

Lab Supplies & Accessories

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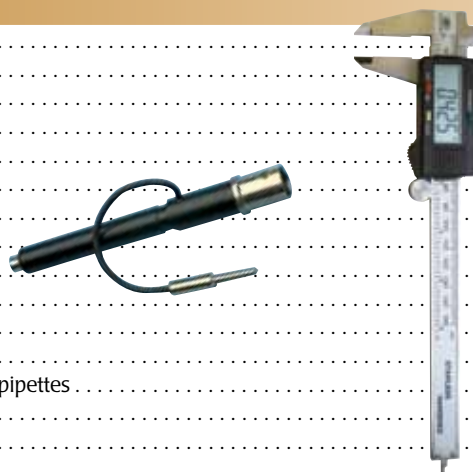
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Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

Adhesives Application Guide

| Part No. | Description | Curing time | Useful Applications and Characteristics |
|--|--|--------------------------|---|
| Epoxies | | | |
| 4898 | Silver filled conductive Epoxy | 12 hrs@50C; 5 min @150C | Form strong bonding. Used in wire bonding applications. Connecting conductors that can't be soldered. Constructing or connecting Ag/AgCl pellets. |
| 7335 | Carbon filled conductive Epoxy | 48 hrs@25C; 5 min @150C | Constructing carbon electrode. |
| 4886 | High performance Structural Epoxy | 12 hrs@25C. | Forms a strong and slightly flexible bond on plastic, metal, and glass. Bonds some low surface energy plastic such as PEEK |
| Hot melt (EVA) | | | |
| 13316 | Mini Glue Gun with glue sticks | As soon as it cools down | Easy to use for bonding, needs large gap filling. Bonds wood, glass, metals, and many plastics. |
| Silicone Adhesives/Sealants/Primers | | | |
| 1571 | Room temperature vulcanizing (RTV) adhesive. Acyloxy/moisture cure system. Acetic acid is cure by-product. | 24hrs@25C | Good moisture resistant and elastic. Low toxic. Has the best adhesion property in this silicone family. Will bond to many materials. |
| 7128 | RTV sealant. Alkoxy/Moisture cure system. Methanol as cure by-product. | 72hrs@25C | Good for bonding or sealing electronics circuits (metal). |
| SYLG184 | Sylgard, Two parts, vinyl/platinum cure sealant. Hydrogen as cure by-products. Very low toxic | 24hrs@25C, 15 min.@150C | Coating Patch Clamp electrodes, Cell culture dish, making dissection pads. |
| Kwik-Sil | Two part, adhesive. Vinyl/platinum system, Hydrogen as cure by-products. Very low toxic. | < 5 min@25C | Live tissue and nerve studies. Medium strength adhesion. |
| Kwik-Cast | Two part sealant. Vinyl/platinum cure system. Hydrogen as cure by-products. Very low toxic. | < 5 min@25C | Sealant for live tissues. Embedding peripheral nerves with electrodes. |
| 6820 | Primer for silicone | N/A | Enhances adhesion of silicone adhesives for difficult to bond plastic surfaces |
| Cyanoacrylate | | | |
| 7341 | Ethyl Cyanoacrylate, low viscosity 90-120 cps | <10 seconds | Forms an instantaneous bonding. Mounting rat/mouse brain slices. Ideal for relatively small gaps and smooth surfaces. Bonds plastic, metals and rubber. |
| 7342 | Ethyl Cyanoacrylate, high viscosity 1100-1600 cps | <30 seconds | Use on brain slice exp. Ideal for larger gaps, allows slightly longer bonding time. Bonds plastic, metals and rubber. |
| Vetbond | Butyl Cyanoacrylate, Low toxic | <10 seconds | Bonds tissues, alternative to suture, helps small wound healing. Antimicrobial effect. Used in forensic science. |
| 503763 | Octyl Cyanoacrylate, Low toxic | <15 seconds | Suitable for surface wound bonding, protection, holding a sensor or other device on the tissue. |

LAB SUPPLIES

Kwik-Gard™

Kwik-Gard is specially packaged **Sylgard 184** silicone for quicker and easier application, eliminating the messy procedure of preparing the mixture before application. Its special cartridge controls the precise mixing ratio to ensure proper curing. The disposable tip mixes resin and hardener as they are dispensed. Since no air is introduced during mixing, the resin does not need degassing for most applications. The mixed silicone is applied directly to the site, reducing preparation time and material waste.

Each Kwik-Gard cartridge contains 37 mL of resin and hardener. The dispensing tip has a dead volume of 0.75 mL.



| | | |
|-----------------|---|---------|
| KWIKGARD | Kwik-Gard Start-up Kit (incl. dispenser, 1 cartridge, 5 tips) | US\$137 |
| KWIKGLUE | Kwik-Gard Refill (2 cartridges, 10 dispensing tips) | US\$79 |
| KWIKMIX | Dispensing Tips (pkg of 10) | US\$35 |
| KWIKGUN | Kwik-Gard Dispenser | US\$114 |

Scotch-Weld 2216 Structural Epoxy



Probably still the best epoxy for bonding plastic, often used as the benchmark for testing the binding strength of other adhesives. The slightly rubbery texture also makes it less easy to break off. *It is the only epoxy known that can bond PEEK.* Color: gray. Cures at room temperature.

Shipping weight: 1 lb. (0.5 kg)

| | | |
|-------------|--------------------------|--------|
| 4886 | Scotch-Weld 2216 (2 oz.) | US\$56 |
|-------------|--------------------------|--------|

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

178 UK: Tel: 01438-880025 • wpiuk@wpi-europe.com Germany: Tel: 030-6188845 • wvide@wpi-europe.com China: Tel: 21 68885517 • chinasaless@china.wpiinc.com

Electrically Conductive Silver Epoxy

Two-component silver-filled epoxy for electrical connections which cannot be soldered, such as Ag/AgCl pellets. This widely used silver-filled epoxy features low viscosity and smooth flowing character. Pure silver is dispersed in both resin and hardener. Cures in 15 minutes at 120 °C. Mix ratio 1:1. May be premixed and frozen for later use.

Shipping weight: 1 lb. (0.5 kg)

4898 Silver Epoxy (1 oz.) **US\$213**

Electrically Conductive Carbon Epoxy

Two-component carbon-epoxy, curable at room and elevated temperatures. Ideal for electrostatic discharge protection and EMI/RFI shielding. 1:1 mix ratio. May be premixed and frozen for later use.

Shipping weight: 1 lb. (0.5 kg)

7335 Carbon Epoxy (2 oz.) **US\$155**



Silicone RTV adhesive (non-acidic)

Because it is non-corrosive, this material is ideal for use on metal, for encapsulating small circuits on connectors. After cure, will withstand -55° to 200 °C. No mixing required.

Shipping weight: 1 lb. (0.5 kg)

7128 RTV Coating (3 oz.) **US\$56**

RTV Prime Coat

Enhances adhesion of silicone adhesives to many difficult-to-bond plastic surfaces.

Shipping weight: 1 lb. (0.5 kg)

6820 RTV Prime Coat, 400 ml (13.5 oz.) **US\$52**



Silicone RTV adhesive

Clear silicone sealant provides good bonding to plastic. After cure, will withstand -55 to 200 °C. No mixing required. A handy, general purpose laboratory sealant. (Releases acetic acid during curing.)

Shipping weight: 1 lb. (0.5 kg)

1571 RTV Sealant (4.7 oz.) **US\$33**

Mini Glue Gun

Comes with three sticks of special formula hot melt glue. UL approved. 110V 60Hz only.

Shipping weight: 1 lb. (0.5 kg)

13316 Mini Glue Gun **US\$20**

Low toxicity 5-minute adhesives for live tissues!

- Specially formulated for WPI
- Extremely low toxicity
- Excellent moisture resistance
- Cures at room temperature

The properties of this adhesive make it exceptionally useful for neuroscience applications, peripheral nerve studies and similar biomedical applications. These new silicone elastomers also eliminate the mess and time involved in pre-mixing other commonly used formulations (such as Wacker SilGel® and Sylgard®). Each silicone elastomer is packaged in a double barrel syringe and is automatically mixed when pressed out of the mixer tip provided. It can then be applied directly to the tissue without further mixing. The curing time of these silicones is short, reliable and reproducible thus eliminating potential costly guesswork when using other tissue adhesives. Furthermore, the curing process does not produce heat, which can otherwise cause tissue damage. WPI's silicone elastomers are much less toxic than dental silicone because they contain no surfactant additives.

WPI's silicone elastomers are based on recently developed vinyl terminated siloxane and platinum complex catalysts. They exhibit exceptional low toxicity before, during and after curing. The traditional RTV silicone systems produce either acetic acid or alcohol during condensation; these compounds are toxic to living cells. In contrast, the only by-product of condensation from WPI's elastomers is a small amount of hydrogen gas, which was shown not to cause any effect on nerve activity in highly sensitive peripheral nerves. Both elastomers cure on contact with the tissue. Currently, WPI provides rapid-curing silicone elastomers in two different formulas:

Kwik-Sil™ is a translucent silicone elastomer adhesive with medium viscosity. It has good adhesion and mechanical property (tear strength and elongation). The very short curing time (approx. 1 minute) make it especially useful for moving preparations.



Kwik-Cast™ is a very low viscosity silicone elastomer sealant. It is able to fill small spaces around nerves and creates a continuous mass ensuring long-term recording stability. Kwik-Cast is color-coded so mixing is foolproof. It can be applied and cured underneath mineral oil. The slight longer curing time (approx. 3 minutes) makes it more suitable for stationary preparations and *in vitro* tissue studies.



KWIK-CAST & KWIK-SIL SPECIFICATIONS

| Unmixed | Kwik-Sil | Kwik-Cast |
|--------------------------|--------------------|--------------------|
| Mix Ratio | 1:1 | 1:1 |
| Working Time, typically | 2-10 minutes | 2-3 minutes |
| Viscosity, cps | 15,000 | 10,000 |
| After Curing 24 hours: | | |
| Tear Strength | 90 ppi | 44 ppi |
| Elongation | 650% | 60% |
| Durometer (shore A-2) | 30 | 36 |
| Color | translucent | green |
| Volume Resistivity, Ω/cm | 1x10 ¹⁵ | 1x10 ¹⁵ |
| Shipping Weight | 0.5 lb | 0.5 lb |

References

Sivitz, *et al.*, "Effect of acute and antecedent hypoglycemia on sympathetic neural activity and catecholamine responsiveness in normal rats." *Diabetes*. 50:1119-1125, 2001.

| | | |
|------------------|--|---------------|
| KWIK-SIL | Silicone Adhesive Compound (two 5-mL syringes) | US\$98 |
| KWIK-CAST | Silicone Casting Compound (two 5-mL syringes) | US\$98 |
| 600009 | Replacement Mixing Tips (pkg of 10) | US\$33 |

PRICE BREAK

| | 1-5 pkg | 6-9 pkg | More than 10 |
|------------------|---------------|---------------|---------------|
| KWIK-CAST | US\$98 | US\$91 | US\$81 |
| KWIK-SIL | US\$98 | US\$91 | US\$81 |

"Super" Adhesives for Life Science Research

Cyanoacrylate adhesives have been on the market since 1958. Most industrial or household grade cyanoacrylate is made of shorter alkyl chain derivatives such as methyl or ethyl cyanoacrylate (WPI's #7341 and #7342). They are very useful for temporarily holding tissues such as mounting specimens for microtome sectioning. However, they are not suitable for bonding wounds on live animals. The difficulties of using cyanoacrylate for bonding live animals are: (1) a strong, irritating odor; (2) quick loss of bonding strength due to breakdown of the bonding by hydration; (3) the breakdown products, cyanoacetate and formaldehyde, are toxic and can cause inflammatory reactions; and (4) they have low flexibility and tend to be brittle.

To overcome these problems, several longer alkyl chain cyanoacrylates have been developed especially for veterinary and human use. The first



longer alkyl chain product is butyl cyanoacrylate. This product has been used for animal and human applications outside the USA since 1970. It is much less toxic and has a lower odor than the methyl or ethyl cyanoacrylate. The butyl cyanoacrylate offered by WPI is **Vetbond™**.

A family of adhesives containing *octyl cyanoacrylate*, a plasticizer and stabilizer, was developed in the 1990's (one of them approved by FDA for human use). When bonding to tissue, these new adhesives are four times stronger and less toxic than butyl cyanoacrylate. Compared with the traditional suture, the new super adhesive has several advantages. On average, it takes

only one-tenth of the time

to close an incision. The **bonding strength** is equal to 5-0 monofilament suture.

It also has a mysterious **antimicrobial effect** that can decrease infection rates in contaminated wounds.

Bonding will slough off naturally in 5 to 7 days. Cosmetic appearance of the healed incision is also better.

Gluture Topical Tissue

Adhesive #503763 forms

a strong and flexible film

and is thus more suitable for

surface wound bonding, protection, and holding a sensor or other device on the tissue. Setting time is about 10 seconds, which gives ample time for application. It can also be used for temporarily holding a live tissue. For example, there is a report of using it to hold nematodes on a glass slide for patch-clamp neurons recording.

All of the products offered by WPI are veterinary grade (not suitable for human application). Though very similar to the grade for human use, they are not sterile and do not have FDA approval.

| | | |
|----------------|--|---------------|
| 503763 | Gluture Topical Tissue Adhesive (10 tips), 1.5 mL | US\$56 |
| 7341 | Cyanoacrylate Adhesive, low viscosity—90-120 cps (pkg of 10) | US\$40 |
| 7342 | Cyanoacrylate Adhesive, high viscosity—1100-1600 cps (pkg of 10) | US\$40 |
| VETBOND | 3M Vetbond™ Adhesive (3 mL) | US\$29 |

Sylgard

A two-part silicone elastomer, ideal for potting and encapsulating applications. Very low dielectric constant sealing compound used in patch clamping and many other lab applications. After cure, will withstand -55° to 200 °C.

Shipping weight: 2 lb. (1 kg)



SYLG184 Sylgard (1.1 lb) **US\$114**

Silicone Dissecting Pad Kit



Make your own silicone dissecting pads easily and quickly. Mix the 2-part silicone right in the plastic petri dishes and allow to cure 24 hours at room temperature. Kit includes enough silicone to prepare 20 dishes.

Kit Includes:

- 2-Part Sylgard silicone elastomer
- 20 plastic petri dishes with lids, 65mm
- Pins

501986 Silicone Dissecting Pad Kit **US\$132**

Lab Coat

Light weight, medium length
— for the lab professional

| | | |
|-------------------|-----------------------|---------------|
| LABCOAT-XS | Lab Coat, Extra Small | US\$29 |
| LABCOAT-S | Lab Coat, Small | US\$29 |
| LABCOAT-M | Lab Coat, Medium | US\$29 |
| LABCOAT-L | Lab Coat, Large | US\$29 |
| LABCOAT-XL | Lab Coat, Extra Large | US\$29 |

Quantity discount available



Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

Digital Caliper & Micrometer



The high quality electronic digital caliper and micrometer are useful tools – no laboratory should be without one because they are more accurate and easier to use than the traditional analog units. Measure in either inches or millimeters at the touch of a button. The floating zero feature allows you to read the increment without calculation. Both of them

have the SPC output for interface with external readout devices. The caliper is made from hardened stainless. The micrometer meets the IP54 as defined in the IEC529 standard that is resistance to dust and splashing water. The caliper measures up to 150 mm (6 inch) with 0.01 mm (or 0.0005") resolution. The micrometer measures up to 25 mm (or 1 inch)

with 0.001 mm (or 0.00005") resolution.

The micrometer is designed to be water-resistant to IP54 as defined in the IEC529 standard. The IP54 code's first digit "5" means dust-protected. The second digit "4" means that the caliper is protected against splashing water – it has to withstand a shower from every direction for 10 minutes.

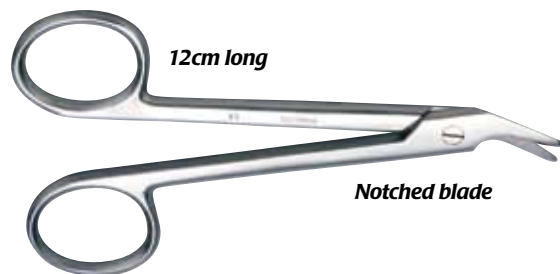


Digital Caliper

| | | |
|---------------|-------------------------------------|-----------------|
| 501601 | Digital Caliper | US\$ 75 |
| 503036 | Digital Micrometer | US\$ 148 |
| 502157 | Replacement Battery (package of 10) | US\$ 35 |

Digital Micrometer

Wire Cutters



12cm long

Notched blade

| | | |
|---------------|----------------------------|----------------|
| 501321 | Roger Wirecutting Scissors | US\$ 23 |
|---------------|----------------------------|----------------|

Screwdriver Set



This production grade precision 5-piece screwdriver set is the highest quality tool you can find on the market. Made by German craftsmen, the chrome-vanadium tips will fit any screw securely without leaving marks. The set contains an ESD safe handle with 8 interchangeable blades. Phillips Sizes: 000, 00, 0, 1. Slotted Sizes: 1.5, 2.0, 3.0, 3.5 mm. The 000 size Phillips blade is the smallest you can find anywhere – it can fit smallest screw on a 35 mm camera. *Weight: 0.24 lb*

| | | |
|---------------|--------------------------------------|----------------|
| 501635 | Professional Quality Screwdriver Set | US\$ 56 |
|---------------|--------------------------------------|----------------|

Magnetic Heating Stirrer



The Magnetic Heating Stirrer enjoys the advantages of convenience, stable and steady operation as well as indefinite speed regulation. It can carry out stable and precise agitation of solutions in a relatively common temperature range. It is especially suitable for agitation of small volume samples.

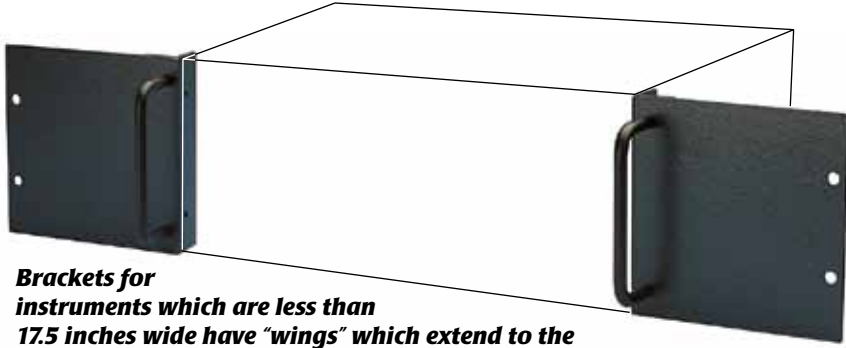
SPECIFICATIONS

| | |
|----------------|------------------|
| SPEED RANGE | 0-1400 rpm |
| TRAY DIAMETER | 12 cm |
| HEATING POWER | 100 W |
| POWER SUPPLY | AC 110 V / 50 Hz |
| DIMENSIONS | 23 x 16 x 10 cm |
| STIRRING POWER | 3 - 6 W |
| TEMPERATURE | 20°C - 210°C |

| | | |
|---------------|---------------------------------|-----------------|
| 501610 | WPI-02 Magnetic Heating Stirrer | US\$ 229 |
|---------------|---------------------------------|-----------------|

Rackmounting Hardware

Many instruments may be mounted in standard 19-inch instrument racks with the appropriate rackmount kit, as noted on the page featuring the instrument.



Brackets for instruments which are less than 17.5 inches wide have "wings" which extend to the standard rack width. (Pictured: #13024)



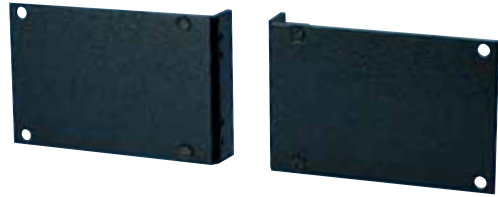
←
2932 Rackmount Kit, 3½-in. high US\$114

←
3468 Dual Rackmount Kit (705, A320, A362, A382, A385) US\$114

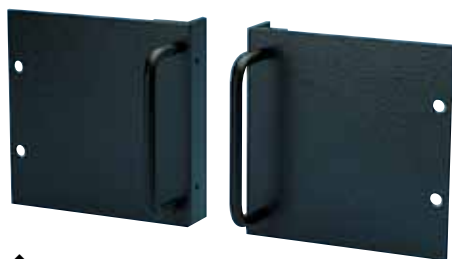


←
2933 Rackmount Kit, 5¼-in. high US\$114

←
13025 Dual Rackmount Kit (TBM-4 & BP-1) US\$114



↑
3469 Single Rackmount Kit (705, A320, A362, A382, A385) US\$114



↑
13024 Single Rackmount Kit (TBM-4 & BP-1) US\$114

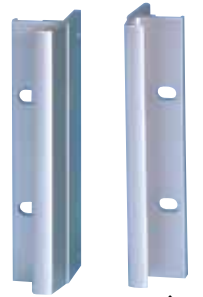


↑
3484 Rackmount Kit for DAM Series amplifiers US\$114

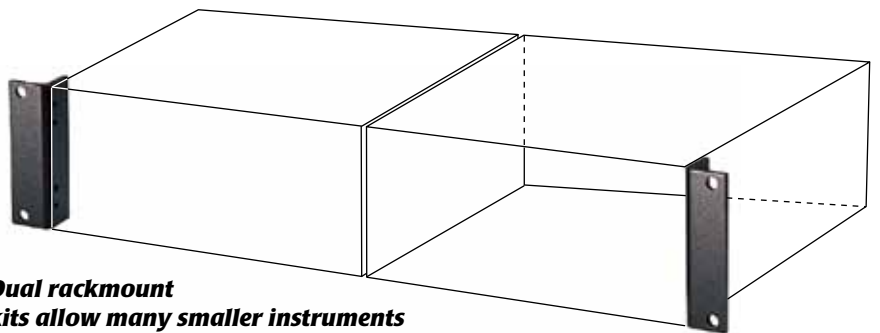
DAM Series amplifiers and Iso-DAM amplifiers may be mounted to the rack panels above by fastening bolts (included) through holes in the panel.



←
2935 Rackmount Kit, 8 ¾-in. high US\$114



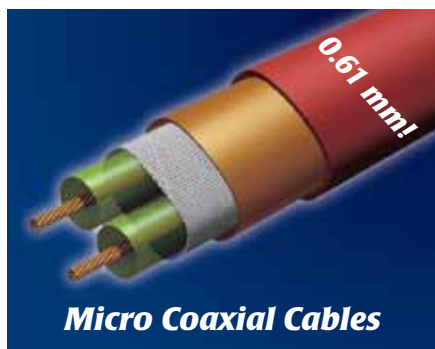
↑
800283 Rackmount Kit with Handles US\$114



Dual rackmount kits allow many smaller instruments to be joined by bolting the chassis together and mounting the pair into a standard rack. (Pictured: #2932)

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

Precious Metal and Specialty Wire



New! Micro coaxial cables (**MAXxxxx**) are ideal for microelectrode fabrication and construction of similar research tools. The dual shielding eliminates electrical interference caused by radio frequencies (RF), electrostatic and microphonics (e.g., bending and vibration). Available with single or dual (twin) conductors.

Thermocouple wire for temperature monitoring. **TCJ3050**, with an iron/constantan pair of wires, can be used in inert, vacuum, reducing or oxidizing atmospheres (iron conductor may rust in moist or low temperature applications). **TCK3050** has a chromel/alumel pair, for use in inert or oxidizing atmosphere at 1500-1800 °F.

Teflon-coated stainless steel (type 304) wire (**SSTxxxx**) is available in 25-ft and 50-ft lengths. The Teflon coating is 150 micro-in. thick (4 µm).

Carbon wire (**C3005**) is a single 30-micron fiber of electrochemically activated carbon. This fiber is especially useful in micro-electrochemical experiments.

Carbon filament wire (**CPVCxxxx**) is made of 3,000 microscopic carbon strands in a colored PVC jacket. 45.8 ohms/foot.

Copper ultra-fine wire (**CU7T44G**) is made of seven individually insulated 44 AWG (50 micron) conductors twisted together. Total diameter with insulation is 200 microns. Resistance: 2.9 Ω/m for all seven wires together. Dry dielectric strength: 1500V DC.

Platinum/iridium wire — uncoated (**PTxxxx**) and Teflon-coated (**PTTxxxx**) — is an alloy of 90% platinum and 10% iridium, giving excellent tensile strength and corrosion resistance. Uncoated pure platinum wire (**PTPxxx**) is 99.95% pure.

Indium wire (**IN1003**) is 99.99% pure, with a melting point of 156.4°C.

Annealed silver wire (**AGWxxxx**), 99.99% pure, is available in five diameters; three of those sizes are also available with a Teflon coating (**AGTxxxx**).

Tungsten wire (**TGWxxxx**), available in three diameters, is 99.95% pure.

Gold wire (**AUWxxxx**) is 99.99% pure.

Titanium wire (**TIxxxx**) is 98.9% pure, annealed, in two diameters.

Stainless steel wire (**SSxxxx**) is type 316.

| Catalog No. | Metal | Coating | AWG* | Diameter | Precut Length | Price |
|--------------------|----------------------------------|--------------------|-------|-----------------------------------|----------------------------|----------------|
| AGT0510 | Silver | Teflon | 36 | 0.005 in. (0.125 mm) ¹ | 10 ft (3 m) | Call |
| AGT0525 | Silver | Teflon | 36 | 0.005 in. (0.125 mm) ¹ | 25 ft (7.6 m) | Call |
| AGT05100 | Silver | Teflon | 36 | 0.005 in. (0.125 mm) ¹ | 100 ft (30 m) | Call |
| AGT1010 | Silver | Teflon | 30 | 0.010 in. (0.25 mm) ¹ | 10 ft (3 m) | Call |
| AGT1025 | Silver | Teflon | 30 | 0.010 in. (0.25 mm) ¹ | 25 ft (7.6 m) | Call |
| AGT10100 | Silver | Teflon | 30 | 0.010 in. (0.25 mm) ¹ | 100 ft (30 m) | Call |
| AGT1510 | Silver | Teflon | 26-27 | 0.015 in. (0.38 mm) ¹ | 10 ft (3 m) | Call |
| AGT1530 | Silver | Teflon | 26-27 | 0.015 in. (0.38 mm) ¹ | 30 ft (9.1 m) | Call |
| AGW0510 | Silver | — | 36 | 0.005 in. (0.125 mm) | 10 ft (3 m) | Call |
| AGW0530 | Silver | — | 36 | 0.005 in. (0.125 mm) | 30 ft (9.1 m) | Call |
| AGW1010 | Silver | — | 30 | 0.010 in. (0.25 mm) | 10 ft (3 m) | Call |
| AGW1030 | Silver | — | 30 | 0.010 in. (0.25 mm) | 30 ft (9.1 m) | Call |
| AGW1510 | Silver | — | 26-27 | 0.015 in. (0.38 mm) | 10 ft (3 m) | Call |
| AGW1530 | Silver | — | 26-27 | 0.015 in. (0.38 mm) | 30 ft (9.1 m) | Call |
| AGW2010 | Silver | — | 24 | 0.020 in. (0.5 mm) | 10 ft (3 m) | Call |
| AGW2030 | Silver | — | 24 | 0.020 in. (0.5 mm) | 30 ft (9.1 m) | Call |
| AGW4010 | Silver | — | 18 | 0.040 in. (1.0 mm) | 10 ft (3 m) | Call |
| AUW0170 | Gold | — | 50 | 0.001 in. (0.025 mm) | 70 ft (21 m) | Call |
| AUW201 | Gold | — | 24 | 0.020 in. (0.5 mm) | 1 ft (25.4 cm) | Call |
| C3005 | Carbon | — | 49 | 0.0012 in. (30 µm) | 5 ft (1.5 m) | US\$56 |
| CPVC4050Y | Carbon | PVC (yellow) | 18 | 0.040 in. (1.0 mm) | 50 ft (15 m) | US\$69 |
| CPVC4050G | Carbon | PVC (green) | 18 | 0.040 in. (1.0 mm) | 50 ft (15 m) | US\$69 |
| CPVC4050R | Carbon | PVC (red) | 18 | 0.040 in. (1.0 mm) | 50 ft (15 m) | US\$69 |
| CPVC4050W | Carbon | PVC (white) | 18 | 0.040 in. (1.0 mm) | 50 ft (15 m) | US\$69 |
| CU7T44G | Copper Alloy | Nylon/Polyurethane | 30 | 0.010 in. (0.20 mm) | 16.5 ft (5 m) | US\$63 |
| IN1003 | Indium | — | 30 | 0.01 in. (0.25 mm) | 3 ft (76 cm) | US\$86 |
| PT1002 | Platinum / Iridium | — | 30 | 0.010 in. (0.25 mm) | 2 ft (51 cm) | Call |
| PT0402 | Platinum / Iridium | — | 38 | 0.004 in. (0.102 mm) | 2 ft (51 cm) | Call |
| PT0203 | Platinum / Iridium | — | 44 | 0.002 in. (0.051 mm) | 3 ft (76 cm) | Call |
| PT0110 | Platinum / Iridium | — | 50 | 0.001 in. (0.025 mm) | 10 ft (3 m) | Call |
| PTP101 | Platinum | — | 30 | 0.010 in. (0.25 mm) | 1 ft (25.4 cm) | Call |
| PTP201 | Platinum | — | 24 | 0.020 in. (0.5 mm) | 1 ft (25.4 cm) | Call |
| PTP401 | Platinum | — | 18 | 0.039 in. (1.0 mm) | 1 ft (25.4 cm) | Call |
| PTP406 | Platinum | — | 18 | 0.039 in. (1.0 mm) | 0.5 ft (12 cm) | Call |
| PTT0502 | Platinum / Iridium | Teflon | 36 | 0.005 in. (0.125 mm) ¹ | 2 ft (51 cm) | Call |
| PTT0402 | Platinum / Iridium | Teflon | 38 | 0.004 in. (0.102 mm) ¹ | 2 ft (51 cm) | Call |
| PTT0203 | Platinum / Iridium | Teflon | 44 | 0.002 in. (0.051 mm) ¹ | 3 ft (76 cm) | Call |
| PTT0110 | Platinum / Iridium | Teflon | 50 | 0.001 in. (0.025 mm) ¹ | 10 ft (3 m) | Call |
| SS31605 | Stainless Steel | — | 36 | 0.005 in. (0.125 mm) | 50 ft (15.2 m) | US\$45 |
| SS31614 | Stainless Steel | — | 27 | 0.014 in. (0.36 mm) | 30 ft (9.1 m) | US\$45 |
| SST30407-25 | Stainless Steel | Teflon | 33 | 0.007 in. (0.18 mm) ³ | 25 ft (7.6 m) | US\$79 |
| SST30407-50 | Stainless Steel | Teflon | 33 | 0.007 in. (0.18 mm) ³ | 50 ft (15.2 m) | US\$127 |
| TCJ3050 | Thermocouple (Iron + Constantan) | Glass braid | 30 | | 50 ft (15.2 m) | US\$75 |
| TCK3050 | Thermocouple (Chromel + Alumel) | Glass braid | 30 | | 50 ft (15.2 m) | US\$75 |
| TI2051 | Titanium | — | 24 | 0.020 in. (0.5 mm) | 24 ft (7.3 m) ² | US\$316 |
| TI4024 | Titanium | — | 38 | 0.040 in. (1.0 mm) | 24 ft (7.3 m) ² | US\$183 |
| TGW0325 | Tungsten | — | 40 | 0.003 in. (0.075 mm) | 25 ft (7.6 m) | US\$79 |
| TGW0515 | Tungsten | — | 36 | 0.005 in. (0.125 mm) | 15 ft (4.6 m) | US\$79 |
| TGW1510 | Tungsten | — | 26-27 | 0.015 in. (0.38 mm) | 10 ft (3 m) | US\$79 |

Microcoaxial Cables

| | | | | | | |
|----------------|-----------------|--------------|--|-------------------------------|--------------------------|----------------|
| MAX3820 | Tinned Cu Alloy | Coaxial | | 0.0173 in. (0.44 mm) | 20 ft (6 m) ⁴ | US\$102 |
| MAX4020 | Tinned Cu Alloy | Twin Coaxial | | 0.0158x0.024 in. (0.4x0.61mm) | 20 ft (6 m) ⁵ | US\$114 |

*Brown & Sharpe

¹ Plus 0.002 in. for Teflon coating

² Furnished in bundles of 3-ft lengths.

³ Teflon adds 0.00015 in. (4 µm) to diameter

⁴ Impedance: 50 ohm; capacitance: 95 pF/m; resistance: 5 ohm/m

⁵ Impedance: 100 ohm; capacitance: 54 pF/m; resistance: 1.9 ohm/m

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

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Luer Valve Assortment Kit



A useful kit (above) for building your own liquid flow experiment. It provides the means to start, stop, add, divide and control a flow of liquid or gas. Included in the kit are **over 200 assorted parts** such as one-way and three-way stopcocks, manifolds, Y-connectors, injection sites, male and female luer caps, check valves, syringe-activated check valves, slide clamps, roller clamps, and pinch clamps. All (except clamps) have a luer fitting for quick and easy connecting and disconnecting. Includes assorted luer fittings for use with flexible tubing.

14011 Luer Valve Assortment Kit **US\$305**

LAB SUPPLIES



Barb-to-Tubing Coupler Assortment Kit

Barb-to-Tubing Assortment Kit (at left) includes three different sizes of tubing and two boxes with different fittings, T-connectors, elbow connectors, check valves and plugs.

500890 Barb-to-Tubing Assortment Kit (polypropylene) **US\$190**

Includes 25ft. each of three tubing sizes: 1/16" ID, 1/8" ID, 1/4" ID

Luer-to-Tubing Coupler Assortment Kit

Assemble quick-disconnect luer fittings for use with flexible tubing with internal diameters of 1/16", 3/32", 1/8" and 5/32". A variety of quick-disconnect connectors can be quickly made for connecting small diameter flexible tubing; 3-way connections can be made with the use of the 3-way luer tee; luer plugs, tees, connectors, bulk-head mounts, color coding rings, locking nuts, male and female luers—are all included to enhance the versatility of this kit. **The kit has 253 assorted parts and is offered in two different types of materials.** Polypropylene fittings are chemically inert and resistant to most organic and inorganic solvents. Nylon fittings are strong and can be bonded with adhesive.

14012 Luer-to-Tubing Coupler Assortment Kit (Polypropylene) **US\$190**

500895 Luer-to-Tubing Coupler Assortment Kit (Nylon) **US\$190**



14012



500895

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

Parts now sold individually

Buy parts from Luer Valve Assortment Kit 14011 individually

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|--|---|---|---|--|---|---|---|---|--|---|--|---|---|--|---|---|---|--|---|---|---|---|---|--|---|---|---|---|---|---|---|---|---|--|---|---|--|--|---|--|---|--|---|---|---|--|---|--|
|  | # 14040-50 Pinch Clamp for 7mm Tubing Pack of 50 us\$68 |  | # 14051-100 Pinch Clamp for 5mm Tubing Pack of 100 us\$68 |  | # 14043-20 Roller Clamp Large Bore Pack of 20 us\$68 |  | # 14035-10 3-Way Stopcock, Luer lock, Pack of 10 us\$68 |  | # 14041-60 Roller Clamp 3/16" Tubing Pack of 60 us\$68 |  | # 14058-10 4-Way Stopcock, Luer Lock Pack of 10 us\$68 |  | # 13822-10 0.135"/3.4 mm OD Tubing Pack of 10 us\$68 |  | # 14036-15 4-Way Luer Stopcock Pack of 15 us\$68 |  | # 14045-20 Syringe Slip Luer Valve Activated Check Pack of 20 us\$68 |  | # 14044-5 Syringe Activated Dual Check Valve Pack of 5 us\$68 |  | # 14039-10 Check Valve Pack of 10 us\$68 |  | # 14048-20 3-Port Infusion Y Swivel Thread Pack of 20 us\$68 |  | # 14057-10 4-Way Stopcock, Luer Lock Pack of 10 us\$68 |  | # 14055-2 4-Port Manifold Pack of 2 us\$68 |  | # 3742-20 Female T Luer Pack of 20 us\$68 |  | # 14038-10 1-Way Stopcock Luer Lock, Pack of 10 us\$68 |  | # 14042-100 Slide Clamp for 2.5 mm O.D. Tubing Pack of 100 us\$68 |  | # 14061-60 Male/Female Luer Plug Pack of 60 us\$68 |  | # 13163-100 Male Luer Fitting for 5/32" ID Tubing Pack of 100 us\$68 |  | # 13162-100 Male Luer Fitting for 1/8" ID Tubing Pack of 100 us\$68 |  | # 13161-100 Male Luer Fitting for 3/32" ID Tubing Pack of 100 us\$68 |  | # 13160-100 Male Luer Fitting for 1/16" ID Tubing Pack of 100 us\$68 |  | # 13159-100 Female Luer Fitting for 5/32" ID Tubing Pack of 100 us\$68 |  | # 13158-100 Female Luer Fitting for 1/8" ID Tubing Pack of 100 us\$68 |  | # 13157-100 Female Luer Fitting for 3/32" ID Tubing Pack of 100 us\$68 |  | # 13156-100 Female Luer Fitting for 1/16" ID Tubing Pack of 100 us\$68 |
|---|--|---|--|---|---|---|--|---|---|---|---|--|---|--|---|---|--|---|---|---|--|---|---|---|---|---|--|---|---|---|---|---|---|---|---|---|--|---|---|--|--|---|--|---|--|---|---|---|--|---|--|

Parts in kit may differ slightly in appearance from those pictured.

Cables and Connectors

#1358



#13620



#3161



#3294



#3417-10



#5372



#3492



#2851



#3517



#3491



#3142



#3508



#5371



#5385



#5373



#3670



#5375



#13451



#13388



#5374



#13347



#50082



#13776



#500131



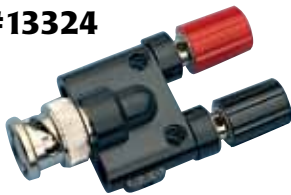
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#15975



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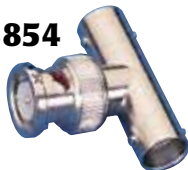
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#500081



#13854



#3578



#300040



#300102



#15623



#500256



#13685



#500128



Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

LAB SUPPLIES

| PART # | APPLICATION/DESCRIPTION | CONNECTOR A | CONNECTOR B | CABLE LENGTH | PRICE |
|--------------------|--|----------------------------|-------------------------|----------------|---------|
| 1358 | Beetrodes | BNC (male) | 2 mm pin | 3 ft (0.9 m) | US\$52 |
| 2026-10 | 2 mm socket, unwired (pkg of 10) (Not Shown) | 2 mm socket | unwired | none | US\$24 |
| 2851 | Standard BNC cable | BNC (male) | BNC (male) | 5'2" | US\$30 |
| 3142 | Mini-Banana Adapter | Screw Terminals | Dual Mini-Banana | none | US\$25 |
| 3161 | Connector for input to TBM4M and BP-1 | DIN (male) | unwired | none | US\$29 |
| 3294 | Ground wire for DAM80 probe | Clip | none | 3 ft (0.9 m) | US\$10 |
| 3417-10 | 2 mm plug, unwired (pkg of 10) | 2 mm pin | unwired | none | US\$24 |
| 3491 | Extension for any 8-pin DIN | DIN (male) | DIN (female) | 5 ft (1.5 m) | US\$127 |
| 3492 | Connector, adapts WPI transducers to non-WPI equipment | DIN (female) | unwired | none | US\$21 |
| 3508 | Adapts BNC pH electrode to pH meter with "U.S. Standard" input | BNC (male) | US Standard | none | US\$45 |
| 3517 | DAM50, DAM60, DAM70, shielded (two cables/pkg) | Modular phone plug, 4 wire | none | 3 ft (0.9 m) | US\$102 |
| 3578 | Adapter cable for Ag/AgCl pellets | 2 mm pin | none | 5 ft (1.5 m) | US\$46 |
| 3670 | Double banana plug with solder turret terminals | Dual Banana (male) | Dual Banana (female) | none | US\$15 |
| 5371 | Low-noise cable for microelectrode holders | 2 mm gold pin | 2 mm gold pin | 2 ft (0.6 m) | US\$21 |
| 5372 | Low-noise cable for microelectrode holders | 2 mm gold jack | 2 mm gold jack | 2 ft (0.6 m) | US\$22 |
| 5373 | Low-noise cable for microelectrode holders | Combination pin/jack | Combination pin/jack | 2 ft (0.6 m) | US\$24 |
| 5374 | Low-noise cable for microelectrode holders | BNC (male) | 2 mm gold pin | 4 ft (1.2 m) | US\$40 |
| 5375 | Low-noise cable for microelectrode holders | BNC (male) | 2 mm gold jack | 4 ft (1.2 m) | US\$40 |
| 5385 | Cable, shielded transducer stock | none | none | 25 ft (7.6 m) | US\$124 |
| 13324 | Derm-Trode, Iso-Millivoltmeter | Double-banana (female) | BNC (male) | none | US\$28 |
| 13347 | ISO2 (chart recorder adapter) | Double-banana (male) | BNC (female) | none | US\$29 |
| 13388 | Electrode adapter for DAM probes | Miniature banana (male) | 2 mm jack | none | US\$75 |
| 13451 | Adapter: Iso-DAM, Iso-DAM8 | BNC (female) | two 2 mm pins | 6 in. (15 cm) | US\$29 |
| 13555 | Serial Cable (not shown) | DB9 (male) | DB9 (female) | 6 ft (1.8 m) | US\$39 |
| 13620 | Low-noise cable for microelectrode holders | 2 mm gold pin | 2 mm gold jack | 2 ft (0.6 m) | US\$22 |
| 13685 | SP Series pump-to-pump linking cable | Modular phone plug | Modular phone plug | 7 ft (2.1 m) | US\$15 |
| 13776 | Adapts reference electrode to VF4 ground jack | Banana (male) | 2 mm jack | none | US\$15 |
| 13854 | BNC T-connector, male to: | BNC (female) | BNC (female) | none | US\$15 |
| 14254 | BNC Straight Adapter | BNC (female) | BNC (female) | none | US\$15 |
| 15623 | Serial cable and adapter, SP Series pump | SP Pump | IBM 9-pin "D" connector | 5 ft (1.5 m) | US\$39 |
| 15624 | Serial cable and adapter, SP Series pump | SP Pump | Macintosh connector | 5 ft (1.5 m) | US\$39 |
| 15975 | Adapter | 2 mm socket | 1 mm pin | none | US\$15 |
| 15976 | Adapter | 1 mm socket | 2 mm pin | none | US\$15 |
| 300040 | Adapter Extension | 2 mm socket | 2 mm socket | 4 in. (10 cm) | US\$79 |
| 300344 | Cable | DIN | BNC | none | US\$91 |
| 500081 | Adapter IBM PC Comm Port | DB9 (male) | DB9 (female) | none | US\$21 |
| 500082 | Adapter BNC/RCA MM | BNC (female) | RCA (male) | none | US\$9 |
| 300102 | Adapter Extension | 2 mm socket | 0.31 socket | 4 in. (10 cm) | US\$95 |
| 500128 | BNC Zero Ohm Terminator | BNC (male) | none | none | US\$6 |
| 500131 | Cable for Biode® Snap Electrodes (assembly of 5) | 2 mm pin | snap | 39 in. (1 m) | US\$33 |
| 500184 | Standard BNC Cable | BNC (male) | BNC (male) | 10 ft (3 m) | US\$32 |
| 500256 | BNC Right Angle Adapter | BNC (male) | BNC (female) | none | US\$15 |
| 500257 | Standard BNC Cable | BNC (male) | BNC (male) | 6 in. (15 cm) | US\$22 |
| 500258 | Standard BNC Cable | BNC (male) | BNC (male) | 12 in. (30 cm) | US\$22 |
| 500259 | Standard BNC Cable | BNC (male) | BNC (male) | 18 in. (46 cm) | US\$22 |
| 501670 | Coaxial Adapter | Dual Mini-Banana (male) | BNC (female) | none | US\$63 |
| 503301 | Cable, Extension | 8-pin miniDIN (male) | 8-pin miniDIN (female) | 10 ft (3 m) | US\$46 |
| 503536 | Cable, USB | USB (male) | USB (female) | 10 ft (3 m) | US\$33 |
| CBL100 | MiniPhone Patch Cable | 3.5 mm MiniPhone plug | 3.5 mm MiniPhone plug | 6 ft (1.8 m) | US\$16 |
| CBL102 | DAM Series, PM Series | 3.5 mm MiniPhone plug | BNC (male) | 6 ft (1.8 m) | US\$32 |
| POWER CORDS | | | | | |
| 3006 | US 120 V, grounded | IEC Connector | 3-pin (M) US | 6 ft (1.8 m) | US\$21 |
| 3301 | European 240 V, grounded | IEC Connector | 3-pin (M) European | 6 ft (1.8 m) | US\$26 |
| 3302 | British 240 V, grounded | IEC Connector | 3-pin (M) UK | 6 ft (1.8 m) | US\$32 |
| 14088 | Australian 240 V, grounded | IEC Connector | 3-pin (M) Australian | 6 ft (1.8 m) | US\$32 |

#CBL100



#CBL102



#15624



Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.

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FrameWorks

Non-Magnetic Bases, Stainless Steel Rods, & Clamps

These high quality components are made of stainless steel and polymer that resist organic solvents and corrosion. They can be easily assembled to make a stand-alone setup for student labs or to make a complicated frame for research labs.



503081-4 Vertical Surface Mount, M8 Threaded (including three 10-32 mounting screws) (pkg of 4)



503085 Large V-base with M8 Thread Mount



503084 Small V-base with M8 Thread Mount



502190 Heavy Rectangular Base (with M8 thread mount and thumbscrew mount), 23×15.6 cm, 4 lb

503083 Light Rectangular Base (with M8 thread mount and thumbscrew mount), 23×15.6 cm, 0.5 lb

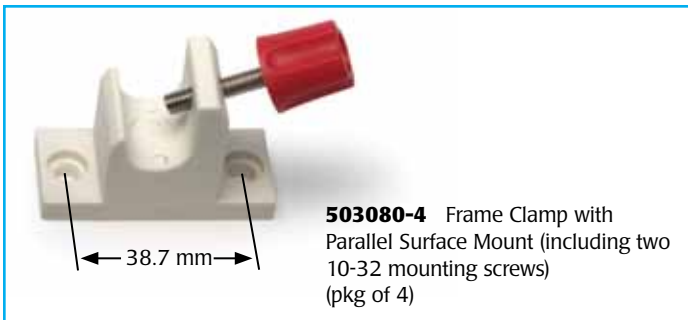
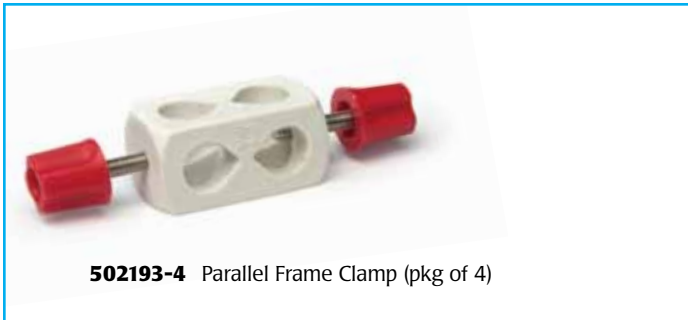
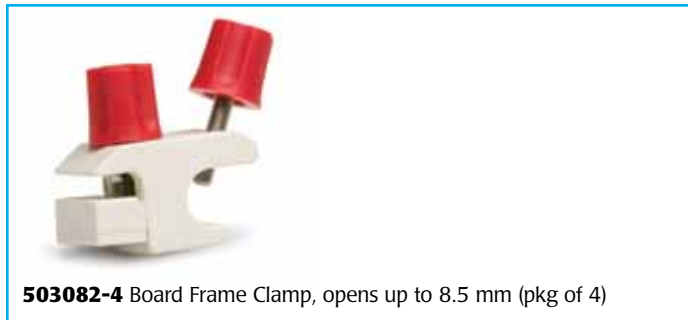


503088-10
Thumbscrew, M5×20 mm (pkg of 10)

- 503070** Polished Stainless Steel Post, 12mm OD, 25cm long, no thread
- 503071** Polished Stainless Steel Post, 12mm OD, 50cm long, no thread
- 503072** Polished Stainless Steel Post, 12mm OD, 75cm long, no thread
- 503073** Polished Stainless Steel Post, 12mm OD, 25cm long, M8 thread
- 502191** Polished Stainless Steel Post, 12mm OD, 50cm long, M8 thread
- 503075** Polished Stainless Steel Post, 12mm OD, 60cm long, M8 thread
- 503076** Polished Stainless Steel Post, 12mm OD, 75cm long, M8 thread
- 503077** Polished Stainless Steel Post, 12mm OD, 80cm long, M8 thread



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g-SPIN™ Microcentrifuge



- Small size with rubber feet keeps the centrifuge stable
- Supplied with interchangeable rotors and adapters for 0.5mL-2.0mL microtubes and PCR strips
- On/off switch lets you start and stop in seconds
- Safety switch stops rotor without cover in place



g-SPIN SPECIFICATIONS

| | |
|---------------|--|
| SPEED RANGE | 6000 rpm, fixed |
| MAX. RCF | 2000× g |
| TUBE CAPACITY | 6 x 0.5/2.0 mL tubes 2 x 0.2 mL strip tubes |
| ROTOR | Fixed angle 6-place 0.5–2.0-mL tubes 2 strips PCR 0.2 mL tubes |
| DIMENSIONS | 6"W x 5"H x 7"D |
| POWER | 110V 60 Hz or 220V 50 Hz |

Also available: 4,000 RPM and 10,000 RPM units – call for details.

| | | |
|--------------------|---|--------------|
| G-SPIN6 | Microcentrifuge, 6000 RPM, 110V 60 Hz | \$286 |
| G-SPIN6-220 | Microcentrifuge, 6000 RPM, 220V 50 Hz, CE | \$286 |
| 503529 | Microcentrifuge tube, 0.5 mL, natural, bag/1,000 | \$45 |
| 503530 | Microcentrifuge tube, 1.5 mL, natural, bag/1,000 | \$56 |
| 503531 | Microcentrifuge tube, 2.0 mL, natural, bag/1,000 | \$56 |
| 503532 | Microcentrifuge tube strips, 0.2 mL, and domed cap strips, bag of 250 | \$216 |
| 503537 | Microcentrifuge tube strips, 0.2 mL, and flat cap strips, bag of 250 | \$216 |

LAB SUPPLIES



MicroFil™

**Nonmetallic
syringe needle for
filling micropipettes**

WPI's MicroFil™ fills micropipettes easily and reliably. Its long and fine tip allows you to start the filling very close to the pipette tip, eliminating both air bubble formation and clogging due to the washing down of dust particles. The transparent amber MicroFil needle is constructed from a combination of plastic and fused silica – no metal components are used. The MicroFil needle can be stored for days with the filling solution inside without clogging.

The MicroFil's tip elasticity is sturdy and very flexible though not unbreakable. Since it is more flexible than stainless steel needles, moderate bending will not block or damage the MicroFil needle. The combination of plastic and fused silica in the MicroFil tip is sturdier than plastic tips, allowing easy and repeated insertions into micropipettes. MicroFil's luer fitting allows easy coupling to syringes and syringe filters.

| | | 1-5 pkgs | 6-10 pkgs |
|------------------|---|---------------|---------------|
| MF34G-5 | MicroFil, 34 ga., 67 mm long (pkg of 5) | US\$56 | US\$45 |
| MF28G-5 | MicroFil, 28 ga., 97 mm long (pkg of 5) | US\$56 | US\$45 |
| MF28G67-5 | MicroFil, 28 ga., 67 mm long (pkg of 5) | US\$56 | US\$45 |

CUSTOM MICROFIL

All MicroFil products, including custom orders, can be shipped immediately. Custom orders for special needs can be made using nine sizes of MicroFil tubing in lengths up to 50 cm – except for CMF90UxxL which has a maximum length of 10 cm because of its high resistance to flow. Quantity discounts available. **Specify length when ordering by inserting the length (in centimeter increments) into the catalog number in place of the XX's.**

| | | |
|------------------|---|----------------|
| CMF20GxxL | MicroFil, 20 Gauge, 700 µm ID, 850 µm OD (pkg of 4) | US\$137 |
| CMF22GxxL | MicroFil, 22 Gauge, 530 µm ID, 700 µm OD (pkg of 4) | US\$137 |
| CMF23GxxL | MicroFil, 23 Gauge, 530 µm ID, 665 µm OD (pkg of 4) | US\$137 |
| CMF26GxxL | MicroFil, 26 Gauge, 320 µm ID, 430 µm OD (pkg of 4) | US\$137 |
| CMF28GxxL | MicroFil, 28 Gauge, 250 µm ID, 350 µm OD (pkg of 4) | US\$137 |
| CMF31GxxL | MicroFil, 31 Gauge, 100 µm ID, 238 µm OD (pkg of 4) | US\$137 |
| CMF34GxxL | MicroFil, 34 Gauge, 100 µm ID, 164 µm OD (pkg of 4) | US\$137 |
| CMF35GxxL | MicroFil, 35 Gauge, 75 µm ID, 144 µm OD (pkg of 4) | US\$137 |
| CMF90UxxL | MicroFil, approx. 36 Gauge, 20 µm ID, 90 µm OD (pkg of 4) | US\$137 |

Prices shown are in U.S. dollars. Actual charges will vary because of import duty, freight, and currency fluctuations. To obtain an exact quotation, contact your WPI office.