NaOH and EDTA, 475-mL bottle
- JB-27503-71 Ammonia fill solution**, 0.1 M NH₄Cl, 125-mL bottle
- JB-27503-95 Replacement membranes**. Ten membrane tapes, one O-ring, and tweezers
- JB-27512-95 Replacement membrane caps** for 27512-00. Pack of 3

| Ion | Standards and fill solution kits | | Replacement ionic strength adjustors† | |
|------------------------------------|--|--|---------------------------------------|---|
| | Catalog number | Formulations for fill/standard solutions | Catalog number | Solution formulation |
| NH ₃ | See adjacent ad for ordering information | | | |
| NH ₄ ⁺ | JB-27502-53 | 0.1 M NaCl/1000 ppm as N | JB-27503-53 | 5 M NaCl |
| Br ⁻ | JB-27502-55 | 1 M KNO ₃ /1000 ppm as Br ⁻ | JB-27503-51 | 5 M NaNO ₃ |
| Cd ⁺ | JB-27502-57 | 1 M KNO ₃ ‡ | JB-27503-51 | 5 M NaNO ₃ |
| Ca ⁺² | JB-27502-59 | 4 M KCl/1000 ppm as Ca ⁺² | JB-27503-52 | 4 M KCl |
| Cl ⁻ | JB-27502-63 | 1 M KNO ₃ /1000 ppm as Cl ⁻ | JB-27503-51 | 5 M NaNO ₃ |
| Cu ⁺² | JB-27502-65 | 1 M KNO ₃ /1000 ppm as Cu ⁺² | JB-27503-51 | 5 M NaNO ₃ |
| CN ⁻ | — | — | — | — |
| F ⁻ | JB-27502-69 | 4 M KCl/1000 ppm as F ⁻ | JB-27503-58 | TISAB I |
| I ⁻ | JB-27502-73 | 1 M KNO ₃ /1000 ppm as I ⁻ | JB-27503-51 | 5 M NaNO ₃ |
| Pb ⁺² | — | — | JB-27503-56 | 5 M NaClO ₄ |
| NO ₃ ⁻ | JB-27502-79 | 0.1 M (NH ₄) ₂ SO ₄ /1000 ppm as NO ₃ ⁻ | JB-27503-60 | 2 M (NH ₄) ₂ SO ₄ |
| ClO ₄ ⁻ | JB-27502-85 | 0.1 M (NH ₄) ₂ SO ₄ /1000 ppm as ClO ₄ ⁻ | JB-27503-60 | 2 M (NH ₄) ₂ SO ₄ |
| K ⁺ | JB-27502-89 | 0.1 M NaCl/1000 ppm as K ⁺ | JB-27503-53 | 5 M NaCl |
| Ag ⁺ /S ⁻² | JB-27502-91 | 1 M KNO ₃ /1000 ppm as Ag ⁺ | JB-27503-51 | 5 M NaNO ₃ |
| Na ⁺ | JB-27502-93 | 0.1 M NH ₄ Cl/1000 ppm as Na ⁺ | JB-27503-54 | 4 M NH ₄ Cl with 4 M NH ₄ OH |
| X ⁺ /X ⁻ | JB-27502-95 | 4 M KCl/0.05 M Hyamine® and 0.01 M SLS†† | — | — |
| Ca ⁺² /Mg ⁺² | JB-27502-99 | 4 M KCl/1000 ppm as Ca ⁺² | JB-27503-52 | 4 M KCl |

†A 475-mL bottle of ionic strength adjustor is supplied with kit.
‡Customer-formulated standard solution required. ††None required.

Orion™ ROSS™ and ROSS Ultra™ pH Electrodes

Don't worry about drift—drift is less than 0.002 pH per day

- Get fast, accurate, and stable pH readings
- Ideal for food, pharmaceuticals, or biological samples

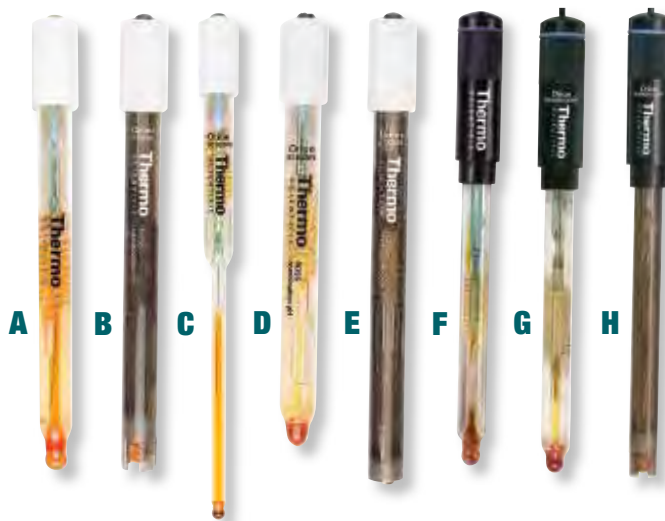
These pH electrodes offer a great mercury-free alternative to calomel electrodes—excellent for use in Tris buffer. The double-junction design protects the inner reference solution and prolongs the life of the electrode. Readings stabilize to 0.01 pH in less than 30 seconds—even with a 50°C temperature change. Electrodes read pH from 0 to 14. Maximum temperature is 212°F (100°C).

ROSS pH Electrodes utilize a platinum wire with 3 M KCl to prevent sample contamination with silver and mercury ions. All ROSS pH electrodes have BNC connector.

What's included: 3.3-ft (1-m) cable and BNC connector, and 60 mL of 3 M KCl filling solution.

ROSS Ultra pH Electrodes use a nonmetallic reference system featuring instantaneous liquid-liquid equilibration for contamination-free sampling, greater stability, and more accurate results. Maintains 0.01 pH precision over long periods of time. Backed by 2-year replacement warranty.

What's included: 3.3-ft (1-m) cable and the exclusive Star™ Series waterproof BNC connector (compatible with any pH meter that accepts BNC input), and 60 mL of 3 M KCl filling solution.



ISO 9001:2008
CERTIFIED SUPPLIER



| Applications | Description | Length x dia (mm) | ROSS pH electrodes | | ROSS Ultra pH electrodes | |
|---|-----------------------------|---------------------|--------------------|--------------------|--------------------------|--------------------|
| | | | Key | Catalog number | Key | Catalog number |
| General-purpose, Tris buffers, nonaqueous solutions, and DI water | Glass body | 120 x 12 | A | JB-05718-02 | F | JB-05718-70 |
| For rugged general-purpose use, Tris buffers, onaqueous solutions, and DI water | Epoxy body | 120 x 12 | B | JB-05718-07 | G | JB-05718-77 |
| Small sample size or samples in small-diameter vessels | Glass body | 165 (total); 95 x 6 | C | JB-05718-16 | — | — |
| Rugged general-purpose and field use, nonaqueous solutions, and DI water | Glass body with rugged bulb | 120 x 12 | D | JB-05718-27 | H | JB-05718-73 |
| Soft, moist surfaces of solids or semisolids such as agar plates | Epoxy body, flat surface | 120 x 12 | E | JB-05718-32 | — | — |

Accessories

JB-05730-52 Filling solution for all ROSS and ROSS Ultra electrodes, 3 M KCl. Case of five 60-mL bottles

JB-05730-60 ROSS pH electrode storage solution, 475-mL bottle

Orion™ ROSS™ Triode™ pH Electrodes

Be more accurate with automatic temperature compensation (ATC)

- Best temperature response of any pH electrode available
- Built-in temperature for use with Thermo Scientific Orion meters
- No waiting—stable readings to 0.01 pH in less than 30 seconds

Measure both pH and temperature in one convenient 12-mm electrode. Mercury-free, double-junction reference is compatible with samples containing Tris, sulfides, and proteins. Glass-body electrode is available as a refillable junction. Epoxy-body electrodes are available in long-lasting refillable and low-maintenance sealed (gel-filled) options.

What's included: 3.3-ft (1-m) cable, BNC pH connector, and a MiniDIN ATC connector for use with Orion Star Series™ pH meters.

ISO 9001:2008
CERTIFIED SUPPLIER

| Key | Description | ATC connector | Model number | Catalog number |
|----------|------------------------|-----------------------------------|--------------|--------------------|
| A | Glass body, refillable | MiniDIN for Star Series pH meters | 8302BNUMD | JB-05718-28 |
| B | Epoxy body, refillable | MiniDIN for Star Series pH meters | 8157BNUMD | JB-05718-34 |
| C | Epoxy body, gel-filled | MiniDIN for Star Series pH meters | 8107BNUMD | JB-05718-44 |

Accessories

JB-05730-52 Filling solution for all ROSS and ROSS Ultra electrodes, 3 M KCl. Case of five 60-mL bottles



Cole-Parmer® pH/ORP/Temperature 1/8-DIN Controller

Automatic buffer recognition for quicker setup

- Select a controller with two SPDT relays or with isolated 4 to 20 mA output
- Backlight LCD for clear measurement display
- Universal power supply input from 100 to 240 VAC
- Easy-to-install 1/8-DIN compact plastic casing



Automatic buffer recognition, absolute and relative ORP measurements, and automatic temperature compensation ensure measurement accuracy. pH/ORP 300 comes equipped with an isolated and reversible 4 to 20 mA output for proportional output control. pH/ORP 350 features two sets of programmable on/off relays with high/low control to activate an alarm, a pump, or another device.



| Model | pH/ORP 300 | pH/ORP 350 |
|--------------------------|--|---------------------|
| Catalog number | JB-05802-12 | JB-05802-14 |
| Range | pH | -2.00 to 16.00 |
| | mV | ±1999 |
| | Temperature | -10 to 120°C |
| Resolution | pH | 0.01 |
| | mV | 1 |
| | Temperature | 0.1°C |
| Accuracy | pH | ±1% ±1 digit |
| | mV | ±2 |
| | Temperature | ±0.5°C |
| Temperature compensation | Automatic, 1000 Ω Pt RTD | |
| Control type | On/off (limit) | |
| Output | Relay | Two SPDT relays |
| | Current | Isolated 4 to 20 mA |
| Power | 100 to 240 VAC, 50/60 Hz | |
| Dimensions (W x H x D) | 3 3/8" x 1 3/4" x 4 1/4" (9.6 X 4.8 x 11 cm) | |

Accessories

- JB-27020-66 Tuff-tip pH electrode**, 10 K, double junction, Kynar® PVDF body
- JB-27003-24 Flat-surface pH electrode**, 10 K, double junction, Kynar PVDF body
- JB-27003-50 ORP electrode**, 10 K, double junction, PPS body
- JB-17106-20 NIST-traceable calibration** with data for pH controller

Cole-Parmer® pH/Temperature and pH/ORP/Temperature 1/4-DIN Controller

Get more data at a glance

- Backlit display shows measurement, temperature, electrode status, and more
- Automatic temperature compensation eliminates inaccurate readings during changes
- No inadvertent changes with password protection
- Extend your options with RS-485 access and 4 to 20 mA output

The pH 500 and pH/ORP 500 controllers have one isolated and reversible 4 to 20 mA output and five programmable on/off relays: four for pH and one for temperature—ideal for high/low control to activate an alarm, a pump, or another device. The pH 550 has two sets of isolated and reversible 4 to 20 mA output for proportional control of pH and temperature; also features four programmable on/off relays: three for pH and one for temperature.



| Description | pH 550 | pH 500 | pH/ORP 500 |
|--------------------------|--------------------------|-------------------------|---------------------|
| Catalog number | JB-05802-18 | JB-05802-16 | JB-05802-22 |
| Range | pH | -2.00 to 16.00 | -2.00 to 16.00 |
| | mV | — | — |
| | Temperature | -10 to 120°C | -10 to 120°C |
| Resolution | pH | 0.01 | 0.01 |
| | mV | — | — |
| | Temperature | 0.1°C | 0.1°C |
| Accuracy | pH | ±1% ±1 digit | ±1% ±1 digit |
| | mV | — | ±1% ±1 digit |
| | Temperature | ±0.3°C | ±0.3°C |
| Temperature compensation | Automatic, 1000 Ω Pt RTD | | |
| Control type | On/off (limit) | | |
| Output | Relay | Four SPDT relays | Five SPDT relays |
| | Current | Two isolated 4 to 20 mA | Isolated 4 to 20 mA |
| Power | 115 to 230 VAC, 50/60 Hz | | |

Accessories

- JB-27020-66 Tuff-tip pH electrode**, 10 K, double junction, Kynar® PVDF body
- JB-27003-24 Flat-surface pH electrode**, 10 K, double junction, Kynar PVDF body
- JB-27003-50 ORP electrode**, 10 K, double junction, PPS body
- JB-17106-20 NIST-traceable calibration** with data

Cole-Parmer® Waterproof Turbidity Meter

Achieve more accurate readings across entire range

- Sealed optical system with infrared light for higher accuracy
- Meets performance criteria as specified by ISO 7027 (DIN EN 27027) method
- Get full-range accuracy with 4-point push-button calibration
- Autoranging from 0 to 1000 nephelometric turbidity units (NTU)
- Waterproof and dustproof with IP67-rated housing that floats

The Cole-Parmer turbidity meter is easy to calibrate—meter automatically prompts you to the next calibration standard. Large custom LCD displays reading and units of measure. Other features include diagnostic error messages and auto off.

What's included: primary standards, cuvettes, hard carrying case, and four AA batteries.



Specifications

| | |
|--|--|
| Range: 0 to 1000 NTU | Sample volume: 10 mL |
| Resolution: 0.01, 0.1, 1 NTU | Response time: <6 seconds |
| Accuracy: ±2% of reading from 0 to 500 NTU; ±3% of reading from 500 to 1000 NTU | Data logging capabilities: none |
| Light source: infrared LED | Output: none |

| Description | Power | Catalog number |
|----------------------------|------------------------------|----------------|
| Waterproof turbidity meter | Four AA batteries (included) | JB-59200-70 |

Accessories

- JB-35635-52 Replacement calibration set.** Includes 4 x 60 mL bottles of 0.02, 20, 100 and 800 NTU standards
- JB-35653-55 Cuvettes.** Pack of 3
- JB-09376-01 Replacement batteries, AA.** Pack of 4

Search

For turbidity standard solutions, go to...
ColeParmer.in/Turbidity

Oakton® T-100 Waterproof Turbidity Meter

Waterproof and dustproof housing floats!

- Meets performance criteria as specified by ISO 7027 (DIN EN 27027) method
- Compliant with ASTM D6855-03 (EPA recognized)
- Easy, four-point, push-button calibration for full-range accuracy
- Auto-ranging from 0 to 1000 nephelometric turbidity units

What's included: four 60-mL primary standards with vials (0.02, 20.0, 100, and 800 NTU), three empty cuvettes with lightshield caps, silicone oil, lint-free cloth, batteries, and hard carrying case.



Meter comes in hard carrying case



Specifications

| | |
|---|--|
| Range: 0 to 19.99; 20.0 to 99.9; 100 to 1000 NTU | Sample volume: 10 mL |
| Resolution: 0.01, 0.1, 1 | Sample cell size: 25 mm dia x 50 mm H |
| Accuracy: ±2% of reading from 0 to 500 NTU; ±3% of reading 500 to 1000 NTU | Response time: less than 6 seconds |
| Light source: infrared LED | Data logging capabilities: none |
| | Output: none |

| Description | Power | Catalog number |
|---|-------------------------------|----------------|
| Oakton T-100 waterproof turbidity meter | Four AAA batteries (included) | JB-35635-00 |

Accessories

- JB-35635-52 Replacement calibration set.** Includes one each of primary calibration cuvettes filled with 0.02, 20.0, 100, and 800 NTU standard
- JB-35653-55 Cuvettes.** Pack of 3
- JB-09376-00 Replacement batteries;** 1.5 V, AAA. Pack of 12

Call our Application Specialists for high-range turbidity applications up to 4000 NTU

INTRODUCING

Is ultrapure water key to research success?

Cole-Parmer, in association with ELGA - the Lab Water Specialists, brings to you Water Purification Systems for all your Pharma Applications

- Get pure and ultrapure water for your experiments and lab work
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- Innovative and sustainable products designed to have the lowest impact on the environment at all stages
- All systems are accredited to ISO 9001 and ISO 14001 standards



PURELAB® Chorus 1 Complete

One complete solution for your laboratory

- Type 1 water
- 18.2 MΩ cm
- 1 to 100 Ltrs/day



PURELAB® flex 3 & 4

When you need tap to ultrapure water

- Type 1 water
- 18.2 MΩ cm
- 1 to 10 Ltrs/day



PURELAB® Chorus 2+

Tap to Type II, fully recirculating, multiple dispensing

- Type 2+ water
- 15 MΩ cm
- 1 to 120 Ltrs/day

For product details and specifications, contact our **Application Experts** at

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Unbiased recommendation to match your application



Products meet regulatory guidelines per USFDA, MHRA, and EPA



Products meet quality standards and follow cGMP





Cole-Parmer® Symmetry® EC Toploading Balances

Popular weighing features at a budget-friendly price

- Internal rechargeable battery for portability and convenience
- RS-232 interface allows for communication with a printer
- Print function for GLP compliance
- Capacity tracker warns of approaching overloads
- Security lock-down port

What's included: draft shield, built-in rechargeable battery, and AC power adapter.



Accessories

- JB-11120-78 Compact thermal printer
- JB-10000-47 Kensington™-type security lock and cable
- JB-17101-52 NIST-traceable calibration with data for balances

Specifications

Calibration: external, with calibration mass
Weighing units: g, lb¹, oz, ct, dr, ozt, gn, N, tl T, tl H, tl S, custom
Power: 220 VAC adapter or internal rechargeable battery

Symmetry®



| Capacity | Readability | Repeatability | Linearity | Platform size (dia.) | Catalog number |
|----------|-------------|---------------|-----------|----------------------|----------------|
| 100g | 0.001 g | ±0.002 g | ± 0.003 g | 4¾" (12.0 cm) | JB-20000-33 |
| 200 g | 0.01 g | ±0.02 g | ± 0.02 g | 4¾" (12.0 cm) | JB-20000-35 |
| 300 g | 0.1 g | ±0.2 g | ±0.2 g | 4¾" (12.0 cm) | JB-20000-49 |
| 400 g | 0.01 g | ±0.02 g | ± 0.02 g | 4¾" (12.0 cm) | JB-20000-37 |
| 500 g | 0.1 g | ±0.2 g | ±0.2 g | 4¾" (12.0 cm) | JB-20000-52 |
| 800 g | 0.01 g | ±0.02 g | ± 0.03 g | 4¾" (12.0 cm) | JB-20000-39 |
| 1200 g | 0.1 g | ±0.1 g | ± 0.2 g | 4¾" (12.0 cm) | JB-20000-41 |
| 2000 g | 0.1 g | ±0.2 g | ± 0.2 g | 5¾" (14.5 cm) | JB-20000-43 |
| 4000 g | 0.1 g | ±0.2 g | ± 0.2 g | 5¾" (14.5 cm) | JB-20000-45 |
| 6000 g | 1 g | ±1 g | ± 2 g | 5¾" (14.5 cm) | JB-20000-47 |

¹lb not available on 100 g models

Cole-Parmer® Symmetry® PT Toploading Balances

Large weighing surface allows placement of a variety of samples

- Weighing modes include parts counting, percent weighing, checkweighing, animal/dynamic weighing and density determination
- USB and RS-232 interfaces offer connection to a computer or printer for GLP/GMP-compliant outputs
- Sealed keypad, splashproof design, and removable stainless steel weighing pan
- An oversized backlit LCD provides clear visibility of weighing results
- Digital filters compensate for vibration, drafts or temperature changes
- Fast stabilization and response time

What's included: AC power adapter. The 210-g and 410-g models also include a draft shield.



Symmetry®

Accessories

- JB-11120-78 Compact thermal printer
- JB-10000-47 Kensington™ type security lock and cable
- JB-17101-52 NIST-traceable calibration with data for balances

Specifications

Calibration: Internal or external with calibration mass
Weighing units: g, ct, oz, dwt, mg, grains, oz, ozt, dwt, custom
Power: 115/220 VAC power adapter and built-in rechargeable battery pack (battery function not available of models 10001-06, -07, -13)



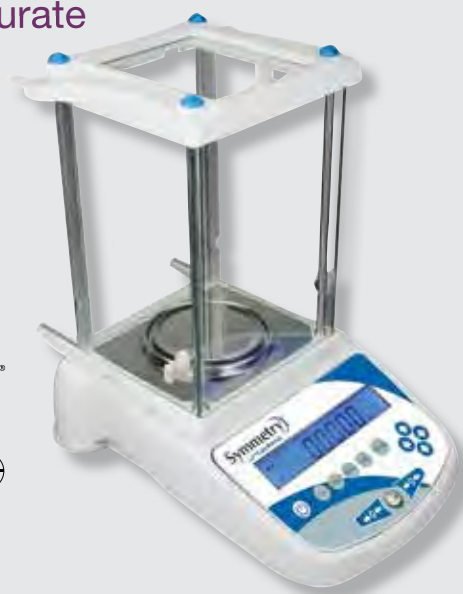
| Capacity | Readability | Repeatability | Linearity | Pan size | Catalog number |
|-----------------------------|-------------|---------------|-----------|------------------|----------------|
| Internal calibration | | | | | |
| 210 g | 0.001 g | ±0.002 g | ±0.002 g | 5½" x 5½" | JB-10001-10 |
| 410 g | 0.001 g | ±0.002 g | ±0.002 g | (13.0 x 13.0 cm) | JB-10001-11 |
| 2200 g | 0.01 g | ±0.02 g | ±0.02 g | 7½" x 6¼" | JB-10001-12 |
| 4200 g | 0.01 g | ±0.02 g | ±0.02 g | (19.0 x 16.0 cm) | JB-10001-13 |
| External calibration | | | | | |
| 210 g | 0.001 g | ±0.002 g | ±0.002 g | 5½" x 5½" | JB-10001-02 |
| 410 g | 0.001 g | ±0.002 g | ±0.002 g | (13.0 x 13.0 cm) | JB-10001-03 |
| 2200 g | 0.01 g | ±0.02 g | ±0.02 g | | JB-10001-04 |
| 4200 g | 0.01 g | ±0.02 g | ±0.02 g | 7½" x 6¼" | JB-10001-05 |
| 5000 g | 0.1 g | ±0.2 g | ±0.4 g | (19.0 x 16.0 cm) | JB-10001-06 |
| 15,000 g | 0.1 g | ±0.2 g | ±0.4 g | | JB-10001-07 |

Cole-Parmer® Symmetry® PA Analytical Balances

Discover Symmetry—affordable, advanced, accurate

- Three-door glass draft shield provides easy access inside the weighing chamber
- Oversized backlit LCD provides clear visibility of weighing results
- Sealed keypad, splashproof design, and removable stainless steel weighing pan offer safeguards in a messy lab environment
- Weighing modes include parts counting, percent weighing and checkweighing
- USB and RS-232 interfaces offer connection to a computer or printer for GLP/GMP-compliant output
- Digital filters compensate for vibration, drafts or temperature changes
- Selectable multi-language display and output
- Fast stabilization and response time

Symmetry®



What's included: AC power adapter and draft shield.

Specifications



Calibration: Internal or external with calibration mass
Weighing units: g, ct, oz, dwt, mg, grains, oz, ozt, dwt, custom

Pan size: 3½" (9.0 cm) dia
Power: 115/220 VAC power adapter

| Capacity | Readability | Repeatability | Linearity | Catalog number |
|-----------------------------|-------------|---------------|-----------|--------------------|
| Internal calibration | | | | |
| 120 g | 0.0001 g | ±0.0002 g | ±0.0002 g | JB-10001-08 |
| 220 g | 0.0001 g | ±0.0002 g | ±0.0002 g | JB-10001-09 |
| External calibration | | | | |
| 120 g | 0.0001 g | ±0.0002 g | ±0.0002 g | JB-10001-00 |
| 220 g | 0.0001 g | ±0.0002 g | ±0.0002 g | JB-10001-01 |

Accessories

- JB-11120-78 Compact thermal printer**
- JB-10000-47 Kensington™ type security lock and cable**
- JB-17101-52 NIST-traceable calibration with data for balances**

Cole-Parmer® Symmetry® MB Moisture Determination Balance

No need to monitor sample—auto test does the work for you

- No more burns with pan lifter for safe removal of hot sample pans
- Save time—automatic test setting for quickly running multiple tests
- Test up to 99 minutes at temperatures from 50 to 160°C
- No need to change screens—displays temperature, time, and moisture simultaneously
- Don't reprogram—stores test procedures for easy recall
- ¿No habla ingles? ¡No problema!—displays and prints in English, French, German, and Spanish
- Measures what you need—grams, % moisture, % solids, % moisture vs dry weight, and % solid vs dry weight

What's included: pan lifter, ten sample pans, and a 5-ft (1.5-m) power cord.

Symmetry®



Auto test feature automatically starts when lid closes, ends when moisture loss stabilizes

Specifications



Calibration: external, with calibration mass
Heater type: halogen lamp
Output: RS-232

Weighing units: g, % moisture, % solids, % moisture/dry bases, % solids/dry bases
Power: 220 VAC

| Capacity | Readability | Repeatability | Temperature range | Pan size (dia) | Catalog number |
|----------|-------------|---------------|------------------------------|----------------|--------------------|
| 40 g | 0.001 g | ±0.005 g | 50 to 160°C in 1°C intervals | 3½" (8.9 cm) | JB-11124-07 |

Accessories

- JB-10000-46 Kensington-type security lock and cable**
- JB-11700-66 Disposable sample pans. Pack of 250**
- JB-17101-52 NIST-traceable calibration with data for balances**

Cole-Parmer® SpatulaBalance™ Spatula

Scoop and weigh simultaneously

- Unique spatula both scoops material and instantly displays weight
- Scoop is removable for easy cleaning
- Three position soft-touch keys in the handle tares (sets to zero), holds (freezes the display), and changes grams/ounces



Specifications

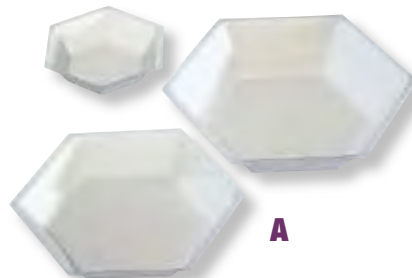
Spoon capacity: 32 mL
Weighing range: 0 to 300 g (0 to 10.580 oz)
Power: two AAA batteries, over 1 year use; LCD indicates low battery

| Capacity | Readability | Repeatability | Accuracy | Catalog number |
|----------|-------------|---------------|----------|--------------------|
| 300 g | 0.1 g | ±0.1 g | ±0.2 g | JB-01019-11 |

Weighing Dishes

A. Hexagonal Weigh Dishes are designed to flex for easy dispensing or pouring liquids or solids. Made of translucent white, anti-static, polystyrene that is resistant to most dilute acids, aqueous solutions, and alcohol bases.

| Description | Capacity | Dimensions | Qty/pk | Catalog number |
|-------------|----------|--------------------------------|--------|--------------------|
| Small | 20 mL | 1¾" dia x ¾"D (4.4 x 1.0 cm) | 500 | JB-01018-10 |
| Medium | 50 mL | 3" dia x ¾"D (7.6 x 1.9 cm) | | JB-01018-12 |
| Large | 200 mL | 4¾" dia x ¾"D (12.1 x 2.2 cm) | | JB-01018-14 |
| Extra-large | 350 mL | 5½" dia x 1¼"D (14.0 x 3.2 cm) | | JB-01018-16 |



B. Round Crimped-Walled Aluminum Weighing Dishes with Tabs for a wide variety of applications including weighing, moisture testing, wastewater analysis, chemical and pharmaceutical. Each dish features a crimped angled wall and flat bottom with a large finger-tab to accommodate sample numbers. Oil-free and non-coated.

| Description | Capacity | Dimensions | Qty/pk | Catalog number | Qty/pk | Catalog number |
|-------------|----------|-------------------------------|--------|--------------------|--------|--------------------|
| Small | 8 mL | 1½" dia x ¾" D (2.9 x 1.0 cm) | — | — | 500 | JB-01018-26 |
| Medium | 20 mL | 1¾" dia. x ½"D (4.3 x 1.3 cm) | 100 | JB-01018-51 | 1000 | JB-01017-51 |
| Large | 60 mL | 2¼" dia. x ½"D (5.7 x 1.6 cm) | 100 | JB-01018-50 | 1000 | JB-01017-50 |
| Extra-Large | 80 mL | 2¾" dia. x ½"D (7.0 x 1.6 cm) | 100 | JB-01018-52 | 1000 | JB-01017-52 |



C. Round Smooth-Walled Aluminum Weighing Dishes. Smooth-sided, flat bottom, multipurpose "utility" dish. Ideal for storage, dispensing, general purpose testing and weighing. Oil-free and non-coated.

| Description | Capacity | Dimensions | Qty/pk | Catalog number | Qty/pk | Catalog number |
|-------------|----------|-------------------------------|--------|--------------------|--------|--------------------|
| Large | 80 mL | 2⅞" dia. x ¾"D (7.3 x 1.7 cm) | 100 | JB-01018-28 | 1000 | JB-01018-29 |
| Extra-large | 150 mL | 4" dia. x ¾"D (10.3 x 1.9 cm) | 100 | JB-01018-32 | 1000 | JB-01018-31 |



D. Glassine Weighing Papers keep balance pans clean. Moisture-resistant, nonabsorbent papers have a smooth glassine surface to ensure complete sample transfer.

| Description | Capacity | Dimensions | Qty/pk | Catalog number |
|-------------|----------|--------------------------|--------|--------------------|
| Small | — | 3" x 3" (7.6 x 7.6 cm) | 500 | JB-01338-00 |
| Medium | — | 4" x 4" (10.2 x 10.2 cm) | | JB-01338-02 |
| Large | — | 6" x 6" (15.2 x 15.2 cm) | | JB-01338-04 |



Techne® Immersion Circulators

Remain in control with higher stability

Basic Digital Circulator offers precise PID temperature control at a competitive price. Unit also features digital LED display, $\pm 0.01^\circ\text{C}$ stability, overtemperature indicator light, pressure pump, and low-liquid level cutoff.

Standard Digital Circulator provides high $\pm 0.005^\circ\text{C}$ temperature stability, plus RS-232 interface capability. Bidirectional RS-232 lets you control bath remotely and download data to a computer for further analysis. Unit also features digital LED display, overtemperature indicator light, pressure pump, and low-liquid level cutoff.

What's included: 7 1/2-ft (2.3-m) cord with European plug and a thermometer holder.



Specifications

Wetted materials: 316 stainless steel and PPS (polyphenylene sulfide)

Immersion depth: 4" to 5" (10.2 to 12.7 cm)

| Controller type | Temperature range | Stability | Pump type | Max pump pressure psi (mbar) | Max flow (L/min) | Low-level cutoff | Power (VAC, Hz) | Catalog number |
|------------------|---------------------|---------------------------|-----------|------------------------------|------------------|------------------|-----------------|----------------|
| Basic digital | Ambient +5 to 120°C | $\pm 0.01^\circ\text{C}$ | Force | 2.1 (145) | 10 | Yes | 240, 50/60 | JB-01262-07 |
| Standard digital | Ambient +5 to 200°C | $\pm 0.005^\circ\text{C}$ | Force | 2.1 (145) | 10 | Yes | 240, 50/60 | JB-01262-15 |

Techne® Refrigerated Baths

Build a complete refrigerated circulating system

NEW

- Circulating bath with built-in refrigeration
- Robust stainless steel construction makes for easy cleaning

These baths, when paired with a Techne immersion circulator (sold separately above), offer a complete refrigerated circulating system for open or closed applications with a temperature range from -35 to 150°C . Baths are designed to cool liquids to temperatures around ambient and below by extracting heat continuously; they are air cooled, pulling air in through the front and expelling it in the rear. An indicator on the front power switch lights up when the bath is running.

What's included: lid, bridging plate, and power cord.



REQUIRED System Components

- 1) Refrigerated bath
- 2) Immersion circulator



| Bath capacity | Temperature range | Working area (W x L x D) | Cooling capacity at 20°C | Power (VAC, Hz) | Catalog number |
|---------------|------------------------------|--------------------------|--------------------------|-----------------|----------------|
| 7 L | -20 to 150°C | 15.1 x 19.2 x 20 cm | 145 W | 230, 50/60 | JB-12212-04 |
| 12 L | -35 to 100°C | 30 x 20.8 x 15 cm | 240 W | 230, 50/60 | JB-12212-02 |
| 22 L | -30 to 100°C | 30 x 20.8 x 22.5 cm | 240 W | 230, 50/60 | JB-12212-00 |



Stuart® General-Purpose Digital Water Baths

Easy to use and easy to clean

- Choice of various capacities—6, 15 or 24 liters
- Safety features include low water level sensor and overtemperature protection
- Stainless steel tank with rounded corners will not trap dirt
- Integral drain simplifies water changes and cleaning

These utility baths feature a clear LED temperature display with an analog dial, making set point adjustments quick and ensuring accurate temperature control. Polycarbonate lid provides full view of bath contents and reduces heat loss. Low water level sensor prevents dry boiling, and overtemperature protection system monitors temperature and controls heater in the event of a fault.

Built-in drain empties stainless steel tank for water changes and maintenance. The heater is mounted beneath the tank, so it is not in the way.

What's included: polycarbonate lid and power cord.



| Bath capacity | Temperature range | Temperature stability | Bath opening (L x W) | Working depth | Heater wattage | Power (VAC, Hz) | Catalog number |
|---------------|-------------------------|-----------------------|----------------------|---------------|----------------|-----------------|--------------------|
| 6 L | Ambient + 5°C to 99.9°C | ±0.5°C | 30 x 15 cm | 20 cm | 500 W | 230, 50 | JB-12122-91 |
| 15 L | | | 30 x 32.5 cm | 20 cm | 1000 W | 230, 50 | JB-12122-71 |
| 24 L | | | 30 x 50 cm | 20 cm | 1700 W | 230, 50 | JB-12122-81 |

Stuart® Shaking Water Bath

Customize to your needs with platforms and racks

- No need for tricky fittings—strong magnets make changing platforms easy
- Analog controls and digital temperature display simplify operation
- Overtemperature and low-level cutoffs improve safety

Versatile water bath can be a linear (reciprocating) or orbital shaker, or use as a static bath, depending on the platform you choose. The two shaking platforms come with high-tension springs which accommodate most bottle and flask sizes; with capacity of 8 x 250 mL, 6 x 500 mL, or 4 x 1000 mL Erlenmeyer flasks. For tubes and smaller vessels, order an optional stainless steel rack.



- 1) Water bath
- 2) Platform
- OPTIONAL
- 3) Racks

Specifications

Temperature range: ambient +5°C to 95°C† **Wetted materials:** 304 stainless steel
Temperature stability: ±0.25°C

| Bath capacity | Bath opening (L x W) | Working depth | Shaking speed | Stroke length/ orbit size | Power | | Catalog number |
|---------------|-------------------------|---------------|---------------|---------------------------|-------|----|--------------------|
| | | | | | VAC | Hz | |
| 24 L | 12" x 19½" (30 x 50 cm) | 7⅞" (20 cm) | 20 to 150 rpm | ¾" (20 mm) | 220 | 60 | JB-12152-01 |
| | | | | | 230 | 50 | JB-12152-02 |

†An accessory bath cover is required to reach temperatures above 90°C.

Accessories

JB-12152-99 Hinged polycarbonate bath cover reduces heat loss and evaporation

Platforms (one required)

| Description | Catalog number |
|--|--------------------|
| Reciprocating shaking action | JB-12152-90 |
| Orbital shaking action | JB-12152-91 |
| Perforated, for use as a nonshaking bath | JB-12152-92 |

Optional Tube Racks

| Accommodates | Catalog number |
|-------------------------------------|--------------------|
| Centrifuge tubes, 25 x 50 mL | JB-12152-93 |
| Microcentrifuge tubes, 143 x 1.5 mL | JB-12152-94 |
| Culture tubes, 120 x 13 mm dia | JB-12152-95 |
| Culture tubes, 72 x 16 mm dia | JB-12152-96 |
| Culture tubes, 56 x 15 mL | JB-12152-97 |
| Culture tubes, 30 x 26 mm dia | JB-12152-98 |



Cole-Parmer® Polystat® Heating Circulating Baths

Get quality performance at an affordable price!

- Easy-to-use PID controller and moisture-tight LCD (0.01°) in °C, °F, or K
- Two-speed pump includes plumbing connections for external circulation
- Safety features include high-temperature cutoff and acoustic alarms

polystat®



Standard Digital Controller Baths feature five programmable set points, adjustable high-temperature cutoff, user-settable Min/Max temperature limits and an adjustable pump nozzle. **Advanced Digital Controller Baths** offer all the features of the Standard Digital models (except adjustable pump nozzle) plus a two-stage (force/suction) pump that supplies increased flow and pressure capabilities making it suitable for a wider range of applications, and a USB port.

Specifications

Wetted materials: stainless steel, polymers
Low-level cutoff: none
Power: 230 VAC, 50 Hz



| Bath capacity | Temperature range | Stability | Pump type | Max pump pressure psi (mbar) | Max flow (L/min) | Working area (L x W x D) | Catalog number |
|--|-----------------------|-----------|---------------|------------------------------|------------------|--------------------------|----------------|
| Standard digital controller baths | | | | | | | |
| 6.5 L | Ambient +10 to 100°C | ±0.05°C | Force | 4.5 (310) | 17 | 11.2 x 16.3 x 15 cm | JB-12134-62 |
| 6.5 L | Ambient +10 to 150°C | ±0.05°C | Force | 4.5 (310) | 17 | 11.2 x 16.3 x 15 cm | JB-12121-04 |
| 9.5 L | Ambient +10 to 150°C | ±0.05°C | Force | 4.5 (310) | 17 | 11.2 x 23.9 x 15 cm | JB-12121-24 |
| 19.6 L | Ambient +10 to 100°C | ±0.05°C | Force | 4.5 (310) | 17 | 31.2 x 29.5 x 15 cm | JB-12134-70 |
| 19.6 L | Ambient +10 to 150°C | ±0.05°C | Force | 4.5 (310) | 17 | 31.2 x 29.5 x 15 cm | JB-12121-44 |
| Advanced digital controller baths | | | | | | | |
| 6.5 L | Ambient +10 to 200°C† | ±0.025°C | Force/suction | 10.8 (750) | 21 | 11.2 x 16.3 x 15 cm | JB-12121-08 |
| 19.6 L | Ambient +10 to 200°C† | ±0.025°C | Force/suction | 10.8 (750) | 21 | 31.2 x 29.5 x 15 cm | JB-12121-48 |

†Pump at low speed

Cole-Parmer® Polystat® Cooling/Heating Circulating Baths

Get excellent cooling across range of operating temperatures

- Two-speed pump with up to 21 L/min flow
- Maximize bench space with compact size
- Protect samples and bath with high-temperature and low-level cut offs

Standard Digital Controller Baths feature five programmable set points, adjustable high-temperature cutoff, user-settable Min/Max temperature limits, and an adjustable pump nozzle. **Advanced Digital Controller Baths** offer all the features of the Standard Digital models (except adjustable pump nozzle) plus five programmable set points, a two-stage (force/suction) pump for greater circulation capacity, and a USB port.

What's included: lid, 6-ft (1.8-m) power cord with plug, M16 x 1 pump connection and 8- and 12-mm hose barb fittings with clamps for external circulation.

Specifications

Wetted materials: stainless steel, polymers
Low-level cutoff: yes



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| Bath capacity | Temperature range | Stability | Cooling capacity at 20°C | Pump type | Max pump pressure psi (mbar) | Max pump flow (L/min) | Working area (W x L x D) | Power (VAC, Hz) | Catalog number |
|--|-------------------|-----------|--------------------------|---------------|------------------------------|-----------------------|--------------------------|-----------------|----------------|
| Standard digital controller baths | | | | | | | | | |
| 6.5 L | -20 to 100°C | ±0.05°C | 250 W | Force | 4.4 (310) | 17 | 13.5 x 12.2 x 15 cm | 230, 50 | JB-12122-04 |
| 8.6 L | -28 to 100°C | ±0.05°C | 500 W | Force | 4.4 (310) | 17 | 17.3 x 18.3 x 15 cm | 230, 50 | JB-12122-34 |
| 8.6 L | -28 to 150°C | ±0.05°C | 500 W | Force | 4.4 (310) | 17 | 17.3 x 18.3 x 15 cm | 230, 50 | JB-12122-38 |
| Advanced digital controller baths | | | | | | | | | |
| 6.5 L | -20 to 100°C | ±0.025°C | 250 W | Force/suction | 11.7 (750) | 21 | 13.5 x 12.2 x 15 cm | 230, 50 | JB-12122-14 |
| 6.5 L | -20 to 100°C | ±0.025°C | 250 W | Force/suction | 11.7 (750) | 21 | 13.5 x 12.2 x 15 cm | 230, 50 | JB-12122-28 |
| 8.6 L | -28 to 200°C | ±0.025°C | 500 W | Force/suction | 11.7 (750) | 21 | 17.3 x 18.3 x 15 cm | 230, 50 | JB-12122-44 |
| 8.6 L | -35 to 200°C | ±0.025°C | 800 W | Force/suction | 11.7 (750) | 21 | 17.3 x 18.3 x 15 cm | 230, 50† | JB-12122-58 |

†Requires 20 amp current.



Cole-Parmer® Polystat® Refrigerated and Heated Circulating Baths

No more temperature fluctuations

- Closed loop functionality provides greater temperature stability at the external apparatus
- Temperature calibration increases accuracy
- Intuitive interface uses readily recognizable icons
- Controller panel swivels for easy viewing from any angle
- Low-profile models provide easier access to bath working area

These integrated refrigerated and heated circulators offer reliable, stable temperature control. Single-point temperature calibration allows you to program an offset temperature, enhancing temperature control precision. Large, backlit LCD shows set point and actual bath temperatures simultaneously. Safety and convenience features include overtemperature protection, failsafe heater control, high and low temperature limits with alarms, low-liquid level alarm, alarm and fault messages, and automatic loss of power reset.

Standard Controller Models feature a dual-speed circulating pressure pump and communication via RS-232 serial output. Inert gas purging ports allow control of the headspace environment within the reservoir.

Advanced Controller Models build upon the above features. These models offer dual variable-speed circulating pressure and suction pumps for open-loop applications, plus on-board connectivity via RS-232, RS-485, USB, Ethernet, and external temperature probe. Additional control functions include automatic external temperature sensor-based heater adjustment, timer, and fluid optimization with specific heat tuning.

What's included: reservoir lid, refrigeration control cable (as needed), bypass tubing, 1/4" NPT(M) to barbed adapter set, and power cord set.

polystat®



10124-01



10124-03

ISO9001:2008
CERTIFIED SUPPLIER



Specifications

Wetted materials: stainless steel, polymers

Drain: yes

Power: 240 VAC, 50 Hz

Low-level cutoff: yes

| Bath capacity | Cooling capacity at 20°C | Heater wattage | Stability | Pump type | Max pressure psi (bar) | Max flow (L/min) | Working area (L x W x D) | Catalog number |
|--|--------------------------|----------------|-----------|---------------|------------------------|------------------|--------------------------|--------------------|
| Refrigerated baths with standard controller | | | | | | | | |
| 7 L | 200 W | — | ±0.04°C | Force | 2.9 (0.2) | 10.2 | 15.7 x 14.2 x 12.7 cm | JB-10124-01 |
| 7 L (low profile) | | | | | | | 21.2 x 27.6 x 14 cm | JB-10124-03 |
| 15 L | 915 W | | | | | | 21.2 x 27.6 x 14 cm | JB-10124-05 |
| Refrigerated baths with advanced controller | | | | | | | | |
| 7 L | 200 W | — | ±0.01°C | Force/suction | 3.6 (0.25) | 16.7 | 15.7 x 14.2 x 12.7 cm | JB-10124-07 |
| 7 L (low profile) | | | | | | | 21.2 x 27.6 x 14 cm | JB-10124-09 |
| 15 L | 915 W | | | | | | 21.2 x 27.6 x 14 cm | JB-10124-11 |
| | 1000 W | | | | | | | JB-10124-13 |
| Heated baths with standard controller | | | | | | | | |
| 7 L | — | 2200 W | ±0.04°C | Force | 2.9 (0.2) | 10.2 | 15.7 x 14.2 x 12.7 cm | JB-10124-15 |
| 15 L | | | | | | | 21.2 x 27.6 x 14 cm | JB-10124-17 |
| 20 L | | | | | | | 25 x 31.6 x 14 cm | JB-10124-19 |
| Heated baths with advanced controller | | | | | | | | |
| 7 L | — | 2200 W | ±0.01°C | Force/suction | 3.6 (0.25) | 16.7 | 15.7 x 14.2 x 12.7 cm | JB-10124-21 |
| 15 L | | | | | | | 21.2 x 27.6 x 14 cm | JB-10124-23 |
| 20 L | | | | | | | 25 x 31.6 x 14 cm | JB-10124-25 |

Accessories

JB-01294-31 Bath fluid with algicide, 50/50 mix of ethylene glycol and water; -25 to 100°C. Case of five 1.9-L bottles

JB-08796-00 Laboratory algicide for water baths. One 236-mL bottle

JB-17001-13 NIST-traceable calibration with data for temperature baths

Techne® Fluidized Sand Bath System

Fast heat-ups and accurate temperature control to 600°C

- Dry, inert, nontoxic aluminum oxide ensures hazard-free operation
- Safer alternative to high temperature oil and salt baths

1. Sand Bath is ideal for heat treating processes, temperature sensor calibrations, and electrical component testing. Bath uses aluminum oxide (Al₂O₃) fluidized by low-pressure air as a dry bath medium with excellent heat transfer properties. Inert, nonflammable aluminum oxide (included) is safer to use than oil and will not corrode your sample vessels or produce toxic fumes.

Bath requires a dry air flow of approximately 3 cu ft/minute at about 3 psi pressure; order an air pump separately online. If your laboratory is equipped with an air line, it must be fitted with a filter and a pressure regulator.

What's included: 20-lb container of aluminum oxide, overspill flange, and universal power cord.



REQUIRED System Components

- 1) Sand bath
- 2) Temperature controller



| Temperature range | Optimum uniformity | Heaters | Heat-up times | Working area | Power (50/60 Hz) | Catalog number |
|--------------------------------|--------------------|-----------|---|----------------------------------|------------------|--------------------|
| 50 to 600°C (122 to 1112°F) | ±0.5°C (±0.9°F) | 2 x 750 W | 6 min to 200°C, 8 min to 350°C, 22 min to 600°C | 5½" H x 7" dia (14 x 17.7 cm) | 240 VAC | JB-01184-02 |

JB-01184-63 Replacement aluminum oxide, 25 lbs

2. Temperature Controller integrates an air flowmeter and a PID temperature control with dual-setpoint programming to improve accuracy, increase temperature stability to ±0.2°C, and allow temperature settings to 1°C/°F. Includes a chromel/alumel type K thermocouple which fits into the bath's thermowell, and 10 ft of ¾" tubing for air flow control.

| Temperature range | Catalog number |
|---------------------------|--------------------|
| 0 to 620°C (32 to 1148°F) | JB-01184-50 |

Techne® Industrial Fluidized Sand Baths

Safe, efficient, and cost effective cleaning

- Removes plastics, paints, epoxy, rubber, adhesives, grease, lubricants, and oils
- Fast cleaning minimizes production equipment down-time

Industrial sand baths are ideal for heat-treatment cleaning, temperature calibrations, and reactive analysis (exothermic and endothermic reactions). They remove most polymers from tooling, including PVC, PET, PTFE, and PEEK without eroding the tool or mold. Easily set temperature for fast heat-ups to 600°C (1112°F) using the integral PID controller and standard type K thermocouple. Temperature stability of ±1.0°C at 450°C. Baskets are available for small parts.

Note: An air source is required.

What's included: 25 lb of aluminum oxide and 240 VAC power cord.



| Temperature range | Stability at 450°C | Heat-up times | Load capacity gal. (L) | Working area | Power (50/60 Hz) | Catalog number |
|--------------------------------|--------------------|---------------------------------------|------------------------|-----------------------------------|------------------|--------------------|
| 50 to 600°C (122 to 1112°F) | ±1.0°C | 105 min to 450°C, 150 min to 600°C | 1¼ (5) | 13"H x 9.5" dia (33 x 24.1 cm) | 240 VAC | JB-01184-10 |
| | | | 9¾ (37) | 26"H x 9.5" dia (66 x 24.1 cm) | 240 VAC | JB-01184-20 |

Accessories

JB-01184-66 Basket for bath 01184-10

JB-01184-70 Basket for bath 01184-20





Round Vacuum Desiccators

Know your vacuum level via analog gauge

- Get vacuum results with Viton® three-way valve
- Maintain 29" Hg vacuum for over 72 hours at room temperature
- Maintain leakproof vacuum with silicone O-ring
- Keep lid secure with included locking ring

What's included: perforated plate or shelves, desiccant tray, analog vacuum gauge, and three-way valve.



| Chamber volume cu ft (L) | Interior height | Clearance above plate (mm) | Color | Catalog number | Color | Catalog number |
|--------------------------|-----------------|----------------------------|-------|--------------------|-------|--------------------|
| 0.2 (6) | 8¾" | 165 | Clear | JB-08909-05 | Amber | JB-08909-07 |
| 0.4 (10) | 10¾" | 213 | Clear | JB-08909-09 | Amber | JB-08909-11 |
| 0.7 (20) | 13¾" | 254 | Clear | JB-08909-13 | Amber | JB-08909-15 |

Cole-Parmer® Desiccators

Secure, tight seal

- Neoprene O-ring provides tight seal—add grease for complete air tight storage
- Perforated plate holds samples above desiccant
- Chemical resistant body (PP), and polycarbonate cover

Desiccator has a chemical-resistant polypropylene (PP) body and polycarbonate (PC) cover. A neoprene O-ring offers a secure seal. Use grease on the flanges to make the unit completely airtight. Includes PP plate.



| Plate dia (mm) | Total height (mm) | Clearance above plate (mm) | Catalog number |
|----------------|-------------------|----------------------------|--------------------|
| 138 | 204 | 123 | JB-06525-22 |
| 190 | 257 | 166 | JB-06525-24 |
| 248 | 315 | 207 | JB-06525-26 |

Vacuum Desiccator Cabinets

Optimize vacuum with one-piece molded design

- Get vacuum results with Viton® three-way valve
- Maintain 29" Hg vacuum for over 72 hours at room temperature
- Configurable to your samples with adjustable shelves
- Verify the vacuum pressure with included vacuum gauge

What's included: perforated shelves, desiccant tray, analog vacuum gauge, and three-way valve.



| Chamber volume cu ft (L) | Dimensions (W x H x D) | | Shelves Included/Max | Color | Catalog number | Color | Catalog number |
|--------------------------|------------------------|--------------------|----------------------|-------|--------------------|-------|--------------------|
| | Interior | Overall | | | | | |
| 0.4 (11) | 9½" x 9¾" x 10" | 12½" x 10½" x 11¼" | 2/4 | Clear | JB-08909-16 | Amber | JB-08909-17 |
| 0.8 (23) | 13½" x 9¾" x 14¾" | 16½" x 11" x 15½" | 2/4 | Clear | JB-08909-18 | Amber | JB-08909-19 |
| 1.2 (35) | 14" x 13¾" x 14¾" | 16½" x 15" x 15½" | 3/5 | Clear | JB-08909-21 | Amber | JB-08909-22 |
| 1.6 (45) | 14" x 17½" x 14¾" | 16½" x 19¾" x 15½" | 3/6 | Clear | JB-08909-23 | Amber | JB-08909-24 |

Need Help Selecting?

Trust our **expert** Application Specialists to help you find the right product.

022-6139-4444 | info@coleparmer.in



Compact Benchtop Muffle Furnaces

Get easy, digital control of samples

- Ideal for ignition tests, gravimetric analysis, and heat treating steel parts
- Feature single set point digital control
- Digital LED displays chamber temperature

Furnaces feature ceramic fiber insulation for fast heat-up and reduced energy consumption—rise time to 1100°C takes only 50 minutes. Embedded heating elements on three sides give an improved temperature gradient. Drop-down door serves as a convenient shelf for loading and unloading samples. A safety interlock switch disconnects power to heating elements whenever the door is opened. Chambers are constructed of heavy-duty welded steel. Order optional hearth plate below to protect furnace from spills.



Specifications

Operating temperature range: 100 to 1100°C **Temperature control accuracy:** ±2.0°C **Temperature stability:** ±2.0°C at 1000°C



| Capacity cu in. (L) | Dimensions (W x H x D) | | Temperature uniformity | Power (VAC, Hz) | Watts (at 1000°C) | Catalog number |
|---------------------|------------------------|-----------------------|------------------------|-----------------|-------------------|----------------|
| | Chamber | Overall | | | | |
| 75 (1.23) | 10.2 x 9.5 x 12.7 cm | 22.9 x 35.6 x 33.0 cm | ±7.8°C | 240, 50/60 | 1060 | JB-33900-05 |
| 128 (2.1) | 12.7 x 10.8 x 15.2 cm | 25.4 x 36.8 x 40.1 cm | ±5.0°C | | | |

JB-33900-51 Ceramic hearth plate for 33900-15

Cole-Parmer® StableTemp™ Muffle Furnaces

Get up to temperature fast

- Reach maximum temperature in as fast as 25 minutes
- Autotune feature helps eliminate temperature overshoot
- Energy efficient insulation keeps exterior safe to touch
- Models available with extensive programming capabilities

StableTemp

The fully embedded heating elements maintain temperature uniformity. A door switch cuts power to the heating elements when the door is opened minimizing your exposure to hot temperatures and extending the life of the heating elements.

Basic Control Furnaces feature a single LED display that toggles between actual and set point temperatures. **Single Set Point Control Furnaces** have two LED displays to simultaneously display actual and set point temperatures. **Programmable Control Furnaces** have two LED displays to simultaneously display actual and set point temperatures. These furnaces can store up to 31 programs with up to 126 segments total.†



Specifications

Operating temperature range: 100 to 1100°C **Temperature control accuracy:** ±1°C **Temperature uniformity:** ±5°C



| Capacity cu in. (L) | Dimensions (W x H x D) | | Rise time (to 1050°C) | Power | | Shpg wt kg | Catalog number |
|--|------------------------|-----------------------|-----------------------|----------------|-------|------------|----------------|
| | Chamber | Overall | | VAC, Hz | Watts | | |
| Basic control furnaces | | | | | | | |
| 323 (5.3) | 15.2 x 15.2 x 22.9 cm | 43.2 x 54.6 x 53.3 cm | 25 minutes | 240, 50/60 | 1800 | 49.9 | JB-33858-05 |
| 1123 (18.4) | 22.9 x 22.9 x 35.6 cm | 53.3 x 66.0 x 65.4 cm | 35 minutes | 208/240, 50/60 | 3500 | 68.1 | JB-33858-10 |
| 2592 (42.48) | 30.5 x 30.5 x 45.7 cm | 61.0 x 71.1 x 76.2 cm | 45 minutes | 208/240, 50/60 | 5600 | 74.9 | JB-33858-20 |
| Single set point control furnaces | | | | | | | |
| 1123 (18.4) | 22.9 x 22.9 x 35.6 cm | 53.3 x 66.0 x 65.4 cm | 35 minutes | 208/240, 50/60 | 3500 | 68.1 | JB-33858-40 |
| 2592 (42.48) | 30.5 x 30.5 x 45.7 cm | 61.0 x 71.1 x 76.2 cm | 45 minutes | 208/240, 50/60 | 5600 | 74.9 | JB-33858-50 |
| Programmable control furnaces† | | | | | | | |
| 323 (1.6) | 15.2 x 15.2 x 22.9 cm | 43.2 x 54.6 x 53.3 cm | 25 minutes | 240, 50/60 | 1800 | 49.9 | JB-33858-65 |
| 1123 (18.4) | 22.9 x 22.9 x 35.6 cm | 53.3 x 66.0 x 65.4 cm | 35 minutes | 208/240, 50/60 | 3500 | 68.1 | JB-33858-70 |
| 2592 (42.48) | 30.5 x 30.5 x 45.7 cm | 61.0 x 71.1 x 76.2 cm | 45 minutes | 208/240, 50/60 | 5600 | 74.9 | JB-33858-80 |

†Program capacity is dependent on memory (351 byte maximum available). For example: furnaces can store one program with up to 116 segments (using 349 bytes), or four programs with up to 28 segments each (using 340 bytes).

JB-33858-90 RS-485 communications port lets you control furnace via computer software 89820-81 below. Factory-installed; must be ordered at same time as furnace.

JB-33858-92 Cable, 7.6-m L. Required to connect furnace to computer

JB-89820-81 Configuration software. Requires 33858-90 above.

JB-33910-52 Cable, daisy chain

Techne® Dry Block Heaters

Engineered for accuracy

- Versatile—work with many size sample tubes and plates
- Lightweight and flat top surface allow heaters to be stacked taking up less space
- Independent indicator lights show power, heater action, and overtemperature cutout



REQUIRED System Components

- 1) Block heater
- 2) Heating blocks

1. Block Heaters

Analog Heaters let you set the temperature in 2°C increments using a calibrated rotary dial. Excellent stability at 40°C for two-block model and at 40°C for three-block model.

Digital Heaters produce a fast heat-up rate (7 to 9 minutes from 25 to 100°C) and achieve temperature stability at 37°C. Quickly set and view temperature on LED display. Side panels help dissipate heat from the outer surfaces. Adjust the countdown timer between 1 minute and 100 hours in 1-minute increments.

Select a dual-control unit to independently control the temperature of two blocks—ideal for multiple users or for applications where samples have to be transferred quickly between temperatures. Use three- and four-block models for high-throughput applications. Model 36620-16 has an RS-232 connection so you can set and receive block temperature using your computer.

What's included: block extraction tool and power cord (UK and Euro plugs).



| Max temp | Uniformity | No. of blocks accepted† | Power (50/60 Hz) | | Catalog number |
|----------------------------------|--|-------------------------|------------------|-------|--------------------|
| | | | VAC | Watts | |
| Analog dry block heaters | | | | | |
| 100°C | 0.2°C between block at 40°C | 2 | 230 | 300 | JB-36620-12 |
| 200°C | | 3 | 230 | 450 | JB-36620-14 |
| Digital dry block heaters | | | | | |
| 100°C | 0.2°C within the block at 37°C; 0.5°C between block at 37°C | 2 | 230 | 300 | JB-36620-00 |
| 100°C | | 2 (dual controls) | 230 | 300 | JB-36620-02 |
| 100°C | 0.2°C within the block at 37°C; 0.5°C between block at 37°C | 3 | 230 | 450 | JB-36620-04 |
| 100°C | | 4 | 230 | 600 | JB-36620-06 |
| 200°C | 0.2°C within the block at 37°C; 0.5°C between block at 37°C | 2 | 230 | 300 | JB-36620-08 |
| 200°C | | 3 | 230 | 450 | JB-36620-10 |
| 200°C | 0.2°C within the block at 37°C; 0.5°C between block at 37°C | 3 (RS-232 output) | 230 | 450 | JB-36620-16 |

†Indicates the number of single-width blocks accepted by each block heater. A heater that accepts two single-width blocks will accept one double-width block.

Sample Concentrators

Use with three-block heaters to quickly concentrate multiple samples at once. Concentrator blows gas over the surface of your samples through stainless steel needles (order separately). Insert needles into a silicone membrane in virtually any configuration. Fully adjustable gas reservoir provides accurate height control. Choose PTFE-coated needles for use with corrosive samples.

JB-36620-40 Sample concentrator for use with test tubes in three-block heaters

JB-36620-41 Sample concentrator for use with 96-well plates in three-block heaters

JB-36620-96 Stainless steel needle, 76 mm long. 100/pk

JB-36620-97 Stainless steel needle, 127 mm long. 100/pk

JB-36620-99 PTFE-coated SS needle, 76 mm long. 100/pk

JB-36620-98 PTFE-coated SS needle, 127 mm long. 100/pk



2. Interchangeable Heating Blocks

Aluminum heating blocks provide excellent thermal conductivity. Depending on the combination of blocks selected, plastic spacers can be used to fill a half-width recess for optimal thermal performance. Most blocks have a separate hole to accept a thermometer.

Flexi-block inserts hold multiple size tubes, vials, or cuvettes at once. They use high-density, autoclavable ceramic beads and come in double or triple width. Unskirted PCR plates can be heated in either size flexi-block. Skirted microtiter plates, deep-well plates, and PCR plates can only be incubated in the triple-width version.

| Accommodates | No. of wells | Well depth | Well shape | Catalog number |
|------------------------------------|----------------------|-------------|------------|---------------------|
| Single-width heating blocks | | | | |
| 6-mm dia tubes | 30 | 38 mm | Tapered | JB-36620-51 |
| 7-, 9-mm dia tubes | 20, 10 | 38 mm | Conical | JB-36620-62‡ |
| 10-mm dia tubes | 20 | 48 mm | Conical | JB-36620-52 |
| 12-mm dia tubes | 20 | 20 mm | Flat | JB-36620-87 |
| 12-mm dia tubes | 20 | 24 mm | Flat | JB-36620-85 |
| 12-mm dia tubes | 20 | 24 mm | Conical | JB-36620-82 |
| 12-mm dia tubes | 20 | 48 mm | Conical | JB-36620-53 |
| 13-mm dia tubes | 20 | 48 mm | Conical | JB-36620-54 |
| 15-mm dia tubes | 12 | 30 mm | Flat | JB-36620-86 |
| 15-mm dia tubes | 12 | 48 mm | Conical | JB-36620-55 |
| 16-mm dia tubes | 12 | 25 mm | Flat | JB-36620-89 |
| 16-mm dia tubes | 12 | 48 mm | Conical | JB-36620-56 |
| 19-mm dia tubes | 8 | 48 mm | Conical | JB-36620-57 |
| 20-mm dia tubes | 8 | 48 mm | Conical | JB-36620-81 |
| 24-mm dia tubes | 6 | 48 mm | Conical | JB-36620-63 |
| 25-mm dia tubes | 6 | 48 mm | Conical | JB-36620-58 |
| 26-mm dia tubes | 6 | 48 mm | Conical | JB-36620-64 |
| 30-mm dia tubes | 5 | 48 mm | Conical | JB-36620-79 |
| 43-mm dia tubes | 2 | 45 mm | Flat | JB-36620-80 |
| 0.2-mL tubes | 72 | 13.8 mm | Tapered | JB-36620-72 |
| 0.5-mL tubes | 30 | 27 mm | Tapered | JB-36620-66 |
| 1.5-mL tubes | 20 | 35 mm | Tapered | JB-36620-65 |
| 2.0-mL tubes | 20 | 35 mm | Conical | JB-36620-71 |
| 50-mL tubes | 5 | 48 mm | Conical | JB-36620-77 |
| Gelation timer | 1 | — | Flat | JB-36620-75 |
| 10-mm cuvettes (13 mm W) | 2 channels | 38 mm | Flat | JB-36620-59 |
| Solid (no holes) | — | — | — | JB-36620-50‡ |
| Solid (no holes) | — | — | — | JB-36620-61 |
| Double-width heating blocks | | | | |
| 96-well PCR plate | 96 | 17.3 mm | Tapered | JB-36620-73 |
| 384-well PCR plate | 384 | 7 mm | Tapered | JB-36620-76 |
| 96-well culture plate | 96 | — | Round | JB-36620-69 |
| 96-well culture plate | 96 | — | Flat wells | JB-36620-70 |
| 96-well high-temp | 96 | — | Round | JB-36620-68 |
| 96-well plate | Flat perimeter ridge | Flat bottom | — | JB-36620-78 |
| 1.0-mL Porvair plate | 96 | — | — | JB-36620-74‡ |
| Flexi-block | — | — | — | JB-36620-90 |
| Triple-width heating blocks | | | | |
| 43-mm dia bottles | 4 | 85 mm | Flat | JB-36620-84 |
| Flexi-block | — | — | — | JB-36620-91 |
| Solid (no holes) | — | — | — | JB-36620-60 |

‡No thermometer hole.

JB-36620-67 Plastic spacers, half-width. Measure 95 x 37 x 50 cm. Pack of 2

Electrothermal Digi-Mantle Stirring/Heating Mantle Systems

Greater flexibility with interchangeable cartridges

- Base controller accommodates different heating cartridges
- Cool-to-the-touch design offers safe handling
- Excellent stirring stability and speeds from 100 to 2000 rpm
- Uniform heat distribution

Electronic controller with an interchangeable heating mantle cartridge creates a complete stirring/heating mantle system. Each interchangeable cartridge is tailored to accept a 250-, 500-, or 1000-mL round-bottom flask. The outside of the heater cartridge remains cool (even at 450°C) due to continuous airflow through ventilation slots beneath and around the rim of the case.

Temperature and stirring speed are controlled using a touch control panel. Connect the temperature probe to see the actual temperature of the sample (up to 220°C). Without an external temperature probe, heat setting is displayed as a percentage of the total power. Built-in magnetic stirrer provides accurate stirring speed, even at a low stirring speed.

What's included: Controller includes a 100 Ω Pt RTD probe, support rod clamp, and 6½-ft (2-m) power cord with UK plug. Heating mantle cartridges include a stir bar and 100 Ω Pt RTD probe.



Specifications

| | |
|--|---|
| Temperature range: ambient to 842°F (450°C) | Dimensions for complete system (W x H x D): 11¾" x 25½" x 11¾" (30 x 65 x 30 cm) |
| Stirring speed range: 100 to 2000 rpm | |

| Power (50/60 Hz) | 1. Digital base controller | | 2. Heating mantle cartridges | | Replacement heating element |
|------------------|----------------------------|------------|------------------------------|----------------|-----------------------------|
| | Catalog number | Flask size | Catalog number | Catalog number | |
| 230 VAC | JB-36204-13 | 250 mL | JB-36204-15 | JB-36204-01 | |
| | | 500 mL | JB-36204-19 | JB-36204-05 | |
| | | 1000 mL | JB-36204-23 | JB-36204-09 | |



REQUIRED System Components

- 1) Digital base controller
- 2) Heating mantle cartridges



Accessories

JB-36630-70 Replacement temperature probe, 100 Ω Pt RTD

Electrothermal CMUA Series Stirring/Heating Mantles

Magnetic stirrer and heating mantle in one convenient unit

- Flexible coiled heating element wraps the heater around round-bottom flask to optimize heat transfer
- Cool-to-the-touch exterior provides safe handling up to 450°C

These stirring/heating mantles combine the functionality of a heating mantle with a magnetic stirrer providing even heating and mixing. For safety, the flask does not come in direct contact with the heating element. Built-in energy regulator and safety earth (ground) screen offer added safety protection.

Reach stirring speeds up to 2000 rpm. Simply use the auto-recapture switch to reactivate stirring if stirring is interrupted and stirring motion is lost. Two colored lights by each control dial indicate "power on" and "heat on."

What's included: stir bar, support rod clamp, and power cord with UK plug.



Specifications

| | |
|--|--|
| Temperature range: ambient to 825°F (450°C) | Case material: powder-coated aluminum |
| Stirring speed: up to 2000 rpm | |



| Watts | Flask size (mL) | Dimensions (W x H x D) | Power (VAC, Hz) | Catalog number |
|-------|-----------------|------------------------|-----------------|----------------|
| 75 | 100 | 17.5 x 15 x 17.5 cm | 230, 50/60 | JB-36013-00 |
| 200 | 250 | 17.5 x 15 x 17.5 cm | 230, 50/60 | JB-36013-02 |
| 280 | 500 | 22 x 17 x 22 cm | 230, 50/60 | JB-36013-04 |
| 380 | 1000 | 22 x 17 x 22 cm | 230, 50/60 | JB-36013-06 |
| 500 | 2000 | 32 x 22 x 32 cm | 230, 50/60 | JB-36013-08 |
| 500 | 3000 | 32 x 22 x 32 cm | 230, 50/60 | JB-36013-10 |
| 800 | 5000 | 32 x 22 x 32 cm | 230, 50/60 | JB-36013-12 |



Cole-Parmer® StableTemp™ Silicone Rubber Beaker Heaters

Hook-and-loop fastening device for quick installation and removal

StableTemp

– Accommodate most standard-sized beakers

These heaters provide even heat across the surface of a beaker and eliminate the risk of damage to the heater due to chemical and moisture spillover. A hook-and-loop fastening device permits quick installation and allows the heater to be reused. Tapes are made of fine-strand resistance wires that are double insulated with braided fiberglass and knitted into flat tapes; then completely enclosed in high-strength, high-temperature-resistant silicone rubber.

Warning: Heaters require the use of a temperature or power controller sold separately online.

What's included: 2-ft (0.6-m) power cord with standard 2-prong plug.

| Fits beaker size | Watts | VAC | Dimensions | | Max exposure temperature | Catalog number |
|------------------|-------|-----|---------------|---------------|--------------------------|--------------------|
| | | | Length | Width | | |
| 250 mL | 150 | 120 | 10" (25.4 cm) | 3" (7.6 cm) | 450°F (232°C) | JB-03106-49 |
| 400 mL | 200 | | 11" (27.9 cm) | 3½" (8.9 cm) | 450°F (232°C) | JB-03106-50 |
| 600 mL | 250 | | 12" (30.1 cm) | 4" (10.2 cm) | 450°F (232°C) | JB-03106-51 |
| 1000 mL | 350 | | 15" (38.1 cm) | 4½" (11.4 cm) | 450°F (232°C) | JB-03106-52 |



Cole-Parmer® StableTemp™ Dual-Element Heating Tapes

Greater flexibility than other high-temperature heating tapes

StableTemp

Dual-element design improves the heater's flexibility over standard high-temperature tapes. Tapes are made of two heating elements that are knitted together in series and then wound together with high-temperature Samox® fiberglass. The 120 VAC tapes include a plug and the 240 VAC tapes are supplied with bare leads.

Warning: Heating tapes should not be overlapped and require the use of a temperature or power controller sold separately.

| Watts | Dimensions | | Max exposure temperature | 120 VAC tapes | 240 VAC tapes† |
|-------|---------------|-------------|--------------------------|--------------------|--------------------|
| | Length | Width | | Catalog number | Catalog number |
| 156 | 2 ft (0.6 m) | ½" (1.3 cm) | 1400°F (760°C) | JB-36050-00 | JB-36050-05 |
| 312 | 4 ft (1.2 m) | ½" (1.3 cm) | 1400°F (760°C) | JB-36050-10 | JB-36050-15 |
| 468 | 6 ft (1.8 m) | ½" (1.3 cm) | 1400°F (760°C) | JB-36050-20 | JB-36050-25 |
| 624 | 8 ft (2.4 m) | ½" (1.3 cm) | 1400°F (760°C) | JB-36050-30 | JB-36050-35 |
| 780 | 10 ft (3 m) | ½" (1.3 cm) | 1400°F (760°C) | JB-03106-26 | JB-36050-45 |
| 936 | 12 ft (3.7 m) | ½" (1.3 cm) | 1400°F (760°C) | JB-03106-27 | JB-36050-55 |
| 312 | 2 ft (0.6 m) | 1" (2.5 cm) | 1400°F (760°C) | JB-36050-60 | JB-36050-65 |
| 624 | 4 ft (1.2 m) | 1" (2.5 cm) | 1400°F (760°C) | JB-36050-70 | JB-36050-75 |
| 936 | 6 ft (1.8 m) | 1" (2.5 cm) | 1400°F (760°C) | JB-03106-28 | JB-36050-85 |
| 1248 | 8 ft (2.4 m) | 1" (2.5 cm) | 1400°F (760°C) | — | JB-36050-95 |

†Plug not included.



Service that doesn't end with sales.

We install, commission, provide IQ/OQ certification, and repair virtually all of our products.

022-6139-4444 | info@coleparmer.in



Cole-Parmer® StableTemp™ Gravity Convection Ovens

Gentle airflow—ideal for sterilization and drying

- Save up to three preset temperature settings for quick recall
- Rounded chamber corners for easier cleaning and optimal airflow
- Dual-wall door opens to 180° for greater insulation and chamber access
- Resist corrosion—Incoloy® sheathed heating element and stainless steel interior

Gravity convection ensures gentle, natural air circulation—ideal for sterilization, drying, and other applications requiring subtle airflow. Digital ovens are programmable for delayed start and stop, and an integrated timer affords the convenience of unattended operation. Rounded inner chamber corners offer easy cleaning and superior air circulation. Two 1.5" (3.8 cm) diameter vents are located on the top of the unit—adjustable ventilation provides control of inner air and vapor circulation.

What's included: two stainless steel wire shelves and power cord.

StableTemp



Specifications

| | | |
|---|---|--|
| Temperature range: ambient +15 to 220°C | Temperature control accuracy: ±1° at 100°C | Timer: 1 min to 99 hr, 59 min with delayed on/off |
| Temperature control type: digital PID with auto tuning and calibration | Temperature display: digital LED | Power: 230 VAC, 50/60 Hz |

| Capacity cu ft (L) | Temperature uniformity | Rise time (minutes) | Shelf positions | Dimensions (W x H x D) | | Shpg wt (kg) | Catalog number |
|--------------------|------------------------|---------------------|-----------------|------------------------|---------------------|--------------|--------------------|
| | | | | Chamber | Overall | | |
| 1.8 (52) | ±6.5°C at 100°C | 45 to 100°C | 10 | 37.5 x 37 x 37 cm | 53 x 73.7 x 53.5 cm | 34 | JB-52412-86 |
| 3.5 (100) | ±4.1°C at 100°C | | 14 | 45.5 x 51 x 43 cm | 61 x 87.7 x 59.5 cm | 46 | JB-52412-87 |
| 5.3 (150) | ±7.3°C at 100°C | | 15 | 58.5 x 55.5 x 46 cm | 74 x 92.2 x 62.5 cm | 59 | JB-52412-88 |

Accessories

- JB-79510-04 Wire shelf** for 1.8 cu ft units
- JB-79510-12 Wire shelf** for 3.5 cu ft units
- JB-79510-20 Wire shelf** for 5.3 cu ft units
- JB-17002-30 NIST-traceable calibration** with data for ovens

Cole-Parmer® StableTemp™ Mechanical Convection Ovens

Dry samples faster

- Get greater drying efficiency with fast heat-up and uniform temperature
- Forced-air convection with a noiseless fan ensures good mixing and strong dispersion
- Corrosion-resistant Incoloy® sheath heating element and stainless steel interior
- Foamed silicone rubber door gasket creates a tight seal for excellent insulation

Digital ovens are programmable for delayed start and stop. Timer offers you the convenience of unattended operation. The dual-wall door opens 180° for greater access to the chamber.

What's included: two stainless steel wire shelves and power cord.



StableTemp

Specifications

| | |
|---|--|
| Temperature range: ambient +10°C to 250°C | Temperature display: digital LED |
| Temperature control type: digital PID with auto tuning and calibration | Interface: RS-232 with controlling software |
| Temperature control accuracy: ±1°C at 100°C | Timer: 1 min to 99 hrs, 59 min |
| | Power: 230 VAC, 50/60 Hz |

| Capacity cu ft (L) | Temperature uniformity | Rise time (minutes) | Shelf positions | Dimensions (W x H x D), in. (cm) | | Shpg wt lb (kg) | Catalog number |
|--------------------|------------------------|---------------------|-----------------|----------------------------------|--------------------------------|-----------------|--------------------|
| | | | | Chamber | Overall | | |
| 2.1 (59.5) | ±1°C at 100°C | 15 to 100°C | 8 | 15¾ x 16½ x 14¼ (40 x 42 x 36) | 22¾ x 30 x 25¼ (58 x 76 x 64) | 138 (63) | JB-52412-80 |
| 3.6 (101.9) | | | 12 | 19 x 20½ x 16 (48 x 52 x 41) | 26 x 34¼ x 27¼ (66 x 87 x 70) | 166 (76) | JB-52412-81 |
| 5.3 (150.1) | | | 16 | 22 x 23½ x 18 (56 x 60 x 46) | 28¾ x 38¼ x 29¼ (73 x 97 x 74) | 210 (96) | JB-52412-82 |

- JB-79510-04 Wire shelf** for 2.1 cu ft units
- JB-79510-12 Wire shelf** for 3.6 cu ft units

- JB-79510-20 Wire shelf** for 5.3 cu ft units
- JB-17002-30 NIST-traceable calibration** with data for ovens



Cole-Parmer® StableTemp™ Vacuum Ovens

Keep an eye on your samples

– Protect yourself from shattering glass—polycarbonate shielded glass door

Control vacuum levels between 0 and 30" Hg. Silicone door gasket and positive door latch assure a tight seal at all vacuum levels. A three-way valve allows easy evacuation, purging, and venting. The front-mounted stainless steel vacuum line fittings accept 1/4" ID tubing.

Insert other types of probes such as gas and humidity into the two rear 1/4" NPT(F) ports to monitor the internal atmosphere. Built-in overtemperature thermostat protects your samples from overheating. Aluminum shelves provide minimal heat retention, reducing hot spots.

What's included: a dial thermometer, one-piece shelf assembly with two aluminum shelves, and a 6-ft (1.8-m) three-wire power cord.



Specifications

Control type: hydraulic thermostat **Vacuum range:** 0 to 30" Hg **Power:** 240 VAC, 50Hz
Temperature display: dial gauge **Vacuum display:** dial gauge

StableTemp

| Capacity cu ft (L) | Temperature range | Temperature uniformity | Shelf positions | Dimensions (W x H x D), in. (cm) | | Shpg wt lb (kg) | Catalog number |
|-----------------------|--------------------------------|---------------------------|--------------------|----------------------------------|---------------------------------|--------------------|-------------------|
| | | | | Chamber | Overall | | |
| 0.7 (19.8) | 5°C above ambient to 200° C | ±6°C at 100°C | 2 (fixed) | 10 x 10 x 12 (25 x 25 x 30) | 20 x 16¼ x 16 (51 x 41 x 41) | 130 (59.0) | JB-05053-12 |
| 2.3 (65.1) | | ±5°C at 100°C | 2 (fixed) | 14 x 14 x 20 (36 x 36 x 51) | 25 x 22 x 25 (63 x 56 x 63) | 310 (140) | JB-05053-22 |

JB-17002-30 NIST-traceable calibration with data for ovens

Contact our Application Specialists for vacuum pumps for the ovens.
Call 022-6139-4444

Cole-Parmer® StableTemp™ High-Temperature Vacuum Ovens

Simple, safe operation up to 280°C

- Ensure temperature uniformity and minimize exterior surface temperatures with thick insulation
- Monitor samples continuously with full view window

Electronic-Controlled Oven (model 05017-05) ensures even heating with wrap-around heating elements. Electronic control back-up prevents overheating. Front panel controls include primary temperature control failure indicators, purge gas and vacuum control valves, vacuum gauge, and temperature control. Gas and vacuum system connectors on the rear panel let you replace air with inert gas.

Microprocessor-Controlled Oven (model 05017-15) with self-diagnostic indicators, back-up thermostat, and dual controls prevents damage to samples. Program up to eight on/off cycles per day. Front panel indicators alert you to open thermocouple, shorted triac, open heater, or overtemperature conditions.

What's included: two shelves and a power cord with European plug.



StableTemp

Specifications

Temperature range: 10°C above ambient to 280°C **Temperature display:** Model 05017-05: dial; Model 05017-15: LED
Vacuum display: Model 05017-05: dial; Model 05017-15: LED **Power:** 240 VAC, 50/60 Hz

| Capacity cu ft (L) | Temperature uniformity | Rise time to 200°C (minutes) | Shelf positions | Dimensions (W x H x D), in. (cm) | | Shpg wt lb (kg) | Catalog number |
|-----------------------|---------------------------|---------------------------------|--------------------|----------------------------------|----------------------------------|--------------------|-------------------|
| | | | | Chamber | Overall | | |
| 0.67 (18.9) | ±1°C at 100°C | <35 | 2 | 10 x 10 x 11½ (25 x 25 x 29) | 18 x 22¾ x 17¾ (46 x 58 x 45) | 90 (41) | JB-05017-05 |
| 1.50 (44.5) | ±5°C at 100°C | <30 | 8 | 12 x 12 x 18 (30 x 30 x 46) | 26 x 22 x 23 (66 x 56 x 58) | 205 (93) | JB-05017-15 |

JB-17002-30 NIST-traceable calibration with data for ovens

Electrothermal STEM RS Series Parallel Reaction Stations

Run multiple reactions in a single station, saving you time and money

- Excellent temperature uniformity across the block
- Soft-start feature minimizes splashing
- Time to maximum temperature is 15 minutes

These energy-efficient reaction stations let you easily carry out parallel synthesis by offering the same controlled temperature and stirring rates at several positions simultaneously. High-performance magnetic stirrers ensure maximum coupling. Easily set and view temperature and stir rate on the digital display. Use the RS-232 or RS-485 connections to interface with a robotic workstation or a computer. The well-insulated stations stay cool to the touch for safe handling. PTFE coating on vessel block provides protection from chemical spills.



| Model | Stirred positions | Sample volume | Tube diameter (mm) | Stir speed range (rpm) | Temperature range | Temperature stability | Power (230 V) | Catalog number |
|--------|--------------------------------|-----------------|--------------------|------------------------|-------------------|-----------------------|---------------|--------------------|
| RS600 | 6 | Up to 250 mL | 57.5 | 400 to 2000 | Ambient to 250°C | ±0.5°C | 600 W | JB-36630-13 |
| RS1000 | 10 | 1 to 25 mL | 25 | 400 to 2000 | Ambient to 150°C | ±0.5°C | 300 W | JB-36630-11 |
| RS9000 | (Order block separately below) | Block dependent | Up to 24 mm | 100 to 600 (agitation) | Ambient to 150°C | Block dependent | 900 W | JB-99968-12 |

JB-99968-07 Heating block for model RS9000; holds 96 x 16-mm tubes
JB-99968-08 Heating block for model RS9000; holds 40 x 24-mm tubes
JB-99968-11 Heating block for model RS9000; holds 96 x 1.5-mL tubes

JB-99968-05 Heating block for model RS9000; holds 4 x PTFE 96-well microplates
JB-36630-62 External temperature probe, RTD

Electrothermal Omni OS Series Reaction Stations

Simultaneously heat, stir, and reflux with one station—ideal for parallel synthesis

- Control and maintain the same temperature and stirring rate at each position
- Uniform heating across the heat block prevents “hot spots”
- Compact footprint allows use under fume hood
- Simple menus and touch pad interface make controlling quick and easy
- Range of -30 to 220°C when using optional cooling plug with stirring speed of 100 to 800 rpm

Omni reaction stations enable you to conduct parallel synthesis for either 6 or 10 reaction positions simultaneously. Same base unit can accommodate sample volumes ranging from 1 to 1000 mL. All heating blocks, glassware and reflux heads are interchangeable and small foot print. Use with the included temperature probe to achieve temperature accuracy of ±0.5°C. A central gas port, combined with gas-tight PTFE caps, allows a vacuum to be pulled or an inert gas to be introduced. Connect an optional cooling plug and chiller to the cartridge to achieve temperature down to -30°C without the need for an ice bath. For a wide range of optional accessories, please contact us at info@coleparmer.in or 022-6139-4444.

What's included: Omni base controller, heat block cartridge, reaction vessels, reflux/inert head, inerting caps, stir bars, external temperature probe, and reducing sleeve.



| Model | Number of positions | Well diameter | Working volume | Temperature stability | Catalog number |
|--------|---------------------|---------------|----------------|-----------------------|--------------------|
| OS1025 | 10 | 25.5 mm | 1 to 25 mL | ±1.5°C | JB-36630-01 |
| OS6050 | 6 | 40.5 mm | 5 to 50 mL | ±1.5°C | JB-36630-05 |
| OS6100 | 6 | 56.5 mm | 50 to 100 mL | ±1.5°C | JB-36630-07 |
| OS6250 | 6 | 56.5 mm | 100 to 250 mL | ±1.5°C | JB-36630-09 |

Wait! There's More...

Find recirculating chillers on pages 274, 276-277. For accessories, please contact info@coleparmer.in

Electrothermal PS20000 Integrity 10 Reaction Station

Individually control temperature
and stirring rate for each cell

NEW

- Perform 10 independent experiments at once saving you time and money
- View the results of your experiments in real time on the monitor
- Easily transfer data to a PC via a USB port or SD card
- Optional attachment available for refluxing and working under inert conditions

The Integrity 10 reaction station enables you to conduct 10 different reactions simultaneously within the same reaction unit, each reaction being conducted within its own cell, at its own individual temperature and stir rate. If desired, fast heating and cooling rates can be selected, with temperature ramps of between 0.1°C/min to 5°C/min. Extreme temperature accuracy is guaranteed, with a temperature stability of $\pm 0.2^\circ\text{C}$ and a maximum set point overshoot of 0.1°C. The Integrity 10 is an excellent tool for establishing ideal process conditions.

Each cell features an individually controlled magnetic stirrer (use 12 x 4.5 mm cylindrical or 10 x 6 mm oval stir bars only). Order tapered test tubes and reducing sleeves to accommodate sample volumes down to 1 mL. Use the optional reflux/inerting head when you need to run parallel reactions for a long time, as is commonly required in organic chemistry experiments.



Heating Equipment

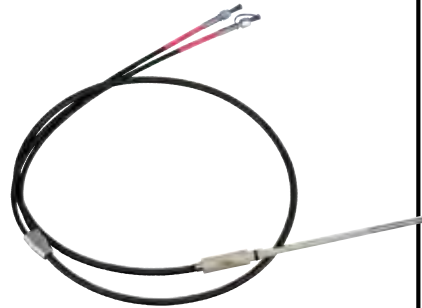
Specifications

| | |
|---|--|
| Number of positions: 10 | Temperature overshoot: 0.1°C (maximum) |
| Cell cavity diameter: 25.5 mm | Maximum controlled heating cooling ramp rate: 0.1 to 5°C/min in 0.1 steps |
| Sample volume: 1 to 25 mL (down to 1 mL with optional reducing sleeve) | Stir speed range: 350 to 1200 rpm |
| Temperature range: -30 to 150°C | Viscosity capacity: glycerine at 25°C |
| Temperature accuracy: $\pm 0.5^\circ\text{C}$ | Output: USB, RS-232, and RS-485 |
| Possible temperature difference between adjacent positions: 180°C | Power: 110/115/230 VAC, 50/60 Hz |

CE

Don't Forget...

IR/NIR probe
(part no. 36630-91) custom
made for Integrity 10



| Description | Quantity | Catalog number |
|---|----------|----------------|
| Integrity 10 reaction station with 10 individually controlled cells | 1 | JB-36630-00 |
| Integrity 10 software | 1 | JB-36630-92 |
| Small-volume test tubes, 1 mL, 24 to 11 mm taper | 10 | JB-36630-87 |
| Small-volume test tubes, 3 mL, 24 to 16 mm taper | 10 | JB-36630-83 |
| Reducing sleeves for 1-mL test tubes | 10 | JB-36630-86 |
| Reducing sleeves for 3-mL test tubes | 10 | JB-36630-84 |
| Stirrer bars, 10 x 6 mm | 10 | JB-36630-98 |
| Stirrer bars, 12 x 4.5 mm | 10 | JB-36630-99 |
| Reflux/inerting head | 1 | JB-36630-97 |
| Inerting cap for reflux/inerting head, SVL 22 thread | 10 | JB-36630-94 |
| Inerting cap for reflux/inerting head, Kimble type | 10 | JB-36630-95 |
| Glass tubes for reflux/inerting head, 24 x 150 mm, SVL 22 thread | 10 | JB-36630-85 |
| Glass tubes for reflux/inerting head, 24 x 150 mm, Kimble type | 10 | JB-36630-96 |
| Temperature probe | 6 | JB-36630-81 |
| Temperature probe | 10 | JB-36630-82 |
| Multi-temp 10 plug-in box | 1 | JB-36630-80 |
| Non-intrusive IR sensor | 1 | JB-36630-90 |
| Small intrusive IR probe in stainless steel PID-NIR5-BNSD | 1 | JB-36630-88 |
| Large intrusive IR/NIR probe | 1 | JB-36630-91 |
| Multi-IR plug-in box | 1 | JB-36630-89 |

Cole-Parmer® LabGEN® 850 Homogeniser

Process virtually any laboratory sample in seconds

- Variable-speed range performs from 5000 to 25,000 rpm
- Sample range from 200 µL to 5 L
- Versatile—use as a handheld unit or mount to optional stand for hands-free operation

NEW

Cole-Parmer's LabGEN 850 homogeniser is well-suited for a wide range of processing applications. The homogeniser features an advanced, integrated push-button digital control system that ensures accuracy and repeatability. The digital timer can be set from seconds to minutes, and includes a 30-second countdown timer, which is great for remote applications in fume hoods or biosafety cabinets. Smooth-start feature minimizes splashing and provides steady processing.

Use the homogeniser with either the stainless steel rotor-stator generators or the plastic tip probes (tip adaptor 04727-88 required). Order components separately.

What's included: cross rod, stand clamp, tool kit, and power cord.

1. Homogeniser

| Description | Sample volume | Power | Motor | Catalog number |
|------------------------|----------------|-------------------|-------|--------------------|
| LabGEN 850 homogeniser | 0.02 mL to 5 L | 220 VAC, 50/60 Hz | 850 W | JB-04727-29 |

2. Stainless Steel Rotor-Stator Generators

| Dispersion type | Sample volume range | Diameter | Length | Catalog number |
|-----------------|---------------------|----------|--------|--------------------|
| Fine | 0.02 to 5 mL | 5 mm | 75 mm | JB-04727-31 |
| Fine | 0.05 to 5 mL | 5 mm | 75 mm | JB-04727-60 |
| Fine | 0.25 to 30 mL | 7 mm | 115 mm | JB-04727-33 |
| Coarse | | | | JB-04727-35 |
| Fine | 1.5 to 100 mL | 10 mm | 115 mm | JB-04727-37 |
| Coarse | | | | JB-04727-39 |
| Fine | 100 to 2000 mL | 20 mm | 195 mm | JB-04727-41 |
| Coarse | | | | JB-04727-43 |
| Fine | 200 to 5000 mL | 30 mm | 195 mm | JB-04727-45 |
| Coarse | | | | JB-04727-46 |



REQUIRED System Components

- 1) Homogeniser
- 2) Rotor-stator generator OR
- 3) Plastic tip probes and required tip adaptor 04727-88

OPTIONAL

- 4) Stand with support rod

LabGEN®  

4 Stand
04727-89



3. Plastic Tip Probes

| Sample volume | Tissue type | Tip size (L x dia) | Qty/pk | Cat. no. |
|---------------|-------------|--------------------|--------|--------------------|
| 0.25 to 30 mL | Hard | 110 x 7 mm | 25 | JB-04727-84 |
| | | | 50 | JB-04727-85 |

JB-04727-88 Tip adaptor, required for use with plastic tip probes

4. Optional Stand

JB-04727-89 Homogeniser stand with support rod

Cole-Parmer® LabGEN® 7 Homogeniser

Don't be tied to a stand—use mounted or handheld

- No more wasted time—processes 0.25- to 30-mL samples in less than one minute
- No more hand stress—lightweight unit is easy to clean and disassemble
- Powerful, yet quiet—variable speed from 5000 to 35,000 rpm
- Ideal for most tissue samples

What's included: 7-mm generator probe and tool kit.

| Description | Probe included (L x dia) | Power | Motor | Catalog number |
|-------------|--------------------------|---------|-------|--------------------|
| LabGEN 7 | 85 x 7 mm | 220 VAC | 125 W | JB-04727-07 |

JB-04727-16 Homogeniser stand



LabGEN®



IKA® T25 ULTRA-TURRAX® Digital High-Speed Homogeniser

Choose from five generators with 1 to 2000 mL sample volumes

- Systems can be used with tough solids or large-volume samples
- Generators are made of 316 stainless steel and PTFE, providing excellent chemical compatibility

This system is ideal for batch homogenizing of cell tissues, emulsifying suspended solids, and air pollution filter extraction. The key component is the rotor-stator generator. (Order rotor-stator generators separately below.) Shielded in a 316 stainless steel shaft, the rotor acts as a centrifugal pump to recirculate the liquid and suspended solids through the generator, where shear, impact, collision, and cavitation provide rapid homogenization.

What's included: 10-ft (3-m) power cord with a European plug.

1. Homogeniser



| Description | Homogeniser only | Homogeniser kit |
|-----------------------|---|---------------------|
| Catalog number | JB-04739-22 | JB-15943-77† |
| Speed range | 500 to 25,000 rpm | |
| Batch volume range | 10 to 2000 mL (kit only includes 1500-mL generator) | |
| Speed adjustment | Stepless | |
| Wattage | 800 input, 500 output | |
| Power | 220 VAC, 50/60 Hz | 220 VAC, 50/60 Hz |

†Entire kit 15943-77 includes 04739-22, 04720-12, 50703-90, and 50703-70.

2. Rotor-Stator Generators

Specifications

Solution compatibility: Aqueous and organic
Wetted materials: PTFE, 316 SS
Max temp: 302°F (150°C)

| Sample volume range | Ultimate fineness | Dimensions (L x OD) | Catalog number |
|---------------------|-------------------|---------------------|--------------------|
| 1 to 50 mL | 10 µm | 108 x 8 mm | JB-04720-11 |
| 1 to 100 mL | 10 µm | 105 x 10 mm | JB-04720-10 |
| 10 to 1500 mL | 10 µm | 194 x 18 mm | JB-04720-12 |
| 50 to 2000 mL | 10 µm | 194 x 25 mm | JB-04719-52 |
| 100 to 2000 mL | 5 µm | 194 x 25 mm | JB-04719-53 |



REQUIRED System Components

- 1) Homogeniser
- 2) Rotor-stator generator
- 3) Stand and clamps



3. Stands and Clamps

- JB-50703-90** Plate stand, 22" high
- JB-50703-91** Plate stand, 31½" high
- JB-50703-92** Plate stand, 39½" high
- JB-50703-96** Boss head clamp
- JB-50703-70** Strap clamp

IKA® T50 ULTRA-TURRAX® Heavy-Duty Homogeniser

Process batches from 0.25 to 30 liters

- Integrated control ensures constant speed
- Superior dispersing power

The rotor-stator generator (order separately) rapidly disperses and disintegrates the material suspended in the media. Homogeniser is designed for continuous operation and features variable-speed control from 500 to 10,000 rpm.

What's included: 8-ft (2.4-m) power cord with European-type plug.

Kit adds: rotor stator generator 04738-72, a stand with H-shaped base for optimal stability, a boss head clamp (secures the drive to the stand), and strap clamp support (secures batch vessels to the stand).

1. Homogeniser



| Description | Homogeniser only | Homogeniser kit |
|-----------------------|------------------------|--------------------|
| Catalog number | JB-04738-35 | JB-04738-36 |
| Speed range | 500 to 10,000 rpm | |
| Batch volume range | 0.25 to 30 L | |
| Speed adjustment | Stepless | |
| Wattage | 1000 input, 700 output | |
| Power | 220 VAC, 50/60 Hz | 220 VAC, 50/60 Hz |

2. Rotor-Stator Generators, 316 Stainless Steel/PTFE

| Style | Sample volume | Ultimate fineness | Catalog number |
|----------|---------------|-------------------|--------------------|
| Standard | 0.25 to 10 L | 10 µm | JB-04738-60 |
| | 0.5 to 20 L | 40 µm | JB-04738-72 |
| | 0.5 to 15 L | 50 µm | JB-04738-76 |
| Sawtooth | 0.5 to 20 L | 40 µm | JB-04738-82 |



REQUIRED System Components

- 1) Homogeniser
- 2) Rotor-stator generator
- 3) Stand and clamps



3. Stands and Clamps

- JB-50703-93** H-Stand
- JB-50703-98** Boss head clamp
- JB-50703-71** Strap clamp

Cole-Parmer® Rotary Evaporator Systems

Quality, efficient evaporator systems at affordable prices

- Raise and lower the system easily and smoothly with the mechanical lift
- Obtain better reproducibility with the digital bath
- Ambidextrous design makes operation more comfortable and lab space friendly

These rotary evaporator systems come with two condenser type options. Choose the diagonal condenser where height space is limited, while the vertical condenser is suitable where bench space is limited.

There are also two water bath options. The 90°C bath is made of 304 stainless steel and is for water only, suitable for low boiling point applications. The higher temperature 180°C bath is made of aluminum with a PTFE coating and can be used with both water and oil, ideal for higher boiling point liquids.

Glassware set includes 1-L pear-shaped sample flask, 1-L round bottom receiving flask, and condenser.

What's included: rotary evaporator with mechanical lift, digital water bath, standard glassware set, and power cord.



NEW



REQUIRED System Components

- 1) Rotary evaporator
- 2) Vacuum pump
- 3) Circulating chiller



| Condenser type | Lift mechanism | Rotation speed | Bath | | | Dimensions (W x H x D) | Power (VAC, Hz) | Catalog number |
|----------------|----------------|----------------|--------------------------------------|----------|-------|---|-----------------|--------------------|
| | | | Temperature | Capacity | Watts | | | |
| Diagonal | Mechanical | 10 to 310 rpm | Ambient +5°C to 90°C (water only) | 4.3 L | 1050 | 29" x 19.8" x 13.9" (73.6 x 50.4 x 35.2 cm) | 230, 50 | JB-28615-27 |
| | | | Ambient +5°C to 180°C (water or oil) | 5 L | 1000 | 28.5" x 19.8" x 13.9" (72.4 x 50.4 x 35.2 cm) | 230, 50 | JB-28615-31 |
| Vertical | Mechanical | 10 to 310 rpm | Ambient +5°C to 90°C (water only) | 4.3 L | 1050 | 21.4" x 32.4" x 13.9" (54.3 x 82.3 x 35.2 cm) | 230, 50 | JB-28615-29 |
| | | | Ambient +5°C to 180°C (water or oil) | 5 L | 1000 | 20.9" x 32.4" x 13.9" (53.1 x 82.3 x 35.2 cm) | 230, 50 | JB-28615-33 |

Rotary Evaporator Systems

Don't lose valuable samples

- Minimize sample loss with automatic lift—lifts sample out of bath in case of power interruption
- Easily repeat experiments—digital rotation speed for easy setting
- Won't fail—backed by five-year warranty
- No straining to lift sample—motorized lift for easier removal
- Easily dry powders with standard reversing motor

These evaporators are ideal for routine distillations, and feature digital rotational speed setting and display from 20 to 280 rpm. Set bath temperature via analog controller.

What's included: rotary evaporator, water/oil heating bath, condenser set, evaporating and condensing flasks (each 1 L), and 6-ft (1.8-m) power cord.



REQUIRED System Components

- 1) Rotary evaporator
- 2) Vacuum pump
- 3) Circulating chiller



Specifications

Rotation speed: 20 to 280 rpm **Glass joint:** 24/40 (evaporating)
Evaporation flask size: 50 mL to 3 L **Vacuum seal:** PTFE

| Condenser type | Digital display | Water bath | | Dimensions (W x H x D) | Power | Evaporators with uncoated glassware | | Evaporators with safety-coated glassware | |
|----------------|-----------------|-------------|-------|--|---------|-------------------------------------|--------------------|--|--|
| | | Temp range | Watts | | | Catalog number | Catalog number | | |
| Vertical | Rotation | 20 to 180°C | 1300 | 19 ¹¹ / ₁₆ " x 16 ¹⁵ / ₁₆ " x 16 ¹ / ₈ " (50.0 x 43.0 x 41.0 cm) | 230 VAC | JB-28710-22 | JB-28710-27 | | |
| Cold-trap | | | | | | JB-28710-66 | JB-28710-47 | | |

IKA® RCT and RET basic IKAMAG® Round-Top Digital Stirring Hot Plates

Safe for unsupervised operation

- Both units have a high safety level due to their improved heat control technology
- Stronger motor for higher speed range—up to 1700 rpm

Platinum RTD temperature sensor ensures precise temperature control. You can digitally set safety temperature limit. Hot top indicator warns to prevent burns.

RCT basic model features a polished aluminum round top plate which provides more efficient heat transfer than standard top plates. Hot plate features an over-temperature safety circuit adjustable from 122 to 680°F (50 to 360°C) to protect your samples from overheating. Adjustable speed up to 1500 rpm.



RET basic model offers the same features of the RCT basic model plus a stainless steel top plate for better chemical resistance and higher temperatures. Speed range is up to 1700 rpm for more demanding applications.

What's included: 1000 Ω Pt external temperature sensor and 5-ft (1.5-m) cord.



| Top plate | | Temperature range | Speed range | Max stirring capacity | Overall dimensions (W x H x D) | Power | | | | Catalog number |
|-------------------------------------|-----------------|----------------------------|----------------|-----------------------|---|-------|-------|------|-------|--------------------|
| Dimensions | Material | | | | | VAC | Hz | Amps | Watts | |
| RCT basic stirring hot plate | | | | | | | | | | |
| 5" (12.7 cm) dia | Aluminum alloy | 122 to 680°F (50 to 360°C) | 50 to 1500 rpm | 20 L | 6¼" x 3¾" x 10½" (15.9 x 9.5 x 26.7 cm) | 230 | 50/60 | 0.1 | 600 | JB-04671-23 |
| RET basic stirring hot plate | | | | | | | | | | |
| 5" (12.7 cm) dia | Stainless steel | 122 to 644°F (50 to 340°C) | 50 to 1700 rpm | 20 L | 6¼" x 3¾" x 10½" (15.9 x 9.5 x 26.7 cm) | 230 | 50/60 | 0.1 | 600 | JB-04671-27 |

Cole-Parmer® Multiposition Stirrers and Stirring Hot Plates

Reach max temperature in two minutes

- Stir bar won't dance—unique U-shaped magnet holds stir bar tightly
- Front-panel controls are positioned to prevent you from touching the hot plate
- Corrosion-resistant ceramic
- Stepless speed control provides smooth stirring action to 1500 rpm

Mix multiple samples independently



| No. of stirring positions | Volume per position | Top plate | | Heating | | Speed range | Power | | Catalog number |
|--|---------------------|----------------------------|----------|-----------------------------|-----------------|-----------------|-------|----|--------------------|
| | | Dimensions | Material | Temp range | Max load | | VAC | Hz | |
| Multiposition stirrers | | | | | | | | | |
| 5 | 800 mL | 12" x 12" (30.5 x 30.5 cm) | Ceramic | — | — | 100 to 1500 rpm | 230 | 50 | JB-51450-26 |
| 9 | 400 mL | | | | | | 230 | 50 | JB-51450-28 |
| Multiposition stirring hot plates | | | | | | | | | |
| 5 | 800 mL | 12" x 12" (30.5 x 30.5 cm) | Ceramic | 100 to 450°C (212 to 845°F) | 18.2 kg (40 lb) | 100 to 1500 rpm | 230 | 50 | JB-51450-76 |
| 9 | 400 mL | | | | | | 230 | 50 | JB-51450-78 |

IKA® Large-Capacity Digital Stirrers

Digital control for your large, heavy-duty mixing

- Effectively stirs up to 40 gallons (150 liters)

Powerful magnetic stirrers feature a flat, sturdy stainless steel casing—ideal for your heavy-duty mixing needs. Digital LED display allows for exact control. Unit features a timer for up to 56 minutes or set for continuous run.

What's included: a 5-ft (1.5-m) cord with Euro plug.



| Top plate | | Speed range | Max stirring capacity | Overall dimensions (W x H x D) | Power | | | | Catalog number |
|----------------------------|-----------------|---------------|-----------------------|--|-------|-------|------|-------|--------------------|
| Dimensions | Material | | | | VAC | Hz | Amps | Watts | |
| 13" x 13" (33.0 x 33.0 cm) | Stainless steel | 0 to 1000 rpm | 50 L | 14¼" x 4¼" x 17" (36.2 x 10.8 x 43.2 cm) | 230 | 50/60 | 1.0 | 70 | JB-04671-81 |
| 19" x 19" (48.3 x 48.3 cm) | Stainless steel | 0 to 600 rpm | 150 L | 19¾" x 4¼" x 23" (50.2 x 10.8 x 58.4 cm) | 230 | 50/60 | 1.0 | 80 | JB-04671-83 |

JB-04627-00 Large-volume stir bar, measures 4¼"L x 1⅛" dia (10.8 x 1.7 cm)

Stuart® Infrared Hot Plate and Stirring Hot Plate

Heat water to boiling 30% quicker

- Efficient infrared heater saves time and energy
- Powerful magnetic stirring to 15 liters
- Top-plate stays cool around edges
- Be safe—flashing light warns when top plate gets hot

Hot plate and stirring hot plate feature an efficient, 900-watt infrared heater that can boil a liter of water over 30% faster than a conventional, 1200-watt ceramic hotplate. Chemical-resistant ceramic top plate has a 5.5" (14 cm) diameter heating area that stays cool around the edges.



| Top plate | | Stirring | | Power | | Catalog number |
|------------------------------------|---------------|-----------------|--------------|-------|-------|----------------|
| Dimensions | Material | Speed range | Max capacity | VAC | Hz | |
| Infrared hot plate | | | | | | |
| 12" x 12" (30 x 30 cm) | Ceramic glass | — | — | 230 | 50/60 | JB-84300-19 |
| Infrared stirring hot plate | | | | | | |
| 12" x 12" (30 x 30 cm) | Ceramic glass | 100 to 1500 rpm | 15 L | 230 | 50 | JB-86580-01 |

Stuart® Analog Stirrers, Hot Plates, and Stirring Hot Plates

Designed for safety and performance

- Heat one large vessel or several small ones
- High-capacity models heat up to 30 100-mL beakers simultaneously
- Flashing light warns when top plate is hot (above 50°C), even when turned off
- Chemical-resistant ceramic top plate reaches higher temperatures yet stays cool around the edges to help prevent accidental burns
- Rugged aluminum top plate offers even temperature distribution across the whole surface of the plate

Advanced units feature an innovative LED temperature indicator scale, which lights up in colored increments as the top plate heats up, to indicate when the plate has reached its temperature set point. Use with the optional digital temperature controller for precise sample temperatures.



04800-13



04805-14



04800-07



| Top plate | | Heating | Stirring | | Power | | Catalog number |
|-------------------------------------|-------------------------|--------------------------|-----------------|--------------|-------|-------|----------------|
| Dimensions | Material | Temp range | Speed range | Max capacity | VAC | Hz | |
| Stirrers | | | | | | | |
| 6" x 6" (15 x 15 cm) | Ceramic | — | 100 to 2000 rpm | 15 L | 230 | 50 | JB-04805-07 |
| | Stainless steel | — | 100 to 2000 rpm | 15 L | 230 | 50 | JB-04805-13 |
| Hot plates | | | | | | | |
| 12" x 12" (30 x 30 cm) | Ceramic | Ambient to 842°F (450°C) | — | — | 230 | 50/60 | JB-04800-07 |
| | Coated aluminum | Ambient to 572°F (300°C) | — | — | 230 | 50/60 | JB-04801-07 |
| High-capacity hot plates | | | | | | | |
| 12" x 20" (30 x 50 cm) | Ceramic | Ambient to 707°F (375°C) | — | — | 230 | 50/60 | JB-04800-11 |
| | Coated aluminum | Ambient to 572°F (300°C) | — | — | 230 | 50/60 | JB-04800-13 |
| Advanced hot plates | | | | | | | |
| 6" x 6" (15 x 15 cm) | Ceramic | Ambient to 842°F (450°C) | — | — | 230 | 50 | JB-04805-08 |
| | Coated aluminum | Ambient to 617°F (325°C) | — | — | 230 | 50 | JB-04805-14 |
| Stirring hot plates | | | | | | | |
| 12" x 12" (30 x 30 cm) | Ceramic | Ambient to 842°F (450°C) | 100 to 1500 rpm | 15 L | 230 | 50 | JB-04800-01 |
| | Coated aluminum/silicon | Ambient to 572°F (300°C) | 100 to 1500 rpm | 15 L | 230 | 50 | JB-04801-01 |
| Advanced stirring hot plates | | | | | | | |
| 6" x 6" (15 x 15 cm) | Ceramic | Ambient to 842°F (450°C) | 100 to 2000 rpm | 15 L | 230 | 50 | JB-04805-58 |
| | Coated aluminum/silicon | Ambient to 617°F (325°C) | 100 to 2000 rpm | 15 L | 230 | 50 | JB-04805-66 |

JB-04805-92 Digital temperature controller for advanced units



Stuart® Digital Hot Plate

Digital, microprocessor control for high performance

- Accurate digital setting and control of temperature for rapid heating across the entire plate
- Flashing light warns when top plate is hot (above 50°C)

Angled housing is shaped for stability while deflecting spills away from the controls. An independent safety circuit protects against overheating and internal electronic components are protected against corrosion.



| Top plate | | Temperature range | Power | | Catalog number |
|----------------------|-----------------|----------------------------|-------|-------|----------------|
| Dimensions | Material | | VAC | Hz | |
| 6" x 6" (15 x 15 cm) | Coated aluminum | 122 to 572°F (50 to 300°C) | 230 | 50/60 | JB-04805-29 |



stuart®

Stuart® Advanced Digital Stirring Hot Plates

Stores safely on its side—ideal for large or educational labs

- Warning indicator stays lit when top plate is above 50°C, even if power is off
- Compact space-saving design is suitable for limited workspaces such as fume hoods

Get the simplicity of analog control with the accuracy of digital feedback. To further increase heating accuracy, the optional digital temperature controller (order separately) controls the heating element based on the temperature of your sample. Integral fitting accommodates a support rod.



| Top plate | | Heating | Stirring | | Power | | Catalog number |
|----------------------|-------------------------|--------------------------|-----------------|--------------|-------|----|----------------|
| Dimensions | Material | Temp range | Speed range | Max capacity | VAC | Hz | |
| 6" x 6" (15 x 15 cm) | Glass ceramic | Ambient to 842°F (450°C) | 100 to 2000 rpm | 15 L | 230 | 50 | JB-04805-84 |
| | Coated aluminum/silicon | Ambient to 617°F (325°C) | | | 230 | 50 | JB-04805-90 |



stuart®

JB-04805-92 Digital temperature controller for advanced digital stirring hot plates

Stuart® Digital Stirring Hot Plates

Operation efficiency with digital controls

- Accurate digital setting and control of plate temperature and stir speed
- Be safe—flashing light warns when top plate is hot
- Push-button knob with turn-dial setting for fast changes and simple control
- Choose chemical-resistant ceramic or aluminum top

Advanced microprocessor automatically measures rate of temperature rise to judge the capacity and nature of samples (e.g. oil or aqueous), and optimizes the heating rate to minimize overshoot and time to set point. An alarm sounds when set temperature has been reached. Both set and actual temperature of the sample are displayed simultaneously on the bright, easy-to-read, vacuum fluorescent display. Stirring speed is set and displayed digitally to ensure the same speed can be used again—ideal for reproducibility.

What's included: temperature probe and power cord.



| Top plate | | Heating | Stirring | | Power | | Catalog number |
|------------------------|-------------------------|----------------------------|-----------------|--------------|-------|----|----------------|
| Dimensions | Material | Temp range | Speed range | Max capacity | VAC | Hz | |
| 6¼" x 6¼" (16 x 16 cm) | Ceramic | 122 to 842°F (50 to 450°C) | 200 to 1300 rpm | 15 L | 230 | 50 | JB-04805-61 |
| | Coated aluminum/silicon | | | | | | JB-04805-63 |



stuart®

Stuart® Three-Position Stirrer and Stirring Hot Plate

Save space with these 3-in-1 units

- Independently controlled stirring or heating/stirring positions
- Powerful magnets for strong magnetic coupling and stirring capacity
- Easily accommodate a 2-L beaker in each position

One power source is ideal for quality control applications where multiple samples require simultaneous stirring, or heating and stirring, under the same conditions. A "Hot" warning light flashes for each position when temperature rises above 50°C—even when turned off.



51600-08



| Number of positions | Volume per position | Top plate | | Heating | Stirring range | Power | | Catalog number |
|---------------------|---------------------|--------------------------------------|-----------------|--------------------------|----------------|-------|----|----------------|
| | | Dimensions (L x W) | Material | Temperature range | | VAC | Hz | |
| 3 | 2000 mL | 21½" x 8¼" (55 x 21 cm) | Stainless steel | — | 0 to 1500 rpm | 230 | 50 | JB-51400-02 |
| | | 6¼" x 6¼" (16 x 16 cm) each position | Coated aluminum | Ambient to 617°F (325°C) | | 230 | 50 | JB-51600-08 |

Stuart® Acid-Resistant Hot Plate with External Control

Impervious to chemical attack

- Specifically designed for acid digestions and trace metal analysis
- Large, square top plate accommodates one large vessel or several smaller ones

With a ceramic heating plate mounted in a solid block of pure PTFE, this rugged hot plate withstands boiling acid solutions and aggressive cleaning agents. The separate analog temperature controller is connected via a 2-m PTFE-coated cable, allowing it to be placed away from corrosive environments. Hot warning light flashes when temperature is above 50°C.



| Top plate | | | Max temperature | Power | | Catalog number |
|--------------------------|------------------------|------------------------|-----------------|-------|-------|----------------|
| Dimensions | Heated area | Materials | | VAC | Hz | |
| 11¼" x 11¼" (30 x 30 cm) | 7½" x 7½" (20 x 20 cm) | Ceramic glass and PTFE | 752°F (400°C) | 230 | 50/60 | JB-04801-08 |



Stuart® Heating Blocks

Turn your existing hot plate into a heating mantle

- Safest way to heat round-bottom flasks
- Flexible modular system for a wide range of sizes up to 500 mL
- Low-well design is perfect for multi-neck flasks



Kit 04805-79

Interchangeable inserts can be used with 6" x 6" Stuart hot plates and hot plate stirrers on pages 292-293. Chemical- and solvent-resistant anodized block inserts provide a safe method for synthesis of single or multiple reactions and offer equal or better heating performance than silicon oil. The low-well provides

excellent temperature transfer without compromising the view of the reaction or risk of cracking the glassware. Each base plate features a hole to house a temperature controller probe. Order plates and inserts separately.

1. Base Plates

| Description | Catalog number |
|---|----------------|
| Small base plate, holds three inserts up to 100 mL | JB-04805-70 |
| Medium base plate, holds three inserts up to 250 mL | JB-04805-76 |
| Large base plate, holds one insert up to 500 mL | JB-04805-62 |

JB-04805-72 Three-position clamp for use with small base plate

JB-04805-78 Three-position clamp for use with medium base plate

2. Heating Block Inserts

| Flask vol. | Qty | Catalog number |
|---|-----|----------------|
| Inserts for small and medium base plates | | |
| 5 mL | 3 | JB-04805-98 |
| 10 mL | 3 | JB-04805-75 |
| 25 mL | 3 | JB-04805-85 |
| 50 mL | 3 | JB-04805-97 |
| 100 mL | 3 | JB-04805-74 |
| 250 mL | 3 | JB-04805-83 |
| Inserts for large base plate | | |
| 50 mL | 1 | JB-04805-89 |
| 100 mL | 1 | JB-04805-71 |
| 250 mL | 1 | JB-04805-77 |
| 500 mL | 1 | JB-04805-87 |

Convenient Heating Block Kits



| Kit contents | Catalog number |
|--|----------------|
| Small base plate and nine inserts (3 x 25 mL, 3 x 50 mL, 3 x 100 mL) | JB-04805-73 |
| Medium base plate and three inserts (3 x 250 mL) | JB-04805-79 |
| Medium base plate and six inserts (3 x 100 mL, 3 x 250 mL) | JB-04805-81 |
| Large base plate and four inserts (50 mL, 100 mL, 250 mL, 500 mL) | JB-04805-67 |



Techne® Cell Culture Stirring Systems

Unique stirring action provides high-cell yields

- Combined magnetic biological stirrer/culture vessel creates high-yield cell culture system
- Bulb-ended stir rod provides smooth stirring to prevent cell shearing
- Stirring action offers optimal cell suspension at lowest speed possible
- Slow start/stop feature avoids excessive turbulence in culture media eliminating cell damage
- Interval stirring mode further reduces agitation—ideal when culturing fragile cells
- System creates virtually no heat—suitable for incubators and cold rooms

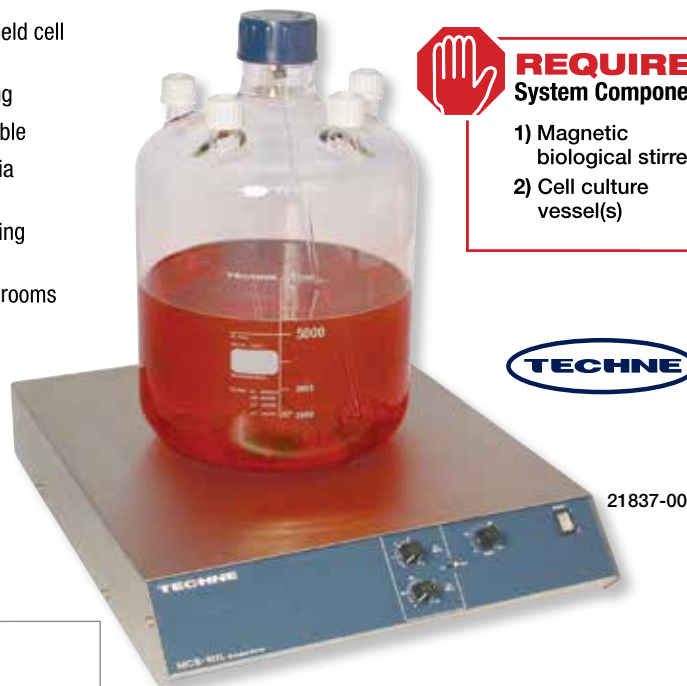
Culture vessels come calibrated and have two side ports and a central filling port. All culture vessel parts can be autoclaved at 121°C and 15 psi for 30 minutes. Completely seal vessels for use with pathogenic materials. Silicone-encapsulated stir rods reduce the possibility of cells attaching to and growing on the surface. Order as a complete culture vessel (flask, stir rod, and caps) to use with these biological stirrers or order just a flask to use with an existing stirrer.

What's included: three power cords with plug (US, UK, and European).



REQUIRED System Components

- 1) Magnetic biological stirrer
- 2) Cell culture vessel(s)



21837-00

Specifications

Speed range: 0 to 80 rpm
Speed accuracy: ± 3 rpm
Softstart speed control:
20 second acceleration;
20 second deceleration

Interval stirring mode:
Variable on time:
6 seconds to 5 minutes
Variable off time:
2 minutes to 2 hours
Max operating conditions: 104°F
(40°C), 95% RH (noncondensing)
Power: 115/230 VAC, 50/60 Hz



21837-03

1. Magnetic Biological Stirrers

| Flasks per system | Max flask size | Dimensions (L x W x H) | Catalog number |
|-------------------|---------------------------|---|--------------------|
| 1 | 5000 mL (3000 mL minimum) | 19½" x 15½" x 3½" (49.5 x 39.5 x 9 cm) | JB-21837-00 |
| 2 | 1000 mL | 15¾" x 5½" x 3½" (40 x 14 x 9 cm) | JB-21837-01 |
| 4 | 500 mL | 14¾" x 9⅞" x 3½" (36.5 x 25 x 9 cm) | JB-21837-03 |
| 4 | 1000 mL | 19½" x 15½" x 3½" (49.5 x 39.5 x 9 cm) | JB-21837-02 |
| 4 | 5000 mL (only) | 23¾" x 20⅞" x 3½" (59.5 x 53 x 9 cm) | JB-21837-04 |

2. Cell Culture Vessels

| Flask size (nominal working volume) | Center neck thread size | Side arm thread size | Side arm diameter | Complete culture vessels | | Replacement flasks | |
|-------------------------------------|-------------------------|----------------------|-------------------|--------------------------|--------------------|--------------------|----------------|
| | | | | Catalog number | Catalog number | Catalog number | Catalog number |
| 125 mL | 42 mm | 20 mm | 14 mm | JB-21837-37 | JB-21837-36 | | |
| 250 mL | 42 mm | 20 mm | 14 mm | JB-21837-34 | JB-21837-35 | | |
| 500 mL | 42 mm | 30 mm | 23 mm | JB-21837-30 | JB-21837-32 | | |
| 1000 mL | 60 mm | 42 mm | 33 mm | JB-21837-31 | JB-21837-33 | | |

Wait, there's more!

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Cole-Parmer® Ultra-Compact Digital Mixer

Get powerful, general mixing in a small unit

- Mix up to 2 liters of water at a maximum speed of 2500 rpm
- Don't order separate components—includes mixer, stand, and two mixing blades
- Maintenance-free brushless DC motor provides speeds from 50 to 2500 rpm
- Includes optional auto-start feature in the event of power loss
- Remembers last speed used before powering off

What's included: stand with 19 $\frac{3}{4}$ " L x $\frac{3}{8}$ " dia (500 mm L x 10 mm dia) rod, integral clamp, 1 $\frac{3}{16}$ " (30 mm) dia 316 stainless steel (SS) axial blade, 1 $\frac{3}{16}$ " (30 mm) dia 316 SS straight blade impeller, 7 $\frac{3}{8}$ " x $\frac{1}{4}$ " dia (187.5 mm x 6 mm dia) impeller shaft, and universal power adapter with 6-ft (1.8-m) cord.



| Speed (rpm) | hp | Max. torque (in-oz) | Power (VAC, Hz) | Catalog number |
|-------------|-----------------|---------------------|-------------------|--------------------|
| 50 to 2500 | $\frac{1}{100}$ | 14.2 | 100 to 240, 50/60 | JB-50006-01 |

Accessories

JB-17050-03 NIST-traceable calibration with data for mixer



Complete system 50004-10 includes mixer, support stand, clamp, and mixer propeller.

Cole-Parmer® Digital Reversing Mixer

Time your cycles for more efficient mixing

- Won't lose speed—brushless, 142 in-oz torque motor maintains speed
- Minimize aeration and vortexing—reversing feature alters mixing pattern for better mixing
- No more moving mixer head to change impeller depth—through-shaft housing for easier positioning
- No more motor burn out—overload protection if torque exceeds ratings
- See what you're mixing—integrated sample light illuminates sample area

Mix samples up to 20,000 cps or up to 6.6 gallons (25 liters) easily and effectively. Repeat mixing conditions accurately with LED display, with control to ± 1 rpm or 3% of reading. Set timer from 1 to 2000 minutes, with audible alert when complete.

Mixer includes: mixer head, adjustable chuck (accepts rod up to $\frac{3}{8}$ " [9.5 mm] dia), chuck key, mounting support rod, external power supply, and grounded power cord with plug assembly.

Complete system adds: propeller/shaft, support stand, and clamp.



| Description | Speed (rpm) | hp | Max torque (in-oz) | Power (VAC, Hz) | Catalog number |
|-----------------|-------------|----------------|--------------------|-------------------|--------------------|
| Mixer only | 40 to 2010 | $\frac{1}{10}$ | 142 | 100 to 230, 50/60 | JB-50004-00 |
| Complete system | | | | | JB-50004-10 |

IKA® RW 20 Digital Dual-Range Mixer

No separate components to purchase—complete system is ready to go!

- No downtime—maintenance-free motor for continuous duty
- Fulfill all your lab mixing needs—two speed ranges for a variety of applications
- No need to move mixer head to reposition propeller—through-shaft design for easy movement
- No difficult controls—easy-to-use knob and LED display for accurate setting

Use this versatile, affordable mixer for liquid volumes up to 5 gallons (18.9 liters) and viscosities up to 10,000 cps (approximately the viscosity of honey). Select speed from 60 to 2000 rpm in two ranges for a variety of applications.

What's included: chuck (accepts up to 3/8" [10 mm] dia shafts), 6 1/4"L x 1/2" dia (159 mm L x 10 mm dia) mounting rod, four-blade propeller, mixer stand, and clamp.



| Speed (rpm) | hp | Max torque (in-oz) | Power (VAC, Hz) | Catalog number |
|-----------------------|------|--------------------|-----------------|--------------------|
| 60 to 500/240 to 2000 | 1/25 | 259 | 230, 50/60 | JB-50705-10 |



Accessories included with Digital Mixer

Four-Blade Propeller, Plate Stand, and Boss Head Clamp



IKA® EUROSTAR Digital Constant-Speed Mixers

Speed won't change even as viscosity does

- Automatic adjustment to desired speed with continuous speed comparison
- No need to move mixer head to remove samples—through-shaft design for impeller adjustments
- Worry-free operation—maintenance-free motor with overload protection
- Handle even large samples—up to 26.4 gallons (100 liters)



EUROSTAR 60 Digital Mixer handles volumes up to 10.6 gallons (40 liters) and viscosities up to 50,000 cps.

EUROSTAR 100 Digital Mixer will mix volumes up to 26.4 gallons (100 liters) and viscosities up to 70,000 cps.

What's included: chuck (accepts up to 3/8" [10 mm] dia shaft) and 6 1/4"L x 1/2" dia (159 mm x 13 mm) mounting rod.



| Speed (rpm) | hp | Max torque (in-oz) | Power (VAC, Hz) | Catalog number |
|-----------------------------------|------|--------------------|-----------------|--------------------|
| Eurostar 60 digital mixer | | | | |
| 30 to 2000 | 3/16 | 85 | 230, 50/60 | JB-50704-25 |
| Eurostar 100 digital mixer | | | | |
| 30 to 1300 | 1/8 | 142 | 230, 50/60 | JB-50704-35 |

IKA® EUROSTAR Digital Mixers

Mix viscous samples up to 30,000 cps

- Speed won't change even as viscosity changes
- Won't overheat—thermal overload shut-off for safety
- Maintenance-free design for continuous duty



EUROSTAR 20 Digital Mixer handles volumes up to 4 gallons (15 liters) and viscosities up to 10,000 cps.

EUROSTAR 40 Digital Mixer will mix volumes up to 6.6 gallons (25 liters) and viscosities up to 30,000 cps.

What's included: chuck (accepts up to 3/8" [10 mm] dia shaft) and 6 1/4"L x 1/2" dia (159 mm x 13 mm) mounting rod.



| Speed (rpm) | hp | Max torque (in-oz) | Power (VAC, Hz) | Catalog number |
|----------------------------------|------|--------------------|-----------------|--------------------|
| Eurostar 20 digital mixer | | | | |
| 30 to 2000 | 1/16 | 28.3 | 230, 50/60 | JB-50702-35 |
| Eurostar 40 digital mixer | | | | |
| 30 to 2000 | 1/8 | 56.6 | 230, 50/60 | JB-50702-45 |

Environmental Express® HotBlock® 100 Digestion Systems

Perform digestions that are faster, cleaner, and more reliable

- Eliminate corrosion and sample contamination—made of PTFE-coated graphite and other nonmetallic materials
- No additional cables or controllers—all electronics housed below unit
- Get uniform heating to all samples, up to 150°C
- Easily transport samples with included polycarbonate transfer racks
- Choose from six configurations to accommodate your needs

HotBlock digestion systems are EPA approved for all methods approved for hot plate digestions including, but not limited to, methods 3005, 3010, 3050A, 3050B, 200.2, 200.7, 200.8, 7470A, 7471A, 245.1 and 245.7.



Specifications

Temperature: ambient to 150°C
Set point: ±0.1°C

Sample consistency: ±1.5°C



| Number of samples | Sample volume | Dimensions (W x L) | Weight | Power | | Catalog number |
|-------------------|---------------|-------------------------------|---------------|-------|------|----------------|
| | | | | VAC | Amps | |
| 12 | 50 mL | 8½" x 18½" (21.59 x 46.99 cm) | 25 kg (56 lb) | 240 | 2.29 | JB-53205-35 |
| 36 | 50 mL | 15" x 15" (38.1 x 38.1 cm) | 26 kg (58 lb) | 240 | 5 | JB-53205-03 |
| 54 | 50 mL | 15" x 21½" (38.1 x 54.61 cm) | 29 kg (65 lb) | 240 | 7 | JB-53205-05 |
| 25 | 100 mL | 15" x 15" (38.1 x 38.1 cm) | 19 kg (42 lb) | 240 | 15 | JB-53205-07 |
| 35 | 100 mL | 15" x 21½" (38.1 x 54.61 cm) | 27 kg (59 lb) | 240 | 9 | JB-53205-09 |
| 96 | 15 mL | 15" x 21½" (38.1 x 54.61 cm) | 38 kg (83 lb) | 240 | 4.5 | JB-53205-01 |

Environmental Express® Disposable Screw-Cap Digestion Cups

Trust your measurements—graduated for better sample dilutions

- Volume certified for accuracy within 0.5%
- Certified for low metals background
- Choose 15-, 50-, and 100-mL volumes for your application and Environmental Express HotBlock® digestions

These digestion cups are specifically designed to provide exceptional performance in your Environmental Express HotBlock or AutoBlock® system. Manufactured from clarified polypropylene, cups provide higher temperature stability and greater chemical resistance. Graduated design allows you to dilute, digest, and store sample in the same vessel.

The 50-mL digestion cups have a total capacity of 68 mL; select from either green or white screw caps. The 100-mL digestion cup has a total capacity of 125 mL, whereas the 15-mL digestion cup has a total capacity of 18 mL.

Screw caps (except for 53203-17 and 53201-01) are lined with 0.040" polyethylene-faced foam liners for a leak-proof seal. Only the metals-free polyethylene liner comes into contact with the sample.



ENVIRONMENTAL EXPRESS®

| Description | Total capacity | Graduations | Dimensions | Cap | Qty/cs | Catalog number |
|----------------------|----------------|-------------|---------------|-------------------|--------|----------------|
| 50-mL digestion cup | 68 mL | To 50 mL | 30 x 106 mm | Green, with liner | 500 | JB-53203-13 |
| 50-mL digestion cup | 68 mL | To 50 mL | 30 x 106 mm | White, with liner | 500 | JB-53203-15 |
| 50-mL digestion cup | 63 mL | To 50 mL | 30 x 106 mm | Natural, no liner | 500 | JB-53203-17 |
| 15-mL digestion cup | 18 mL | To 15 mL | 17.5 x 105 mm | Clear, no liner | 1000 | JB-53201-01 |
| 100-mL digestion cup | 125 mL | To 100 mL | 46 x 100 mm | White, with liner | 225 | JB-53201-07 |



Environmental Express® HotBlock® Hot Plate

Heat vessels with flat bottoms with ease

- Durable graphite and Kydex® construction
- Uniform heating of samples
- Low-wattage mat uses a maximum of 1065 watts of power



| Description | Temperature range | Dimensions (W x L) | Power | Catalog number |
|--------------------|--------------------------|--------------------|-----------------|----------------|
| HotBlock hot plate | Ambient to 302°F (150°C) | 15" x 21½" | 240 VAC, 7 amps | JB-53205-11 |

Environmental Express® StirBase™ Magnetic Stirrer for HotBlock® System

Turn your existing HotBlock into a stirring HotBlock

- Perform determinations of hexavalent chromium in soils, pharmaceutical dissolutions, and more
- Simultaneously mix and heat samples
- Adjust speed up to six feet away with corded remote control, even outside a fume hood
- Won't corrode—made of corrosion-resistant PVC
- Mix samples up to 2150 rpm
- Can be used as a stand-alone stirrer

This StirBase unit is simple and easy to use—just place below your HotBlock and start mixing. Remote controller allows for stirring samples from 0 to 2150 rpm in 100 different ranges. Six-foot cable lets control mixing safely from outside of a fume hood. Custom-designed stir bars mix samples vertically to ensure complete mixing.

What's included: StirBase unit, remote controller with 6-ft cable, and 60 stir bars.



Use without HotBlock for an additional stirrer in the lab.

| Description | Speed | Top dimensions (W x D) | Power | Catalog number |
|----------------------------|---------------|------------------------|---------|----------------|
| StirBase unit for HotBlock | 0 to 2150 rpm | 22" x 16" | 240 VAC | JB-53205-17 |

Need Help Selecting?

Trust our **expert** Application Specialists to help you find the right product.

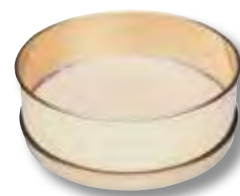
022-6139-4444 | info@coleparmer.in



Cole-Parmer® Brass and Stainless Steel Testing Sieves

Meet ASTM E11 specifications for compliance

These 8" diameter testing sieves are serialized and come with test sieve certificate. For our full selection of sieves, including 12" diameter sieves and sieves with NIST-traceable calibration report, go to www.coleparmer.in/sieves.



Sieves / Sieve Shakers

| Sieve opening (mm) | US standard | Tyler standard | Brass frame/brass wire | | SS frame/SS wire | | Brass frame/SS mesh | |
|--------------------|-------------|----------------|------------------------|--------------|------------------|--------------|---------------------|--------------|
| | | | Full height† | Half height† | Full height† | Half height† | Full height† | Half height† |
| | | | Cat. no. | Cat. no. | Cat. no. | Cat. no. | Cat. no. | Cat. no. |
| 2.36 | No. 8 | 8 mesh | JB-59980-00 | JB-59981-00 | JB-59984-00 | JB-59985-00 | JB-59940-00 | JB-59941-00 |
| 2.00 | No. 10 | 9 mesh | JB-59980-01 | JB-59981-01 | JB-59984-01 | JB-59985-01 | JB-59940-01 | JB-59941-01 |
| 1.70 | No. 12 | 10 mesh | JB-59980-02 | JB-59981-02 | JB-59984-02 | JB-59985-02 | JB-59940-02 | JB-59941-02 |
| 1.40 | No. 14 | 12 mesh | JB-59980-03 | JB-59981-03 | JB-59984-03 | JB-59985-03 | JB-59940-03 | JB-59941-03 |
| 1.18 | No. 16 | 14 mesh | JB-59980-04 | JB-59981-04 | JB-59984-04 | JB-59985-04 | JB-59940-04 | JB-59941-04 |
| 1.00 | No. 18 | 16 mesh | JB-59980-05 | JB-59981-05 | JB-59984-05 | JB-59985-05 | JB-59940-05 | JB-59941-05 |
| 0.850 | No. 20 | 20 mesh | JB-59980-06 | JB-59981-06 | JB-59984-06 | JB-59985-06 | JB-59940-06 | JB-59941-06 |
| 0.710 | No. 25 | 24 mesh | JB-59980-07 | JB-59981-07 | JB-59984-07 | JB-59985-07 | JB-59940-07 | JB-59941-07 |
| 0.600 | No. 30 | 28 mesh | JB-59980-08 | JB-59981-08 | JB-59984-08 | JB-59985-08 | JB-59940-08 | JB-59941-08 |
| 0.500 | No. 35 | 32 mesh | JB-59980-09 | JB-59981-09 | JB-59984-09 | JB-59985-09 | JB-59940-09 | JB-59941-09 |
| 0.425 | No. 40 | 35 mesh | JB-59980-10 | JB-59981-10 | JB-59984-10 | JB-59985-10 | JB-59940-10 | JB-59941-10 |
| 0.355 | No. 45 | 42 mesh | JB-59980-11 | JB-59981-11 | JB-59984-11 | JB-59985-11 | JB-59940-11 | JB-59941-11 |
| 0.300 | No. 50 | 48 mesh | JB-59980-12 | JB-59981-12 | JB-59984-12 | JB-59985-12 | JB-59940-12 | JB-59941-12 |
| 0.250 | No. 60 | 60 mesh | JB-59980-13 | JB-59981-13 | JB-59984-13 | JB-59985-13 | JB-59940-13 | JB-59941-13 |
| 0.212 | No. 70 | 65 mesh | JB-59980-14 | JB-59981-14 | JB-59984-14 | JB-59985-14 | JB-59940-14 | JB-59941-14 |
| 0.180 | No. 80 | 80 mesh | JB-59980-15 | JB-59981-15 | JB-59984-15 | JB-59985-15 | JB-59940-15 | JB-59941-15 |
| 0.150 | No. 100 | 100 mesh | JB-59980-16 | JB-59981-16 | JB-59984-16 | JB-59985-16 | JB-59940-16 | JB-59941-16 |
| 0.125 | No. 120 | 115 mesh | JB-59980-17 | JB-59981-17 | JB-59984-17 | JB-59985-17 | JB-59940-17 | JB-59941-17 |
| 0.106 | No. 140 | 150 mesh | JB-59980-18 | JB-59981-18 | JB-59984-18 | JB-59985-18 | JB-59940-18 | JB-59941-18 |
| 0.090 | No. 170 | 170 mesh | JB-59980-19 | JB-59981-19 | JB-59984-19 | JB-59985-19 | JB-59940-19 | JB-59941-19 |
| 0.075 | No. 200 | 200 mesh | JB-59980-20 | JB-59981-20 | JB-59984-20 | JB-59985-20 | JB-59940-20 | JB-59941-20 |
| 0.063 | No. 230 | 250 mesh | JB-59980-21 | JB-59981-21 | JB-59984-21 | JB-59985-21 | JB-59940-21 | JB-59941-21 |
| 0.053 | No. 270 | 270 mesh | JB-59980-22 | JB-59981-22 | JB-59984-22 | JB-59985-22 | JB-59940-22 | JB-59941-22 |
| 0.045 | No. 325 | 325 mesh | JB-59980-23 | JB-59981-23 | JB-59984-23 | JB-59985-23 | JB-59940-23 | JB-59941-23 |
| 0.038 | No. 400 | 400 mesh | JB-59980-24 | JB-59981-24 | JB-59984-24 | JB-59985-24 | JB-59940-24 | JB-59941-24 |

†Full height sieves measure 2" deep; half height sieves measure 1" deep.

Sieve Covers & Receiving Pans

Protect and collect samples easily

Order a top cover for a single or top sieve to protect your sample from dust contaminants. Order a receiving pan for the bottom sieve to collect finest sieved particles.



For 8" Diameter Sieves

| For brass sieves | | For stainless steel sieves | |
|--|----------------|----------------------------|----------------|
| Description | Catalog number | Description | Catalog number |
| Top covers with handle | | | |
| Brass | JB-59986-85 | SS | JB-59986-95 |
| Receiving pans for bottom sieve | | | |
| Full height | JB-59986-80 | Full height | JB-59986-90 |
| Half height | JB-59986-81 | Half height | JB-59986-91 |

For 12" Diameter Sieves

| For brass sieves | | For stainless steel sieves | |
|--|----------------|----------------------------|----------------|
| Description | Catalog number | Description | Catalog number |
| Top covers with handle | | | |
| — | — | SS | JB-59996-95 |
| Receiving pans for bottom sieve | | | |
| Full height | JB-59996-80 | Full height | JB-59996-90 |
| Half height | JB-59996-81 | Half height | JB-59996-91 |

W. S. Tyler® Ro-Tap® Sieve Shakers

Get reproducible hand-sieving without the hand shaking

– Set the time and walk away—99-minute digital timer with 0.1-second accuracy

Ro-Tap sieve shakers for 8" dia sieves hold up to six full-height or 13 half-height sieves with top cover and receiving pan. Shakers for 12" dia sieves hold up to four full-height or ten half-height sieves with top cover and receiving pan.



Ro-Tap shaker 59986-62



| rpm | Power (VAC/Hz) | Dimensions (W x H x D) | Shpg wt lb (kg) | Catalog number |
|---|----------------|--|-----------------|----------------|
| Ro-Tap shaker for 8" dia sieves | | | | |
| 1450 | 220/50 | 28" x 25" x 21" (71.1 x 63.5 x 53.3 cm) | 170 (77.2) | JB-59986-62 |
| Ro-Tap shaker for 12" dia sieves | | | | |
| 1450 | 220/50 | 28" x 25" x 21" (71.1 x 63.5 x 53.3 cm) | 225 (102) | JB-59996-62 |

JB-59986-65 Sound enclosure for Ro-Tap shakers. Measures (W x H x D) 34" x 30½" x 24" (86.3 x 77.4 x 61.0 cm). Shpg wt 122 lb (55.4 kg)



Sysbel® Spill Kits

Arrest spills anytime—anywhere

- Effectively prevent and control possible liquid splashes, spills, or pollution of spilled liquids
- Keep the storage environment of oily and chemical drums clean
- Comply with EPA, SPCC, and NPDES regulations to keep you safe

Spill control products are essential to any well-organized lab. When spills happen in the workplace, the type of spill needs to be quickly identified and the correct products used for spill containment and cleanup. Universal (gray): oils, coolant, solvents, and water. Chemicals (yellow): acids, corrosives, and unknown hazardous chemicals. Oil only (white): oils, fuels, and other oil-based liquids; not water.

Melt-blow polypropylene (MBPP) absorbent materials feature high absorption rate, rapid absorption, good cleaning effect; don't react with polar, toxic, hazardous chemicals; and are safe to use, causing no harm to personal health.

A. Drum Overpack Spill Kits

- Everything you need to clean up and dispose of a large-scale spill
- Spill barrel prevents secondary leakage hazard
- Contents are packed in a drum for easy portability and disposal of materials

| Spill capacity | Contents | Spill type | Model | Catalog number |
|---------------------|--|------------|--------|--------------------|
| 80 gal. (302 L) | 95-gallon overpack salvage drum 125 absorbent pads 24 absorbent socks 15 absorbent pillows 10 large Haz-Mat disposal bags & ties 1 pair of safety goggles 1 pair of gloves | Universal | SYK950 | JB-15985-84 |
| | | Chemicals | SYK951 | JB-15985-85 |
| | | Oil only | SYK952 | JB-15985-86 |
| 21.5 gal. (81 L) | 20-gallon overpack salvage drum 25 absorbent pads 6 absorbent socks 5 absorbent pillows 3 medium Haz-Mat disposal bags & ties 1 pair of safety goggles 1 pair of gloves | Universal | SYK200 | JB-15985-87 |
| | | Chemicals | SYK201 | JB-15985-88 |
| | | Oil only | SYK202 | JB-15985-89 |

B. Mobile Spill Kits

- Wheeled bin for easy portability to every corner of the factory
- Suitable for medium-scale spills

| Spill capacity | Contents | Spill type | Model | Catalog number |
|--------------------|--|------------|----------|--------------------|
| 45 gal. (170 L) | 63.4-gal. (240-L) wheeled bin 125 absorbent pads 12 absorbent socks 5 absorbent pillows 5 large Haz-Mat disposal bags & ties 1 pair of safety goggles 1 pair of gloves | Universal | SKIT002G | JB-15985-93 |
| | | Chemicals | SKIT002Y | JB-15985-94 |
| | | Oil only | SKIT002W | JB-15985-95 |

C. Spill Kit Refills

- No need to purchase new wheeled bins or drums

| Spill capacity | Contents | Spill type | Model | Catalog number |
|-------------------|--|------------|---------|--------------------|
| 10 gal. (38 L) | Plastic see-through bag 20 absorbent pads 2 absorbent socks 2 absorbent pillows 2 medium Haz-Mat disposal bags & ties 2 large Haz-Mat disposal bags & ties 4 pairs of gloves | Universal | SKS001G | JB-15985-90 |
| | | Chemicals | SKS001Y | JB-15985-91 |
| | | Oil only | SKS001W | JB-15985-92 |



NEW

Key

| | |
|--------------------|---------------------------------|
| Universal (gray) | Water, solvents, coolants, oil |
| Chemicals (yellow) | Acids, corrosives, and unknowns |
| Oil only (white) | Oils and fuels; not water |

D. Portable Spill Kits

- Convenient kits in high-visibility yellow carrying bag
- Suitable for small spills or leaks

| Spill capacity | Contents | Spill type | Model | Catalog number |
|------------------------------|--|------------|----------|--------------------|
| 9 to 13 gal. (35 to 50 L) | High-visibility carrying bag 25 absorbent pads 3 absorbent socks 1 small Haz-Mat disposal bag & tie 1 pair of safety goggles 1 pair of gloves | Universal | SKIT001G | JB-15985-96 |
| | | Chemicals | SKIT001Y | JB-15985-97 |
| | | Oil only | SKIT001W | JB-15985-98 |

E. Absorbents

- Pads are for small spills; use to cover the spill area until the spills are completely absorbed
- Socks absorb and contain spill range by placing in an overlapping circle
- Pillows are ideal for dealing with waste tanks, coolant tanks, and storage containers

| Description | Spill type | Model | Catalog number |
|--|------------|---------|--------------------|
| Absorbent pad; 50 cm L x 40 cm W. Max absorption: 16 to 26 gal. (60 to 100 L). Case of 100. | Universal | UP0001G | JB-15985-99 |
| | Chemicals | CP0001Y | JB-15986-00 |
| | Oil only | OP0001W | JB-15986-01 |
| Absorbent sock; 7.6 mm dia x 1.2 m L. Max absorption: 18 to 26 gal. (70 to 100 L). Case of 12. | Universal | US0001G | JB-15986-02 |
| | Chemicals | CS0001Y | JB-15986-03 |
| | Oil only | OS0001W | JB-15986-04 |
| Absorbent pillow; 45 cm L x 45 cm W x 5 cm H. Max absorption: 21 to 29 gal. (80 to 110 L). Case of 10. | Universal | SUP001 | JB-15986-05 |
| | Chemicals | SCP001 | JB-15986-06 |
| | Oil only | SOP001 | JB-15986-07 |

Sysbel® Safety Cabinets

Reduce fire risks and protect workers

- Store chemicals safely in the workplace
- Enhance fire safety through door-lock system, and fireproof and explosion-proof vents
- FM and CE certifications in strict compliance with FM approval standard for storage cabinets

NEW



Safety storage cabinets feature 18-gauge steel, all-welded, double fireproof steel panel, insulating air barrier construction for protection and durability. Fireproofing vents at both sides of the cabinet (one on the top and another on the bottom) effectively reduce the concentration of volatile substances and prevent fire hazards.

Reinforced shelves are adjustable and feature built-in troughs and leakproof wells to contain spills. The manually-closing doors can be fully opened to 180° for easy access. Three-point linkage latch can be padlocked to ensure complete closure for better security.

In storing chemicals, cabinet colors and warning labels are generally used to identify different chemicals, so if a fire occurs, it is easy for firemen to quickly locate hazardous chemicals.

A. Flammable Cabinets

Safety cabinets for storing flammable liquids (low and median flash point liquids, flash point <37.8).

B. Combustible Cabinets

Use to store paints, oils, and other flammable liquids (high flash point liquid, flash point ≥ 37.8). Suitable for coating, printing, furniture, automobile, and other industries.

C. Corrosive Cabinets

Use these cabinets for storing corrosive chemicals which are also flammable (low and median flash point liquid, flash point <37.8).

D. Pesticides Cabinets

Use to store insecticides, pesticides, disinfectors, and other chemicals. Suitable for lawn care, farms, parks, and other places.

E. Toxic Cabinets

Widely used in chemical plants, laboratories, educational and research institutes, and more to store toxic chemicals.

F. Corrosive Substance Storage Cabinets

Constructed of chemical-resistant, 8-mm polypropylene (PP) panels offering excellent protection against harsh acids, alkalis, and corrosion. Cabinets are divided into two parts for different substances, making good use of storage space. (Not shown)

G. Emergency Equipment Cabinet

Mainly used for storing personal protective equipment (PPE), such as helmets, protective glasses and goggles, overalls and suits, protective masks, safety shoes, safety locks, first aid kits, and self-contained breathing apparatus (SCBA). Can also hold absorbents. (Not shown)



A. Flammable Cabinets

| Volume (gal./L) | Colour | Certification | Door type | Closing mechanism | No. of shelves (included) | Shelf loading capacity (kg) | Exterior dimensions (H x W x D), cm | Shpg wt (kg) | Model number | Catalog number |
|-----------------|--------|---------------|-----------|-------------------|---------------------------|-----------------------------|-------------------------------------|--------------|--------------|----------------|
| 4/15 | Yellow | CE | Single | Manual | 1 | 50 | 56 x 43 x 43 | 35 | WA810040 | JB-16017-22 |
| 10/38 | Yellow | CE | Single | Manual | 1 | 50 | 64 x 59 x 60 | 48 | WA810100 | JB-15976-67 |
| 12/45 | Yellow | FM, CE | Single | Manual | 1 | 50 | 89 x 59 x 46 | 56 | WA810120 | JB-15976-68 |
| 22/83 | Yellow | FM, CE | Single | Manual | 3 | 50 | 165 x 60 x 46 | 90 | WA810220 | JB-15976-69 |
| 30/114 | Yellow | FM, CE | Double | Manual | 1 | 100 | 112 x 109 x 46 | 102 | WA810300 | JB-15976-70 |
| 45/170 | Yellow | FM, CE | Double | Manual | 2 | 100 | 165 x 109 x 46 | 133 | WA810450 | JB-15976-71 |
| 54/204 | Yellow | FM, CE | Single | Manual | 3 | 100 | 165 x 60 x 87 | 140 | WA810540 | JB-15976-72 |
| 60/227 | Yellow | CE | Double | Manual | 1 | 100 | 165 x 86 x 86 | 179 | WA810600 | JB-15976-73 |
| 90/340 | Yellow | FM, CE | Double | Manual | 2 | 100 | 165 x 86 x 86 | 166 | WA810860 | JB-15976-74 |
| 55/207 | Yellow | FM, CE | Double | Manual | 2 | 100 | 165 x 109 x 86 | 186 | WA810550 | JB-15976-75 |
| 110/415 | Yellow | CE | Double | Manual | 1 | 100 | 165 x 150 x 86 | 271 | WA811100 | JB-15976-76 |
| 115/434 | Yellow | CE | Double | Manual | 2 left; 1 right | 100 | 165 x 150 x 86 | 270 | WA810115 | JB-15976-77 |

B. Combustible Cabinets

| Volume (gal./L) | Colour | Certification | Door type | Closing mechanism | No. of shelves (included) | Shelf loading capacity (kg) | Exterior dimensions (H x W x D), cm | Shpg wt (kg) | Model number | Catalog number |
|-----------------|--------|---------------|-----------|-------------------|---------------------------|-----------------------------|-------------------------------------|--------------|--------------|----------------|
| 4/15 | Red | CE | Single | Manual | 1 | 50 | 56 x 43 x 43 | 35 | WA810040R | JB-15976-79 |
| 12/45 | Red | FM, CE | Single | Manual | 1 | 50 | 89 x 59 x 46 | 56 | WA810120R | JB-15976-80 |
| 30/114 | Red | FM, CE | Double | Manual | 1 | 100 | 112 x 109 x 46 | 102 | WA810300R | JB-15976-81 |
| 45/170 | Red | FM, CE | Double | Manual | 2 | 100 | 165 x 109 x 46 | 133 | WA810450R | JB-15976-82 |
| 60/227 | Red | FM, CE | Double | Manual | 1 | 100 | 165 x 86 x 86 | 179 | WA810600R | JB-15976-83 |
| 90/340 | Red | FM, CE | Double | Manual | 2 | 100 | 165 x 86 x 86 | 166 | WA810860R | JB-15976-84 |

C. Corrosive Cabinets

| Volume (gal./L) | Colour | Certification | Door type | Closing mechanism | No. of shelves (included) | Shelf loading capacity (kg) | Exterior dimensions (H x W x D), cm | Shpg wt (kg) | Model number | Catalog number |
|-----------------|--------|---------------|-----------|-------------------|---------------------------|-----------------------------|-------------------------------------|--------------|--------------|----------------|
| 4/15 | Blue | CE | Single | Manual | 1 | 50 | 56 x 43 x 43 | 35 | WA810040B | JB-15976-85 |
| 12/45 | Blue | FM, CE | Single | Manual | 1 | 50 | 89 x 59 x 46 | 56 | WA810120B | JB-15976-86 |
| 30/114 | Blue | FM, CE | Double | Manual | 1 | 100 | 112 x 109 x 46 | 102 | WA810300B | JB-15976-87 |
| 45/170 | Blue | FM, CE | Double | Manual | 2 | 100 | 165 x 109 x 46 | 133 | WA810450B | JB-15976-88 |
| 90/340 | Blue | FM, CE | Double | Manual | 2 | 100 | 165 x 86 x 86 | 166 | WA810860B | JB-15976-89 |

D. Pesticides Cabinets

| Volume (gal./L) | Colour | Certification | Door type | Closing mechanism | No. of shelves (included) | Shelf loading capacity (kg) | Exterior dimensions (H x W x D), cm | Shpg wt (kg) | Model number | Catalog number |
|-----------------|--------|---------------|-----------|-------------------|---------------------------|-----------------------------|-------------------------------------|--------------|--------------|----------------|
| 12/45 | Green | FM, CE | Single | Manual | 1 | 50 | 89 x 59 x 46 | 56 | WA810120G | JB-15976-92 |
| 30/114 | Green | FM, CE | Double | Manual | 1 | 100 | 112 x 109 x 46 | 102 | WA810300G | JB-15976-93 |
| 45/170 | Green | FM, CE | Double | Manual | 2 | 100 | 165 x 109 x 46 | 133 | WA810450G | JB-15976-94 |

E. Toxic Cabinets

| Volume (gal./L) | Colour | Certification | Door type | Closing mechanism | No. of shelves (included) | Shelf loading capacity (kg) | Exterior dimensions (H x W x D), cm | Shpg wt (kg) | Model number | Catalog number |
|-----------------|--------|---------------|-----------|-------------------|---------------------------|-----------------------------|-------------------------------------|--------------|--------------|----------------|
| 12/45 | White | FM, CE | Single | Manual | 1 | 50 | 89 x 59 x 46 | 56 | WA810120W | JB-15976-90 |
| 45/170 | White | FM, CE | Double | Manual | 2 | 100 | 165 x 109 x 46 | 133 | WA810450W | JB-15976-91 |

F. Corrosive Substance Storage Cabinets

| Volume (gal./L) | Colour | Certification | Door type | Closing mechanism | No. of shelves (included) | Shelf loading capacity (kg) | Exterior dimensions (H x W x D), cm | Shpg wt (kg) | Model number | Catalog number |
|-----------------|--------|---------------|---------------------|-------------------|---------------------------|-----------------------------|-------------------------------------|--------------|--------------|----------------|
| 4/15 | White | CE | Single | Manual | 1 | 50 | 56 x 43 x 43 | 35 | ACP810004 | JB-15976-97 |
| 12/45 | White | CE | Single | Manual | 1 | 50 | 89 x 59 x 46 | 56 | ACP810012 | JB-15976-99 |
| 30/114 | White | CE | Double | Manual | 1 | 100 | 112 x 109 x 46 | 102 | ACP810030 | JB-15976-98 |
| 48/182 | White | CE | Four | Manual | 3 | 100 | 180 x 109 x 46 | 133 | ACP810048 | JB-15977-00 |
| 48/182 | White | CE | Four (two windowed) | Manual | 3 | 100 | 180 x 109 x 46 | 133 | ACP810048T | JB-15985-26 |

G. Emergency Equipment Cabinet

| Volume (gal./L) | Colour | Certification | Door type | Closing mechanism | No. of shelves (included) | Shelf loading capacity (kg) | Exterior dimensions (H x W x D), cm | Shpg wt (kg) | Model number | Catalog number |
|-----------------|--------|---------------|-----------|-------------------|---------------------------|-----------------------------|-------------------------------------|--------------|--------------|----------------|
| 45/170 | Yellow | CE | Double | Manual | 3 | 100 | 180 x 120 x 45 | 133 | WA910450 | JB-15976-78 |

Cole-Parmer® Ultrasonic Cleaners

Quicker cleaning and degassing of samples

- High-frequency sound waves provide greater cleaning and reliability
- Gentle cleaning with 40 kHz sound waves won't damage delicate items
- Durable, leakproof design for worry-free cleaning

Basic Ultrasonic Cleaners

- Set timer and don't worry—control cleaning cycles up to 60 minutes
- Get better cleaning with optional heater models—heat to 156°F (69°C) with overtemperature protection

Advanced Ultrasonic Cleaners

- Easily control your precise applications—feature digital timer, power tracking, sleep, and degas mode
- Worry-free processes—set timer for up to 90 minutes, unit automatically compensates for heavier loads
- Get deeper cleaning with optional heater option



08895-43



| Capacity gal. (L) | Tank dimensions (L x W x H) | Power | Basic cleaner with mechanical timer | Basic cleaner with mechanical timer and heater | Advanced cleaner with digital timer, power tracking, and degas | Advanced cleaner with digital timer, power tracking, high/low power, degas and heater | Solid insert trays | Beaker positioning covers | |
|------------------------|---|-------------------|-------------------------------------|--|--|---|--------------------|---------------------------|-------------|
| | | | Cat. no. | Cat. no. | Cat. no. | Cat. no. | Cat. no. | Beakers | Cat. no. |
| ½ (1.9) [†] | 6" x 5½" x 4" (15.2 x 14 x 10.2 cm) | 230 VAC, 50/60 Hz | JB-08895-29 | JB-08895-31 | JB-08895-33 | JB-08895-35 | JB-08850-41 | One 600 mL | JB-08890-50 |
| ¾ (2.8) [†] | 9½" x 5½" x 4" (24.1 x 14 x 10.2 cm) | 230 VAC, 50/60 Hz | JB-08895-45 | JB-08895-47 | JB-08895-49 | JB-08895-51 | JB-08851-41 | Two 600 mL | JB-08891-50 |
| 1½ (5.7) [‡] | 11½" x 6" x 6" (29.2 x 15.2 x 15.2 cm) | 230 VAC, 50/60 Hz | JB-08895-61 | JB-08895-63 | JB-08895-65 | JB-08895-67 | JB-08852-41 | Three 250 mL | JB-08892-50 |
| 2½ (9.5) [‡] | 11½" x 9½" x 6" (29.2 x 24.1 x 15.2 cm) | 230 VAC, 50/60 Hz | JB-08895-77 | JB-08895-79 | JB-08895-81 | JB-08895-83 | JB-08853-41 | Four 600 mL | JB-08893-50 |
| 5½ (20.8) [‡] | 19½" x 11" x 6" (49.5 x 27.9 x 15.2 cm) | 230 VAC, 50/60 Hz | JB-08895-93 | JB-08895-95 | JB-08895-97 | JB-08895-99 | JB-08854-41 | Six 600 mL | JB-08894-50 |

[†]The ½- and ¾-gallon cleaners have a pour spout. [‡]The 1½-, 2½-, and 5½-gallon cleaners have a built-in pour drain.

Cole-Parmer® SS Ultrasonic Cleaners

Stainless steel durability at a great price

- Multiple power settings handle both normal or delicate cleaning
- Degas mode for improved cleaning efficiency and easy sample prep
- Timed operation from 1 to 99 minutes or continuous
- Adjustable heating to 176°F (80°C) for deeper cleaning



Cole-Parmer ultrasonic cleaners are extremely effective at removing dirt and grime which would normally require tedious manual cleaning. The 40 kHz high-frequency ultrasonic wave vibrations create microscopic bubbles that implode violently causing the cavitation which creates an intense scrubbing action on the surface of the item being cleaned. The microscopic nature of the bubbles ensures that even the tiniest crevices will be cleaned thoroughly. These units can clean almost any nonporous item that can normally be immersed in water.

These stainless steel cleaners feature a bright LED display for time and temperature and easy push-button control. Sturdy rubber feet prevent movement while in use, handles allow easy portability, and the larger sizes (6 liter and above) have external drains for easy replenishment of cleaning solutions.

What's included: lid, mesh basket, outlet filter, and power cord with plug.

| Capacity gal. (L) | Tank dimensions (L x W x H) | Overall dimensions (L x W x H) | Power (VAC, Hz) | Catalog number |
|-------------------|--------------------------------------|-------------------------------------|-----------------|----------------|
| 0.5 (2) | 5½" x 5½" x 3½" (15 x 14 x 10 cm) | 7½" x 6½" x 8½" (19 x 17 x 22 cm) | 240, 50 | JB-08895-03 |
| 0.75 (3) | 9½" x 5½" x 3½" (24 x 14 x 10 cm) | 10½" x 6½" x 9½" (27 x 17 x 24 cm) | 240, 50 | JB-08895-07 |
| 1.5 (6) | 11½" x 6½" x 5½" (30 x 15.5 x 15 cm) | 13" x 7½" x 12½" (33 x 18 x 31 cm) | 240, 50 | JB-08895-11 |
| 2.5 (9) | 11½" x 9½" x 5½" (30 x 24 x 15 cm) | 13" x 10½" x 12½" (33 x 27 x 31 cm) | 240, 50 | JB-08895-15 |
| 3.5 (13) | 13" x 11½" x 5½" (33 x 30 x 15 cm) | 14½" x 13" x 12½" (36 x 33 x 31 cm) | 240, 50 | JB-08895-19 |
| 5.25 (20) | 19½" x 11½" x 5½" (50 x 30 x 15 cm) | 21½" x 13" x 12½" (55 x 33 x 31 cm) | 240, 50 | JB-08895-74 |
| 7.25 (27) | 19½" x 11½" x 7½" (50 x 30 x 20 cm) | 21½" x 13" x 14½" (55 x 33 x 36 cm) | 240, 50 | JB-08895-78 |



Cole-Parmer® Rotational Viscometers

Included 316 stainless steel spindles are ideal for pharmaceutical applications!

- Select from 10 language options
- Ensure accurate readings by calibrating your viscometer to a known standard

Determine the dynamic viscosity of samples in your applications. Over/under range alarm sounds when your sample is too high/low for the spindle selected. All models feature 10 language options, push-button control with easy-to-use menu system, motor self-test, user calibration to a known standard, and universal power supply.

Basic Viscometers are an economical choice for fast, accurate viscosity readings. Feature a 4-line display that shows selected speed, selected spindle, viscosity, and % of full scale.

Basic Viscometers with USB Output include software to download data through the USB output to your PC for analysis. Store up to 10 user programs for repeated tests. Display selected speed, selected spindle, viscosity, % torque, shear rate, and shear stress on the 5-line display. Enter the sample density, and the unit calculates and displays kinematic viscosity (cSt) as well.

Advanced Viscometers with Temperature Probe have three times the speed selections and double the speed range of the basic models. Monitor and display temperature with the included RTD temperature probe. Program features include time to torque, time to stop, ramp, and multistep.

Programmable Viscometers feature 2600 speed selections and the highest speed range, up to 250 rpm. Monitor and display temperature with the included RTD temperature probe. Control the viscometer through a PC using the included software; also includes curves, graphs, and database references.

Minimum sample size is 600 mL beaker; order small-sample adapters separately below. Optional low-viscosity adapters allow measurement down to 1 cp when used with low range viscometers and 3.2 cp when used with medium range viscometers. Model 98965-54 includes a water jacket for attachments to an external circulating bath (not included; go to ColeParmer.in for our full selection).

What's included: 316 stainless steel spindles (four spindles for the low range and six for the other ranges), spindle protector, stand, carrying case, and universal power supply. Models 98965-43 through -48 also include data logging software; USB cable. Models 98965-49 through -51 also include control software, data logging software, and USB cable.



Cole-Parmer®



| Viscosity range | Rotational speed range | Number of selectable speeds | Output | Catalog number |
|--|------------------------|-----------------------------|--------|----------------|
| Basic viscometers | | | | |
| 20 to 2,000,000 cp (low) | 0.3 to 100 rpm | 18 | None | JB-98965-40 |
| 100 to 13,000,000 cp (medium) | | | | JB-98965-41 |
| 200 to 106,000,000 cp (high) | | | | JB-98965-42 |
| Basic viscometers with data logging software and USB cable | | | | |
| 20 to 2,000,000 cp (low) | 0.3 to 100 rpm | 18 | USB | JB-98965-43 |
| 100 to 13,000,000 cp (medium) | | | | JB-98965-44 |
| 200 to 106,000,000 cp (high) | | | | JB-98965-45 |
| Advanced viscometers with temperature probe, data logging software, and USB cable | | | | |
| 20 to 6,000,000 cp (low) | 0.01 to 200 rpm | 54 | USB | JB-98965-46 |
| 100 to 40,000,000 cp (medium) | | | | JB-98965-47 |
| 200 to 106,000,000 cp (high) | | | | JB-98965-48 |
| Programmable viscometers with temperature probe, control software, data logging software, and USB cable | | | | |
| 20 to 6,000,000 cp (low) | 0.01 to 250 rpm | 2600 | USB | JB-98965-49 |
| 100 to 40,000,000 cp (medium) | | | | JB-98965-50 |
| 200 to 106,000,000 cp (high) | | | | JB-98965-51 |

Specifications

Accuracy: ±1% full-scale
Resolution
 <10,000 cp: 0.1 cp
 ≥10,000 cp: 1 cp
Reproducibility: ±0.2%
Temperature probe (indicated models):
 100 Ω Pt RTD; 32 to 212°F (0 to 100°C)
Power: 100 to 240 VAC, 50/60 Hz
Compliance: FDA 21 CFR part 11 standards

Accessories

- JB-98965-53 Small sample adapter, for sample volumes from 8 to 13 mL
- JB-98965-52 Small sample adapter with circulation jacket, for sample volumes from 8 to 13 mL
- JB-98965-55 Low-viscosity adapter, from 1cP (min sample required 16 mL)
- JB-98965-54 Low-viscosity adapter with water jacket, from 1cP (min sample required 16 mL)
- JB-98965-56 Heldal unit for helicoidal movement of nonflowing substances
- JB-17107-01 NIST-traceable calibration with data for viscometers

Stuart® Automatic Digital Melting Point Apparatus

NEW

Capture and display video image of the melt on the touch-screen display or download to a PC

- Accurately identify the melting point with advanced digital image processing
- Get up and running quickly—intuitive setup and navigation on colour touch screen
- Increase productivity—analyze three samples simultaneously
- Use the rapid ramp mode to take a fast scan of the full temperature range
- Protect settings allows settings to be password-protected to stop any unauthorised changes
- Conforms to US Pharmacopeia (USP) and GLP requirements



stuart®

Advanced features with a familiar interface make this the ideal melting point apparatus for your pharmaceutical, raw material, and quality control applications. Setup is easy using the intuitive menu system, based on an Android™ platform. The instrument has sufficient internal storage capacity for an almost unlimited number of preset method programs and typically between 250 and 350 result files.

Watch the melt on the large 7" (17.8 cm) touch-screen display, or set the unit up and walk away and view a video of the melt later. The video image of the melt provides proof of measurement long after the sample is gone. In addition, you can review the melt video and add defined event information for each individual capillary tube.

Download videos and reports to a USB flash drive or use the optional printer for direct printing of results. Stored video results are stamped with melt temperature.

Convenient storage compartment for unused capillaries includes a glass cutter to open capillaries that are closed on both ends. There is also an area to hold three prepared sample capillaries safely away from the heat source.

What's included: pack of 100 capillary tubes (open at one end), storage compartment with glass cutter, and power cord.

| Model | Description | Catalog number |
|-------|--|----------------|
| SMP50 | Automatic digital melting point apparatus | JB-03013-02 |
| | Automatic digital melting point apparatus with IQ/OQ documentation | JB-03013-03 |

Specifications



| | |
|-----------------------------|---|
| Number of samples | Up to 3 simultaneously |
| Sample level | 2 to 3 mm in 50- or 100-mm long capillaries |
| Temperature range | Ambient to 400°C |
| Temperature resolution | 0.1°C |
| Ramp rate | 0.1 to 20°C in 0.1°C increments |
| Temperature sensor | Pt 1000 platinum |
| Temperature control | Closed loop PID |
| Cool-down time, 350 to 50°C | ~ 12 mins |
| Heat-up time, 50 to 350°C | ~ 6 mins |
| Display | 7" (17.8 cm) HD colour touch screen |
| Memory | 8GB (approx. 300 results with video) |
| Data transfer | USB Flash drive |
| Power | 100–230 VAC, 50/60 Hz, 150 W |

Accessories

JB-83056-79 Optional printer

JB-03013-64 Replacement glass capillary tubes, open one end. Pack of 100

JB-03013-65 Glass capillary tubes, closed at both ends. Pack of 100

JB-99967-49 Melting point standards kit

Need Help Selecting?

Trust our **expert** Application Specialists to help you find the right product.

022-6139-4444 | info@coleparmer.in





Compact Glove Boxes/Balance Chambers

Keep hazardous materials contained

- Offers a safe, draft-free, completely contained chamber
- Top section is removable for easy installation of equipment
- Pressure relief valve minimizes glove “fight back”
- Minimizes product degradation caused by moisture absorption

Glove box accommodates most analytical balances, top loaders, bench scales, and moisture analyzers. Transfer chamber features a vacuum gauge and a white leveling tray for transferring liquids through the chamber. HEPA filtration systems, side access doors, and exhaust vents are available as options—contact us for more information.

What's included: one pair of chemical-resistant Hypalon® gloves, four ground key cock valves for purging, and electrical outlet strip (with four outlets).



Specifications

Transfer chamber (L x ID): 12" x 11"
(30.5 x 27.9 cm) **Glove ports:** 8¾" (22.2 cm) dia
Glove size: 9½; 32" (81 cm) L



| Chamber capacity | Dimensions (W x H x D) | | Power (VAC, Hz) | Shpg wt lb (kg) | Catalog number |
|------------------|-----------------------------------|------------------------------------|-----------------|-----------------|--------------------|
| | Chamber | Overall | | | |
| 11 cu ft | 28" x 29" x 23" (71 x 74 x 58 cm) | 43" x 31" x 24" (109 x 79 x 61 cm) | 220, 50 | 200 (91) | JB-34752-42 |
| 17 cu ft | 35" x 30" x 29" (89 x 76 x 74 cm) | 49" x 31" x 30" (125 x 79 x 76 cm) | 220, 50 | 250 (113) | JB-34752-47 |

Laboratory Glassware Washers

Get even narrow-neck glassware clean

- Fit more in each cycle—no center tower to get in the way
- Configurable to your needs—interchangeable racks for your specific needs
- Easily clean narrow-mouth glassware with 36 detachable spindles
- Use factory-preset cycles or customize your own

Washer features two pumps, one for washing and one for draining, to reduce possibility of cross-contamination. Fine mesh drain filter captures debris inside unit to protect the pumps from damage. Increased water temperature allows for glassware sanitization and better cleaning. Steam generator penetrates and removes dried residue, and the built-in purified water pump allows you to use a nonpressurized purified water supply.

What's included: washer with 304 stainless steel 36-spindle lower rack, eighteen glassware holders, thirty-six glassware clips, ten small spindles, four leveling feet, and utility hookup terminals.

Contact our Application Specialists for a wide range of accessories.



Specifications

Chamber dimensions

(W x H x D):
22½" x 18½" x 21½"
(57.5 x 47.5 x 54.1 cm)

Glassware clearance:

18½" (47.5 cm)

Washing temperature†

115 VAC models: 180°F (82°C)
208/240 VAC models: 199°F (93°C)

Hot water supply

Flow: 1.25 GPM (4.7 LPM)
psi: 20 to 120
Inlet: ¾" NPT(F) fitting

DI/distilled water supply

Flow: 0.9 GPM (3.4 LPM)
psi: 0 minimum
(can pump from reservoir)
Inlet: ¾" hose barb fitting

Drain line:

¾" ID tubing
Power: 208/240 VAC, 50/60 Hz



| Washer type | Water consumption per cycle | Exterior dimensions (W x H x D) | | Watts | Amps | Shpg wt lb (kg) | Catalog number |
|---|-----------------------------|---------------------------------|--------------------|-------|------|-----------------|--------------------|
| | | in. | cm | | | | |
| Washers without window | | | | | | | |
| Undercounter | 3.4 gal. (12.9 L) | 24½ x 34½ x 27½ | 61.3 x 86.7 x 69.6 | 2000 | 12 | 165 (75) | JB-98963-05 |
| Freestanding | | 24½ x 34½ x 27½ | 61.5 x 86.9 x 69.9 | 2000 | 12 | 220 (100) | JB-98963-15 |
| Washers with window and interior light | | | | | | | |
| Undercounter | 3.4 gal. (12.9 L) | 24½ x 34½ x 27½ | 61.3 x 86.7 x 69.6 | 2000 | 12 | 175 (80) | JB-98963-25 |
| Freestanding | | 24½ x 34½ x 27½ | 61.5 x 86.9 x 69.9 | 2000 | 12 | 230 (104) | JB-98963-35 |

†Minimum inlet water temperature: 120°F (49°C)



Keep Your Temperature in Check at Every Level

From pocket thermometers to noncontact meters, from data loggers to humidity/thermocouple meters, you'll find the test and measurement instrument you need.

At every step of your process—from R&D to production to warehouse—we help you test and monitor accurate data logging and temperature and help with data transferring and encryption.

| | |
|--------------|---------|
| Data Loggers | 309-311 |
| Humidity | 312 |
| Temperature | 313-317 |

There's a Digi-Sense™ Traceable® solution for every level of monitoring

From basic measurement to single-use data logging to cloud-based remote monitoring, there's a Traceable® product to fit every need. Each product is provided with a Traceable® calibration certificate from ISO 17025 calibration laboratory confirming that the product meets or exceeds all stated specifications.



Digi-Sense™ Traceable® Data Loggers with TraceableGO™ Wireless Capability



Easily access collected data between destinations

- Connect to your data via smartphone or tablet—any Bluetooth®-enabled device—using a downloadable Bluetooth App
- View and download data with free TraceableGO App
- Data loggers store up to 90 alarm events
- Get accurate, reliable measurements with included NIST-traceable calibration

NEW

Track environmental conditions of reagents, clinical samples, vaccines, pharmaceuticals, and food items during transport to any location.

Configure the data loggers from your device using the TraceableGO App to start; stop; change memory mode, unit preference, alarm setting, logging interval; and enable/disable alarm. When all the parameters are set, simply press START on the logger to begin monitoring. Once the shipment is delivered, double press START/STOP on the logger to enable Bluetooth® and export the data to your device. You will get an immediate response to see if your contents have been exposed to conditions outside the set parameters.

You have the option to subscribe to cloud-based TraceableLIVE® service to upload data to cloud—ideal for tracking data from multiple loggers or to comply with regulatory agency requirements. The low-cost TraceableLIVE subscription provides unlimited trip data to be saved on the cloud and to send a report to an email.

What's included: two AAA batteries, free TraceableGO App for download to your device, and NIST-traceable calibration certificate.



18004-12



18004-13

| Description | Temperature data logger | Temperature/humidity data logger |
|------------------------|---------------------------|---|
| Catalog number | JB-18004-12 | JB-18004-13 |
| Temperature range | –4 to 158°F (–20 to 70°C) | –4 to 158°F (–20 to 70°C) |
| Temperature resolution | 0.1° | 0.1° |
| Temperature accuracy | ±0.7°F (±0.4°C) | ±0.7°F between 14 and 158°F; otherwise ±0.9°F (±0.4°C between –10 and 70°C, otherwise ±0.5°C) |
| Humidity range | — | 0 to 95% RH, noncondensing |
| Humidity resolution | — | 0.1% RH |
| Humidity accuracy | — | ±3% RH from 5 to 75%, otherwise ±5% RH |

Specifications

Memory: 64K (65,536) data points, 7.5 months on a 5-minute logging interval
Sampling rate: 1 min. to 12 hours, 1-min. steps
Dimensions (W x H x D): 3½" x 2" x 1¾"
Power: two AAA batteries (included)

Digi-Sense® TraceableOne™ USB Temperature Data Loggers

Ensure effective cold chain management

- Automatically generate a PDF report via USB port
- Protective plastic pouch maintains waterproof IP67 rating—ideal for use with ice and cold packs
- Bar code for in-house scanning

Use these single-use USB data loggers to track temperatures during shipments, storage, or experiments. Ideal for food, pharmaceutical, or laboratory use—for any application where a small accurate data logger is required.

Ready to use with preprogrammed alarm parameters. No software or driver is required for setup or data download. Simply press start to begin recording crucial temperature data; there is a 30-minute time delay before logging begins. Flashing red and green LEDs indicate logger is recording data, stopped recording, or if an alarm has been triggered. An alarm is triggered when temperatures are outside the optimal range for more than 5 minutes.

What's included: battery and NIST-traceable calibration certificate.



Specifications

Temperature range: –30 to 70°C (–22 to 158°F)
Temperature resolution: 0.1°
Temperature accuracy: ±0.5°C (0.9°F) from –20 to 40°C (68 to 104°F); ±1°C (1.8°F) remainder
Units: °C or °F
Sensor: internal NTC
Sampling rate: 10 seconds to 12 hours
Memory: 16,000 data points
Data interface: USB 2.0
Dimensions (L x W x H): 3.2" x 1.9" x 0.23" (8 x 4.8 x 0.6 cm)
Power: 3.0 V CR2450 lithium battery, 2-year battery life

| Alarms (low to high) | Logging cycle (days) | Logging interval (minutes) | Pack of 10 | | Pack of 40 | |
|-----------------------------|----------------------|----------------------------|----------------|----------------|----------------|----------------|
| | | | Catalog number | Catalog number | Catalog number | Catalog number |
| 12 to 14°C (53.6 to 57.2°F) | 10 | 1 | JB-18004-14 | JB-18004-00 | | |
| | 30 | 3 | JB-18004-17 | JB-18004-03 | | |
| | 60 | 6 | JB-18004-20 | JB-18004-06 | | |
| | 90 | 10 | JB-18004-23 | JB-18004-09 | | |
| 2 to 8°C (35.6 to 46.4°F) | 10 | 1 | JB-18004-15 | JB-18004-01 | | |
| | 30 | 3 | JB-18004-18 | JB-18004-04 | | |
| | 60 | 6 | JB-18004-21 | JB-18004-07 | | |
| | 90 | 10 | JB-18004-24 | JB-18004-10 | | |
| –20 to –15°C (–4 to 5°F) | 10 | 1 | JB-18004-16 | JB-18004-02 | | |
| | 30 | 3 | JB-18004-19 | JB-18004-05 | | |
| | 60 | 6 | JB-18004-22 | JB-18004-08 | | |
| | 90 | 10 | JB-18004-25 | JB-18004-11 | | |

Digi-Sense™ Data Loggers with TraceableLIVE® Wireless Technology

Get alerts before you lose valuable samples

- Remotely monitor your critical environments 24/7 via Wi-Fi*
- View current conditions anywhere—cloud-based interface sends email, text, and push notifications
- Securely connect to data via smartphone, tablet, or PC
- No software required—web, Android™, Apple® iOS data visibility
- Ensure accurate, reliable measurements with included NIST-traceable calibration

Digi-Sense data loggers with TraceableLIVE wireless technology provide a simple, efficient, and reliable way to ensure your critical samples are not compromised due to parameter variations. This latest technology is ideal for monitoring a process in real time, any time. Plus you get the value, accuracy, and peace of mind of NIST-traceable calibration at a noncalibrated price.

A-B. Digi-Sense Ultra-Low Temperature Data Loggers



C. Digi-Sense Refrigerator/Freezer Data Loggers



D. Digi-Sense Temperature/Humidity Data Loggers



E. Digi-Sense Multiparameter Data Loggers



Specifications

- Sampling rate: 9 to 12 seconds
- Memory: 672 (7 days if set to 15-minute intervals)
- Max number of stored alarms: 100
- Power: four AAA batteries (included)

| Sensor included | Parameters | | | Catalog number |
|--|--|---|--|----------------|
| | Range | Resolution | Accuracy | |
| A. Cryogenic data loggers | | | | |
| One 316 SS probe with 6-ft (1.8-m) cable | -328 to 221°F (-200 to 105°C) | 0.01° | ±0.4°F (±0.25°C) | JB-18001-08 |
| Two 316 SS probes with 6-ft (1.8-m) cable | | | | JB-18001-09 |
| B. Ultra-low temperature data loggers | | | | |
| One 316 SS probe with 6-ft (1.8-m) cable | -130 to 221°F (-90 to 105°C) | 0.01° | ±0.18°F (±0.1°C) | JB-18000-27 |
| Two 316 SS probes with 6-ft (1.8-m) cable | | | | JB-18000-28 |
| C. Refrigerator/freezer data loggers | | | | |
| Two bottle probes | -58 to 140°F (-50 to 60°C) | 0.01° | ±0.45°F (±0.25°C) | JB-99460-00 |
| One bottle probe and one bullet probe with detachable sensor and 10-ft (3-m) cable | | | | JB-99460-05 |
| Two bullet probes | | | | JB-99460-10 |
| Two SS probes with detachable sensor and 10-ft (3-m) cable | | | | JB-99460-15 |
| D. Temperature/humidity data loggers | | | | |
| Ambient sensor dongle | Temp: 32 to 131°F (0 to 55°C) Humidity: 0 to 100% RH | Temp: 0.01° Humidity: 0.1% | Temp: ±0.72°F (±0.4°C) Humidity: ±3% (20 to 80% RH), ±5% (remaining) | JB-18000-29 |
| External probe with 10-ft (3-m) cable | | | | JB-18000-30 |
| E. Multiparameter data loggers | | | | |
| Ambient sensor dongle for temperature/humidity/CO ₂ | Temp: 32 to 131°F (0 to 55°C) Humidity: 0 to 95% RH CO ₂ : 0 to 10,000 ppm | Temp: 0.01° Humidity: 0.01% CO ₂ : 5% reading + 70 ppm | Temp: ±0.72°F (±0.4°C) Humidity: ±3% (5 to 75% RH), ±5% (remaining) CO ₂ : 1 ppm | JB-18000-31 |
| External probe with 3-ft (0.9-m) cable for temperature/humidity/CO ₂ | | | | JB-18000-32 |
| Ambient sensor dongle for temperature/humidity/barometric pressure | Temp: 32 to 131°F (0 to 55°C) Humidity: 0 to 100% RH Barometric pressure: 500 to 1100 mbar | Temp: 0.01° Humidity: 0.01% Barometric pressure: 1 mbar | Temp: ±0.72°F (±0.4°C) Humidity: ±3% (5 to 75% RH), ±5% (remaining) Barometric pressure: ±4 mbar | JB-18000-33 |

*Requires a TraceableLIVE subscription.

Digi-Sense® Traceable® Temperature Data Loggers

No need to download data first—display shows measurements and alarm duration

- Be alerted to out-of-limit conditions of sensitive items
- Download and analyze data with time-and-date stamp via required software
- Program and edit programs via software, even on multiple units

Temperature Data Logger is reusable and reprogrammable, ideal for the monitoring of perishable items during transport. **Temperature/Relative Humidity Data Logger** is ideal for transportation temperature monitoring, and for use with products that are sensitive to humidity levels.

What's included: battery and individually serialized NIST-traceable calibration certificate. Kit 18005-01 comes with five temperature data loggers, one copy of data download and analysis software, and one cradle with USB cable.



| Description | Temperature data logger | Temperature data logger kit | Temperature/RH data logger |
|------------------------------------|---|------------------------------|---|
| Catalog number | JB-18005-00† | JB-18005-01 | JB-18005-05† |
| Temp range | –31 to 122°F (–35 to 50°C) | | –20.2 to 161.6°F (–29 to 72°C) |
| Temp resolution | 0.1°F/C | | 0.1°F/C |
| Temp accuracy | ±0.4°F (±0.2°C) from 32 to 50°F (0 to 10°C); ±2°F (±1°C) otherwise | | ±0.4°F (±0.2°C) from 32 to 50°F (0 to 10°C); ±1°F (±0.5°C) otherwise |
| RH range | — | | 0 to 100% |
| Memory capacity | 7680 readings | | 30,720 readings |
| Sampling rate | Adjustable from every 2 seconds to every 24 hours | | |
| Required for data transfer† | Cradle 18005-03; Software 18005-04 | Cradle and software included | Cable 18005-07; Software 18005-04 |
| Power | CR2450 3V lithium coin cell battery (included) | | |

†Order required items separately at right.



Cradle
18005-03

18005-00

Sleeves
18005-02

Accessories

JB-18005-03 Cradle and USB cable for temperature data logger

JB-18005-07 USB cable for temp/RH data logger

JB-18005-04 Software for data analysis and setting parameters

JB-18005-02 Data logger sleeves. Pack of 100

JB-17102-20 NIST-traceable recalibration for temperature data logger

Digi-Sense™ Temperature/Humidity Touch-Screen Recorder

Virtually unlimited data logging with 8 GB of on-board memory

- Use right out of the box with resident self-booting software—no installation necessary!
- Quickly download data in .csv format via included USB cable
- Convenient wall-mount or desktop operation

This tablet-based instrument measures, displays, and logs temperature, relative humidity, and dew point conditions. Measured values are simultaneously displayed both graphically and digitally on a high-resolution, color display. Easily program sample frequency, sample size, alarm settings, start mode, and units of measure through the intuitive touch-screen menu. Monitor conditions related to pharmaceutical, food, and chemical processing and storage; also ideal for use in greenhouses, museums, and labs.

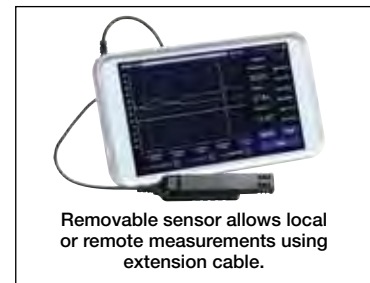
What's included: tablet with built-in stand, temperature/RH sensor, 6-ft (1.8-m) sensor extension cable, USB cable, wall-mounting bracket, power supply, and NIST-traceable calibration certificate.



Specifications

| | | | |
|---------------------|---|---|---|
| Memory: 8 GB | Display: 6" x 3½" (15.2 x 8.9 cm) color LCD, with 1024 x 600 resolution | Dimensions (W x H x D): 7¾" x 4¼" x ¾" (19.3 x 10.8 x 1.6 cm) | Power: 110 VAC; 2500 mAh rechargeable battery backup |
|---------------------|---|---|---|

| Parameters | Range | Resolution | Accuracy | Catalog number |
|-------------|------------------------------|------------------|--|--------------------|
| Temperature | 14 to 176°F (–10 to 80°C) | 0.1°F (0.1°C) | ±0.9°F (0.5°C) | JB-20250-40 |
| Humidity | 0 to 100% RH, noncondensing | 0.1% | ±2.0% at 25°C, 20% to 80% RH; ±2.5% for remaining | |



Removable sensor allows local or remote measurements using extension cable.



Accessories

JB-20250-47 Additional extension cable for sensor, 6 ft (1.8 m)

Don't Sweat It—Gain More Confidence in Your Readings

Digi-Sense™ Precalibrated Thermohygrometers

- Get more data—integrated humidity and thermistor (NTC) temperature sensor
- No more struggling to read measurements—large, backlit LCD makes reading measurements easy

These precalibrated thermohygrometers provide the readings you need in a rugged package. Each features Min/Max readings, Hold function, temperature in °F or °C, and auto-off to save battery life.

Model 20250-11 allows for one-handed measurements with side-button controls. Also measures absolute humidity.

Professional Model 20250-21 has a heavy-duty design for more rugged dependability and can also display absolute humidity.

What's included: carrying case, batteries, and NIST-traceable calibration report with data supplied by InnoCal.



20250-11

20250-21



- ✓ **Save time and money**—pre-calibrated to NIST-traceable standards before you receive it
- ✓ **No need to buy multiple meters**—one meter displays
 - Humidity
 - Dew point
 - Wet bulb
 - Temperature
- ✓ **Accurate** to $\pm 2\%$ basic RH
- ✓ **Durable** construction stands up to your demands for longer life

Precalibration provided by

INNOCAL®

Precalibration | Recalibration | Onsite
InnoCalSolutions.com

| Description | | Thermohygrometer | Professional thermohygrometer |
|---|--------------------------------|--|--|
| Catalog number | | JB-20250-11 | JB-20250-21 |
| Range | Humidity | 0 to 100% RH | |
| | Absolute humidity (calculated) | 0 to 500 g/m ³ , 0 to 218.5 gr/ft ³ | |
| | Temperature (NTC) | -22 to 212°F (-30 to 100°C) | |
| | Temperature (T/C) | — | |
| | Dew point (calculated) | -22 to 212°F (-30 to 100°C) | |
| | Wet bulb (calculated) | 32 to 176°F (0 to 80°C) | |
| Resolution | Humidity | 0.1 | |
| | Temperature (NTC) | 0.1°F/°C | |
| | Temperature (T/C) | — | |
| Accuracy | Humidity | $\pm 2\%$ from 40 to 60% RH; $\pm 3\%$ from 20 to 40% RH and 60 to 80% RH; $\pm 4\%$ from 0 to 20% RH and 80 to 100% RH | |
| | Temperature (NTC) | $\pm 1.8^\circ\text{F}$ (1°C) from -4 to 140°F (-20 to 60°C); $\pm 1.8^\circ\text{F}$ (1°C) from -22 to -4°F (-30 to 19°C) and 140 to 212°F (60 to 100°C) | $\pm 0.9^\circ\text{F}$ (0.5°C) from -4 to 140°F (-20 to 60°C); $\pm 2.7^\circ\text{F}$ (1.5°C) from -22 to -4°F (-30 to 19°C) and 140 to 212°F (60 to 100°C) |
| Target superheat mode (TSH) | | No | |
| Target evaporator exit temperature (TEET) | | No | |
| Dimensions (L x W x H) | | 16.5 x 5.4 x 3.4 cm | 30 x 7.5 x 5 cm |

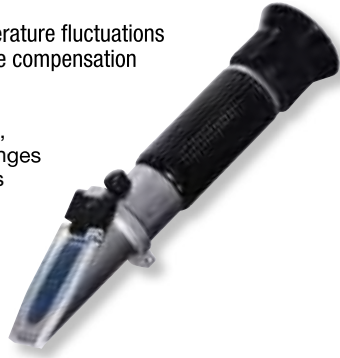
Cole-Parmer® Analog Refractometers

Quick and easy operation with reliable measurements

- Easy calibration via the calibration screw for enhanced accuracy
- No more worrying about temperature fluctuations with the automatic temperature compensation (ATC) models

NEW

These units come in many Brix, salinity, and refractive index ranges for all applications. The models that feature automatic temperature compensation (ATC) allow you to concentrate on the measurements without worrying about the temperature. The compensation range is 50 to 86°F (10 to 30°C).



Cole-Parmer®

All models also feature a zero% adjust with distilled water. This allows for immediate and easy calibration for precise measurements at all times.

Brix Refractometers

| Range | Resolution | Accuracy | ATC | Catalog number |
|--|------------|----------|-----|--------------------|
| 0 to 10% Brix | 0.10% | ±0.1% | No | JB-81150-23 |
| | | | Yes | JB-81150-34 |
| 0 to 18% Brix | 0.10% | ±0.1% | No | JB-81150-24 |
| | | | Yes | JB-81150-35 |
| 0 to 32% Brix | 0.20% | ±0.2% | No | JB-81150-25 |
| | | | Yes | JB-81150-36 |
| 0 to 60% Brix | 0.50% | ±0.3% | No | JB-81150-29 |
| 28 to 62% Brix | 0.20% | ±0.2% | No | JB-81150-26 |
| | | | Yes | JB-81150-37 |
| 0 to 80% Brix | 0.50% | ±0.3% | No | JB-81150-31 |
| 0 to 50%, 50 to 80% Brix | 0.50% | ±0.3% | No | JB-81150-30 |
| | | | Yes | JB-81150-27 |
| 45 to 82% Brix | 0.50% | ±0.3% | Yes | JB-81150-38 |
| 0 to 90% Brix | 0.50% | ±0.3% | No | JB-81150-32 |
| 0 to 42%, 45 to 71%, 71 to 90% Brix | 0.20% | ±0.2% | No | JB-81150-33 |
| | | | Yes | JB-81150-28 |
| 58 to 92% Brix | 0.20% | ±0.2% | Yes | JB-81150-39 |

Salt/Combination Refractometers

| Range | Resolution | Accuracy | ATC | Catalog number |
|--|---------------------|-------------------------|-----|--------------------|
| 0 to 28% salinity | 0.20% | ±0.2% | No | JB-81150-41 |
| | | | Yes | JB-81150-45 |
| 0 to 28% salinity; 0 to 32% Brix | 0.20% | ±0.2% | No | JB-81150-43 |
| | | | Yes | JB-81150-47 |
| 0 to 100% salinity; 1.000 to 1.070 RI | 1%; 0.005 | ±0.5%; ±0.001 | No | JB-81150-40 |
| | | | Yes | JB-81150-44 |
| 0 to 100% salinity; 1.000 to 1.070 RI; 0 to 10% Brix | 1%; 0.005; 0.10% | ±0.5%; ±0.001; ±0.1% | No | JB-81150-42 |
| | | | Yes | JB-81150-46 |

Accessories

JB-17105-00 NIST-traceable calibration with data for refractometers
JB-06226-13 Transfer pipette, 1.5 mL. Box of 500

Find even more online!
Go to ColeParmer.in to see full product details.

Cole-Parmer® Digital Refractometers

Never wait for readings again

- Rugged design is IP65 rated
- Easy calibration for precise results at all times
- No more worrying about temperature fluctuations with built-in ATC

NEW



Cole-Parmer®

These digital refractometers feature an LCD, eliminating reading errors common with handheld refractometers. All models feature built-in automatic temperature compensation (ATC) which removes temperature fluctuations allowing the user to concentrate on the measurements. The compensation range is 41 to 104°F (5 to 40°C).

Many range options are available for measurements within any application. All models also feature a zero% adjust with distilled water, allowing for immediate and easy calibration for precise measurements at all times.

What's included: soft and clean cloth, carrying case, and two AAA batteries.

Specifications

| | |
|---|-------------------------------------|
| Temperature range: 32 to 104°F (0 to 40°C) | Response time: ≤3 seconds |
| Temperature accuracy: ±1°F (0.5°C) | Power: two AAA batteries |
| Sample volume: 0.3 mL | Battery life: ≥5000 readings |

IP 65

| Range | Resolution | Accuracy | Catalog number |
|---|---------------------|------------------------|--------------------|
| 0 to 45% Brix, 1.3330 to 1.4098 RI | 0.1, 0.0001 | ±0.2, ±0.0003 | JB-81150-48 |
| 0 to 85% Brix, 1.3330 to 1.5100 RI | 0.1, 0.0001 | ±0.2, ±0.0003 | JB-81150-55 |
| 0 to 95% Brix, 1.3330 to 1.5400 RI | 0.1, 0.0001 | ±0.2, ±0.0003 | JB-81150-56 |
| 0 to 28% salinity, 1.330 to 1.4100 RI | 0.1, 0.0001 | ±0.1, ±0.0003 | JB-81150-49 |
| 0 to 45% Brix, 0 to 28% salinity, 1.3330 to 1.4100 RI | 0.1, 0.1, 0.0001 | ±0.2, ±0.1, ±0.0003 | JB-81150-57 |
| 0 to 14 g/dl serum protein, 1.3330 to 1.3900 RI | 0.2, 0.0001 | ±0.2, ±0.0003 | JB-81150-51 |
| 0 to 60% v/v, w/w ethyl alcohol | 0.1 | ±0.3 | JB-81150-52 |
| 0 to 60% v/v, w/w isopropyl alcohol; -58 to 32°F (-50 to 0°C) | 0.1 | ±0.5 | JB-81150-53 |
| 0 to 75% ethylene glycol, -58 to 32°F (-50 to 0°C) | 0.1 | ±0.3, ±1°F, ±0.5°C | JB-81150-54 |

Accessories

JB-09376-00 Replacement batteries, AAA. Pack of 12
JB-17105-00 NIST-traceable calibration with data for refractometers
JB-06226-13 Transfer pipette, 1.5 mL. Box of 500

Digi-Sense® Traceable® Wireless Thermometer Sets

No more cables



- Remote probe measures air, liquid, or solids
- Monitor temperature continuously—data transmitted every 30 seconds

Wireless signal from weatherproof remote sensor broadcasts temperature measurements up to 100 feet in an open area. A total of three modules may be used with the main receiver. Each module is supplied with an internal and external sensor. External sensor can be used under water and is supplied with a 10-ft L cable. Receiver and modules can be switched from °F to °C. The receiver displays data from all three transmitting modules on temperature trends, Min/Max memory and has a alarm function. Supplied with self-adhesive hook and loop tabs and bracket for wall mounting or has a flip-out stand for tabletop use.



94460-84



What's included: one receiver, one remote sensor module, probe, two AA batteries, two AAA batteries, mounting hardware, and NIST-traceable calibration certificate.

Accessories

- JB-37804-11 Additional wireless remote sensor module** for model 37804-10, includes two AA batteries
- JB-94460-79 Additional wireless remote sensor module** for model 94460-78, includes two AA batteries
- JB-94460-85 Additional wireless remote sensor module** for model 94460-84, includes two AA batteries

| Description | | Wireless thermometer with bottle probe | Wireless thermometer set | Wireless thermometer with humidity set |
|-----------------------|------------|---|----------------------------|--|
| Catalog number | | JB-37804-10 | JB-94460-78 | JB-94460-84 |
| Temperature | Range | -4 to 140°F (-20 to 60°C) | -58 to 158°F (-50 to 70°C) | -4 to 140°F (-20 to 60°C) |
| | Resolution | 0.1°F (0.1°C) | | |
| | Accuracy | ±1°F (±1°C) | | |
| Humidity | Range | — | | 25 to 90% |
| | Resolution | — | | 0.01 |
| | Accuracy | — | | 2% RH midrange, otherwise ±4% |
| Power | | Monitor/receiver: two AAA batteries; Remote sensor module: two AA batteries | | |

Digi-Sense® Precalibrated Folding Pocket Thermometer

No more inaccurate measurements

- Reliable measurements, guaranteed! Precalibrated to NIST-traceable standards
- Take it anywhere—hinged design for folding probe away easily
- Get faster readings with narrow, HACCP compliant probe tip
- Cleans up quickly with rugged, IP67 rated waterproof case



Large, backlit display provides great visibility. Fold up 4" L (101mm) probe adjusts from 0 to 180° for best measurement and viewing angle. Includes °F/°C unit selection, data hold, and min/max functions.

What's included: carrying case, two AAA battery and NIST-traceable calibration report with data supplied by InnoCal.



Specifications

Probe dimensions: 4" L x 0.9" H **Power:** two AAA battery (included)

| Range | Resolution | Accuracy | Catalog number |
|-----------------------------|---|---|--------------------|
| -58 to 544°F (-50 to 290°C) | 0.1°F from -58 to 190°F (0.1°C from -50 to 199°C), 1°F from 200 to 554°F (1°C from 200 to 290°C) | ±3.6°F from -58 to -4°F (±2.0°C from -50 to -20°C), ±1.8°F from -4 to 212°F (±1.0°C from -20 to 100°C), ±1% from 212 to 554°F (±1% from 100 to 290°C) | JB-20250-34 |

JB-09376-00 Replacement batteries, AAA. Pack of 12

Digi-Sense™ Precalibrated Humidity/Temperature Indicators

Accurately gauge proper humidity levels

- Save time and money—precalibrated to NIST-traceable standards
- Know your comfort levels—environmental comfort icons indicate comfortable, wet, or dry conditions
- Simultaneous display of temperature, humidity, and time
- °F/°C unit selection, Min/Max reading, and clock with alarm and date



Model 20250-30 has built-in temperature and humidity sensors for indoor measurements.

Model 20250-31 has built-in temperature and humidity sensors for indoor measurements and an external temperature probe for remote monitoring of indoor or outdoor applications.



Specifications

| Parameters | Range | Resolution |
|--|----------------------------|------------|
| Humidity | 10 to 90% RH | 0.1% |
| Temperature (internal sensor) | 32 to 120°F (0 to 50°C) | 0.1°F/°C |
| Temperature (external sensor, model 20250-31 only) | -58 to 158°F (-50 to 70°C) | 0.1°F/°C |

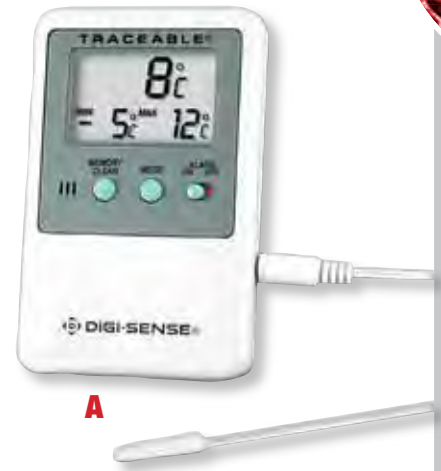
Dimensions (W x H x D): 4" x 2 1/4" x 1/2" (10.1 cm x 6.3 cm x 1.3 cm) **Power:** One AAA battery

| Description | Catalog number |
|--|--------------------|
| Humidity/temperature indicator | JB-20250-30 |
| Humidity/temperature indicator with external temperature probe | JB-20250-31 |

Digi-Sense® Traceable® General-Purpose and Refrigerator/Freezer Thermometers

Get multiple readings simultaneously

- Simultaneously view high, low, and current temperature
- Keep samples safe—programmable alarm alerts when temperature deviates from set point
- Monitor conditions—Min/Max feature stores the highest and lowest readings until cleared
- Get more done—monitor multiple applications with dual-probe units
- Versatile units are mountable on wall or benchtop



Standard Refrigerator/Freezer Thermometers

provide accurate readings even when door is opened, as temperature sensor is enclosed within a glycol-filled bottle.

Advanced Thermometers feature high accuracy, one-button field calibration, and date/time stamp. Unit displays the exact time and date when thermometer alarms are triggered. RTD thermometers provide greater accuracy and a unique Min/Max feature that displays temperatures for previous 24 hours (each hour) or previous 31 days (for each day).

Data Logging Thermometers record up to 525,600 data points to be transferred to a computer using a USB flash drive. The alarm tracking feature stores up to 10 unique alarm events. “Memory lock” option does not allow the internal memory to be cleared, and logging capacity increases to 1 million data points.

What’s included: one AA battery and NIST-traceable calibration certificate.



| Application | Sensor type | Range | Resolution | Accuracy | Power | Catalog number |
|--|-------------------------------|-------------------------------------|------------|----------|---------------------------|----------------|
| A. Standard thermistor models | | | | | | |
| Refrigerator/freezer | One bottle probe | -58 to 158°F (-50 to 70°C) | 1° | ±1°C | One AA battery (included) | JB-94460-72 |
| Refrigerator/freezer | One 5-mL bottle probe | | | | | JB-94460-71 |
| General purpose | One wire probe | | | | | JB-94460-70 |
| B. Advanced thermistor models with improved accuracy (not shown) | | | | | | |
| Refrigerator/freezer | Two bottle probes | -58 to 158°F (-50 to 70°C) | 0.01° | ±0.30°C | One AA battery (included) | JB-94460-92 |
| General purpose | Two wire probes | | | | | JB-94460-91 |
| General purpose | One solid SS probe | | | | | JB-94460-98 |
| General purpose | Two solid SS probe | | | | | JB-94460-99 |
| C. Advanced thermistor models with improved accuracy and data logging (not shown) | | | | | | |
| Refrigerator/freezer | One bottle probe | -58 to 158°F (-50 to 70°C) | 0.01° | ±0.25°C | One AA battery (included) | JB-94460-07 |
| Refrigerator/freezer | Two bottle probes | | | | | JB-94460-09 |
| General purpose | One wire probe | | | | | JB-94460-11 |
| General purpose | Two wire probes | | | | | JB-94460-14 |
| General purpose and refrigerator/freezer | One wire and one bottle probe | | | | | JB-94460-18 |
| General purpose | One solid SS probe | | | | | JB-94460-16 |
| General purpose | Two solid SS probes | | | | | JB-94460-17 |
| D. Advanced thermistor models with improved accuracy and “memory lock” data logging | | | | | | |
| Refrigerator/freezer | One bottle probe | -58 to 158°F (-50 to 70°C) | 0.01° | ±0.25°C | One AA battery (included) | JB-94460-37 |
| Refrigerator/freezer | Two bottle probes | | | | | JB-94460-39 |
| General purpose | One wire probe | | | | | JB-94460-41 |
| General purpose | Two wire probes | | | | | JB-94460-43 |
| General purpose and refrigerator/freezer | One wire and one bottle probe | | | | | JB-94460-47 |
| General purpose | One solid SS probe | | | | | JB-94460-44 |
| General purpose | Two solid SS probes | | | | | JB-94460-46 |
| E. Advanced RTD high-accuracy models | | | | | | |
| Refrigerator/freezer | One bottle probe | -58 to 158°F (-50 to 70°C) | 0.01° | ±0.1°C | One AA battery (included) | JB-37803-88 |
| General purpose | One wire probe | -148 to 158°F (-100 to 70°C) | | | | JB-37804-03 |
| General purpose | One wire probe | -148 to 199.99°F (-100 to 199.99°C) | | | | JB-37804-05 |
| General purpose | One solid SS probe | -148 to 199.99°F (-100 to 199.99°C) | | | | JB-37804-04 |

Don't Get Burned—Gain More Confidence in Your Readings

Digi-Sense® Precalibrated Thermocouple Thermometers

- Compact, affordable units provide accurate and dependable readings
- No need to worry about reading measurements—large, backlit LCD makes readings easy
- Choose the model that's right for you

General-Purpose Thermocouple Thermometers

Meters accept both type K or J thermocouple probes with miniconnector. The two- and four-channel models provide data logging of up to 18,000 readings; USB interface lets you easily download data to a PC for analysis with included software.

Professional Thermocouple Thermometers with IR Input

These durable meters deliver accurate readings in an ergonomic design. Models accept type K probes and an optional infrared (IR) wand for non-contact measurements from a distance. Two- and four-channel models continually scan each channel for real-time measurements. Data logging models allow you to download and analyze data fully.

What's included: type K bead wire temperature probe 90415-10 (one for each input), batteries, and NIST-traceable calibration report with data supplied by InnoCal. Data logging models also include USB cable and software.



20250-01

20250-17



| Description | General-purpose thermometers | | | Professional thermometers with IR input | | | |
|---------------------------|--|-----------------|-----------------|--|---------------|-------------|-------------|
| | JB-20250-01 | JB-20250-02 | JB-20250-03 | JB-20250-18 | JB-20250-17 | JB-20250-19 | JB-20250-20 |
| Catalog number | 1 (type K or J) | 2 (type K or J) | 4 (type K or J) | 1 (type K) | 2 (type K) | 2 (type K) | 4 (type K) |
| Thermocouple (T/C) inputs | 1 | 2 | 4 | 1 | 2 | 2 | 4 |
| Infrared (IR) input | No | | | Yes, with optional IR wand 20250-24 (order below) | | | |
| T/C range | K: -328 to 2501°F (-200 to 1372°C) J: -346 to 2012°F (-210 to 1100°C) | | | K: -328 to 2501°F (-200 to 1372°C) | | | |
| IR range | — | | | -31 to 1022°F (-35 to 550°C) | | | |
| Resolution | 0.1°F/C below 1000°, 1°F/C above 1000° | | | 0.1°F/C below 1000°, 1°F/C above 1000° | | | |
| T/C accuracy | Above -148°F (-100°C): ±[0.5% rdg + 1.8°F (1°C)] | | | Above -148°F (-100°C): ±[0.15% rdg + 1.8°F (1°C)] | | | |
| | Below -148°F (-100°C): ±[0.5% rdg + 3.6°F (2°C)] | | | Below -148°F (-100°C): ±[0.5% rdg + 3.6°F (2°C)] | | | |
| IR accuracy | Differentials: ±[0.5% rdg + 3.6°F (2°C)] | | | Differentials: ±[0.5% rdg + 1.8°F (1°C)] | | | |
| | — | | | Above 14°F (-10°C): ±[2.0% rdg + 3.6°F (2°C)]; Below 14°F (-10°C): ±9°F (5°C); T/C-IR differentials: ±[2.0% rdg + 5.4°F (3°C)] above 14°F (-10°C); ±11°F (6°C) below 14°F (-10°C) | | | |
| Data logging | No | 18,000 points | | No | 18,000 points | | |
| USB interface | No | Yes | | No | Yes | | |
| Temp differential | No | Yes | | Yes | | | |
| Scan function | No | | | No | Yes | | |
| Dimensions | 6½" x 2½" x 1½" (16.5 x 6.4 x 2.9 cm) | | | 8" x 3" x 2" (20.1 x 7.5 x 5 cm) | | | |

Accessories

- JB-20250-24 Optional infrared wand** for Professional thermocouple thermometers only. Features 8:1 distance-to-spot ratio. Measures 6½" x 2" x 1½" (16.4 x 5 x 4 cm). Includes one 9 V battery
- JB-90415-10 Temperature probe** with a range of -40 to 250°C
- JB-09376-00 Replacement batteries, AAA.** Pack of 12
- JB-09376-04 Replacement batteries, 9 V.** Pack of 4



- ✓ **Save time and money**—precalibrated to NIST-traceable standards before you receive it
- ✓ **Don't let probe errors interfere** with readings—electronic offset compensates for errors
- ✓ **Choose your readout**—measures in °F, °C, or Kelvin (K) with 0.1 resolution
- ✓ **Features for your convenience:**
 - Min/Max/Avg
 - Hold
 - Relative time stamp
 - Auto-off to save battery life
- ✓ **Take measurements from a distance** with optional **infrared wand** on Professional series

Precalibration provided by
INNOCAL®
 Precalibration | Recalibration | Onsite
InnoCalSolutions.com

Digi-Sense® Precalibrated Infrared Stick Thermometers

Get quick and easy, one-button reading

- Reliable measurements, guaranteed! Precalibrated to NIST-traceable standards
- Unique ergonomic stick-style design fits comfortably in your hand
- Water- and dust-resistant IP54 rating
- Laser sighting to pinpoint the center of the measurement area
- Safely and easily locate hot and cold spots, preventing problems and saving costs

Just point the thermometer at your target and push one button! Unit features temperature range of -18 to 302°C (0 to 575°F) and $\pm 2\%$ basic accuracy. Other features include automatic data Hold, selectable $^{\circ}\text{C}/^{\circ}\text{F}$ units, fixed emissivity, and backlit display.

What's included: lanyard, 9 V battery, and NIST-traceable calibration report with data supplied by InnoCal.



| Description | Precalibrated IR stick thermometers | |
|-------------------------|---|--------------------|
| Catalog number | JB-20250-09 | JB-35625-16 |
| Range | 0 to 575°F (-18 to 302°C) | |
| Resolution | 0.1 $^{\circ}\text{F}/^{\circ}\text{C}$ | |
| Accuracy | $\pm 3.6^{\circ}\text{F}$ (2°C) or $\pm 2\%$ of reading | |
| Response time | Less than 500 ms | |
| Emissivity | Fixed at 0.95 | |
| Laser sighting | Single laser | |
| Distance-to-sight ratio | 8:1 | 4:1 |
| Power | One 9 V battery (included) | |
| Dimensions (L x W x H) | 7" x 1 $\frac{3}{4}$ " x 1 $\frac{1}{2}$ " (17.8 x 4.4 x 3.8 cm) | |

Accessories

JB-09376-04 Replacement batteries, 9 V. Pack of 4

Digi-Sense® Precalibrated Infrared Thermometers

Save money and prevent breakdowns—easily locate hot and cold spots

- Reliable measurements—guaranteed! Precalibrated to NIST-traceable standards
- Get easy readings from a distance—just aim, pull trigger and read!
- Continuous scanning via trigger lock

General-Purpose Infrared Thermometers feature Min/Max and Hold functions, $^{\circ}\text{F}/^{\circ}\text{C}$ selectable units, single targeting laser, and large backlit LCD for easy reading. Models 20250-05 and -06 also offer adjustable emissivity and temperature alarm with indicator.

Professional Infrared Thermometers provide high distance-to-sight ratio and enhanced temperature range in a heavy-duty housing. Get a more precise measurement area with dual targeting lasers and external type K thermocouple (one included). Min/Max/Avg and Hold, temperature differential, high/low alarms, $^{\circ}\text{F}/^{\circ}\text{C}$ selectable units, adjustable emissivity, datalogging, and more!



Protective lens cover with magnetic lock

20250-08

20250-05



| Description | General-purpose infrared thermometers | | | Professional infrared thermometers | |
|-------------------------|---|--|---|---|--|
| | JB-20250-04 | JB-20250-05 | JB-20250-06 | JB-20250-07 | JB-20250-08 |
| Range (IR) | -4 to 630°F (-20 to 332°C) | -31 to 1000°F (-35 to 537°C) | -31 to 1472°F (-35 to 800°C) | -58 to 3002°F (-50 to 1650°C) | -58 to 3362°F (-50 to 1850°C) |
| Resolution | 0.1 $^{\circ}\text{F}/^{\circ}\text{C}$ | 0.1 $^{\circ}\text{F}/^{\circ}\text{C}$ below 1000° , 1 $^{\circ}\text{F}/^{\circ}\text{C}$ | | 0.1 $^{\circ}\text{F}/^{\circ}\text{C}$ below 1000° , 1 $^{\circ}\text{F}/^{\circ}\text{C}$ above 1000° | |
| Response time | Less than 1 second | Less than 300 ms | | Less than 150 ms | |
| Distance-to-sight ratio | 10:1 | 12:1 | 20:1 | 30:1 | 50:1 |
| Emissivity | 0.95 fixed | 0.10 to 1.0 adjustable | | 0.10 to 1.0 adjustable | |
| Laser sighting | | Single Class II laser | | Dual Class II laser | |
| Temperature alarm | No | Yes | | Yes | |
| Temp differential | | No | | Yes | |
| USB interface | | No | | Yes (cable and software included) | |
| Data logging | | No | | Yes, 100 internal readings | |
| Power | | One 9 V battery | | One 9 V battery | |

Accessories

JB-09376-04 Replacement batteries, 9 V. Pack of 4

Save time, save money!

Choose Precalibrated
Includes a data-rich, ISO 17025 certificate—no additional charge!

Precalibrated by **INNOCAL**
INNOVATIVE CALIBRATION SOLUTIONS

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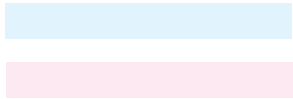
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