Product Catalog

Quality Products for Metallographic Sample Preparation & Analysis
Chairman’s Message

Welcome to the Allied High Tech Products catalog, and to a world of technology, equipment and consumables for metallurgical sample preparation and analysis.

For over 32 years, Allied has been meeting the needs of companies in the materials science, materials manufacturing, aerospace, military, microelectronics, photonics, fiber optics, and research & development industries. We aggressively pursue the advancement of methods and procedures related to each of these industries, and therefore promote close working relationships with hundreds of the world’s leading research universities, laboratories and institutions.

The Allied commitment is simple and complete: we provide our customers the finest and most advanced equipment and consumables for surface and sample preparation, expert technical assistance, and unequalled service, before and after purchase.

Every day. Worldwide.

Our measure of success has always been, and always will be, your complete satisfaction with Allied’s products and services. As you browse our catalog, I invite you to see for yourself the variety of ways Allied can support your pursuit of success. We look forward to helping you get there. Thank you for choosing Allied.

Sincerely,

Robert C. Smith, Chairman & CEO

Allied Headquarters - Rancho Dominguez, CA
5 REASONS TO CHOOSE ALLIED

1 Exceptional quality products and great values
Each Allied product is researched, designed, produced and/or selected by our team of product application specialists, engineers, laboratory technicians and technical experts. We simply don’t sell anything we wouldn’t be proud to use ourselves.

2 Items in stock, ready for immediate shipment
With the largest inventory of its kind, Allied supports customers with prompt, next-day shipment, using the finest transportation sources available, including UPS and FedEx.

3 Service that's always prompt, friendly and personal
You won’t find voice mail at Allied unless you are really looking for it. Our renowned service is always personal, friendly, and helpful.

4 Ordering the way you like
With so many convenient ways to order, making your equipment and consumables purchases has never been easier.

   • Secure order via the Web
   • Phone
   • Fax
   • Email
   • Surface mail

5 Convenient payment options

   • Open account (Net 30 Days)
   • L/C - Letter of Credit
   • EFT - Electronic Funds Transfer
   • Credit Card - Visa®, Mastercard®, or American Express®

Visit us: www.alliedhightech.com

Website Features

- Easy-to-create online accounts
- Equipment “Quote List” function
- Support page with detailed Product Instruction sheets
- Downloadable Safety Data sheets
- “Welcome to Allied” video on the home page, with insider tour of Allied's culture and facility
- “Vertical Integration” video on the home page, detailing Allied’s manufacturing process and product development philosophy
- A robust shopping module for purchase of consumables and equipment accessories
- Detailed “Industry Database” featuring micrographs and innovative Allied equipment related to each industry
- Comprehensive “Application Report” database with the latest sample preparation techniques for a wide variety of materials

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Allied designs and manufactures a complete range of state-of-the-art equipment at its California headquarters.

Engineering

Using the latest 3D CAD design software, a team of dedicated mechanical, electrical and design engineers assures that Allied’s equipment is designed and built for maximum performance and dependability.

Machining Center

In-house precision machining capability allows critical parts processing, rapid prototyping and custom manufacturing.

Manufacturing

Allied designs and manufactures a complete range of state-of-the-art equipment at its California headquarters.

Customer Service

Allied’s commitment to “the ultimate service experience” starts with our friendly and helpful customer service personnel. Our goal is your complete satisfaction!
Applications Laboratory

Allied materials engineers and lab technicians provide product demonstrations and training, develop specialized sample procedures for customers worldwide, and evaluate new products prior to introduction.

Technical Workshops

In scheduled programs, Allied offers technical expertise and training on the latest processes, equipment and consumables.

Warehouse

With the largest inventory of its kind, Allied supports the immediate needs of customers.

Shipping/Receiving

Allied utilizes the finest transportation available to ensure immediate delivery to customers.
The new PowerCut 10x™ is a powerful, reliable, benchtop cut-off saw designed for low to high volume applications. It accommodates blades up to 10” (254 mm) in diameter, allowing a wide variety of sample shapes and sizes up to 3.75” (95 mm) thick to be sectioned. A side port allows cutting of longer samples such as bar stock.

Recirculation system, accessories and consumables are sold separately.

Features:
- 10” (254 mm) diameter blade capacity
- Accepts blades with either 1.25” or 32 mm arbor hole
- Powerful 3.5 HP (2600 W) stainless steel waterproof motor, 3,450 RPM
- Cutting capacity: up to 3.75” (95 mm) bar stock
- 5” (127 mm) distance between blade and motor, allowing larger/larger parts to be sectioned
- Two (2) T-slot tables (4” W x 7.75” D (102 x 197 mm)) to support front-to-back and side-to-side vise/clamp positioning
- Large shatterproof viewing window
- LED illuminated interior
- Corrosion and impact resistant cover
- Sturdy cast aluminum base
- Side port for cutting long samples
- Electronic brake to stop blade at end of operation
- Safety switch to stop blade when cover is lifted
- Emergency shut-off switch
- Dimensions: 24” W x 26” D x 17” H (610 x 660 x 432 mm)
- Weight: 168 lb. (76 kg)
- CE compliant for EU
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

Item | Description
--- | ---
5-4200 | PowerCut 10x™, 230 V, 3-Phase
5-4200-415 | PowerCut 10x™, 415 V, 3-Phase
5-4200-480 | PowerCut 10x™, 480 V, 3-Phase

Accessories:
- 5-4005 Quick-Slide SS Vise: 3.45” Opening x 2” W x 1.95” H (87 x 51 x 49 mm)
- 5-4006 Sample Support Platform, for # 5-4005 Vise
- 5-4050 Vertical Adjusting Clamp, 2.25” (57 mm) Capacity
- 5-4205 Recirculating Coolant System, 7 gal. (26.5 L) Capacity (for 230 & 480 V Systems)
- 5-4205-415 Recirculating Coolant System, 7 gal. (26.5 L) Capacity (for 415 V Systems)
- 5-4205-480 Recirculating Coolant System, 7 gal. (26.5 L) Capacity (for 480 V Systems)
- 5-4230 Cabinet/Stand: 26” W x 31” D x 37” H (660 x 787 x 940 mm)
The **TechCut 5™** precision high speed saw is a versatile, programmable machine designed to cut a wide variety and size of materials. It automatically sections materials at high speeds, increasing sample throughput. The microprocessor-based system controls sample feed rate, distance and force, and automatically adjusts feed rate as the cutting condition changes due to varying thickness and/or material differences in the sample. When sectioning is complete, the table automatically retracts the sample to the home position and stops blade rotation and coolant. The unique fixturing system allows for easy changes between the T-Slot Table and the X-Axis Tables. Both tables offer a variety of convenient table-specific fixture options.

**Tables, accessories and consumables are sold separately.**

### Item Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-5700-ER</td>
<td><strong>TechCut 5™</strong> with External Reservoir, 100-240 V</td>
</tr>
<tr>
<td>5-5700-IR</td>
<td><strong>TechCut 5™</strong> with Internal Reservoir, 100-240 V</td>
</tr>
</tbody>
</table>

### Universal Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>5-5525</td>
<td>Quick-Slide SS Vise, 2&quot; (51 mm) Capacity</td>
</tr>
<tr>
<td>5-5745</td>
<td>Rotational Cutting Attachment with Holders</td>
</tr>
</tbody>
</table>

### T-Slot Table

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-5330</td>
<td>T-Slot Table (7.75&quot; W x 8.25&quot; D (195 x 210 mm)</td>
</tr>
<tr>
<td>5-5350</td>
<td>Clamp Set for up to 0.25&quot; Thick Samples (Pk/4)</td>
</tr>
<tr>
<td>5-4050</td>
<td>Vertical Adjusting Clamp, 2.25&quot; (57 mm) Capacity</td>
</tr>
</tbody>
</table>

### Indexing Tables & Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-5320</td>
<td>X-Axis Table, 25 μm Resolution</td>
</tr>
<tr>
<td>5-5325</td>
<td>X-Axis Table, 5 μm Resolution</td>
</tr>
<tr>
<td>5-5520</td>
<td>Cam-Lock Fixture Adapter</td>
</tr>
<tr>
<td>15-1045</td>
<td>Multipurpose Fixture for #5-5520</td>
</tr>
<tr>
<td>5-5510</td>
<td>Multiposition Vise, 3&quot; (76 mm) Capacity</td>
</tr>
<tr>
<td>5-5730</td>
<td>Z-Axis Stage, 5 μm Resolution</td>
</tr>
<tr>
<td>5-5540</td>
<td>Dicing Rotation Stage, 360° w/ 0.1° Resolution</td>
</tr>
<tr>
<td>5-5555</td>
<td>Saddle Clamp Set (Pk/2)</td>
</tr>
<tr>
<td>5-5560</td>
<td>Teardrop Holder for 25 mm - 2&quot; mounts</td>
</tr>
<tr>
<td>5-5070</td>
<td>Fixture Rotation Stage, 360° w/ 2° Resolution</td>
</tr>
</tbody>
</table>
The TechCut 4™ is a precision low speed saw excellent for cutting smaller, delicate samples that cannot tolerate increased heat caused by high speed sectioning.

The pivoting cutting arm has adjustable weights to apply or counterbalance downward force to the sample during sectioning. Cutting fluid is drawn from the reservoir by the blade to cool the sample. With a 3” to 6” blade range, samples up to 2” thick can be sectioned.

Accessories and consumables are sold separately.

Features:

- Gravity-fed cutting system
- 3-6” (75-150 mm) diameter blade range, 0.5” (12.7 mm) arbor hole
- Variable speed with LED display: 10-500 RPM (10 RPM increments)
- Cutting capacity: 2” (51 mm) thickness
- Micrometer sample indexing, 0.002 mm resolution, 0-25 mm range
- Spring-retractable dressing stick attachment for dressing while sectioning
- Optical shut-off sensor with adjustable stop to control depth of cut
- Precision machined aluminum and stainless steel construction that maximizes corrosion resistance and durability
- 0.06 HP (45 W) motor with durable reduction gearbox for constant high-torque output
- Sliding weights that provide variable sample loading: 0-300 grams
- Touchpad switches to control all functions
- Removable splash shield
- Removable coolant reservoir
- Removable catch screens that prevent sectioned pieces from falling into reservoir
- Dims: 13” W x 15” D x 13” H (330 x 381 x 330 mm)
- Weight: 36 lb. (16 kg)
- C & compliant for EU
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

Accessories:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>5-5005</td>
<td>Teardrop Fixture for 25 mm - 1.5” mounts</td>
</tr>
<tr>
<td>5-5010</td>
<td>V-Block Fixture, 1” (25 mm) Capacity</td>
</tr>
<tr>
<td>5-5015</td>
<td>Bone Fixture</td>
</tr>
<tr>
<td>5-5020</td>
<td>Single Saddle Clamp</td>
</tr>
<tr>
<td>5-5025</td>
<td>Vacuum Fixture, for 27 x 46 mm Glass Slide</td>
</tr>
<tr>
<td>5-5030</td>
<td>Multipurpose Fixture</td>
</tr>
<tr>
<td>5-5035</td>
<td>Dual Saddle Clamp</td>
</tr>
<tr>
<td>5-5040</td>
<td>Swivel Attachment (to adapt other fixtures for angle cutting)</td>
</tr>
<tr>
<td>5-5045</td>
<td>2.5” (63 mm) Flange Set</td>
</tr>
</tbody>
</table>
The TrimSaw 2™ is excellent for rapid sectioning of printed circuit boards, ceramic substrates, electronic packages, excess mounting material and other nonmetals.

Cutting fluid is drawn from the reservoir by the rotating blade and applied to the sample. Using a 6" (150 mm) blade, samples up to 1.6" (41 mm) thick can be sectioned. Optional fixtures slide in the table slot for more precise cutting requirements or when handheld cutting cannot be tolerated.

Features:
- 0.25 HP (190 W) motor, variable speed: 500-3,000 RPM (100 RPM increments)
- 4-6" (100-150 mm) diameter blade range, 0.5" (12.7 mm) arbor hole
- Precision machined aluminum and SS construction for maximum durability
- Plexiglass cover (removable) for safety and splash protection
- Large cutting platform: 6.75" W x 12.5" D (171 x 318 mm) accommodates oversized samples
- Adjustable table rip fence for guided sectioning
- Slotted table to accept fixtures for linear cutting
- Coolant reservoir, 1 gal. (3.8 L) capacity
- Dims: 18" W x 20" D x 11" H (457 x 508 x 279 mm)
- Weight: 35 lb. (15.9 kg)
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

Accessories and consumables are sold separately.

<table>
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<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>5-3000</td>
<td>TrimSaw 2™, 100-240 V</td>
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Accessories:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>5-3005</td>
<td>Miter Guide, Fixed 90°</td>
</tr>
<tr>
<td>5-3010</td>
<td>Multipurpose Fixture</td>
</tr>
</tbody>
</table>

The Diamond Band Saw is a versatile sectioning machine excellent for coarse or non-linear cutting of materials such as printed circuit boards, electronic packages, substrates, polymers and other nonmetals.

Cutting fluid is drawn from the reservoir by the blade and applied to the sample. Durable plastic injection molded construction prevents corrosion.

Features:
- Blade speed: 60 feet per second
- Coolant tank, 1-gallon (3.8 L) capacity
- Durable plastic injection body that prevents corrosion
- Large cutting platform: 12" W x 11" D (305 x 280 mm) for cutting oversized samples
- Tight-radius sectioning for sample extraction from large pieces
- Single-knob blade tension adjustment
- Blade clearance: 5.5" from left, 2.5" high
- Dims: 11" W x 15" D x 18" H (279 x 381 x 457 mm)
- Weight: 20 lb. (9 kg)
- Six (6) month warranty

<table>
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<tr>
<th>Item</th>
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<tbody>
<tr>
<td>70-1500</td>
<td>Diamond Band Saw, 115 V</td>
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<tr>
<td>70-1500-230</td>
<td>Diamond Band Saw, 230 V</td>
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Accessories:

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<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>70-1505</td>
<td>Diamond Plated Blade with PTFE Replacement Guides (Pk/2)</td>
</tr>
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</table>
Wafering Blades

Wafering blades are available in Bonded, Plated or Solid Core configurations with diamond, cubic boron nitride (CBN), aluminum oxide (Al₂O₃) or silicon carbide (SiC) mineral. They are recommended for precision sectioning or when kerf (cut width) loss needs to be minimized.

Bonded Blades

Bonded blades are composed of an inner metal core and an outer rim. The rim consists of either metal or resin mixed with abrasive, cured under high temperature and pressure to bond the matrix together. Metal bonding offers long life and durability, while resin bonding creates less heat, provides better surface finish and is well suited for cutting hard, delicate or brittle materials.

Diamond, Metal Bond

High Concentration
Recommended for general laboratory sectioning, excluding ferrous alloys, at either low (<1,000 RPM) or high (>1,000 RPM) speeds.

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimensions</th>
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<tbody>
<tr>
<td>60-20065</td>
<td>3&quot; x .006&quot; x .5&quot; (76 x .15 x 12.7 mm)</td>
</tr>
<tr>
<td>60-20070</td>
<td>4&quot; x .012&quot; x .5&quot; (102 x .31 x 12.7 mm)</td>
</tr>
<tr>
<td>60-20075</td>
<td>5&quot; x .015&quot; x .5&quot; (127 x .38 x 12.7 mm)</td>
</tr>
<tr>
<td>60-20080</td>
<td>6&quot; x .020&quot; x .5&quot; (152 x .51 x 12.7 mm)</td>
</tr>
<tr>
<td>60-20081</td>
<td>7&quot; x .025&quot; x .5&quot; (178 x .64 x 12.7 mm)</td>
</tr>
<tr>
<td>60-20084</td>
<td>8&quot; x .030&quot; x .5&quot; (203 x .76 x 12.7 mm)</td>
</tr>
</tbody>
</table>

Low Concentration
Recommended for sectioning very hard or brittle materials such as ceramics, silicon, glass and refractories where chipping and pullout need to be minimized. Most commonly used at lower (<1,000 RPM) speeds.

<table>
<thead>
<tr>
<th>Item</th>
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<tbody>
<tr>
<td>60-20085</td>
<td>3&quot; x .006&quot; x .5&quot; (76 x .15 x 12.7 mm)</td>
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<tr>
<td>60-20090</td>
<td>4&quot; x .012&quot; x .5&quot; (102 x .31 x 12.7 mm)</td>
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<tr>
<td>60-20095</td>
<td>5&quot; x .015&quot; x .5&quot; (127 x .38 x 12.7 mm)</td>
</tr>
<tr>
<td>60-20100</td>
<td>6&quot; x .020&quot; x .5&quot; (152 x .51 x 12.7 mm)</td>
</tr>
<tr>
<td>60-20101</td>
<td>7&quot; x .025&quot; x .5&quot; (178 x .64 x 12.7 mm)</td>
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<tr>
<td>60-20104</td>
<td>8&quot; x .030&quot; x .5&quot; (203 x .76 x 12.7 mm)</td>
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</table>

CBN, Metal Bond

Recommended for sectioning hard steel, and iron, cobalt, nickel and lead based alloys. Most commonly used at lower (<1,000 RPM) speeds.

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimensions</th>
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<tbody>
<tr>
<td>60-20069</td>
<td>4&quot; x .020&quot; x .5&quot; (102 x .51 x 12.7 mm)</td>
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<tr>
<td>60-20074</td>
<td>5&quot; x .020&quot; x .5&quot; (127 x .51 x 12.7 mm)</td>
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<tr>
<td>60-20079</td>
<td>6&quot; x .020&quot; x .5&quot; (152 x .51 x 12.7 mm)</td>
</tr>
<tr>
<td>60-20086</td>
<td>7&quot; x .025&quot; x .5&quot; (178 x .64 x 12.7 mm)</td>
</tr>
<tr>
<td>60-20088</td>
<td>8&quot; x .030&quot; x .5&quot; (203 x .76 x 12.7 mm)</td>
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</tbody>
</table>

CBN, Resin Bond

Recommended for sectioning hard steel above HRC 60. Most commonly used at higher (>1,000 RPM) speeds.

<table>
<thead>
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<th>Item</th>
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<tbody>
<tr>
<td>60-30005</td>
<td>5&quot; x .020&quot; x .5&quot; (127 x .51 x 12.7 mm)</td>
</tr>
<tr>
<td>60-30010</td>
<td>6&quot; x .020&quot; x .5&quot; (152 x .51 x 12.7 mm)</td>
</tr>
<tr>
<td>60-30015</td>
<td>7&quot; x .025&quot; x .5&quot; (178 x .64 x 12.7 mm)</td>
</tr>
<tr>
<td>60-30020</td>
<td>8&quot; x .030&quot; x .5&quot; (203 x .76 x 12.7 mm)</td>
</tr>
</tbody>
</table>
Plated Blades

Plated blades consist of a metal core with diamonds nickel plated to the rim. These blades provide aggressive sectioning on samples containing resins and soft materials including PCBs, fiber composites and plastics.

Diamond, Segmented Rim

Recommended for sectioning resin or plastic composites, and other materials where metals are not predominant. The diamond segments draw coolant into the cut and remove swarf effectively. Used at either low (<1,000 RPM) or high (>1,000 RPM) speeds.

Solid core cut-off blades consist of abrasive mineral mixed with resin to form a continuous matrix through the entire blade. Aluminum oxide is recommended for cutting ferrous metals and super alloys, while silicon carbide is best used for cutting non-ferrous metals and alloys. These produce minimal odor, cut cool and are suited for higher-speed sectioning on non-gravity-fed saws. Two arbor sizes are offered.

Resin Bond, 0.5” (12.7 mm) Arbor Hole (Pk/10)

<table>
<thead>
<tr>
<th>Al₂O₃</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous Alloys &lt; HV 450</td>
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<tr>
<td>80-11505</td>
<td>7” x .030” (175 x .76 mm)</td>
</tr>
<tr>
<td>80-11510</td>
<td>8” x .035” (200 x .8 mm)</td>
</tr>
<tr>
<td>Ferrous Alloys HV 450 - 800</td>
<td></td>
</tr>
<tr>
<td>80-11705</td>
<td>7” x .030” (175 x .76 mm)</td>
</tr>
<tr>
<td>80-11710</td>
<td>8” x .035” (200 x .8 mm)</td>
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<tr>
<td>SiC</td>
<td>Dimensions</td>
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<tr>
<td>Non-Ferrous Alloys &lt; HV 450</td>
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<tr>
<td>80-11605</td>
<td>7” x .030” (175 x .76 mm)</td>
</tr>
<tr>
<td>80-11610</td>
<td>8” x .035” (200 x .8 mm)</td>
</tr>
<tr>
<td>Non-Ferrous Alloys HV 450 – 800</td>
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</tr>
<tr>
<td>80-11805</td>
<td>7” x .030” (175 x .76 mm)</td>
</tr>
<tr>
<td>80-11810</td>
<td>8” x .035” (200 x .8 mm)</td>
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</tbody>
</table>

Resin Bond, 1.25” (32 mm) Arbor Hole (Pk/10)

<table>
<thead>
<tr>
<th>Al₂O₃</th>
<th>Dimensions</th>
<th>SiC</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-11300</td>
<td>6” x .024” (150 x .61 mm)</td>
<td>80-11400</td>
</tr>
<tr>
<td>80-11305</td>
<td>7” x .030” (175 x .76 mm)</td>
<td>80-11405</td>
</tr>
<tr>
<td>80-11310</td>
<td>8” x .030” (200 x .76 mm)</td>
<td>80-11410</td>
</tr>
</tbody>
</table>

Cutting Fluids

Cutting fluid enhances blade performance, extends blade life and minimizes material deformation by reducing heat during cutting. Use low speed cutting fluid for gravity-fed saws at full strength. Use oil based cutting fluid or Lubri-Cut for speeds above 1,000 RPM (diluted 2-5% with water). Lubri-Cut has low oil content and is easier to clean.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>80-10130</td>
<td>Lubri-Cut, 128 oz. (3.8 L)</td>
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<tr>
<td>80-10135</td>
<td>Lubri-Cut, 32 oz. (950 mL)</td>
</tr>
<tr>
<td>80-10140</td>
<td>Oil Based, 128 oz. (3.8 L)</td>
</tr>
<tr>
<td>80-10145</td>
<td>Oil Based, 32 oz. (950 mL)</td>
</tr>
<tr>
<td>60-20110</td>
<td>Low Speed, 32 oz. (950 mL)</td>
</tr>
</tbody>
</table>

Dressing Stick, Silicon Carbide

Used to clean the rim and expose new abrasive on all wafering blades.

<table>
<thead>
<tr>
<th>Item</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>60-20105</td>
<td>6” x .5” x .5” (152 x 12.7 x 12.7 mm)</td>
</tr>
</tbody>
</table>
Cut-off blades are specially formulated for metallurgical sectioning. Aluminum oxide (Al₂O₃), silicon carbide (SiC), diamond and cubic boron nitride (CBN) abrasives are offered in various bond types for sectioning a wide variety of materials. Choosing the right blade for the right material is crucial in reducing thermal and structural deformation. Protective metal arbor inserts are molded into resin and rubber/resin blades. Blade arbor holes fit both 32 mm and 1.25" spindle arbors. All blades are precision ground to slightly less than the stated diameter to universally fit all makes and models of cutting machines. Blotters are supplied to shield vibration from the metal flange and help protect the blade from breaking during use.

### Bond Information:

- **Resin Bond** blades cut cooler with less friction and do not emit a burned rubber odor as with rubber bonded blades.
- **Rubber Bond** blades are thinner and ideal for production environments where durability and longer life are desired.
- **Rubber/Resin Bond** blades offer both durability and cooler cutting characteristics.
- **Metal Bond** diamond blades provide longer blade life and durability than resin bonded blades, for less critical surface finish requirements.

#### Sectioning

Cut-off blades are specially formulated for metallurgical sectioning. Aluminum oxide (Al₂O₃), silicon carbide (SiC), diamond and cubic boron nitride (CBN) abrasives are offered in various bond types for sectioning a wide variety of materials. Choosing the right blade for the right material is crucial in reducing thermal and structural deformation. Protective metal arbor inserts are molded into resin and rubber/resin blades. Blade arbor holes fit both 32 mm and 1.25" spindle arbors. All blades are precision ground to slightly less than the stated diameter to universally fit all makes and models of cutting machines. Blotters are supplied to shield vibration from the metal flange and help protect the blade from breaking during use.

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<table>
<thead>
<tr>
<th>Material</th>
<th>Abrasive</th>
<th>Bond</th>
<th>Thickness Inch (mm)</th>
<th>Unit</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool Steels (HRC 60+)</td>
<td></td>
<td>Rubber/Resin</td>
<td>.090&quot; (2.3)</td>
<td></td>
<td>80-30000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resin</td>
<td>.070&quot; (1.8)</td>
<td></td>
<td>80-30001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resin</td>
<td>.070&quot; (1.8)</td>
<td></td>
<td>80-30008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubber</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td>80-30010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.040&quot; (1.0)</td>
<td></td>
<td></td>
<td>80-30015</td>
</tr>
<tr>
<td>Hardened Steels, Super Alloys (HRC 45-60)</td>
<td></td>
<td>Al₂O₃ Resin</td>
<td>.070&quot; (1.8)</td>
<td></td>
<td>80-30023</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubber</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td>80-30025</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.040&quot; (1.0)</td>
<td></td>
<td></td>
<td>80-30030</td>
</tr>
<tr>
<td>Carbon Steels, Medium Hard Steels (HRC 30-45)</td>
<td></td>
<td>SiC Resin</td>
<td>.080&quot; (2.0)</td>
<td></td>
<td>80-30045</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resin</td>
<td>.065&quot; (1.7)</td>
<td></td>
<td>80-30052</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resin</td>
<td>.060&quot; (1.5)</td>
<td></td>
<td>80-30050</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubber</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td>80-30055</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.040&quot; (1.0)</td>
<td></td>
<td></td>
<td>80-30060</td>
</tr>
<tr>
<td>Soft/Annealed Steels</td>
<td></td>
<td>Rubber/Resin</td>
<td>.090&quot; (2.3)</td>
<td></td>
<td>60-30065</td>
</tr>
<tr>
<td>SiC</td>
<td></td>
<td>Metal</td>
<td>.062&quot; (1.6)</td>
<td>Each</td>
<td>60-30070</td>
</tr>
<tr>
<td>SiC</td>
<td></td>
<td>Resin</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td>60-30075</td>
</tr>
<tr>
<td>Soft Non-Ferrous/Al/Cu Alloys</td>
<td></td>
<td>Diamond</td>
<td>.090&quot; (2.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ceramics/Composites</td>
<td></td>
<td>Metal</td>
<td>.062&quot; (1.6)</td>
<td>Each</td>
<td></td>
</tr>
<tr>
<td>Carbides/Fragile Non-Metallics</td>
<td></td>
<td>Resin</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hardened Steels (HRC 60+)</td>
<td></td>
<td>CBN</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**12" (300 mm)**

<table>
<thead>
<tr>
<th>Material</th>
<th>Abrasive</th>
<th>Bond</th>
<th>Thickness Inch (mm)</th>
<th>Unit</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool Steels (HRC 60+)</td>
<td></td>
<td>Resin</td>
<td>.090&quot; (2.3)</td>
<td></td>
<td>80-10001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resin</td>
<td>.090&quot; (2.3)</td>
<td></td>
<td>80-10002</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubber</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td>80-10010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resin</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td>80-10015</td>
</tr>
<tr>
<td>Carbon Steels, Medium Hard Steels (HRC 30-45)</td>
<td></td>
<td>Al₂O₃ Resin</td>
<td>.090&quot; (2.3)</td>
<td>Pk/10</td>
<td>80-10022</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resin</td>
<td>.080&quot; (2.0)</td>
<td></td>
<td>80-10025</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubber</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td>80-10030</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.075&quot; (1.9)</td>
<td></td>
<td></td>
<td>80-10045</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rubber/Resin</td>
<td>.090&quot; (2.3)</td>
<td></td>
<td>80-10035</td>
</tr>
<tr>
<td>Ceramics/Composites</td>
<td></td>
<td>Diamond</td>
<td>.062&quot; (1.6)</td>
<td>Each</td>
<td>60-10040</td>
</tr>
<tr>
<td>Carbides/Fragile Non-Metallics</td>
<td></td>
<td>Resin</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td>60-10045</td>
</tr>
<tr>
<td>Hardened Steels (HRC 60+)</td>
<td></td>
<td>CBN</td>
<td>.062&quot; (1.6)</td>
<td></td>
<td>60-10046</td>
</tr>
</tbody>
</table>

**14" (350 mm)**
The TechPress 3™ Electro-Hydraulic Automatic Mounting Press is used to encapsulate samples for metallographic preparation.

The microprocessor-based system allows two modes of operation: “manual input” or “one-touch programs”, which utilizes a pre-loaded database with 80 adjustable programs including parameters for mold size, single mount or duplexing, mounting resin, curing time and temperature, pressure and cooling time.

It features an intuitive interface using a 7” color LCD touchscreen to control all functions, and has 10 selectable languages.

Mold assemblies may be easily changed from 25 mm through 2 inch, and include a duplexing spacer, allowing up to two mounts per cycle to be produced at one time.

Mold assemblies, recirculating coolant system, consumables and accessories are sold separately.

Features:

- Prepare up to 2 mounts in 5 minutes
- Selectable languages (English, Italian, French, Spanish, Portuguese, German, Russian, Chinese, Japanese, Korean),
- 7” color LCD touchscreen to control all functions
- Intuitive interface optimized for productivity and function
- Safety interlock to require closure of bayonet cap before cycle start
- Selectable units: psi/BAR, °C/°F
- Mold assemblies that can be easily changed from 25 mm through 2”, and include a duplexing spacer, allowing up to two mounts per cycle
- One-touch or momentary-touch ram extension and retraction
- Seamless integration with optional #5-1550 Recirculating Coolant System for standalone and/or “green” operation
- Enclosure resistant to impact, corrosion, and heat
- Non-conductive bayonet handles remain cool during operation
- Bayonet holding tray protects the die from damage between cycles
- Compact, narrow footprint
- Password protectable parameters
- Heating power: 1500 W
- Molding pressure: up to 5500 PSI (379 Bar)
- Curing temperature: 0-200°C (32-392°F)
- Curing time: 0-100 minutes
- Cooling time: 0-100 minutes
- Dims: 11.5” W x 22” D x 19” H (292 x 559 x 483 mm)
- Weight: 85 lb. (38.5 kg)
- CE compliant for EU
- Two (2) year warranty
- Designed and manufactured by Allied in the USA

## Mold/Heater Assemblies

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-1005</td>
<td>1” Mold with Duplex Spacer</td>
</tr>
<tr>
<td>5-1010</td>
<td>1.25” Mold with Duplex Spacer</td>
</tr>
<tr>
<td>5-1015</td>
<td>1.5” Mold with Duplex Spacer</td>
</tr>
<tr>
<td>5-1020</td>
<td>2” Mold with Duplex Spacer</td>
</tr>
<tr>
<td>5-1025</td>
<td>25 mm Mold with Duplex Spacer</td>
</tr>
<tr>
<td>5-1030</td>
<td>30 mm Mold with Duplex Spacer</td>
</tr>
<tr>
<td>5-1035</td>
<td>40 mm Mold with Duplex Spacer</td>
</tr>
<tr>
<td>5-1040</td>
<td>50 mm Mold with Duplex Spacer</td>
</tr>
</tbody>
</table>

## Recirculating Coolant System

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-1550</td>
<td>Recirculating Coolant System, 115 V</td>
</tr>
<tr>
<td>5-1550-230</td>
<td>Recirculating Coolant System, 230 V</td>
</tr>
</tbody>
</table>
Compression Mounting

Compression mounting is an economical method of encapsulating samples that can withstand the pressure and heat of the mounting process. A variety of mounting powders and preforms are available. All powders include a measuring scoop.

**Phenolic**

Black, green and red phenolic powders are used for routine applications, when color coding for material identification, or as backfill for more expensive powders.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>135-10005</td>
<td>Black, 5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>135-10007</td>
<td>Black, 25 lb. (11.5 kg)</td>
</tr>
<tr>
<td>135-10005-B</td>
<td>Black, 250 lb. (113 kg)</td>
</tr>
<tr>
<td>135-10010</td>
<td>Green, 5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>135-10012</td>
<td>Green, 25 lb. (11.5 kg)</td>
</tr>
<tr>
<td>135-10010-B</td>
<td>Green, 250 lb. (113 kg)</td>
</tr>
<tr>
<td>135-10015</td>
<td>Red, 5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>135-10017</td>
<td>Red, 25 lb. (11.5 kg)</td>
</tr>
<tr>
<td>135-10015-B</td>
<td>Red, 250 lb. (113 kg)</td>
</tr>
</tbody>
</table>

**Black Glass-Filled Epoxy**

This very hard epoxy mounting powder with glass fiber filler provides excellent chemical resistance, specimen adhesion and edge retention. Mold release is recommended (see page 20).

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>150-10105</td>
<td>5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>150-10110</td>
<td>25 lb. (11.5 kg)</td>
</tr>
</tbody>
</table>

**Phenolic Preforms**

Phenolic preforms require no measuring, are cleaner than loose powder and easy to use.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>135-20005</td>
<td>Black, for 1.25&quot; or 30 mm Mold (Pk/500)</td>
</tr>
<tr>
<td>135-30005</td>
<td>Black, for 1.5&quot; or 40 mm Mold (Pk/500)</td>
</tr>
<tr>
<td>135-40005</td>
<td>Black, for 2&quot; or 50 mm Mold (Pk/50)</td>
</tr>
<tr>
<td>135-20010</td>
<td>Green, for 1.25&quot; (30 mm) Mold (Pk/500)</td>
</tr>
<tr>
<td>135-30010</td>
<td>Green, for 1.5&quot; or 40 mm Mold (Pk/500)</td>
</tr>
<tr>
<td>135-40010</td>
<td>Green, for 2&quot; or 50 mm Mold (Pk/500)</td>
</tr>
<tr>
<td>135-20015</td>
<td>Red, for 1.25&quot; (30 mm) Mold (Pk/500)</td>
</tr>
<tr>
<td>135-30015</td>
<td>Red, for 1.5&quot; or 40 mm Mold (Pk/500)</td>
</tr>
<tr>
<td>135-40015</td>
<td>Red, for 2&quot; or 50 mm Mold (Pk/100)</td>
</tr>
</tbody>
</table>

**Blue Diallyl Phthalate**

This mounting powder is filled with glass or mineral and provides excellent edge retention and chemical resistance.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>160-10005</td>
<td>Glass-Filled, 5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>160-10010</td>
<td>Mineral-Filled, 5 lb. (2.3 kg)</td>
</tr>
</tbody>
</table>

**Conductive**

These mounting powders are used to make conductive samples for scanning electron microscopy and electrolytic polishing. The copper-based powder provides very good edge retention and should be used for analyzing samples where copper is not a primary constituent. The graphite-based powder offers a higher hardness and is recommended for specimens without carbon as a component.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>155-10010</td>
<td>Copper-Based, 1 lb. (0.45 kg)</td>
</tr>
<tr>
<td>155-20010</td>
<td>Graphite-Based, 1 lb. (0.45 kg)</td>
</tr>
<tr>
<td>155-20015</td>
<td>Graphite-Based, 5 lb. (2.3 kg)</td>
</tr>
</tbody>
</table>

**Transparent Thermoplastic**

This is a clear mounting powder that requires lower compression force and allows easy sample observation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>165-10005</td>
<td>5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>165-10025</td>
<td>25 lb. (11.5 kg)</td>
</tr>
</tbody>
</table>
Cold Mounting

Cold mounting is recommended when encapsulating samples that cannot withstand the heat and pressure of compression mounting, when better flow and penetration of the mounting resin is needed or when a large quantity of samples must be encapsulated at once.

**Acrylics:** Typically used for their rapid cure times, or when large volume sample throughput is needed.

**Epoxies:** Typically used for excellent flow and penetration, or when better adhesion, chemical resistance, less shrinkage and clarity are required.

QuickCure Acrylic

*QuickCure* offers excellent clarity, flow, bonding and grinding characteristics for a wide variety of materials.

**Features:**
- Cure time: 15-20 minutes
- 82 Shore D hardness
- Peak curing temperature: 60 °C/140 °F
- Mixed 2:1 (Powder:Liquid) by volume

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>170-10000</td>
<td>QuickCure Kit</td>
</tr>
<tr>
<td><strong>Includes:</strong></td>
<td>5 lb. powder, two (2) 32 oz. liquid, 50 mixing cups, 50 stir sticks and measuring scoop</td>
</tr>
<tr>
<td>170-10020</td>
<td>2 lb. Powder (0.9 kg)</td>
</tr>
<tr>
<td>170-10005</td>
<td>5 lb. Powder (2.3 kg)</td>
</tr>
<tr>
<td>170-10035</td>
<td>25 lb. Powder (11.5 kg)</td>
</tr>
<tr>
<td>170-10025</td>
<td>32 oz. Liquid (950 mL)</td>
</tr>
<tr>
<td>170-10026</td>
<td>2.5 gal. Liquid (9.5 L)</td>
</tr>
</tbody>
</table>

QuickSet Acrylic

*QuickSet* is used to encapsulate a wide variety of specimens, especially printed circuit boards and other electronic components.

**Features:**
- Cure time: 6-8 minutes
- 84 Shore D hardness
- Excellent hole penetration on PCBs
- Peak curing temperature: 60 °C/140 °F
- Mixed 2:1 (Powder:Liquid) by volume

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>185-10000</td>
<td>QuickSet Kit</td>
</tr>
<tr>
<td><strong>Includes:</strong></td>
<td>5 lb. powder, 64 oz. liquid, 50 mixing cups, 50 stir sticks and measuring scoop</td>
</tr>
<tr>
<td>185-10020</td>
<td>2 lb. Powder (0.9 kg)</td>
</tr>
<tr>
<td>185-10005</td>
<td>5 lb. Powder (2.3 kg)</td>
</tr>
<tr>
<td>185-10030</td>
<td>25 lb. Powder (11.5 kg)</td>
</tr>
<tr>
<td>185-10040</td>
<td>100 lb. Powder (45 kg)</td>
</tr>
<tr>
<td>185-10025</td>
<td>32 oz. Liquid (950 mL)</td>
</tr>
<tr>
<td>185-10010</td>
<td>64 oz. Liquid (1.9 L)</td>
</tr>
<tr>
<td>185-10035</td>
<td>2.5 gal. Liquid (9.5 L)</td>
</tr>
<tr>
<td>185-10036</td>
<td>5 gal. Liquid (19 L)</td>
</tr>
</tbody>
</table>

Pressure Chamber

The use of pressure with acrylics and epoxies prevents the formation of small bubbles (outgassing) caused by elevated exothermic temperatures during hardening. This also produces clearer mounts with better edge retention, improved adhesion and reduced shrinkage. Maximum rating: 35 psi (2.4 bar)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>175-10005</td>
<td>Pressure Chamber</td>
</tr>
<tr>
<td>Dims: 4.75” (120 mm) Diameter x 3.75” (95 mm) Depth</td>
<td></td>
</tr>
</tbody>
</table>
**EpoxyMount**

This fast-curing epoxy hardens in 2 hours at room temperature while still maintaining quality characteristics such as good adhesion, hardness and minimal shrinkage.

**Features:**
- Cure time: 2 hours at room temperature (1.25” diameter x 1” thick)
- Heat (38 °C/100 °F) accelerates cure time to 45 min.
- 87 Shore D hardness
- Peak curing temperature: 66 °C/150 °F
- Mixed 10:3 (Resin:Hardener) by weight

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>145-10005</td>
<td>EpoxyMount Kit</td>
</tr>
<tr>
<td></td>
<td>Includes: 120 oz. resin, 40 oz. hardener, 50 mixing cups, 50 stir sticks and dispensing pump</td>
</tr>
<tr>
<td>145-10010</td>
<td>120 oz. Resin (3.4 kg) with pump</td>
</tr>
<tr>
<td>145-10025</td>
<td>48 oz. Resin (1.4 kg)</td>
</tr>
<tr>
<td>145-10015</td>
<td>40 oz. Hardener (1.1 kg)</td>
</tr>
<tr>
<td>145-10030</td>
<td>16 oz. Hardener (450 g)</td>
</tr>
</tbody>
</table>

**VacuPrep™ Impregnation System**

The VacuPrep™ removes trapped air from uncured epoxy, filling open pores and cavities in samples to provide maximum bonding and support. This maintains sample integrity during abrasive preparation, reducing the chance of cracking or delamination.

**Features:**
- Through-port for optional epoxy fill under vacuum
- Cup holder for mixed epoxy
- Clear top to allow sample viewing during process
- Pulls up to 28 inHg vacuum
- Large 10" x 4.5" (254 x 114 mm) deep chamber; holds up to (30) 1¼” (32 mm) cups
- Stainless steel components that resist corrosive gases
- Quiet, pump-free operation
- Operates with compressed air, 80 psi (5.5 bar)
- Dims: 13” W x 18” D x 6” H (330 x 457 x 152 mm)
- Weight: 21 lb. (9.5 kg)
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>175-30000</td>
<td>VacuPrep™</td>
</tr>
</tbody>
</table>

**EpoxySet**

A very low viscosity epoxy offering excellent flow and penetration. It is extremely hard, crystal clear and exhibits firm adhesion with virtually no shrinkage. Low curing temperature is ideal for heat sensitive samples.

**Features:**
- Cure time: 8 hours at room temperature (1.25” diameter x 1” thick)
- Heat (38 °C/100 °F) accelerates cure time to 2 hours
- 89 Shore D hardness
- Excellent adhesion, with virtually no shrinkage
- Low viscosity allows penetration into small crevices/holes
- Peak curing temperature: 54 °C/130 °F
- Mixed 100:12 (Resin:Hardener) by weight

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>145-20000</td>
<td>EpoxySet Kit</td>
</tr>
<tr>
<td></td>
<td>Includes: 128 oz. resin, 16 oz. hardener, 50 mixing cups, 50 stir sticks and dispensing pump</td>
</tr>
<tr>
<td>145-20005</td>
<td>128 oz. Resin (3.6 kg) with pump</td>
</tr>
<tr>
<td>145-20015</td>
<td>51 oz. Resin (1.5 kg)</td>
</tr>
<tr>
<td>145-20010</td>
<td>16 oz. Hardener (450 g)</td>
</tr>
<tr>
<td>145-20020</td>
<td>7 oz. Hardener (200 g)</td>
</tr>
</tbody>
</table>

**Item**  | **Description** |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>145-10005</td>
<td>EpoxyMount Kit</td>
</tr>
<tr>
<td>145-10010</td>
<td>120 oz. Resin (3.4 kg) with pump</td>
</tr>
<tr>
<td>145-10025</td>
<td>48 oz. Resin (1.4 kg)</td>
</tr>
<tr>
<td>145-10015</td>
<td>40 oz. Hardener (1.1 kg)</td>
</tr>
<tr>
<td>145-10030</td>
<td>16 oz. Hardener (450 g)</td>
</tr>
<tr>
<td>145-20000</td>
<td>EpoxySet Kit</td>
</tr>
<tr>
<td>145-20005</td>
<td>128 oz. Resin (3.6 kg) with pump</td>
</tr>
<tr>
<td>145-20015</td>
<td>51 oz. Resin (1.5 kg)</td>
</tr>
<tr>
<td>145-20010</td>
<td>16 oz. Hardener (450 g)</td>
</tr>
<tr>
<td>145-20020</td>
<td>7 oz. Hardener (200 g)</td>
</tr>
</tbody>
</table>
**PCB Indexing Pins**
PCB pins are used to align through-holes when encapsulating multiple printed circuit board samples in one mount.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>132-10000</td>
<td>1” Length x 0.094” Diameter (Pk/1,000)</td>
</tr>
<tr>
<td>132-10005</td>
<td>41 mm Length x 2 mm Diameter (Pk/500)</td>
</tr>
<tr>
<td>132-10030</td>
<td>43 mm Length x 2 mm Diameter (Pk/500)</td>
</tr>
</tbody>
</table>

**Glass Cover Slips and Slides**
Adhere cover slips to delicate or small samples to support and protect the surface when preparing unencapsulated cross-sections. Use slides for preparing petrographic thin sections or when using vacuum fixtures.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>72-20000</td>
<td>Cover Slip, 18 mm Square (Pk/160)</td>
</tr>
<tr>
<td>72-PS2746</td>
<td>Glass Slide, 27 x 46 mm (Pk/144)</td>
</tr>
</tbody>
</table>

**Stir Sticks & Applicators**
Use stir sticks for mixing epoxy or acrylic components, and applicators for cleaning and applying etchant to samples.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>210-10000</td>
<td>Wood Stir Sticks (Pk/1,000)</td>
</tr>
<tr>
<td>210-30000</td>
<td>Cotton Tipped Applicators, 6” (Pk/1,000)</td>
</tr>
</tbody>
</table>

**Epoxy Dissolver**
The dissolver is a blend of solvents that removes cured epoxy from a specimen when heated.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>145-50210</td>
<td>16 oz. (480 mL)</td>
</tr>
</tbody>
</table>

**Graduated Mixing Cup**
For mixing epoxies or acrylics, the chemical-resistant plastic cup is graduated for volumetric measurement.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>199-10000</td>
<td>6 oz. (180 mL) Capacity (Pk/100)</td>
</tr>
</tbody>
</table>

**Electronic Balance/Scale**
The scale weighs epoxy components with precision.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>145-90000</td>
<td>400 g Capacity, 0.01 g Resolution</td>
</tr>
</tbody>
</table>

**Mold Release**
Release sprays, powder, and liquid prevent hot or cold mounting materials from adhering to the mold.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>200-10005</td>
<td>16 oz. (480 mL) Spray (Hot)</td>
</tr>
<tr>
<td>200-10006</td>
<td>12 oz. (480 mL) PTFE Spray (Hot or Cold)</td>
</tr>
<tr>
<td>200-10010</td>
<td>16 oz. (480 mL) Spray (Cold)</td>
</tr>
<tr>
<td>200-10015</td>
<td>8 oz. (240 mL) PTFE Liquid (Hot or Cold)</td>
</tr>
<tr>
<td>200-10100</td>
<td>2 oz. (60 mL) Powder (Hot)</td>
</tr>
</tbody>
</table>
Sample Holding Clips
A variety of clips hold thin samples on edge for encapsulation. Use metal for compression mounting, and plastic for cold mounting. Clips with stand-offs isolate the sample, eliminating gaps or air bubbles at the clip/sample interface.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>205-10000</td>
<td>Stainless Steel Coil</td>
<td>(Pk/100)</td>
</tr>
<tr>
<td>205-10005</td>
<td>Plastic Coil</td>
<td>(Pk/100)</td>
</tr>
<tr>
<td>205-10050</td>
<td>Plastic Coil</td>
<td>(Pk/1000)</td>
</tr>
<tr>
<td>205-10200</td>
<td>Clear with Stand-Offs</td>
<td>(Pk/100)</td>
</tr>
<tr>
<td>205-10205</td>
<td>Multicolor with Stand-Offs</td>
<td>(Pk/100)</td>
</tr>
</tbody>
</table>

Sample Holding Stands (Pk/100)
These stands hold thin samples on edge for encapsulation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>205-10300</td>
<td>Four (4) 1 mm wide positions</td>
</tr>
<tr>
<td>205-10305</td>
<td>Four (4) 2 mm wide positions</td>
</tr>
<tr>
<td>205-10310</td>
<td>Three (3) 3 mm wide positions</td>
</tr>
</tbody>
</table>

2-Part Mounting Cups
Reusable cup has a separable bottom allowing easy mount removal after curing.

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>197-10000</td>
<td>1” (25 mm)</td>
<td>(Pk/12)</td>
</tr>
<tr>
<td>197-10005</td>
<td>1.25” (32 mm)</td>
<td>(Pk/12)</td>
</tr>
<tr>
<td>197-10010</td>
<td>1.5” (38 mm)</td>
<td>(Pk/12)</td>
</tr>
<tr>
<td>197-10025</td>
<td>25 mm</td>
<td>(Pk/10)</td>
</tr>
<tr>
<td>197-10030</td>
<td>30 mm</td>
<td>(Pk/10)</td>
</tr>
<tr>
<td>197-10040</td>
<td>40 mm</td>
<td>(Pk/10)</td>
</tr>
<tr>
<td>197-10050</td>
<td>50 mm</td>
<td>(Pk/10)</td>
</tr>
</tbody>
</table>

Disposable Mounting Cups (Pk/50)
This economical choice for high-volume mounting requirements has tear-away pull tabs for easy mount removal.

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>198-10000</td>
<td>1.25” (32 mm)</td>
</tr>
<tr>
<td>198-10005</td>
<td>1.6” (41 mm)</td>
</tr>
<tr>
<td>198-10010</td>
<td>1.9” (48 mm)</td>
</tr>
<tr>
<td>198-10015</td>
<td>3.4” (86 mm)</td>
</tr>
</tbody>
</table>

Silicone Mold Cups
Durable, reusable silicone mold cups are for use with epoxy or acrylic mounting materials. See sample holders on page 28-29 for matching size. Other sizes available.

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>197-20005</td>
<td>2” (51 mm) Diameter</td>
</tr>
<tr>
<td>197-20011</td>
<td>1” x 2” (25 x 51 mm) Rectangle</td>
</tr>
<tr>
<td>197-20025</td>
<td>1.3” x 2.6” (33 x 66 mm) Rectangle</td>
</tr>
<tr>
<td>197-20030</td>
<td>1.9” x 1.9” (48 x 48 mm) Square</td>
</tr>
<tr>
<td>197-20050</td>
<td>2” x 3.6” (51 x 91 mm) Rectangle</td>
</tr>
</tbody>
</table>
Kits Include: Mixing cups, spring clips (large and small) and mixing instructions.

Mounting Wax

Clear wax provides a quick and strong bond between samples and fixtures for cutting and/or polishing. It melts at 120 °C (248 °F) and is soluble in acetone.

Sheet wax provides uniform distribution of wax to improve registration accuracy of the sample to the fixture (i.e., dicing applications).

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>71-10040</td>
<td>Hot Mounting Wax, Clear, 50 g Stick</td>
</tr>
<tr>
<td>71-10400</td>
<td>Sheet Wax, 4&quot; Diameter Disc (Pk/50)</td>
</tr>
<tr>
<td>71-10210</td>
<td>Sheet Wax Dissolver, 8 fl. oz. (240 mL)</td>
</tr>
</tbody>
</table>

Mount Storage Cabinet

The cabinet provides storage for polished mounts to prevent corrosion and dust contamination. The 10 cloth-lined drawers absorb moisture and hold mount dividers for easy organization. The locking door provides a sealed environment. Includes rechargeable desiccant canister. Dividers are sold separately.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-8000</td>
<td>Mount Storage Cabinet</td>
</tr>
</tbody>
</table>

Accessories:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-8005</td>
<td>Mount Divider, (144) 1&quot; or 25 mm diameter</td>
</tr>
<tr>
<td>30-8010</td>
<td>Mount Divider, (100) 1.25&quot; or 30 mm diameter</td>
</tr>
<tr>
<td>30-8015</td>
<td>Mount Divider, (61) 1.5&quot; or 40 mm diameter</td>
</tr>
<tr>
<td>30-8020</td>
<td>Mount Divider, (36) 2&quot; or 50 mm diameter</td>
</tr>
</tbody>
</table>

Specifications:

Dimensions: 19" W x 19" D x 19" H (483 x 483 x 483 mm)
Weight: 85 lb. (39 kg)

EpoxyBond 110 is a hard, fast curing epoxy adhesive commonly used to bond glass cover slips to small or delicate samples (i.e., ICs), precoat samples prior to encapsulation, fill small holes/cavities, and for other mounting applications. The two part formula is mixed 10:1 and cures bubble-free in 5 minutes at 150 °C (302 °F). The curing temperature can also be reduced to prevent damage to heat sensitive samples. Once cured, it is chemically resistant to etchants and will not outgas under vacuum.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>71-10000</td>
<td>EpoxyBond 110, 0.5 oz. (15 mL) Kit</td>
</tr>
<tr>
<td>71-10005</td>
<td>EpoxyBond 110, 4 oz. (120 mL) Kit</td>
</tr>
</tbody>
</table>

TEM/FIB Sample Adhesives

M-Bond 610 is excellent for adhering multiple samples for TEM dimpling and bonding of post-polished samples to grids for TEM and FIB observation. It is chemically resistant and provides a very thin glue line that ion mills evenly.

LocTite® 460™ is a thin, fast curing glue used as an alternative to wax for adhering samples to Pyrex® for TEM/FIB thinning and other applications, and is soluble in acetone.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>71-20000</td>
<td>M-Bond 610, 25 g Systems (Pk/4)</td>
</tr>
<tr>
<td>71-40045</td>
<td>LocTite® 460™ Liquid, 20 g tube</td>
</tr>
</tbody>
</table>

Shown with door removed for visual clarity.
The MetPrep™ and DualPrep™ grinding and polishing machines, with the PH™ line of power heads, are powerful systems for semiautomatic operation, ideal for low to high volume sample preparation requirements. A wide variety of combinations provides ideal solutions that accommodate any lab, application or material.

Intuitive menu navigation with user-friendly touchpad interface and backlit LCD make them easy to use and program. The microprocessor based system allows up to 25 programmable steps, including parameters for platen speed, comp/contra rotation (sample holder/platen), cycle time, fluid selection, sample force (LbF or N), sample rotation speed, water rinse and force reduction (on/off, %).

A “Procedure Development” mode allows in-process adjustments to platen speed, sample force and sample rotation speed to determine optimum parameters. Jog mode enables convenient variable speed platen rotation without activating the power head to allow initial charging of cloths or manual grinding/polishing.

Either standard or magnetic platens may be used with any plain/adhesive backed or magnetic system disc.

Standard/magnetic platens (see pages 34 & 35) and consumables are sold separately.

Grinder/Polisher Features:

- Programmable up to 25 grinding/polishing steps, including parameters for force mode, platen speed, comp/contra rotation (sample holder/platen), cycle time, fluid selection, sample force (LbF or N), sample rotation speed, water rinse and force reduction (on/off, %)
- Variable platen and jog speed in 10 RPM increments (see RPM specifications in chart on page 26)
- Variable cycle time: 0-120 minutes (15 second increments)
- Seamless integration with optional AD-5™ Fluid Dispenser for automatic operation
- Powerful motors with constant high torque output
- Electronic coolant control with adjustable flow control valve(s)
- Touchpad switches to control all functions
- Sturdy RIM, aluminum and stainless steel construction
- Overflow diversion to protect internal components
- Emergency shut-off switch
- CE compliant for EU
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

NEW!
The PH-3™, PH-4™ and PH-6™ power heads offer maximum versatility for low to high volume semi-automatic sample preparation, using either central or individual sample force modes. The pneumatic-electric system provides controlled sample force and allows up to 12 samples to be prepared simultaneously, depending on power head, mount diameter and holder size. The unique tilt-up design allows easy, unhindered access to the sample holder and platen, and eliminates the need to reposition the head during the preparation procedure.

Sample loading fixtures and holders are sold separately (see pages 28 & 29).

**Power Head Features:**

- Soft-start/stop force control
- Unique tilt-up feature for easy access to platen and holder
- Safety sensor that stops operation if power head is tilted up
- Simple push-button attachment and removal of sample holders
- Quick-lock system to allow sample holder positioning across entire platen surface
- 0.25 HP (190 W) motor with durable reduction gearbox for constant high torque output
- Variable rotation speed: 0-150 RPM (10 RPM increments)
- Comp and contra rotation
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

**PH-6™ individual force configuration:** six (6) individual pistons apply force to each mount (1.5" mounts shown).
Grinder/Polisher Specifications

<table>
<thead>
<tr>
<th></th>
<th>MetPrep 3™</th>
<th>MetPrep 4™</th>
<th>DualPrep 3™</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>100-240</td>
<td>115</td>
<td>230</td>
</tr>
<tr>
<td>Power (HP)</td>
<td>0.5</td>
<td>1.5</td>
<td>2</td>
</tr>
<tr>
<td>Power (W)</td>
<td>375</td>
<td>1100</td>
<td>1500</td>
</tr>
<tr>
<td>Platen/Jog RPM</td>
<td>40-600</td>
<td>50-400</td>
<td>40-600</td>
</tr>
</tbody>
</table>

Power Head Specifications

<table>
<thead>
<tr>
<th></th>
<th>PH-3™</th>
<th>PH-4™</th>
<th>PH-6™</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM</td>
<td>0-150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power (HP)</td>
<td></td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Power (W)</td>
<td></td>
<td></td>
<td>190</td>
</tr>
<tr>
<td>Individual Force</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Samples</td>
<td>1-3</td>
<td>1-4</td>
<td>1-6</td>
</tr>
<tr>
<td>Force (LbF)</td>
<td>0-16</td>
<td>up to 22</td>
<td>0-22</td>
</tr>
<tr>
<td>Force (N)</td>
<td>0-70</td>
<td>up to 96</td>
<td>0-96</td>
</tr>
<tr>
<td>Mount Size Capacity</td>
<td>2” (51 mm)</td>
<td>2” (51 mm)</td>
<td>2” (51 mm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PH-3™</th>
<th>PH-4™</th>
<th>PH-6™</th>
</tr>
</thead>
<tbody>
<tr>
<td>RPM</td>
<td>0-150</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power (HP)</td>
<td></td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>Power (W)</td>
<td></td>
<td></td>
<td>190</td>
</tr>
<tr>
<td>Individual Force</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Samples</td>
<td>1-3</td>
<td>1-4</td>
<td>1-6</td>
</tr>
<tr>
<td>Force (LbF)</td>
<td>0-16</td>
<td>up to 22</td>
<td>0-22</td>
</tr>
<tr>
<td>Force (N)</td>
<td>0-70</td>
<td>up to 96</td>
<td>0-96</td>
</tr>
<tr>
<td>Mount Size Capacity</td>
<td>2” (51 mm)</td>
<td>2” (51 mm)</td>
<td>2” (51 mm)</td>
</tr>
</tbody>
</table>

MetPrep 3™ / PH-3™ System, 8” or 10” Platen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-2600</td>
<td>MetPrep 3™ / PH-3™, 100-240 V</td>
</tr>
<tr>
<td>5-2700</td>
<td>MetPrep 3™ / PH-4™, 100-240 V</td>
</tr>
<tr>
<td></td>
<td>Dims: 15” W x 27” D x 23” H (381 x 686 x 584 mm)</td>
</tr>
<tr>
<td></td>
<td>Weight: 148 lb. (67 kg)</td>
</tr>
</tbody>
</table>

MetPrep 4™ / PH™ Systems, 10” or 12” Platen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6500</td>
<td>MetPrep 4™ / PH-4™, 115 V</td>
</tr>
<tr>
<td>5-6500-230</td>
<td>MetPrep 4™ / PH-4™, 230 V</td>
</tr>
<tr>
<td>5-6600</td>
<td>MetPrep 4™ / PH-6™, 115 V</td>
</tr>
<tr>
<td>5-6600-230</td>
<td>MetPrep 4™ / PH-6™, 230 V</td>
</tr>
<tr>
<td></td>
<td>Dims: 24” W x 28” D x 24” H (610 x 711 x 610 mm)</td>
</tr>
<tr>
<td></td>
<td>Weight: 225 lb. (102 kg)</td>
</tr>
</tbody>
</table>

DualPrep 3™ / PH™ Systems, 8” or 10” Platen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-9500</td>
<td>DualPrep 3™ / PH-3™, 100-240 V</td>
</tr>
<tr>
<td>5-9600</td>
<td>DualPrep 3™ / PH-4™, 100-240 V</td>
</tr>
<tr>
<td></td>
<td>Dims: 31” W x 27” D x 23” H (780 x 686 x 584 mm)</td>
</tr>
<tr>
<td></td>
<td>Weight: 214 lb. (97 kg)</td>
</tr>
</tbody>
</table>
E-Prep 4™ Grinding & Polishing System

The E-Prep 4™ grinding and polishing machine, with the PH-4i™ power head, is a simple yet powerful system for semiautomatic operation, ideal for low to high volume sample preparation requirements. The user-friendly manual and touchpad interface makes it easy to adjust settings and operate. Basic controls allow quick changes to parameters such as sample force, cycle time, platen speed and sample speed.

Either standard or magnetic 8”/203 mm or 10”/254 mm platens may be used with any plain/adhesive backed or magnetic system disc.

**Durable**: Engineered and constructed using precision machined, hard-anodized aluminum and stainless steel components to provide maximum longevity.

**Easy to Use**: Straightforward controls and user-friendly functions allow quick, easy, repeatable operation.

*Standard/magnetic platens and sample holders are sold separately.*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-2400</td>
<td>E-Prep 4™ / PH-4i™, 100-240 V</td>
</tr>
<tr>
<td></td>
<td>Dims: 15” W x 26” D x 25” H (381 x 660 x 635 mm)</td>
</tr>
<tr>
<td></td>
<td>Weight: 148 lb. (67 kg)</td>
</tr>
</tbody>
</table>

**Features:**

- Manual and touchpad switches to control key functions
- Sturdy RIM, aluminum and stainless steel construction
- Powerful 0.5 HP (375 W) high torque DC motor
- Selectable platen speeds: 150, 300 and 600 RPM
- Variable cycle time: 30, 60 and 90 seconds; 2-9 minutes (1 minute increments)
- Quick-change platen design, anodized to resist wear and corrosion
- Molded one-piece corrosion and impact resistant enclosure with overflow diversion to protect internal components
- Adjustable, manual force control
- Electronic coolant control with adjustable flow control valve
- Retractable coolant nozzle that allows quick and easy sample/bowl cleaning
- Emergency shut-off switch
- CE compliant for EU
- Two (2) year warranty
- Designed & manufactured by Allied in the USA 🇺🇸
Individual Force Holders

Individual force holders allow one or more samples to be prepared simultaneously. The advantage of individual preparation is that it allows removal of any number of samples from the grinding/polishing operation without affecting balance of the system. It is also ideal for applications where small geometry and site-specific cross-section requirements make alignment of more than three (3) samples to a common plane extremely challenging.

Single Diameter Mount

This individual force holder utilizes spacer rings for specific diameter mounts. Rings can be mixed or matched for maximum versatility. The three (3) position holder is used with the PH-3™ power head. The four (4) and six (6) position holders are used with the PH-4™ / PH-4i™ and PH-6™ power heads, respectively. Rings are sold individually.

<table>
<thead>
<tr>
<th>Mount Diameter</th>
<th>PH-3™ (3 position)</th>
<th>PH-4™ / 4i™ (4 position)</th>
<th>PH-6™ (6 position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot; / 25 mm</td>
<td>5-3835</td>
<td>5-3735</td>
<td>5-3935</td>
</tr>
<tr>
<td>30 mm</td>
<td>5-3840</td>
<td>5-3740</td>
<td>5-3940</td>
</tr>
<tr>
<td>1.25&quot;</td>
<td>5-3845</td>
<td>5-3745</td>
<td>5-3945</td>
</tr>
<tr>
<td>1.5&quot;</td>
<td>5-3850</td>
<td>5-3750</td>
<td>5-3950</td>
</tr>
<tr>
<td>40 mm</td>
<td>5-3855</td>
<td>5-3755</td>
<td>5-3955</td>
</tr>
<tr>
<td>50 mm</td>
<td>5-3860</td>
<td>5-3760</td>
<td>5-3960</td>
</tr>
<tr>
<td>2&quot;</td>
<td>5-3865</td>
<td>5-3765</td>
<td>5-3965</td>
</tr>
</tbody>
</table>

Variable Diameter Mount

This individual force holder utilizes spacer rings for specific diameter mounts. Rings can be mixed or matched for maximum versatility. The three (3) position holder is used with the PH-3™ power head. The four (4) and six (6) position holders are used with the PH-4™ / PH-4i™ and PH-6™ power heads, respectively. Rings are sold individually.

<table>
<thead>
<tr>
<th>Holder</th>
<th>PH-3™ (3 position)</th>
<th>PH-4™ / 4i™ (4 position)</th>
<th>PH-6™ (6 position)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot; / 25 mm Ring</td>
<td>5-3X35-40</td>
<td>5-3X35-50</td>
<td>5-3X35-50</td>
</tr>
<tr>
<td>30 mm Ring</td>
<td>5-3X40-40</td>
<td>5-3X40-50</td>
<td>5-3X40-50</td>
</tr>
<tr>
<td>1.25&quot; Ring</td>
<td>5-3X45-40</td>
<td>5-3X45-50</td>
<td>5-3X45-50</td>
</tr>
<tr>
<td>1.5&quot; Ring</td>
<td>5-3X50-40</td>
<td>5-3X50-50</td>
<td>5-3X50-50</td>
</tr>
<tr>
<td>40 mm Ring</td>
<td>-</td>
<td>5-3X55-50</td>
<td>5-3X55-50</td>
</tr>
</tbody>
</table>
**Central Force Holders**

Central force holders secure mounts/samples on a common plane. A minimum of three (3) samples must be prepared at once for balance.

**Teardrop holders** allow flexibility in the shape and size of the sample that can be held. A setscrew secures each sample.

**Dual-cavity holders** feature a single tightening point, which is useful for rapid insertion and removal of either one or two round or irregular shaped specimens per cavity.

*Custom shapes and sizes are available upon request.*

### 140 mm Diameter, for 8", 10" or 12" Platens

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-3301</td>
<td>Continuous Surface, for Wax or Tape, with Heating Stage</td>
</tr>
<tr>
<td>5-3330</td>
<td>(6) 25 mm - 1.25&quot; Samples, Teardrop</td>
</tr>
<tr>
<td>5-3340</td>
<td>(5) 25 - 40 mm Samples, Teardrop</td>
</tr>
<tr>
<td>5-3345</td>
<td>(3) 25 - 40 mm Samples, Teardrop</td>
</tr>
<tr>
<td>5-3361</td>
<td>(6) 25 mm - 1.25&quot; Samples, Dual-Cavity</td>
</tr>
<tr>
<td>5-3380</td>
<td>Sample Loading/Unloading Fixture, for 5-33XX Series</td>
</tr>
</tbody>
</table>

### 160 mm Diameter, for 10" or 12" Platens

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-3401</td>
<td>Continuous Surface, for Wax or Tape, with Heating Stage</td>
</tr>
<tr>
<td>5-3435</td>
<td>(6) 25 mm - 1.5&quot; Samples, Teardrop</td>
</tr>
<tr>
<td>5-3440</td>
<td>(3) 25 mm - 2&quot; Samples, Teardrop</td>
</tr>
<tr>
<td>5-3445</td>
<td>(9) 25 mm - 1.25&quot; Samples, Teardrop</td>
</tr>
<tr>
<td>5-3460</td>
<td>(8) 25 mm - 1.25&quot; Samples, Dual-Cavity</td>
</tr>
<tr>
<td>5-3461</td>
<td>(6) 30 - 40 mm Samples, Dual-Cavity</td>
</tr>
<tr>
<td>5-3466</td>
<td>(3) 1.25&quot; x 2&quot; (32 x 51 mm) Capacity, Clamp Style</td>
</tr>
<tr>
<td>5-3490</td>
<td>(5) 1.2&quot; x 2.1&quot; (30 x 53 mm) Rectangles</td>
</tr>
<tr>
<td>5-3491</td>
<td>(3) 1.6&quot; x 2.7&quot; (40 x 68 mm) Rectangles</td>
</tr>
<tr>
<td>5-3494</td>
<td>(3) 2&quot; x 2&quot; (51 x 51 mm) Squares</td>
</tr>
<tr>
<td>5-3480</td>
<td>Sample Loading/Unloading Fixture, for 5-34XX Series</td>
</tr>
</tbody>
</table>

### 200 mm Diameter, for 12" Platens

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-3601</td>
<td>Continuous Surface, for Wax or Tape, with Heating Stage</td>
</tr>
<tr>
<td>5-3605</td>
<td>(12) 25 mm - 1.25&quot; Samples, Dual-Cavity</td>
</tr>
<tr>
<td>5-3635</td>
<td>(6) 25 mm - 2&quot; Samples, Teardrop</td>
</tr>
<tr>
<td>5-3650</td>
<td>(3) 2.1&quot; x 3.7&quot; (53 x 94 mm) Rectangles</td>
</tr>
<tr>
<td>5-3661</td>
<td>(8) 30 - 40 mm Samples, Dual-Cavity</td>
</tr>
<tr>
<td>5-3662</td>
<td>(6) 1.5&quot; - 2&quot; Samples, Dual-Cavity</td>
</tr>
<tr>
<td>5-3680</td>
<td>Sample Loading/Unloading Fixture, for 5-36XX Series</td>
</tr>
</tbody>
</table>
The **MultiPrep™ System** is a programmable machine that enables precise semiautomatic sample preparation of a wide range of materials for microscopic (optical, SEM, FIB, TEM, AFM, etc.) evaluation.

Capabilities include parallel polishing, angle polishing, site-specific polishing or any combination thereof. It provides reproducible results by eliminating inconsistencies between users, regardless of their skill.

Dual micrometers (pitch and roll) allow precise sample tilt adjustments relative to the abrasive plane. A rigid Z-indexing spindle maintains the predefined geometric orientation throughout the grinding/polishing process. Digital indicators enable quantifiable material removal, which can be monitored real-time, or preset for unattended operation. Variable speed rotation and oscillation maximize use of the entire grinding/polishing disc and minimize artifacts. Adjustable load control expands its capability to handle a range of small (delicate) to large samples.

**MultiPrep™ Systems**

A wide variety of fixtures and accessories are available for either 8” or 12” platen systems. The cam-locking interface offers tool-free attachment and removal for ease of use.

**Accessories**

- **#15-1005** Cam-Lock Adapter for cross-sectioning/thinning paddles
- **#15-1010** Cross-Sectioning Paddle
- **#15-1010-RE** Cross-Sectioning Paddle with Reference Edge
- **#15-1013** TEM Wedge/FIB Thinning Paddle
- **#15-1014** TEM Wedge/FIB Thinning Fixture
- **#15-1018** SIMS/TEM Thinning Fixture
- **#15-1020** Parallel Polishing Fixture, 2.25” (57 mm)
- **#15-1020-80 or 15-1020-100** Parallel Polishing Fixture, 80 or 100 mm
- **#15-1025** Teardrop Fixture, 40 mm Mount Capacity
- **#15-1035** Weight Kit
- **#15-1045** Multipurpose Fixture, 2” Wide
- **#15-1047** Multipurpose Fixture, 1” Wide
- **#15-1050** Cross-Sectioning Paddle, Clamp Style
- **#15-ACMPF** MultiPrep Assorted Accessory/Fixture Set
- **#120-30015** Digital Indicator Measurement System
Positioning Features:
- Larger scaled positioning device and higher torque rotation/oscillation motors for preparation of larger or multiple samples exceeding an area of 1,600 mm².
- Front digital indicator to display real-time material removal (sample advancement) with zeroing function, 1 µm resolution
- Precision spindle that indexes the sample perpendicular to the platen, and can rotate simultaneously
- Dual axis, micrometer controlled angular positioning of the sample (pitch and roll): +10° / -2.5° range (0.02 ° increments)
- Rear digital indicator to display vertical positioning (static) with zeroing function, 1 µm resolution
- Automatic sample oscillation, adjustable sweep with 8 speeds
- Full or limited automatic sample rotation with 8 speeds
- Cam-locking system that eliminates the need for tools and allows for precise repositioning of fixtures
- Variable sample load: 0-600 g (100 g increments)

Grinder/Polisher Features:
- Variable platen speed: 5-350 RPM (5 RPM increments)
- 7” color LCD touchscreen with keypad entry to control all functions
- Intuitive interface optimized for productivity and function
- Seamless integration with optional #5-7100 AD-5™ Fluid Dispenser for automatic operation
- 0.5 HP (375 W), high-torque motor
- Stable aluminum and stainless steel construction
- Timer for count-up or countdown operation
- Clockwise/counterclockwise platen rotation
- Electronic coolant control with adjustable valve
- Retractable coolant nozzle to allow quick and easy sample/bowl cleaning
- Emergency shut-off switch
- Compliant for EU
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

MultiPrep™ System, 8” Platen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-2200</td>
<td>MultiPrep™ System, 8”, 100-240 V</td>
</tr>
<tr>
<td>15-2200-TEM</td>
<td>MultiPrep™ TEM System, 8”, 100-240 V</td>
</tr>
</tbody>
</table>

Dims: 15” W x 27” D x 22” H (381 x 685 x 560 mm)
Weight: 95 lb. (43 kg)

(TEM systems have an O-ring spindle drive for smaller, delicate samples.)

8” Platen Options:
- 10-1005 Precision Platen, 8” (203 mm)
- 10-1005M Magnetic Platen, 8” (203 mm)

MultiPrep™ System, 12” Platen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-2200-12</td>
<td>MultiPrep™ System, 12”, 100-240 V</td>
</tr>
</tbody>
</table>

Dims: 22” W x 28” D x 24” H (560 x 711 x 610 mm)
Weight: 125 lb. (57 kg)

(12” systems have a scaled positioning device and higher torque rotation/oscillation motors for preparation of larger or multiple samples exceeding an area of 1,600 mm².)

12” Platen Options:
- 10-1010 Precision Platen, 12” (305 mm)
- 10-1010M Magnetic Platen, 12” (305 mm)
M-Prep™ & TwinPrep 5™ Grinding/Polishing Machines

The M-Prep™ and TwinPrep™ grinding/polishing machines are designed for manual sample preparation. Powerful motors provide constant high torque output throughout the speed range, displayed from either 10-500 or 20-990 RPM. Touchpad controls activate coolant flow (adjustable) and start/stop. The stable, corrosion resistant RIM, aluminum and stainless steel construction ensures maximum durability. Dual motors on the TwinPrep 5™ allow both platens to rotate independently. Standard/magnetic platens (see pages 34 & 35) and consumables are sold separately.

Features:

- Variable speed with digital display: either 10-500 or 20-990 RPM (10 RPM increments)
- Touchpad switches control run/stop and coolant functions
- Powerful 0.5 HP (375 W) DC motors that provide constant high torque output
- Dual motors on the TwinPrep 5™ allow both platens to rotate independently
- Sturdy RIM, aluminum and stainless steel construction
- Corrosion/impact resistant cover
- Overflow diversion to protect internal components
- Quick-change platen design, anodized to resist wear and corrosion
- Low profile, tabletop design
- Electronic coolant control with adjustable flow control valve(s)
- Retractable coolant nozzle(s) that allows quick and easy sample/bowl cleaning
- CE compliant for EU
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

M-Prep 5™ Grinder/Polisher, 8" or 10" Platen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-2200</td>
<td>M-Prep 5™, 100-240 V, 10 - 500 RPM</td>
</tr>
<tr>
<td>5-2200-M</td>
<td>M-Prep 5™, 100-240 V, 20 - 990 RPM</td>
</tr>
<tr>
<td></td>
<td>Dims: 15&quot; W x 26&quot; D x 9&quot; H (381 x 660 x 230 mm) Weight: 66 lb. (30 kg)</td>
</tr>
</tbody>
</table>

M-Prep 6™ Grinder/Polisher, 10" or 12" Platen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6200</td>
<td>M-Prep 6™, 100-240 V, 10 - 500 RPM</td>
</tr>
<tr>
<td>5-6200-M</td>
<td>M-Prep 6™, 100-240 V, 20 - 990 RPM</td>
</tr>
<tr>
<td></td>
<td>Dims: 22&quot; W x 27&quot; D x 10.5&quot; H (560 x 690 x 267 mm) Weight: 101 lb. (45 kg)</td>
</tr>
</tbody>
</table>

TwinPrep 5™ Grinder/Polisher, 8" or 10" Platen

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-7600</td>
<td>TwinPrep 5™, 100-240 V, 10 - 500 RPM</td>
</tr>
<tr>
<td>5-7600-M</td>
<td>TwinPrep 5™, 100-240 V, 20 - 990 RPM</td>
</tr>
<tr>
<td></td>
<td>Dims: 31&quot; W x 26&quot; D x 9.5&quot; H (780 x 660 x 240 mm) Weight: 136 lb. (62 kg)</td>
</tr>
</tbody>
</table>
The MetPrep 1™ grinding/polishing machine is excellent for manual preparation for standard applications, or when polishing delicate samples using handheld tools with lapping films. It features digital control of all operations including run/stop, platen speed, platen direction and coolant flow. Platen rotation speed ranges from 5-350 RPM, in either clockwise or counterclockwise direction, with smooth, consistent low-end torque. Accepts 8” or 10” platens.

**Features:**
- Variable platen and jog speed: 5-350 RPM (5 RPM increments)
- Powerful 0.5 HP (375 W) high torque motor
- Sturdy RIM, aluminum and stainless steel construction
- Clockwise/counterclockwise platen rotation
- Touchpad switches to control all functions
- Electronic coolant control with adjustable valve
- Retractable coolant nozzle to allow quick and easy sample/bowl cleaning
- CE compliant for EU
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

**Item** | **Description**
--- | ---
5-2300 | MetPrep 1™, 100-240 V

Dims: 15” W x 26” D x 9” H (381 x 660 x 230 mm)
Weight: 66 lb. (30 kg)

**Precision/standard/magnetic platens (see pages 31, 34 & 35) and consumables are sold separately.**

**TEM Wedge Polisher**

This polisher for thinning materials to electron transparency for TEM observation has rear micrometer heads that allow radial or axial (wedge) angle adjustments to the sample.

Non-rotating micrometer heads are available to eliminate faceting of Delrin® feet. The cross-sectioning and Pyrex® paddles attach using a cam-locking system, allowing quick, easy removal for sample inspection and exact repositioning throughout the polishing procedure. The small Pyrex® footprint reduces planarization time.

**Features:**
- Lightweight anodized aluminum body for corrosion resistance
- Cam-lock lever that can be mounted on the right or left side according to operator’s preference
- Low profile fixtures that fit under microscope objectives
- Aluminum cross-sectioning paddle that fits into most SEMs without the need to demount the sample

**Item** | **Description**
--- | ---
69-42000 | TEM Wedge Polisher Kit with Low Profile Micrometer Heads
69-42005 | TEM Wedge Polisher Kit with Non-Rotating Micrometer Heads

**Cross-Sectioning Tool**

This tool is used to cross-section small, unencapsulated samples such as ICs and other electronic devices. Its unique design is stable, well-balanced and has a low center of gravity to avoid rocking during polishing. Adjustable PTFE feet are used to align the sample with the desired polishing plane.

The cross-sectioning paddle is attached using a cam-locking system, allowing quick, easy removal for sample inspection and exact repositioning throughout the polishing procedure.

**Item** | **Description**
--- | ---
69-50000 | Cross-Sectioning Tool Kit
**Standard Platens & Accessories**

### Standard Platens

Standard aluminum platens are precision lapped parallel, then hard anodized for maximum wear resistance. They are used with adhesive backed discs, double sided adhesive discs and paper holding bands, or when converting to a magnetic platen using magnetic bases.

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-2005</td>
<td>8” (203 mm)</td>
</tr>
<tr>
<td>5-6010</td>
<td>10” (254 mm)</td>
</tr>
<tr>
<td>5-6005</td>
<td>12” (305 mm)</td>
</tr>
</tbody>
</table>

### Disc Holding Bands

Disc holding bands are made of anodized aluminum and secure plain back discs to a standard platen. A protrusion around the top of the band allows variable sized discs (± 3 mm) to be secured.

### Double Sided Adhesive Discs (Pk/10)

Double sided adhesive discs are adhered to a standard platen and used to secure plain back silicon carbide abrasive discs. Each provides 25-75 disc pulls depending on grit size, cycle time and force.

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>52-10005</td>
<td>8” (203 mm)</td>
</tr>
<tr>
<td>52-10003</td>
<td>10” (254 mm)</td>
</tr>
<tr>
<td>52-10000</td>
<td>12” (305 mm)</td>
</tr>
</tbody>
</table>

### Magnetic Bases

Adhesive backed magnetic bases adhere to standard platens, allowing magnetic system cloths/abrasive discs or ferromagnetic discs to be utilized (see page 35).

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-208300</td>
<td>8” (203 mm)</td>
</tr>
<tr>
<td>90-208302</td>
<td>10” (254 mm)</td>
</tr>
<tr>
<td>90-208305</td>
<td>12” (305 mm)</td>
</tr>
</tbody>
</table>

### Platen Storage Cabinet

This durable aluminum cabinet accommodates up to 10 aluminum trays/shelves (reversible) for storage of platens, discs or cloths up to 12” (305 mm) diameter. The hinged, clear plastic door with magnetic lock prevents dust contamination. Five (5) trays are included.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-8100</td>
<td>Storage Cabinet</td>
</tr>
<tr>
<td></td>
<td>Dims: 14” W x 14” D x 14” H (355 x 355 x 355 mm)</td>
</tr>
<tr>
<td></td>
<td>Weight: 35 lb. (16 kg)</td>
</tr>
</tbody>
</table>

**Accessories:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-8105</td>
<td>Aluminum Tray / Shelf</td>
</tr>
</tbody>
</table>
Magnetic Platens & Accessories

**Magnetic Platens**

Magnetic platens combine a standard aluminum platen with a cross-hatched magnetic surface for maximum flatness and adherence. Only one platen is needed throughout the grinding and polishing process, allowing all magnetic system cloths/abrasive discs or ferromagnetic discs to be utilized.

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-2005M</td>
<td>8&quot; (203 mm)</td>
</tr>
<tr>
<td>5-6010M</td>
<td>10&quot; (254 mm)</td>
</tr>
<tr>
<td>5-6005M</td>
<td>12&quot; (305 mm)</td>
</tr>
</tbody>
</table>

**Ferromagnetic Support Discs** New!

These reusable ferromagnetic stainless steel discs feature a nonslip backing and allow adhesive backed cloths/abrasive discs to be changed quickly and easily when using magnetic platens.

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-51000</td>
<td>8&quot; (203 mm)</td>
</tr>
<tr>
<td>55-51002</td>
<td>10&quot; (254 mm)</td>
</tr>
<tr>
<td>55-51005</td>
<td>12&quot; (305 mm)</td>
</tr>
</tbody>
</table>

**Ferromagnetic Adhesive Discs** New!

Ferromagnetic adhesive discs combine a rigid stainless steel disc with an adhesive surface that allows plain back silicon carbide abrasive discs to be secured to magnetic platens. The nonslip backing keeps the disc in place even for coarse grinding. Each provides 25-75 disc pulls depending on grit size, cycle time and force.

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>52-20008</td>
<td>8&quot; (203 mm)</td>
</tr>
<tr>
<td>52-20010</td>
<td>10&quot; (254 mm)</td>
</tr>
<tr>
<td>52-20012</td>
<td>12&quot; (305 mm)</td>
</tr>
</tbody>
</table>

**PTFE Ferromagnetic Support Discs** New!

PTFE ferromagnetic support discs combine a PTFE surface with a rigid stainless steel disc. This allows adhesive backed abrasive discs/polishing cloths to be easily removed after use without any adhesive transfer. The nonslip backing keeps the disc in place even for coarse grinding.

<table>
<thead>
<tr>
<th>Item</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>55-52000</td>
<td>8&quot; (203 mm)</td>
</tr>
<tr>
<td>55-52002</td>
<td>10&quot; (254 mm)</td>
</tr>
<tr>
<td>55-52005</td>
<td>12&quot; (305 mm)</td>
</tr>
</tbody>
</table>
The **AD-5™** fluid dispenser provides automatic, unattended application of abrasive polishing suspensions and lubricants. Its functions are controlled through Allied’s MetPrep 3™, MetPrep 4™, DualPrep 3™ or MultiPrep™ Systems, and can also be used with **ANY** brand polishing machine as a standalone system.

Timed, volume-controlled, variable frequency dispensing delivers reproducible results by eliminating inconsistencies between operators. This increases productivity and efficiency, while reducing consumables usage. Intuitive menu navigation and simple logic programming make the dispenser easy to use.

The **AD-5™** features five (5) dispensing positions, two of which include a flush cycle to prevent clogging when using colloidal suspensions. Peristaltic pump technology offers mist-free drip delivery to the polishing surface.

**Features:**

- Five (5) dispensing positions, 16 oz. (500 mL) capacity; 128 oz. (3.8 L) adapter kit available
- User-defined menu labeling (abrasive type & size, lubricant, cloth, material, and menu name)
- Pump reverse after cycle to prevent dripping/contamination
- Remote function enabling seamless integration and automatic activation with Allied’s grinding and polishing systems
- Local function to allow standalone operation with any grinder/polisher
- Pulse duration: 0.5-6 seconds (0.5 second increments)
- Pulse frequency: 1-10 per minute
- In-cycle priming that allows temporary “full rate” dispensing onto polishing surface
- One-touch priming function for quick, initial charging of new cloths
- One-touch activation independent of menu for simple operation
- Pre-start charging of new/dry polishing cloths
- Allows dispensing of colloidal suspensions (silica, silica/alumina and alumina) with rinse/flush function to avoid clogging
- Two (2) positions with high-speed pumps for oxide polishing
- Peristaltic pumps offer mist-free drip dispensing
- 25 programmable menus
- Optional password protection of menus
- Touchpad switches to control all functions
- Backlit 4-line LCD
- **CE** compliant for EU
- Two (2) year warranty
- Designed & manufactured by Allied in the USA 🇺🇸

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-7100</td>
<td><strong>AD-5™</strong>, 100-240 V</td>
</tr>
</tbody>
</table>

Dims: 8” W x 25” D x 9” H (203 x 635 x 229 mm)  
Weight: 28 lb. (13 kg)  

Convenient pivoting arm with nozzle design features  
stainless tips that are easily removed for cleaning
Grinding/Polishing Consumables

(Pages 38 - 54)
Silicon Carbide Abrasive Discs

Designed for metallographic applications to coarse and fine grind a wide variety of materials, these discs feature superior mineral grading, a unique resin top coat, and a latex additive in the paper. This combination resists water penetration, creating a durable, long lasting disc with uniform cutting characteristics that minimizes sample deformation. They are made with high quality thick C weight backing and are recommended for general laboratory requirements.

![Silicon Carbide Abrasive Discs](image)

### Plain Back Discs (Pk/100)

<table>
<thead>
<tr>
<th>8&quot; (200 mm)</th>
<th>10&quot; (250 mm)</th>
<th>12&quot; (300 mm)</th>
<th>Grit (FEPA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-10000</td>
<td>50-11000</td>
<td>50-10145</td>
<td>60 (P-60)</td>
</tr>
<tr>
<td>50-10001</td>
<td>50-11003</td>
<td>50-10146</td>
<td>80 (P-80)</td>
</tr>
<tr>
<td>50-10005</td>
<td>50-11005</td>
<td>50-10150</td>
<td>120 (P-120)</td>
</tr>
<tr>
<td>50-10010</td>
<td>50-11010</td>
<td>50-10155</td>
<td>180 (P-180)</td>
</tr>
<tr>
<td>50-10015</td>
<td>50-11015</td>
<td>50-10160</td>
<td>240 (P-280)</td>
</tr>
<tr>
<td>50-10020</td>
<td>50-11020</td>
<td>50-10165</td>
<td>320 (P-400)</td>
</tr>
<tr>
<td>50-10025</td>
<td>50-11025</td>
<td>50-10170</td>
<td>400 (P-800)</td>
</tr>
<tr>
<td>50-10030</td>
<td>50-11030</td>
<td>50-10175</td>
<td>600 (P-1200)</td>
</tr>
<tr>
<td>50-10029</td>
<td>50-11029</td>
<td>50-10174</td>
<td>600 Fine*</td>
</tr>
<tr>
<td>50-10035</td>
<td>50-11035</td>
<td>50-10176</td>
<td>800 (P-2400)</td>
</tr>
<tr>
<td>50-10040</td>
<td>50-11040</td>
<td>50-10177</td>
<td>1200 (P-4000)</td>
</tr>
<tr>
<td>50-10041</td>
<td>50-11041</td>
<td>50-10178</td>
<td>1200 Fine**</td>
</tr>
</tbody>
</table>

**Assortment**

(Includes 25 each 180, 320, 600, 1200/P-4000 Grit)

### Adhesive Back Discs (Pk/100)

<table>
<thead>
<tr>
<th>8&quot; (200 mm)</th>
<th>10&quot; (250 mm)</th>
<th>12&quot; (300 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-10045</td>
<td>50-11045</td>
<td>50-10215</td>
</tr>
<tr>
<td>50-10046</td>
<td>50-11047</td>
<td>50-10217</td>
</tr>
<tr>
<td>50-10050</td>
<td>50-11050</td>
<td>50-10220</td>
</tr>
<tr>
<td>50-10055</td>
<td>50-11055</td>
<td>50-10225</td>
</tr>
<tr>
<td>50-10060</td>
<td>50-11060</td>
<td>50-10230</td>
</tr>
<tr>
<td>50-10065</td>
<td>50-11065</td>
<td>50-10235</td>
</tr>
<tr>
<td>50-10070</td>
<td>50-11070</td>
<td>50-10240</td>
</tr>
<tr>
<td>50-10075</td>
<td>50-11075</td>
<td>50-10245</td>
</tr>
<tr>
<td>50-10074</td>
<td>50-11074</td>
<td>50-10244</td>
</tr>
<tr>
<td>50-10076</td>
<td>50-11076</td>
<td>50-10246</td>
</tr>
<tr>
<td>50-10077</td>
<td>50-11077</td>
<td>50-10247</td>
</tr>
<tr>
<td>50-10078</td>
<td>50-11078</td>
<td>50-10248</td>
</tr>
</tbody>
</table>

**Assortment**

(Includes 25 each 180, 320, 600, 1200/P-4000 Grit)
Features:
- Premium resin bonding system that retains abrasive for sustained material removal and long life
- Premium thick C weight base with high latex content for superior waterproofing
- Special low tack adhesive for easy removal of the disc from platen without adhesive transfer
- Wide, low profile tabs for easy liner removal
- Tab for easy disc removal from platen after use

Abrasives Grade Comparison Chart

<table>
<thead>
<tr>
<th>U.S. CAMI Grit</th>
<th>European P-Grading</th>
<th>Micron Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 80 100 120 150 180 220 240 280 320 360 400 600 800 1200</td>
<td>60 80 120 180 220 280 320 400 500 600 800 1000 1200 2400 4000</td>
<td>260 200 160 125 100 80 68 60 52 46 40 35 30 26 22 18 15 12 10 9 6 5</td>
</tr>
</tbody>
</table>

*600 Fine Grit*
- 600 fine grit minimizes "loading" when preparing samples cold mounted in epoxy or acrylic.
- It also provides a finer surface finish, which can reduce subsequent polishing time.

**1200 Fine Grit vs. 1200 (P-4000) Grit**
- 1200 "fine" grit is an electrostatically coated abrasive. The SiC particles stand on end, which provides more of a cutting action for continued material removal. It is recommended for softer materials that smear, step grinding for failure analysis, and serial sectioning.
- 1200 (P-4000) grit is sputter coated, which randomizes the orientation of the SiC particles. This provides more of a polishing action and does not remove as much material as 1200 fine grit. It can be used for a wide variety of applications.
**Zirconia Alumina Discs (Pk/25)**

Zirconia alumina provides rapid material removal and excellent wear resistance without generating excessive heat. It is recommended when grinding hard, ferrous metals and alloys on automatic or high speed manual grinding machines. All discs are adhesive backed.

<table>
<thead>
<tr>
<th>Grit</th>
<th>8” (200 mm)</th>
<th>10” (250 mm)</th>
<th>12” (300 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>50-10045-Z</td>
<td>50-11045-Z</td>
<td>50-10215-Z</td>
</tr>
<tr>
<td>120</td>
<td>50-10050-Z</td>
<td>50-11050-Z</td>
<td>50-10220-Z</td>
</tr>
</tbody>
</table>

**4" x 36" Abrasive Belts (Pk/10)**

These durable cloth-backed abrasive belts support various grinding requirements. Use silicon carbide for general laboratory applications, aluminum oxide for ferrous metals and zirconia alumina for heavy stock removal.

<table>
<thead>
<tr>
<th>Grit</th>
<th>SiC</th>
<th>Al₂O₃</th>
<th>ZrAl</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>50-10415</td>
<td>-</td>
<td>50-10420-Z</td>
</tr>
<tr>
<td>80</td>
<td>50-10420</td>
<td>50-10460</td>
<td>50-10425-Z</td>
</tr>
<tr>
<td>120</td>
<td>50-10425</td>
<td>50-10470</td>
<td>50-10435-Z</td>
</tr>
<tr>
<td>180</td>
<td>50-10430</td>
<td>50-10475</td>
<td>-</td>
</tr>
<tr>
<td>240</td>
<td>50-10435</td>
<td>50-10480</td>
<td>-</td>
</tr>
</tbody>
</table>

**Silicon Carbide Strips & Rolls**

Silicon carbide rolls and strips are designed for metallographic applications to coarse and fine grind a wide variety of materials.

**Grinding Stones**

Use Al₂O₃ for grinding ferrous metals and alloys, and SiC for grinding non-ferrous metals such as titanium and aluminum or when mixing non-ferrous and ferrous metals. Dimensions listed are diameter x thickness x arbor hole.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>81-10895</td>
<td>Al₂O₃, 60 Grit, 14” x 1.75” x 1.5”</td>
</tr>
<tr>
<td>81-10900</td>
<td>Al₂O₃, 150 Grit, 14” x 1.75” x 1.5”</td>
</tr>
<tr>
<td>81-10905</td>
<td>Green SiC, 150 Grit, 14” x 1.75” x 1.5”</td>
</tr>
<tr>
<td>81-10910</td>
<td>Green SiC, 120 Grit, 14” x 1.75” x 1.5”</td>
</tr>
<tr>
<td>81-10920</td>
<td>Al₂O₃, 150 Grit, 8” x 2” x 1.25”</td>
</tr>
</tbody>
</table>
**Dia-Grid Diamond Discs**

Dia-Grid Diamond Discs are recommended for hard-to-grind materials. They feature diamond particles either nickel plated or resin bonded in raised patterns that provide increased cutting rates, enhanced cooling and efficient removal of debris. They are extremely durable, and provide excellent edge retention and sample flatness. Wide, low-profile tabs allow easy disc removal after use. Each disc features a rigid ferromagnetic stainless steel backing with nonslip coating for magnetic platens. Adhesive back discs are also available. To order, remove 'M' from the item number.

### Metal Plated

Recommended for materials including ceramics, carbides and metal matrix composites, these discs feature a ferromagnetic backing for magnetic platens.

<table>
<thead>
<tr>
<th>Grade</th>
<th>8&quot; (200 mm)</th>
<th>10&quot; (250 mm)</th>
<th>12&quot; (300 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>260 µm</td>
<td>50-50000M</td>
<td>50-50100M</td>
<td>50-51000M</td>
</tr>
<tr>
<td>125 µm</td>
<td>50-50005M</td>
<td>50-50105M</td>
<td>50-51005M</td>
</tr>
<tr>
<td>70 µm</td>
<td>50-50010M</td>
<td>50-50110M</td>
<td>50-51010M</td>
</tr>
<tr>
<td>30 µm</td>
<td>50-50015M</td>
<td>50-50115M</td>
<td>50-51015M</td>
</tr>
<tr>
<td>15 µm</td>
<td>50-50025M</td>
<td>50-50125M</td>
<td>50-51025M</td>
</tr>
<tr>
<td>9 µm</td>
<td>50-50035M</td>
<td>50-50135M</td>
<td>50-51035M</td>
</tr>
<tr>
<td>6 µm</td>
<td>50-50040M</td>
<td>50-50140M</td>
<td>50-51040M</td>
</tr>
</tbody>
</table>

### Resin Bond

Resin bond discs are recommended for a wide variety of materials including hard metals and non-metal coatings.

<table>
<thead>
<tr>
<th>Grade</th>
<th>8&quot; (200 mm)</th>
<th>10&quot; (250 mm)</th>
<th>12&quot; (300 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 Grit</td>
<td>50-80800M</td>
<td>50-81000M</td>
<td>50-81200M</td>
</tr>
<tr>
<td>120 Grit</td>
<td>50-80805M</td>
<td>50-81005M</td>
<td>50-81205M</td>
</tr>
<tr>
<td>220 Grit</td>
<td>50-80810M</td>
<td>50-81010M</td>
<td>50-81210M</td>
</tr>
<tr>
<td>40 µm</td>
<td>50-80820M</td>
<td>50-81020M</td>
<td>50-81220M</td>
</tr>
<tr>
<td>25 µm</td>
<td>50-80825M</td>
<td>50-81025M</td>
<td>50-81225M</td>
</tr>
<tr>
<td>9 µm</td>
<td>50-80830M</td>
<td>50-81030M</td>
<td>50-81230M</td>
</tr>
</tbody>
</table>

### Resin Bond RIGID

RIGID discs are designed for aggressive removal of materials such as sintered carbide, ceramic, hard metals and optical glass. They provide excellent flatness and durability.

<table>
<thead>
<tr>
<th>Grade</th>
<th>8&quot; (200 mm)</th>
<th>10&quot; (250 mm)</th>
<th>12&quot; (300 mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 Grit</td>
<td>50-70805M</td>
<td>50-71005M</td>
<td>50-71205M</td>
</tr>
<tr>
<td>220 Grit</td>
<td>50-70810M</td>
<td>50-71010M</td>
<td>50-71210M</td>
</tr>
<tr>
<td>600 (P-1200) Grit</td>
<td>50-70820M</td>
<td>50-71020M</td>
<td>50-71220M</td>
</tr>
</tbody>
</table>
Diamond Lapping Film

**Type B Diamond Lapping Film** has diamond particles contained in ceramic beads that are resin bonded to the film. As the beads wear away, new diamond particles are exposed to allow continuous, aggressive material removal. Type B film provides a coarser finish grade-for-grade compared with standard diamond lapping film, and is typically used for encapsulated samples.

**SEM photo, 6 μm Type B Diamond Lapping Film (150X)**

**Standard Discs (Pk/5)**

Standard Diamond Lapping Film consists of precision graded diamond particles resin bonded to a uniform film. They provide excellent edge retention and maintain coplanarity regardless of varying materials or hardness within the sample. These discs are typically used for unencapsulated cross-sectioning, TEM wedge/plan-view polishing, backside polishing and FIB sample thinning.

**SEM photo, 6 μm Standard Diamond Lapping Film (150X)**

**Storage Book**

Chemically pure and lint-free blotting paper dries and protects lapping film. Wax paper separates each blotter.

**Item** | **Description**
--- | ---
50-30000 | Storage Book for 8" Films

**Grade (μm)** | **8" (200 mm) Plain Back** | **8" (200 mm) Adhesive Back** | **12" (300 mm) Plain Back**
--- | --- | --- | ---
9 | 50-30050B | 50-30130B | 50-30170B
6 | 50-30055B | 50-30135B | 50-30175B
3 | 50-30060B | 50-30140B | 50-30180B
1 | 50-30065B | 50-30145B | 50-30185B
0.5 | 50-30070B | - | -

*Includes 1 of each grade except 45 & 60 μm*
Al₂O₃, SiC & SiO₂ Lapping Film

Lapping film consists of a mylar film coated with resin containing either aluminum oxide, silicon carbide or silicon dioxide abrasive. It is recommended for fine grinding and lapping applications where edge retention is important. These films are for use with either encapsulated or unencapsulated samples but are not recommended for power head applications.

Features:
- Micron graded premium abrasives from 30 to 0.01 μm
- Precision backing for uniformity and sample planarity
- Resistance to water, oil and most solvents
- Color coding for quick identification

Aluminum Oxide: for ferrous metals, glass
Silicon Carbide: for non-ferrous metals, polymers
Silicon Dioxide: as an alternative to colloids and cloths for final polish on SEM and TEM samples

8” (200 mm) Plain Back Discs (Pk/50)

<table>
<thead>
<tr>
<th>Grade (μm)</th>
<th>Al₂O₃</th>
<th>SiC</th>
<th>SiO₂</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>50-20040</td>
<td>50-20075</td>
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</tr>
<tr>
<td>15</td>
<td>-</td>
<td>50-20080</td>
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</tr>
<tr>
<td>12</td>
<td>50-20045</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>50-20050</td>
<td>50-20085</td>
<td>-</td>
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<td>5</td>
<td>50-20052</td>
<td>50-20090</td>
<td>-</td>
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<td>3</td>
<td>50-20055</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>0.3</td>
<td>50-20065</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>0.05</td>
<td>50-20067</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>0.01</td>
<td>-</td>
<td>-</td>
<td>50-20097 (Pk/20)</td>
</tr>
<tr>
<td>Assortment</td>
<td>50-20070*</td>
<td>50-20105*</td>
<td>-</td>
</tr>
</tbody>
</table>

*Includes 10 of each grade

Aluminum Oxide Lapping Film
Silicon Carbide & Silicon Dioxide Films
Diamond Polishing

Diamond is preferred for most polishing applications when compared to other abrasives. Although diamond is more costly per unit, the amount required to polish is substantially less by a greater factor than the difference in price. Diamond also cuts faster, requiring less time to achieve an improved surface finish and produce an accurate representation of the true microstructure with fewer artifacts (smearing, scratches, etc.). All products are precision graded by Swiss micronizing standards for high performance.

**Polycrystalline Diamond**

With many more cutting surfaces per particle, polycrystalline diamond provides higher removal rates than monocrystalline abrasive. As it cuts, it breaks down in its original shape, allowing for finer finishes in less time. Because polycrystalline has no cleavage planes, it cannot splinter like monocrystalline diamond. It causes less subsurface deformation, and is excellent when polishing samples composed of different materials or hardness.

**Monocrystalline Diamond**

Monocrystalline diamond provides a cost-effective means for good stock removal and finish. It has a slightly irregular shape with multiple cutting edges, and is recommended for general applications where polycrystalline’s features are not required.

Diamond Suspensions

Allied diamond suspensions are specifically formulated to ensure that the diamond particles remain suspended and separated throughout the stable liquid carrier. They are excellent for distributing diamond easily and uniformly over the cloth or platen surface, and are made with either alcohol (water-free), glycol or water based formulas. All 8 oz. and 16 oz. bottles include a flip-top and trigger sprayer for dispensing. Gallons include a prelabeled 16 oz. empty bottle for dispensing convenience.

**Glycol Based**

Water soluble and environmentally friendly, this diamond suspension is mixed with a glycol base for improved cooling and is ideal for manual application or automatic “drip” dispensing systems.
### Water Based

Water soluble and environmentally friendly, this 99% water based formula is recommended for manual application or automatic “spray/drip” dispensing systems, where lubricant is also applied.

<table>
<thead>
<tr>
<th>Polycrystalline</th>
<th>Monocrystalline</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 oz. (240 mL)</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>90-32995</td>
<td>90-31995</td>
</tr>
<tr>
<td>90-33000</td>
<td>90-32000</td>
</tr>
<tr>
<td>90-33005</td>
<td>90-32005</td>
</tr>
<tr>
<td>90-33010</td>
<td>90-32010</td>
</tr>
<tr>
<td>90-33015</td>
<td>90-32015</td>
</tr>
<tr>
<td>90-33020</td>
<td>90-32020</td>
</tr>
<tr>
<td>90-33025</td>
<td>90-32025</td>
</tr>
<tr>
<td>90-33030</td>
<td>90-32030</td>
</tr>
<tr>
<td>90-33035</td>
<td>90-32035</td>
</tr>
<tr>
<td>90-33040</td>
<td>90-32040</td>
</tr>
</tbody>
</table>

### Alcohol Based

Alcohol based suspension is recommended for water-sensitive materials such as zinc, magnesium, and steel with non-metallic inclusions. Use with alcohol based lubricants only. This formula is recommended for manual application or automatic “spray/drip” dispensing systems, where lubricant is also applied.

<table>
<thead>
<tr>
<th>Polycrystalline</th>
<th>Monocrystalline</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 oz. (480 mL)</td>
<td>Grade (μm)</td>
</tr>
<tr>
<td>90-3AB0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>90-3AB1</td>
<td>1</td>
</tr>
<tr>
<td>90-3AB3</td>
<td>3</td>
</tr>
<tr>
<td>90-3AB6</td>
<td>6</td>
</tr>
<tr>
<td>90-3AB9</td>
<td>9</td>
</tr>
<tr>
<td>90-3AB15</td>
<td>15</td>
</tr>
</tbody>
</table>

### DiaLube

DiaLube is a water soluble and environmentally friendly diamond suspension premixed with a propylene glycol based polishing lubricant. It is excellent for quick application of both abrasive and lubricant without the need for precise dripping ratios.
Diamond Compound

Allied diamond compounds are specifically formulated for metallographic sample preparation and offer a higher concentration of diamond compared to suspensions. They are water soluble and compatible with glycol or alcohol based lubricants. Diamond compounds are typically used as a standalone product or to charge polishing cloths before applying diamond suspension.

Polishing Lubricants

Lubricants are used to enhance the polishing performance of diamond suspensions, compounds, sprays and films. They reduce friction and increase the life of polishing cloths. All 16 and 32 oz. bottles include trigger sprayer and flip-top for dispensing, and can be applied manually or used with automatic dispensers. Gallons include a prelabeled 16 oz. empty bottle for dispensing convenience.

<table>
<thead>
<tr>
<th>Viscosity</th>
<th>RedLube</th>
<th>GreenLube</th>
<th>PurpleLube</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>Glycol</td>
<td>Glycol/H₂O</td>
<td>Alcohol</td>
</tr>
<tr>
<td>Odor</td>
<td>None</td>
<td>None</td>
<td>Mild</td>
</tr>
<tr>
<td>Water-Free</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

A low viscosity, water-free ethyl alcohol based polishing lubricant, PurpleLube is formulated to minimize alcohol scent. It is excellent for increased stock removal, when water cannot be tolerated or when used with alcohol based diamond suspensions.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-205010</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>90-205005</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>90-205000</td>
<td>128 oz. (3.8 L)</td>
</tr>
<tr>
<td>90-204995</td>
<td>5 gal. (19 L)</td>
</tr>
</tbody>
</table>

A water-free, high viscosity glycol based lubricant, RedLube is used for metallographic preparation of soft and/or ductile materials.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-207010</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>90-207005</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>90-207000</td>
<td>128 oz. (3.8 L)</td>
</tr>
<tr>
<td>90-206995</td>
<td>5 gal. (19 L)</td>
</tr>
</tbody>
</table>

A medium viscosity glycol/H₂O based lubricant, GreenLube is used for general metallographic preparation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-209010</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>90-209005</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>90-209000</td>
<td>128 oz. (3.8 L)</td>
</tr>
<tr>
<td>90-208995</td>
<td>5 gal. (19 L)</td>
</tr>
</tbody>
</table>
Colloidal Suspensions

Used for final polishing, colloidal suspensions are mixtures of abrasive particles dispersed throughout a chemically aggressive liquid carrier. This combination provides a chemical-mechanical polishing action, resulting in deformation-free surfaces. The modified pH of these suspensions can provide delineation of grain boundaries and other microstructural features for some sample types.

0.05 μm Non-Crystallizing Silica

This non-crystallizing silica suspension with 9.8 pH produces an excellent final polish for a wide variety of materials, especially non-ferrous metals, PCBs and ICs.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180-20015</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>180-20010</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>180-20000</td>
<td>128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>

0.02 μm Non-Crystallizing Silica

A non-crystallizing silica suspension with 9.8 pH, this formula produces ultrafine surface finishes for demanding SEM/TEM analysis.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180-40015</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>180-40010</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>180-40000</td>
<td>128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>

0.04 μm Non-Stick/Rinsable Silica

An excellent final polishing suspension for most materials, this proprietary formula features a pH of 10 and rinses easily from samples and equipment, even after it dries. It is slow drying, making it an ideal choice for prolonged polishing requirements such as those for EBSD. The pH may be modified with chemical solutions to improve microstructural contrast.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180-25015</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>180-25010</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>180-25000</td>
<td>128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>

0.05 μm Silica/Alumina

This unique 8.5 pH mixture combines colloidal silica and alumina. The addition of gamma alumina allows improved mechanical polishing. It is used to final polish both ferrous and non-ferrous metals, metal matrix composites and various non-metallic materials.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180-70015</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>180-70010</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>180-70000</td>
<td>128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>

0.05 μm Alumina

With a pH of 3.5, this acidic alumina suspension is used to final polish ferrous metals and ceramics. Its non-clogging formula flows easily through fluid dispensing systems, and can be diluted with DI water up to 3:1.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180-30015</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>180-30010</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>180-30000</td>
<td>128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>

0.03 μm Alumina

This acidic alumina suspension with a pH of 3.5 is used to final polish ferrous metals and ceramics. Its non-clogging formula flows easily through fluid dispensing systems, and can be diluted with DI water up to 3:1. The 0.03 μm formula provides finer surface finishes for demanding applications.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180-80015</td>
<td>16 oz. (480 mL)</td>
</tr>
<tr>
<td>180-80010</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>180-80000</td>
<td>128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>
### Alumina Polishing

#### Powder, Deagglomerated

Allied alumina powders are made to the tightest quality specifications and are used for final polishing of metallographic specimens. Accurately controlled purity levels and particle size distribution ensure optimum polishing results. Mix with DI water to produce a liquid slurry. The 0.05 μm particle type/shape is gamma, while 0.3 and 1.0 μm are alpha. Deagglomerated alumina powder is specially treated to reduce the number of agglomerates (groups of particles in each grade of manufactured alumina).

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-187050</td>
<td>0.05 μm, 1 lb. (450 g)</td>
</tr>
<tr>
<td>90-187055</td>
<td>0.05 μm, 5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>90-187120</td>
<td>0.3 μm, 1 lb. (450 g)</td>
</tr>
<tr>
<td>90-187125</td>
<td>0.3 μm, 5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>90-187190</td>
<td>1 μm, 1 lb. (450 g)</td>
</tr>
<tr>
<td>90-187195</td>
<td>1 μm, 5 lb. (2.3 kg)</td>
</tr>
</tbody>
</table>

#### Suspension, Deagglomerated

Alumina suspensions are deagglomerated and water based. Chemically stable, the premixed formulas are a clean, convenient alternative to powders and are ideal for the finest finishes.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-187505</td>
<td>0.05 μm, 6 oz. (180 mL)</td>
</tr>
<tr>
<td>90-187540</td>
<td>0.05 μm, 32 oz. (950 mL)</td>
</tr>
<tr>
<td>90-187575</td>
<td>0.05 μm, 128 oz. (3.8 L)</td>
</tr>
<tr>
<td>90-187510</td>
<td>0.3 μm, 6 oz. (180 mL)</td>
</tr>
<tr>
<td>90-187545</td>
<td>0.3 μm, 32 oz. (950 mL)</td>
</tr>
<tr>
<td>90-187580</td>
<td>0.3 μm, 128 oz. (3.8 L)</td>
</tr>
<tr>
<td>90-187515</td>
<td>1 μm, 6 oz. (180 mL)</td>
</tr>
<tr>
<td>90-187550</td>
<td>1 μm, 32 oz. (950 mL)</td>
</tr>
<tr>
<td>90-187585</td>
<td>1 μm, 128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>

#### Powder, Standard

Allied’s alumina powders are made to the tightest quality specifications and are used for final polishing of metallographic specimens. Accurately controlled purity levels and particle size distribution ensure optimum polishing results. Mix with DI water to produce a liquid slurry. The 0.05 μm particle type/shape is gamma, while 0.3 and 1.0 μm are alpha.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-187015</td>
<td>0.05 μm, 1 lb. (450 g)</td>
</tr>
<tr>
<td>90-187020</td>
<td>0.05 μm, 5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>90-187085</td>
<td>0.3 μm, 1 lb. (450 g)</td>
</tr>
<tr>
<td>90-187090</td>
<td>0.03 μm, 5 lb. (2.3 kg)</td>
</tr>
<tr>
<td>90-187155</td>
<td>1 μm, 1 lb. (450 g)</td>
</tr>
<tr>
<td>90-187160</td>
<td>1 μm, 5 lb. (2.3 kg)</td>
</tr>
</tbody>
</table>

#### FinalPrep Polishing Solution

FinalPrep is a deagglomerated, polycrystalline alumina solution excellent for final polishing applications for nearly any material. With a pH of 9 to 9.5, the basic chemical element enhances microstructural features. It works exceptionally well for polishing soft, ductile, or precious metals, such as gold and silver.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-187705</td>
<td>0.05 μm, 6 oz. (180 mL)</td>
</tr>
<tr>
<td>90-187725</td>
<td>0.05 μm, 16 oz. (480 mL)</td>
</tr>
<tr>
<td>90-187740</td>
<td>0.05 μm, 32 oz. (950 mL)</td>
</tr>
<tr>
<td>90-187775</td>
<td>0.05 μm, 128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>
A wide range of polishing cloths are available for fine grinding, or coarse, intermediate, and final polishing of all materials. They are available either with adhesive backing for standard platens, or with rigid (steel) or flexible (rubber) ferromagnetic backing for magnetic platens.

**Adhesive Backing:** Each cloth is secured to an individual, dedicated platen or support disc using its adhesive backing. Removal and reapplication is discouraged because of reduced adhesion. Adhesive backed polishing cloths are the most economical choice.

**Flexible Ferromagnetic (FM) Backing:** Each cloth features a flexible ferromagnetic backing that adheres to magnetic platens. Multiple discs can be used with one magnetized platen, reducing the number of platens needed for each procedure, machine, or lab.

**New!**

**Rigid Ferromagnetic (FM) Backing:** Each cloth features a rigid ferromagnetic backing that adheres to magnetic platens. Multiple discs can be used with one magnetized platen, reducing the number of platens needed for each procedure, machine, or lab. The backing offers corrosion resistance, high stiffness, and a rounded, burr-free edge for safer handling. Rigid discs are also well suited for applications that utilize alcohol based suspensions, slurries, and lubricants, where prolonged polishing times are needed (EBSD), or in high force applications that generate more heat.
# Polishing Cloth Selection and Information Guide

For best results, refer to the tabulated guide below for the recommended polishing cloth/lubricant combination.

<table>
<thead>
<tr>
<th>Cloth</th>
<th>Recommended μm Size</th>
<th>For use with:</th>
<th>Recommended Lubricant</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Diamond</td>
<td>Alumina</td>
</tr>
<tr>
<td>PLAN-Cloth</td>
<td>30 - 6</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>PLAN-B</td>
<td>15-3</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Gold Label</td>
<td>15 - 3</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>TECH-Cloth</td>
<td>9 - 1</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>White Label</td>
<td>6 - 0.25</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>DiaMat</td>
<td>6 - 0.05</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Kempad</td>
<td>9 - 1</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Pan-B</td>
<td>6 - 0.25</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>ChemPol</td>
<td>1 - 0.02</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Final A</td>
<td>1 - 0.02</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Spec-Cloth</td>
<td>1 - 0.05</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Vel-Cloth</td>
<td>1 - 0.05</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Final B</td>
<td>3 - 0.05</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Red Final C</td>
<td>3 - 0.02</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Final P</td>
<td>3 - 0.05</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Final-POL</td>
<td>3 - 0.05</td>
<td>Yes</td>
<td>-</td>
</tr>
</tbody>
</table>
Woven Polishing Cloths

Woven cloths feature a cross-weave pattern, where abrasive particles embed and provide efficient material removal. They feature low compression, applying effective pressure to the loose abrasive particles for maximum material removal and flatness. The cross-weave pattern is ideal for fine grinding, or coarse and intermediate polishing, and are more aggressive than non-woven cloths.

### PLAN-Cloth

Very hard, resin coated, durable, coarse woven polyester for use with diamond (30-6 μm). Produces high material removal rate and excellent flatness for fine grinding, coarse and intermediate polishing on a variety of materials.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesive</td>
<td>10</td>
<td>85-150-005</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>85-500-005</td>
</tr>
</tbody>
</table>

### PLAN-B

Very hard, resin coated, dense woven polyester for use with diamond (15-3 μm). Maintains superior edge retention and flatness and provides aggressive material removal for coarse to intermediate polishing of metals, ceramics and refractory materials. Not recommended for cold mounted materials.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesive</td>
<td>5</td>
<td>90-150-580</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-580</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>90-700-580</td>
</tr>
</tbody>
</table>

### Gold Label

Dense, uniquely woven nylon, extremely durable for use with diamond (15-3 μm). Produces excellent flatness and provides a very high material removal rate on a wide variety of materials. Exceptional for intermediate polishing.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesive</td>
<td>10</td>
<td>90-150-210</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-210</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>90-700-210</td>
</tr>
</tbody>
</table>

### TECH-Cloth

Dense, woven synthetic silk for use with diamond (9-1 μm). Produces very good edge retention and provides excellent finish and flatness. Especially good for coatings and samples composed of materials with varying hardness.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesive</td>
<td>10</td>
<td>85-150-360</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>85-500-360</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>85-700-360</td>
</tr>
</tbody>
</table>
**White Label**

Very dense, woven, low-nap silk for use with diamond (6-0.25 μm). Provides excellent flatness and edge retention prior to final polishing on a wide variety of materials. Ideal for eliminating pullout in the final polishing steps.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8” / 200 mm</td>
<td>10” / 250 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>5</td>
<td>90-150-500</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-500</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>90-700-500</td>
</tr>
</tbody>
</table>

**DiaMat**

Woven wool with a medium nap and low resilience for use with diamond (6-0.25 μm), colloidal suspensions or alumina. Provides very good edge retention and surface finish on a wide variety of materials including metals and polymers.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8” / 200 mm</td>
<td>10” / 250 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>5</td>
<td>90-150-550</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-550</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>90-700-550</td>
</tr>
</tbody>
</table>

**Non-Woven Polishing Cloths**

Non-woven cloths feature low compression, with surfaces that tend to be softer than woven cloths. A non-woven cloth can have fibers interlaced throughout the surface, but the pattern is random rather than a cross-weave. Non-woven cloths are less aggressive, so they are better suited for intermediate and final polishing steps.

**Kempad**

Non-woven, very low-nap textile for use with diamond (9-1 μm). Provides good removal and flatness on a wide variety of materials.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8” / 200 mm</td>
<td>10” / 250 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>10</td>
<td>90-150-005</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-005</td>
</tr>
</tbody>
</table>

**Pan-B**

Dense, non-woven, planarized textile for use with diamond (6-0.25 μm). Provides good removal rates and edge retention on a wide variety of materials.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8” / 200 mm</td>
<td>10” / 250 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>10</td>
<td>85-150-100</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>85-500-100</td>
</tr>
</tbody>
</table>

(800) 675-1118 (USA & Canada) (310) 635-2466 (Worldwide)
**Chem-Pol**

Dense, non-woven, low-nap porous polyurethane for chemical/mechanical polishing using colloidal suspensions or alumina (1-0.02 μm). This long-lasting cloth provides an excellent final polish for a wide variety of materials.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8&quot; / 200 mm</td>
<td>10&quot; / 250 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>5</td>
<td>180-10005</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>180-10505</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>180-10705</td>
</tr>
</tbody>
</table>

**Final A**

Highly dense, non-woven, low-nap porous polyurethane pad for use with colloidal suspensions or alumina (1-0.02 μm). Excellent for final polishing a wide variety of materials. Especially effective in eliminating smearing and pullout when preparing soft metals such as copper and aluminum, porous structures/materials, or when preparing materials for SEM or TEM evaluation.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8&quot; / 200 mm</td>
<td>10&quot; / 250 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>5</td>
<td>180-10005</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>180-10505</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>180-10705</td>
</tr>
</tbody>
</table>

**Napped (Flocked) Polishing Cloths**

Napped cloths, also known as flocked cloths, have various length fibers and fabric stiffness. They are mostly used for final polishing, as the flock pattern brushes the sample to clean and remove intermediate polishing scratches. Firm fibers are commonly used for polishing softer metals and materials, while soft fibers are useful for preparing harder materials.

**Spec-Cloth**

Firm, medium-nap, synthetic rayon flock for use with diamond (1-0.25 μm) or alumina. For general polishing of a wide range of materials.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8&quot; / 200 mm</td>
<td>10&quot; / 250 mm</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-285</td>
</tr>
</tbody>
</table>

**Vel-Cloth**

Soft, medium-low nap synthetic flock for use with diamond (1-0.25 μm) or alumina. Provides very good flatness on a wide variety of materials.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8&quot; / 200 mm</td>
<td>10&quot; / 250 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>10</td>
<td>90-150-400</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-400</td>
</tr>
</tbody>
</table>
## Final B

Soft, low-nap rayon flock for use with diamond (3-0.25 μm) or alumina. Provides excellent finish and flatness, especially with hard materials, ferrous metals and glass.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8&quot; / 200 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10&quot; / 250 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12&quot; / 300 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>10</td>
<td>90-150-230</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-230</td>
</tr>
</tbody>
</table>

## Red Final C

Dense, medium-nap, soft synthetic silk flock for use with diamond (3-0.02 μm), colloidal suspensions or alumina to provide an excellent final polish on a wide variety of materials. Especially effective when preparing materials for SEM or TEM evaluation.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8&quot; / 200 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10&quot; / 250 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12&quot; / 300 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>5</td>
<td>90-150-350</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-350</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>90-700-350</td>
</tr>
</tbody>
</table>

## Final P

Dense, low-nap firm synthetic flock for use with diamond (3-0.05 μm), colloidal suspensions or alumina. Ideal for final polishing soft metals such as copper, aluminum and solder.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8&quot; / 200 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10&quot; / 250 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12&quot; / 300 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14&quot; / 350 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>10</td>
<td>85-150-500</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>85-500-500</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>85-700-500</td>
</tr>
</tbody>
</table>

## Final-POL

Very durable, soft, low-nap synthetic flock for use with diamond (3-0.25 μm) or alumina. Excellent for final polishing ferrous metals and composites.

<table>
<thead>
<tr>
<th>Backing</th>
<th>Qty</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>8&quot; / 200 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10&quot; / 250 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12&quot; / 300 mm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14&quot; / 350 mm</td>
</tr>
<tr>
<td>Adhesive</td>
<td>5</td>
<td>90-150-705</td>
</tr>
<tr>
<td>Flexible FM</td>
<td>5</td>
<td>90-500-705</td>
</tr>
<tr>
<td>Rigid FM</td>
<td>5</td>
<td>90-700-705</td>
</tr>
</tbody>
</table>
X-Prep®
(Pages 56 - 58)

X-Prep® Vision™
(Pages 59)
The X-Prep® is a specialized 5-axis CNC-based milling/grinding/polishing machine designed to support electrical and physical failure analysis techniques and other applications requiring high precision sample preparation.

It features a wizard-based, user-friendly, intuitive interface that guides the operator through a screen sequence. As each screen appears, instruction is provided to the operator, ensuring every parameter and function is defined before operation. Help buttons on each screen provide access to additional explanation and instruction.

A high-definition (720p) color camera projects a magnified, razor-sharp image of the sample onto the touch screen to help the operator define the X/Y milling/grinding/polishing boundary.

Automatic tilt adjustment levels the sample plane parallel to the X/Y plane of the cutting tool. Unevenly mounted or tilted samples can easily be leveled using this functionality.

A variety of fixtures and accessories are available to accommodate various sample types and sizes.

**Accessories and consumables are sold separately.**

### Technical Data:

- 5,000-100,000 RPM Spindle
  - 3-Phase AC Motor
  - Precision ceramic bearings lubricated for life
  - Air sealed, electronically balanced
- Closed loop X/Y-axis positioning, 1 µm resolution
- Closed loop Z-axis positioning, 0.1 µm resolution, 1 micron accuracy
- Closed loop Z-axis force control, 0.5 to 10 N
- Three (3) Z-control modes of the tool:
  - Position (Milling & Grinding)
  - Position Force (Grinding & Polishing)
  - Floating Force (Polishing)
- Up to 100 x 100 mm X/Y travel
- Universal tool collet uses 3 mm x 1.5” (38 mm) length tools (0.25 mm - 12 mm grinding/polishing tip)
- Dims: 21” W x 27” D x 25” H (533 x 686 x 622 mm)
- Weight: 210 lb. (95 kg)
- CE compliant for EU
- Two (2) year warranty
- Designed & manufactured by Allied in the USA

### Features:

- Optional 3D Software Module adds functionality/capability that includes: automatic 3D mapping/profiling; convex & concave profile deprocessing; and Excel® profile visualization/profile manipulation macro
- Motorized leveling stage for: automatic parallel leveling of sample to the X/Y tool plane; sample leveling - dual-axis control with 0.5 micron resolution; definable "off-axis" tilt adjustment
- Quiet operation: ~ 15-20 dB over ambient
- Powerful, high speed spindle to grind ceramics, silicon, metals, glass and more
- Tabletop, compact footprint
- 12" color LCD, touchscreen graphic user interface
- Easy-to-use, wizard-based workflow guides the operator through system setup to define: X/Y/Z tool position; X/Y tool feed rate, pattern and overlap; Z-force; and Z-position
- Requires no G-coding or programming knowledge
- Live HD (720p) video navigation to define X/Y milling/grinding/polishing boundary
- Assures complete removal across an entire plane before advancing to the next Z-increment
- Automatic, incremental Z-axis tool advancement with coordinated X/Y movement, enabling unattended operation
- Name, save and recall stored steps/sequences
- Pneumatic/automatic collet that allows quick, easy tool change

### Item Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-9600</td>
<td>X-Prep® System, 115 V</td>
</tr>
<tr>
<td>15-9600-230</td>
<td>X-Prep® System, 230 V</td>
</tr>
</tbody>
</table>
3D Deprocessing

3D capability is required to uniformly deprocess samples exhibiting either a convex or concave physical profile. It is useful for package deprocessing and die thinning for electrical fault localization methods that demand extreme uniformity of material removal and final thickness control. This capability is ideal for warped substrates that exhibit either convex or concave geometry.

The advantage of deprocessing a device following its physical profile is that it remains in its “as-manufactured” physical state. This approach increases accuracy of material removal and reduces the risk of either mechanically induced or post-processing stress relaxation damage such as cracking or delamination.

The functionality includes the capability to use and/or create custom/predictive maps to control the milling profile. Both symmetrical and asymmetrical profiles can be used and adjusted to match the physical changes encountered, providing a high degree of versatility to the operator.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-9166</td>
<td>3D Software Module</td>
</tr>
</tbody>
</table>
X-Prep® Applications

3D TSV – Stacked Die
- Flip-Chip - GPU
- NAND/Flash memory
- SoC, PoP, and SiC – mobile processors
- Hybrid Super SoC’s
- WL/CSP – Wafer and chip-scale package
- 2.5D Devices - FPGA

Lead-Frame
- Thin small outline package (TSOP)
- Shrink small outline package (SSOP)
- Small outline IC (SOIC)
- Dual inline package (DIP)

Leadless-Quad
- Plastic leaded chip carrier (PLCC)
- Quad flat no-lead (QFN)
- Quad flat package (QFP)

Silicon die thinned to near transparency through the backside

Pre-chemical decapsulation - Cu bond wire

Uniform ultrathin bare die silicon thinning
Uniform copper (Cu) pillar deprocessing - molded package, stacked die

MOSFET/Bipolar device FA

Small device deprocessing
Ceramic package
X-Prep® Vision™ is a metrology tool that enables measurement of silicon and semitransparent substrates. It is necessary for applications that require uniform thinning to a specific target with a tolerance of ± 5 μm or better.

The X-Prep® fixture adapter is also secured to the motorized stage on the X-Prep® Vision™, ensuring the measurement/tool control coordinates remain aligned when transferred between systems.

A library with over 130 materials (i.e., GaAs, InGaAs, SiC, Sapphire/Al₂O₃, InP, SiGe, GaN, photo-resist) is included with every system.

Features:
- Multipoint scan or single-point thickness measurement
- 10 microns to 1 mm thick range of measurement (15 nm to 1 mm thick when configured with #15-51000 Spectrometer)
- Motorized, automatic X/Y/Z (auto-focus) with < 1 s acquisition time
- "Drive to Coordinate" software navigation
- Viewing of either 2D plot/map or 3D graph
- Software automation extendable through .NET
- Stage fitted with X-Prep® fixture adapter
- 100 mm x 100 mm stage travel
- Data export using standard Windows methods
- One (1) year warranty

Measurement & Observation - How It Works
IR light is focused onto a sample, and a unique signal based on the refractive index of the material is created. The return signal is analyzed by the software to produce a thickness value.

Measuring Below 10 μm Thickness
For applications requiring thinning to less than 10 μm, precise measurement is possible only by adding the visible light spectrometer accessory.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-50100</td>
<td>X-Prep® Vision™ 100, with 100 mm x 100 mm stage travel, 100-240 V</td>
</tr>
<tr>
<td></td>
<td>Dims: 14&quot; W x 17&quot; D x 19&quot; H (355 x 431 x 483 mm)</td>
</tr>
</tbody>
</table>

Accessories
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-51000</td>
<td>Visible Light Spectrometer and camera</td>
</tr>
<tr>
<td>15-50020</td>
<td>CCD Camera</td>
</tr>
</tbody>
</table>
A variety of fixtures are available to accommodate many sample sizes. Tabs secure a borosilicate glass carrier onto which samples are mounted using wax. They feature a serrated interface which reduces surface contact to minimize sample registration errors. Borosilicate resists warping and maintains its shape through thermal cycling. It is easily machined using diamond tools to produce clearance pockets for accommodating leads on device packages, capacitors or flip chip die. The fixture depth allows the sample to be submerged in lubricant during operation, maintaining lower sample and tool temperature, increasing tool life and eliminating airborne particulates.

### Item Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-9125</td>
<td>2” x 2” with 20 Borosilicate Carriers</td>
</tr>
<tr>
<td>15-9126</td>
<td>Borosilicate Glass Carriers, 2” x 2” (Pk/20)</td>
</tr>
<tr>
<td>15-9135</td>
<td>3” x 3” with 10 Borosilicate Carriers</td>
</tr>
<tr>
<td>15-9136</td>
<td>Borosilicate Glass Carriers, 3” x 3” (Pk/10)</td>
</tr>
<tr>
<td>15-9140</td>
<td>4” x 4” with 10 Borosilicate Carriers</td>
</tr>
<tr>
<td>15-9141</td>
<td>Borosilicate Glass Carriers, 4” x 4” (Pk/10)</td>
</tr>
<tr>
<td>15-9147</td>
<td>4” x 6” with 10 Borosilicate Carriers</td>
</tr>
<tr>
<td>15-9148</td>
<td>Borosilicate Glass Carriers, 4” x 6” (Pk/10)</td>
</tr>
</tbody>
</table>

## Ruby Tipped Probe

The ruby tipped probe is an accessory used for leveling and profiling samples on the X-Prep®. The probe stylus can be replaced should it become damaged or chipped.

### Item Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-92RTP</td>
<td>Ruby Tipped Probe</td>
</tr>
<tr>
<td>28-85175A14</td>
<td>Replacement Stylus</td>
</tr>
</tbody>
</table>

## Dust Extraction Vacuum, HEPA Filtration

This quiet vacuum provides maximum health protection from exposure to airborne contaminants generated from dry cutting and/or grinding processes. It features a triple filtration system with a carbon and micro-filter that are easy to change. Its automatic control operates the unit only when suction is required. Noise: ~ 15-20 dB over ambient.

### Item Description

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-9180</td>
<td>Vacuum System, 115 V</td>
</tr>
<tr>
<td>15-9185</td>
<td>Vacuum System, 230 V</td>
</tr>
</tbody>
</table>

Dims: 13” W x 13” H x 15 ” (330 x 330 x 381 mm)
**X-Prep® Consumables**

**Carbide End Mills (Pk/4)**

Made of solid carbide for maximum performance and durability, these end mills are used to cut a wide variety of materials, including soft metals (Al & Cu), circuit board (PCB) substrates, ferrous metals (Fe) and other non-metals.

**2-Flute**

2-Flute end mills have deeper, longer gullets for greater chip-carrying capacity, and are center cutting.

<table>
<thead>
<tr>
<th>Description</th>
<th>PCB</th>
<th>Al &amp; Cu</th>
<th>Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.05 mm Ø x 1.5&quot; (38 mm) L</td>
<td>-</td>
<td>15-922F0.05</td>
<td>-</td>
</tr>
<tr>
<td>0.25 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-922FP0.25</td>
<td>15-922F0.25</td>
<td>15-922FS0.25</td>
</tr>
<tr>
<td>0.5 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-922FP0.5</td>
<td>15-922F0.5</td>
<td>15-922FS0.5</td>
</tr>
<tr>
<td>0.7 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-922FP0.7</td>
<td>15-922F0.7</td>
<td>15-922FS0.7</td>
</tr>
<tr>
<td>1.0 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-922FP1.0</td>
<td>15-922F1.0</td>
<td>15-922FS1.0</td>
</tr>
<tr>
<td>1.5 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-922FP1.5</td>
<td>15-922F1.5</td>
<td>15-922FS1.5</td>
</tr>
<tr>
<td>3.0 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-922FP3.0</td>
<td>15-922F3.0</td>
<td>15-922FS3.0</td>
</tr>
</tbody>
</table>

**4-Flute**

4-Flute end mills produce finer finishes, and last longer than 2-flute because wear is distributed over a greater area. They also remove material more quickly and can be moved across the sample at a higher rate.

<table>
<thead>
<tr>
<th>Description</th>
<th>PCB</th>
<th>Al &amp; Cu</th>
<th>Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-924FP0.7</td>
<td>15-924F0.7</td>
<td>15-924FS0.7</td>
</tr>
<tr>
<td>1.0 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-924FP1.0</td>
<td>15-924F1.0</td>
<td>15-924FS1.0</td>
</tr>
<tr>
<td>1.5 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-924FP1.5</td>
<td>15-924F1.5</td>
<td>15-924FS1.5</td>
</tr>
<tr>
<td>3.0 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-924FP3.0</td>
<td>15-924F3.0</td>
<td>15-924FS3.0</td>
</tr>
</tbody>
</table>

**4-Flute, Long Reach**

Long Reach end mills feature cutting flutes that extend up from the tip approximately 3X the tip diameter to allow cutting into deeper cavities.

<table>
<thead>
<tr>
<th>Description</th>
<th>Al &amp; Cu</th>
<th>Fe</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.7 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-924F0.7-3</td>
<td>15-924FS0.7-3</td>
</tr>
<tr>
<td>1.0 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-924F1.0-3</td>
<td>15-924FS1.0-3</td>
</tr>
<tr>
<td>1.5 mm Ø x 1.5&quot; (38 mm) L</td>
<td>15-924F1.5-3</td>
<td>15-924FS1.5-3</td>
</tr>
</tbody>
</table>

PCB tools are specially coated for cutting through glass-fiber reinforced circuit board material.

Open small areas (as little as 100 x 100 μm).

Remove copper to expose silicon.

Standard end mills (left) have tapered tips that may restrict the depth of the cavity they can produce when compared to long reach end mills (right).
**Milling**

**Metal Bonded Diamond Tools (Pk/2)**

Metal bonded diamond tools are recommended for grinding non-metals such as mold compound, silicon, glass, and ceramic. Compared to plated tools, they are made with finer diamonds bound in a metal matrix that maintains better shape/profile, and provides longer life, higher accuracy and finer surface finish.

**Diamond Grinding Discs (Pk/100)**

Diamond grinding discs are ideal for grinding and thinning silicon, glass and ceramic. They are secured to mounts using glue (see Loctite® 454™ or 460™, page 63). Diameter selection depends on corner radius and restrictions of sample.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-92CMB3.0</td>
<td>Coarse, 3.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92MMB1.0</td>
<td>Medium, 1.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92MMB1.5</td>
<td>Medium, 1.5 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92MMB3.0</td>
<td>Medium, 3.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92FMB0.70</td>
<td>Fine, 0.7 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92FMB1.0</td>
<td>Fine, 1.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92FMB1.5</td>
<td>Fine, 1.5 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92FMB3.0</td>
<td>Fine, 3.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92VFMB0.7</td>
<td>Very Fine, 0.7 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92VFMB1.0</td>
<td>Very Fine, 1.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92VFMB1.5</td>
<td>Very Fine, 1.5 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92VFMB3.0</td>
<td>Very Fine, 3.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
</tbody>
</table>

**Plated Diamond Tools (Pk/4)**

Plated diamond tools are used for bulk removal of plastic/composite materials and other non-metals including glass and ceramic.

**X-Lube**

X-Lube is a solvent-free lubricant used for milling, grinding and polishing applications. By submerging the sample during operation, debris is contained in the liquid and the sample and tool are kept cooler. It is specially formulated to minimize splashing.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-92CP1.0</td>
<td>Coarse, 1.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92CP1.5</td>
<td>Coarse, 1.5 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92FP3.0</td>
<td>Coarse, 3.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92FP0.7</td>
<td>Fine, 0.7 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92FP1.0</td>
<td>Fine, 1.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92FP1.5</td>
<td>Fine, 1.5 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92FP3.0</td>
<td>Fine, 3.0 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-92XL32</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>15-92XL128</td>
<td>128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>
**Large Diameter Polishing Discs (Pk/50)**

Large diameter polishing discs are used for preparing larger samples to produce smooth, mirror-like, scratch-free finishes. They are secured to mounts using a high performance adhesive such as LocTite® 460 or 454.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>36 PP</td>
<td>Large Diameter Mounts (Pk/5)</td>
</tr>
<tr>
<td>15-92PS3</td>
<td>3 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92PS5</td>
<td>5 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92PS9</td>
<td>9 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
<tr>
<td>15-92PS12</td>
<td>12 mm Ø x 1.5&quot; (38 mm) L</td>
</tr>
</tbody>
</table>

**Large Diameter Mounts (Pk/5)**

Mounts are used to secure grinding or polishing discs for preparation of areas greater than 25 mm². They are made of a special hardened grade of steel for rigidity and precision ground to eliminate vibration at high speeds.

**Polishing Sheets (Pk/4)**

Small diameter polishing discs can be extracted out of 6" x 6" sheets using a punch.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180-10910</td>
<td>X-Pad II, 6&quot; x 6&quot; sheet</td>
</tr>
<tr>
<td>180-10950</td>
<td>Planar Pad, 6&quot; x 6&quot; sheet</td>
</tr>
<tr>
<td>180-10930</td>
<td>Final-POL, 6&quot; x 6&quot; sheet</td>
</tr>
<tr>
<td>180-10105</td>
<td>Final A, 6&quot; x 6&quot; sheet</td>
</tr>
<tr>
<td>180-10960</td>
<td>Chem-Pol, 6&quot; x 6&quot; sheet</td>
</tr>
</tbody>
</table>

**Punches (Pk/25)**

Punches feature a durable, razor sharp, medical grade stainless steel tip used to extract polishing discs.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-92P1-D</td>
<td>1 mm Ø</td>
</tr>
<tr>
<td>15-92P1.5-D</td>
<td>1.5 mm Ø</td>
</tr>
<tr>
<td>15-92P2-D</td>
<td>2 mm Ø</td>
</tr>
<tr>
<td>15-92P3-D</td>
<td>3 mm Ø</td>
</tr>
</tbody>
</table>

**Small Diameter Mounts (Pk/20)**

Small diameter polishing discs are secured to mounts using LocTite® 460™ or 454™.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>180-10951</td>
<td>Planar Pad, Plain Back, 5 mm Ø</td>
</tr>
<tr>
<td>180-10952</td>
<td>Planar Pad, Plain Back, 9 mm Ø</td>
</tr>
<tr>
<td>180-10953</td>
<td>Planar Pad, Plain Back, 12 mm Ø</td>
</tr>
<tr>
<td>90-150-543</td>
<td>DiaMat, Plain Back, 5 mm Ø</td>
</tr>
<tr>
<td>90-150-544</td>
<td>DiaMat, Plain Back, 9 mm Ø</td>
</tr>
<tr>
<td>90-150-545</td>
<td>DiaMat, Plain Back, 12 mm Ø</td>
</tr>
<tr>
<td>90-150-733</td>
<td>Final-POL, Plain Back, 5 mm Ø</td>
</tr>
<tr>
<td>90-150-734</td>
<td>Final-POL, Plain Back, 9 mm Ø</td>
</tr>
<tr>
<td>90-150-735</td>
<td>Final-POL, Plain Back, 12 mm Ø</td>
</tr>
<tr>
<td>180-10023</td>
<td>Final A, Plain Back, 5 mm Ø</td>
</tr>
<tr>
<td>180-10024</td>
<td>Final A, Plain Back, 9 mm Ø</td>
</tr>
<tr>
<td>180-10025</td>
<td>Final A, Plain Back, 12 mm Ø</td>
</tr>
<tr>
<td>180-10083</td>
<td>Chem-Pol, Plain Back, 5 mm Ø</td>
</tr>
<tr>
<td>180-10084</td>
<td>Chem-Pol, Plain Back, 9 mm Ø</td>
</tr>
<tr>
<td>180-10085</td>
<td>Chem-Pol, Plain Back, 12 mm Ø</td>
</tr>
</tbody>
</table>

**Adhesives**

These gel and liquid-based adhesives are used to secure grinding and polishing discs to mounts.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>71-40045-G</td>
<td>LocTite® 454™ Gel, 3 g tube</td>
</tr>
<tr>
<td>71-40045</td>
<td>LocTite® 460™ Liquid, 20 g tube</td>
</tr>
</tbody>
</table>
Ultrasonic Cleaners

Ultrasonic cleaners create microscopic bubbles that penetrate small crevices and explode upon contact, removing debris that regular washing can leave behind. Cleaning is useful prior to mounting, as it improves adhesion of the mounting material to the sample, and prevents particles from contaminating cloths or scratching samples during the polishing process. All units have a stainless steel tank, mechanical timer and cover. Units with digital timers and/or heaters are also available. For 230 V systems, add “-230” to the item number.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-18005</td>
<td>Model 1800, 0.5 Gallon Capacity, 6” L x 5.5” W x 4” D Tank Size, 115 V</td>
</tr>
<tr>
<td>95-10110</td>
<td>Solid Tray</td>
</tr>
<tr>
<td>95-10113</td>
<td>Mesh Basket</td>
</tr>
<tr>
<td>95-10115</td>
<td>Perforated Tray</td>
</tr>
<tr>
<td>95-18025</td>
<td>Beaker Cover (1 x 600 mL)</td>
</tr>
<tr>
<td>95-28005</td>
<td>Model 2800, 0.75 Gallon Capacity, 9.5” L x 5.5” W x 4” D Tank Size, 115 V</td>
</tr>
<tr>
<td>95-10130</td>
<td>Solid Tray</td>
</tr>
<tr>
<td>95-10133</td>
<td>Mesh Basket</td>
</tr>
<tr>
<td>95-10135</td>
<td>Perforated Tray</td>
</tr>
<tr>
<td>95-28025</td>
<td>Beaker Cover (2 x 600 mL)</td>
</tr>
<tr>
<td>95-38005</td>
<td>Model 3800, 1.5 Gallon Capacity, 11.5” L x 6” W x 6” D Tank Size, 115 V</td>
</tr>
<tr>
<td>95-10150</td>
<td>Solid Tray</td>
</tr>
<tr>
<td>95-10153</td>
<td>Mesh Basket</td>
</tr>
<tr>
<td>95-10155</td>
<td>Perforated Tray</td>
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<tr>
<td>95-38025</td>
<td>Beaker Cover (3 x 250 mL)</td>
</tr>
<tr>
<td>95-58005</td>
<td>Model 5800, 2.5 Gallon Capacity, 11.5” L x 6” W x 6” D Tank Size, 115 V</td>
</tr>
<tr>
<td>95-10170</td>
<td>Solid Tray</td>
</tr>
<tr>
<td>95-10175</td>
<td>Perforated Tray</td>
</tr>
<tr>
<td>95-58025</td>
<td>Beaker Cover (4 x 600 mL)</td>
</tr>
<tr>
<td>95-88005</td>
<td>Model 8800, 5.5 Gallon Capacity, 19.5” L x 11” W x 6” D Tank Size, 115 V</td>
</tr>
<tr>
<td>95-10190</td>
<td>Solid Tray</td>
</tr>
<tr>
<td>95-10195</td>
<td>Perforated Tray</td>
</tr>
<tr>
<td>95-10200</td>
<td>Beaker Cover (6 x 600 mL)</td>
</tr>
</tbody>
</table>

Graduated Beakers

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-10205</td>
<td>250 mL Pyrex® Glass</td>
</tr>
<tr>
<td>95-10215</td>
<td>600 mL Pyrex® Glass</td>
</tr>
<tr>
<td>95-10220</td>
<td>600 mL Stainless Steel</td>
</tr>
</tbody>
</table>

GP Cleaning Solution

Biodegradable and caustic-free, this solution is used in ultrasonic cleaners for general purpose cleaning applications. It removes soils, fingerprints, dust, light oils and grease from metallographic specimens and other laboratory items. It is mixed with water at 10-12% by volume.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>95-10230</td>
<td>32 oz. (950 mL)</td>
</tr>
<tr>
<td>95-10235</td>
<td>128 oz. (3.8 L)</td>
</tr>
</tbody>
</table>

Micro Organic Soap

This high purity cleaning solution is for removing microcontaminants and polishing solutions from samples prior to microscopic examination. It is mixed with water at 2-5% by volume.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>148-10000</td>
<td>32 oz. (950 mL)</td>
</tr>
</tbody>
</table>

Compressed Air Spray

This dry, non-toxic, non-flammable air spray removes water, dust or other particles from polished samples, optics or other laboratory items.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>200-20000</td>
<td>14 oz. (392 g) Aerosol Can</td>
</tr>
<tr>
<td>200-20005</td>
<td>Case/12 Cans</td>
</tr>
</tbody>
</table>
Inverted Microscopes (Pages 66-67)

Upright Microscopes (Pages 68-69)

Stereo/Zoom Microscopes (Pages 70-72)

Light Sources, Guides & LED Illumination Systems (Page 73)

Imaging / Archiving, Workstations & Digital Cameras (Pages 74-76)
Zeiss Microscopes

Allied offers the complete line of materials microscopes from Carl Zeiss, including inverted, upright, stereo, and zoom configurations. They are world-renowned for their superb optics, precision, quality and versatility.

The unique pyramid design on inverted and upright systems offers greater stability and lower center of gravity, minimizing vibration. All controls are ergonomically positioned to provide ease of use and a high degree of operator comfort during inspection.

A wide range of components, objectives and contrasting methods (brightfield, advanced darkfield, circular differential interference contrast [C-DIC], polarization, total interference contrast [TIC] and fluorescence) are available to customize the ideal instrument for your particular application.

Contact Allied for technical, configuration and pricing information.

Inverted Microscopes

Axio Vert.A1 MAT New!

The Axio Vert.A1 MAT inverted microscope has a low-profile design and is well suited for routine examination of mounted samples. Capable of all common contrasting techniques, featuring an encoded objective turret, and with a power-saving eco mode, it is the most versatile of its class of microscopes.

Features:

- 5-position encoded objective turret and 4-position non-encoded reflector turret to support a wide variety of imaging techniques
- 12.5X to 1500X optical magnification range
- Achromatic and Köhler illuminated light path
- Encoded components that allow communication between the microscope, AxioCam camera, and AxioVision imaging software, keeping track of the objective, calibration and lighting parameters
- Light Manager, which stores illumination settings of each objective
- Low-position fine and coarse focus knobs
- Accommodates large or heavy specimens
- 50 W halogen, 100 W halogen and LED light sources available with built-in power supply (optional external power supply is available for higher light intensity)
- Mechanical, gliding, and scanning stages available
- Optional eco mode: automatic switch-off after 15 minutes of inactivity
The Axio Observer is a research-grade metallograph designed for examination of mounted samples. With apochromatic optics, it provides extremely low light scattering, high contrast and aberration-free imaging for the highest quality results.

Features:

- 6-position encoded objective turret and 6-position encoded reflector turret to support a wide variety of imaging techniques
- 12.5X to 1500X optical magnification range
- Optional Optovar tube lens that provides up to 2.5X optical multiplication
- Apochromatic Köhler illuminated light path with slot for rotatable polarization
- Encoded components that allow communication between the microscope, AxioCam camera, and AxioVision imaging software, keeping track of the objective, calibration, contrasting technique, tube lens, lighting parameters, and motorized X/Y stage parameters and coordinates
- Integration with AxioVision provides automatic scaling when changing objectives to ensure accurate measurements
- LCD that lists objective magnification, contrasting technique, and light intensity
- Contrast Manager, which stores illumination settings of each objective and contrast technique, recalled automatically as each objective/reflecter is positioned
- Sturdy mechanical X/Y stage with low-position coaxial controls (left or right), minimum 130 x 85 mm range
- Manual and motorized versions available
- Low-position fine and coarse focus knobs
- Excellent for large or heavy specimens
- 12 V/100 W halogen light source with built-in power supply (mercury, xenon and LED illumination available)
The **AxioImager** upright microscope features innovative, unprecedented technology in optical microscopy and is configurable for either manual or motorized operation.

**Features:**

- 7-position encoded objective turret and 6-position encoded reflector turret to support a wide variety of imaging techniques
- Apochromatic light train (unique to Zeiss) providing the best color correction available
- Köhler lighting principle, utilized in the reflected light train to improve lighting homogeneity, brightfield contrast and darkfield performance, providing a background so black that “darkfield” is characterized now as “advanced darkfield”
- Enhanced Contrast Optics, which provide the flattest field and best contrast available
- Patented light traps to eliminate stray light
- Unique imaging cell, improving stability by reducing thermal influences and vibration for razor-sharp image capture
- Vertically and horizontally adjustable binocular phototube
- Detachable stage carriers
- Dovetail interface that allows height adjustment of stage carriers
- 12.5X to 1500X optical magnification range
- Optical multiplication up to 4X (optional)
- Encoded components that allow communication between the microscope, AxioCam camera, and AxioVision imaging software, keeping track of the objective, calibration, optical technique, tube lens, lighting parameters, and motorized X/Y stage parameters and coordinates
- Integration with AxioVision, which provides automatic scaling when changing objectives to ensure accurate measurements
- X, Y and Z measurement capability without computer interface (M2m and Z2m only)
- Sturdy mechanical X/Y stage with low-position coaxial controls (left or right), minimum 75 x 50 mm range
- Manual and motorized versions available
- Low-position fine and coarse focus knobs
- Contrast Manager, which stores illumination settings of each objective and contrast technique, recalled automatically as each objective/reflecter is positioned
- 12 V/100 W halogen light source with built-in power supply (mercury, xenon and LED illumination available)
The **Axiomager Vario** combines maximum precision and the largest possible sample space for research, development and quality assurance applications. It is an ideal solution for thicker or larger samples, including solar cells, wafers, flat panel displays and more. The Vario has an ultrastable column, reliable focus, high accuracy, and a variety of stages and sample holders.

**Features:**
- 7-position encoded objective turret and 6-position encoded reflector turret to support a wide variety of imaging techniques
- Impressive sample space with vertical extension up to 254 mm (Z) and stage travel up to 300 mm (X/Y)
- 12.5X to 1500X optical magnification range
- Optical multiplication up to 4X (optional)
- Encoded components that allow communication between the microscope, Axiocam camera, and Axiovision imaging software, keeping track of the objective, calibration, optical technique, tube lens, lighting parameters, and motorized X/Y stage parameters and coordinates
- Integration with Axiovision, which provides automatic scaling when changing objectives to ensure accurate measurements
- Manual and motorized versions available
- Contrast Manager, which stores illumination settings of each objective and contrast technique, recalled automatically as each objective/reflector is positioned
- X, Y, and Z measurement capability
- 12 V/100 W halogen light source with built-in power supply (mercury, xenon and LED illumination available)

---

The **Axiolab A1** sets new standards for entry-level upright microscopes, offering an excellent price-to-performance ratio while achieving brilliant image quality based on Carl Zeiss ICS optics. Its intuitive operation makes this microscope a reliable system for routine applications in the laboratory involving defect analysis, quality inspection and materials testing.

**Features:**
- 5-position non-encoded objective turret and 4-position non-encoded reflector turret to support a wide variety of imaging techniques
- Enhanced Contrast Optics, which provide the flattest field and best contrast available
- 4-position reflector turret with push & click contrast modules
- Color-corrected reflected light path with aperture and field diaphragm, with a mount for rotatable polarization
- 50 W halogen light source with built-in power supply (LED lamp also available)
- Large field of view (22 mm)
- Transmitted light Pol versions also available for orthoscopy and conoscopy applications
Stereo Microscopes

Discovery Series

The Discovery Series stereomicroscopes are designed for ergonomic and simplified operation, and provide increased depth of field through newly designed optics, improving color reproduction and contrast for unequalled resolution. Three different microscope bodies are available: V8 (manual zoom, 1-8X), V12 (motorized zoom/encoded, 0.8-10X), and V20 (motorized zoom/encoded, 0.75-15X).

Features:

- Single or 3-position objective turret
- Magnification range of 2.25X to 345X (stereo), up to 525X (mono)
- Highest resolution stereomicroscope available
- Largest depth of field with the deepest 3D effect
- Exceptionally high contrast
- Tilting, height-adjustable binocular phototube
- Programmable, illuminated Human Interface Panel (HIP), which stores and displays magnification and resolution
- Encoded stand for software recognition of parameters (V12 & V20)
- 350 mm vertical column with motorized control and zeroing function, 350 nm resolution
- Reflected and/or transmitted light base
- Integration with AxioVision imaging software for communication and control of the stereomicroscope

A 3-position encoded turret allows parfocality with four objectives from 0.63X, 1.0X, 1.5X and 3.5X, providing an astounding magnification range from 2.25 to 525X and large depth of field.

Data output to PC allows magnification, illumination, resolution and field of view data to be captured with each image.

The System Control Panel (SyCoP) is a complementary option to the HIP, enabling control of the microscope. It features the similar feel of a computer mouse and offers touchscreen control and programming of zoom, zoom speed, focus, focus speed, vertical positioning with 350 mm range and 350 nm resolution, eyepiece and objective magnification, and illumination control.

The Human Interface Panel (HIP) replaces the conventional turning knob for motorized zoom control and/or focus.

It offers storage functions of all parameters and programmable entry of zoom speed, focus speed and vertical position.

The tilting trinocular head (ergotube) provides variable viewing angles, height adjustment and interpupillary width adjustments for improved operational comfort.
The **Stemi 508** offers a complete apochromatic system and new front optics for the best resolution and high contrast. It is designed for the workloads of everyday lab use and industrial inspections. Samples are displayed in rich detail, in sharp focus and free from distortion or color fringes.

*Stemi 508*

The **Stemi 305** offers better integrated illumination than any other entry level Greenough stereomicroscope. Its compact design follows “clean desk” philosophy by incorporating an integrated power supply and hidden cables. It provides sharp, distortion-free 3D images, crisp in contrast and with no preparation required.

*Stemi 305*

**Features:**
- Lower viewing angle of 35° for better ergonomics than any other Greenough type stereomicroscope for a more relaxed working posture
- 10X adjustable focusing eyepieces (16X and 25X available)
- 8:1 zoom range, 6.3X to 50X magnification range (interchangeable optics and eyepieces allow from 2X to 250X)
- Continuous or click-stop zoom adjustment (with 10 click-stops)
- Photoport for Zeiss AxioCam cameras, video or SLR cameras
- 35 mm field of view; up to 120 mm using interchangeable optics
- Configurable with standard bases or boom stands
- Multiple stages available, including slide, circular ball-and-socket and rotating pol
- Utilizes integrated LED lighting or external illumination

**Features:**
- Integrated LED illumination: vertical and oblique reflected and transmitted light
- ESD protection, which prevents samples from being damaged by electrostatic discharge
- 10X adjustable focusing eyepieces (16X and 25X available)
- 5:1 zoom range, 8.0X to 40X magnification range (interchangeable optics and eyepieces allow from 4X to 200X)
- 29 mm field of view; up to 58 mm using interchangeable optics
- Configurable with standard bases or boom stands
- Multiple stages available, including slide, circular ball-and-socket and rotating pol
- Utilizes integrated LED lighting or external illumination

**Additional Features**

Configurable with boom stands, standard bases, external illumination, and many interchangeable optics, for a variety of applications.

Additional plug-in LED lighting options include: segmentable ringlight, vertical illuminator, spot illuminator, and a double arm goose neck, along with transmitted light options.
The Axio Zoom combines its 16X zoom with a high numerical aperture, large working distance, and single objective to deliver resolutions up to twice as high as conventional stereomicroscopes, even at low to medium magnifications. Combined with contrasting methods traditionally found on compound microscopes, the Axio Zoom V16 allows for more efficient imaging that speeds up quantitative analysis. The zoom functionality is fully motorized, and focusing is available in both manual and motorized versions.

Features:
- Apochromatic light path (unique to Zeiss), providing the best color correction available
- Magnification range of 3.5X to 258X (up to 644X with 25X eyepieces)
- EpiRel slider in the Epi-Illuminator Z, which produces a relief-like effect in coaxial incident light when the illumination is slightly inclined
- eZoom – a high precision, stepper motor based electronic zoom
- Object field up to 66 mm (using 10X eyepieces and 0.5X PlanApo Z objective)
- Long working distance
- Manual and motorized stage and focus available
- Column travel range up to 350 mm (manual) and up to 490 mm (motorized)
- Various contrasting techniques available: brightfield, darkfield, oblique light, polarization, fluorescence
- Motor-driven iris to select between three modes: Brightness Mode, Eyepiece Mode, and Camera Mode
- Encoded stand for software recognition of parameters
- Integration with AxioVision imaging software for communication and control
- Phototubes without eyepieces available for completely digital imaging and analysis applications
- Compatible with many accessories available for the Discovery Series stereomicroscopes
**Stereo/Zoom Illumination**

**LED Illumination Systems**

Employing the newest technologies, Schott has integrated high-brightness LEDs and controller electronics into two innovative flicker-free illuminators. Both offer continuous dimming with a separate on/off switch. The EasyLED series is an innovative, self-contained illumination system with the controller electronics built into the illuminator head. This saves countertop space and provides easy and ergonomic operation, directly on the microscope. The VisiLED illuminators include a control box and offer a wide range of illumination options and controls for more advanced applications.

**Features:**
- White light (daylight), approximately 5,600 K
- Nearly constant color temperature when dimming
- High-reliability LEDs (30,000 operating hours)
- Low power consumption
- Operates without noise and vibration
- Lightweight with thin flexible bundles
- Wide range of controllers: DC output (VisiLED)
- Selectable light direction (12 options) for maximum versatility (VisiLED)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-600100</td>
<td>EasyLED Illuminator, 17 mm Dia.</td>
</tr>
<tr>
<td>120-600120</td>
<td>EasyLED Dual Illuminator, 17 mm Dia.</td>
</tr>
<tr>
<td>120-600200</td>
<td>EasyLED Ringlight, 66 mm ID</td>
</tr>
<tr>
<td>120-600400</td>
<td>EasyLED Transmitted Light Stage</td>
</tr>
<tr>
<td>120-400000</td>
<td>VisiLED, MC 1500 Multiple Controller</td>
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<tr>
<td>120-400040</td>
<td>VisiLED, MC 1000 Controller</td>
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<tr>
<td>120-400100</td>
<td>VisiLED Ringlight S40, 55-110 mm WD</td>
</tr>
<tr>
<td>120-400150</td>
<td>VisiLED Slim Ringlight S48, Dual Ring, 20-40 mm WD</td>
</tr>
<tr>
<td>120-400225</td>
<td>VisiLED Ringlight S80, 25-50 mm WD</td>
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<td>120-400255</td>
<td>VisiLED Ringlight S80, 55-135 mm WD</td>
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<td>120-400300</td>
<td>VisiLED DF Ringlight S40, 5-15 mm WD</td>
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<tr>
<td>120-400400</td>
<td>VisiLED Transmitted Light Stage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>120-157420</td>
<td>Slit Ringlight, 66 mm ID</td>
</tr>
<tr>
<td>120-158210</td>
<td>Focusing Lens (without Filter)</td>
</tr>
<tr>
<td>120-158205</td>
<td>Polarizing Filter for 120-158210</td>
</tr>
<tr>
<td>120-157420</td>
<td>Silt Ringlight, 66 mm ID</td>
</tr>
<tr>
<td>120-158430</td>
<td>Polarizer/Analyzer for 120-157420</td>
</tr>
</tbody>
</table>

**Zeiss CL/KL Series**

Providing homogenous and flicker-free LED illumination, the CL series is the performance leader in light sources. The CL 6000 and CL 9000 feature an LCD display for intensity control, operation mode and memory function, and all CL units have a 3-position filter slider. The low energy consumption, long lifetime (50,000 operating hours) and white light output of the LED make it the ideal choice for stereomicroscopy. The CL 9000 emits up to 900 lumens and is equipped with a CAN interface, which allows the light source to be controllable by the SyCoP and AxioVision 4™ software.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-435709101</td>
<td>CL 6000 LED Light Source, 600 lm, 115 V</td>
</tr>
<tr>
<td>12-435709000</td>
<td>CL 9000 LED Light Source, 900 lm, 115 V</td>
</tr>
<tr>
<td>12-435709200</td>
<td>CL 4500 LED CRI 90 Light Source, 450 lm, 115 V</td>
</tr>
<tr>
<td>120-120300</td>
<td>KL 300 LED Light Source, 120-240 V</td>
</tr>
<tr>
<td>120-150700</td>
<td>KL 1500 Halogen 150 Watt Cold Light Source, 115 V</td>
</tr>
<tr>
<td>120-158210</td>
<td>Focusing Lens (without Filter)</td>
</tr>
<tr>
<td>120-158205</td>
<td>Polarizing Filter for 120-158210</td>
</tr>
<tr>
<td>120-157420</td>
<td>Silt Ringlight, 66 mm ID</td>
</tr>
<tr>
<td>120-158430</td>
<td>Polarizer/Analyzer for 120-157420</td>
</tr>
</tbody>
</table>

**Schott Coldvision Series**

The Coldvision ACE light sources are an economical choice providing up to 150 W of halogen illumination via numerous light guide options. Variable intensity control allows adjustment of light output. A standard EKE bulb is included.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>120-A20500</td>
<td>Schott Coldvision 150 W Halogen Light Source, 115 V</td>
</tr>
<tr>
<td>120-A20520</td>
<td>Schott Coldvision 150 W Halogen Light Source, 115 V with Iris Diaphragm</td>
</tr>
<tr>
<td>120-A08500</td>
<td>Light Guide, Dual Branch Gooseneck, 7.6 mm Diameter x 460 mm Length</td>
</tr>
<tr>
<td>120-A08620</td>
<td>Ringlight, 47-62 mm, Vertical Exit</td>
</tr>
<tr>
<td>120-A08615</td>
<td>Polarizer/Analyzer for 120-A08620</td>
</tr>
<tr>
<td>120-A08635</td>
<td>Ringlight, 38-53 mm, Vertical Exit</td>
</tr>
<tr>
<td>120-A08632</td>
<td>Polarizer/Analyzer for 120-A08635</td>
</tr>
<tr>
<td>120-EKE</td>
<td>Halogen Bulb, 21 V/150 W</td>
</tr>
</tbody>
</table>
**AxioVision 4™ Image Analysis Software**

From materials research and development to industrial quality control and assurance, more and more materials laboratories are utilizing the advantages of digital microscopy. **Carl Zeiss** is driving this process with solutions that are continually setting new standards. A major component is AxioVision 4™, the preferred image analysis software for the microscopist. With its unique modular architecture, it is equally suited for both newcomers and advanced users. It features seamless integration between camera and microscope for all imaging and analysis needs.

### Features:
- Measurement of lines, angles, arcs, circles, area, perimeter and more
- Annotations/Text
- Contrast and filtering adjustment
- Full camera control
  - Exposure
  - White balance
  - Shade correction
  - Histogram
  - Image orientation
- Customizable workflows, toolbars, and buttons
- Report generation
- Available in **32/64-bit for Windows 7**

### Modular Components:
- Panorama/Mosaix (image tiling)
- Extended Focus (combining images from multiple focal planes)
- Auto Measurement (image segmentation)
- Z-Stack (automatic snapping of images from multiple focal planes — only on motorized microscopes)
- Imaging Plus (advanced image processing)
- Commander scripting
- VBA programming
- Mark & Find (motorized stage required)
- Autofocus (motorized stand only)
- Interactive Measurement
- Online Measurement (measurement on live images)
- High Dynamic Range Imaging
- Topography

### Why Consider AxioVision?

**Integration with Zeiss Microscope and Camera** – With each objective change, the magnification is captured and scalings are applied automatically (encoded microscopes). All data such as magnification, camera exposure and bit depth are tagged on snapped images.

**Functionality** – Zeiss gives users complete control over the system (camera, software and microscope) without using third party components, drivers, etc. Because Zeiss designs and manufactures all the components, they are designed to work together, seamlessly.

**Support** – Allied has image analysis experts to answer IA questions. Between Zeiss and Allied, users have access to two organizations for maximum support.

**Versatility** – A workflow can be designed to implement tasks easily and repeatedly. For advanced users, toolbars and macros can be customized to fit their needs.

**Image Formats** – AxioVision supports importing and exporting of most standard file formats. Its proprietary ZVI file retains image properties: calibration, brightness, contrast, gamma, user definable comments, keywords, date, and more.

---

**Imaging Workstations**

Allied offers a wide range of computer systems, cameras, camera adapters, printers, and accessories to help build a complete imaging workstation optimized for your specific application.
For image analysis, Zeiss offers modular software packages capable of providing one-click reports that are fully customizable with company logo, layout, data and more.

**Grains**
- Three measurement methods:
  - Automatic (reconstruct)
  - Interactive (intercept counting, with 6 different chord patterns)
  - Comparison (overlays)
- ASTM (I-IV), SEP, BS, DIN, EN standards
- “Wall Chart” comparative method

**Multiphase**
- Routine sample analysis of particle size, phase content, porosity
- Up to 32 phases: B/W or color
- Percent area, volume fraction, classifications
- Pearlite/ferrite content of steel

**AutoMeasure**
- Wizard for guided generation of programs
- Image processing, global/local segmentation, and thresholding
- Custom measurement creation
- Export data into CSV and XML formats
- Measure porosity, particles, impurities, and more

**NMI**
- Non-metallic inclusions in steel: oxides, sulphides, nitrides
- ASTM, ISO, DIN, EN, JIS standards
- Worst Field and oversized particle measurement

**Coating Thickness**
- Automatic measurement of coating thickness: raw thickness values, average thickness, statistics
- Single image or batch processing of multiple images

**Graphite**
- Graphite measurement in cast iron
- ASTM, ISO, EN, SAE standards
- Three measurement methods: Spherolite, Lamellar, Vernicular

**Topography**
- Generation of isometric 3D images
- EN ISO 4287 roughness measurements
- Height map creation from Z data
- Stereogram viewing using anaglyph glasses

**PCB Layers**
- Automatic measurement of PCB layers: copper thickness, dielectric thickness, raw values, average thickness values
- Single image or batch processing of multiple images

**One-Click Reports!**
The **Zeiss** line of AxioCam digital cameras offers seamless integration with AxioVision software, providing full control over all camera functions including exposure, white balance, shade correction and image orientation. AxioVision LE (Limited Edition) software is provided with each AxioCam. It may be installed on an unlimited number of computers so that if images need text/annotation or further measurements, these tasks can be performed without the use of the main image capture station. It also allows viewing of raw ZVI image files by anyone, similar to how Adobe Acrobat Reader is used to view PDF files.

**AxioVision LE provides the following functions:**
- Image capture
- Exposure control
- Color/shade correction
- Image orientation
- Basic measurements
- Annotations
- Circles
- Scale bar
- Text box

---

**Camera Comparison Chart**

<table>
<thead>
<tr>
<th>Cameras for Quantitative Analysis</th>
<th>Cameras for Routine/Basic Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HRc</strong></td>
<td><strong>MRc 5</strong></td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>CCD</td>
<td>CCD</td>
</tr>
<tr>
<td>2/3”</td>
<td>2/3”</td>
</tr>
<tr>
<td>1:2200 at 25 MHz</td>
<td>1:1300</td>
</tr>
<tr>
<td>400 μs to 600 s</td>
<td>250 μs to 60 s</td>
</tr>
<tr>
<td>3x12-bit at 25 MHz</td>
<td>3x12-bit</td>
</tr>
<tr>
<td>3x14-bit at 12.5 MHz</td>
<td>3x14-bit</td>
</tr>
<tr>
<td>13 MP</td>
<td>5 MP</td>
</tr>
<tr>
<td>4164 x 3120</td>
<td>2584 x 1936</td>
</tr>
<tr>
<td>IEEE 1394a (FireWire 400)</td>
<td>IEEE 1394a (FireWire 400)</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**Micro Vickers/Knoop**
(Pages 78-79)

**Automatic Micro Vickers/Knoop**
(Page 80)

**Macro Vickers**
(Page 81)

**Rockwell**
(Pages 82-83)

**NEW!**
Mitutoyo Testers

Allied offers the complete line of hardness/microhardness testers from Mitutoyo, including Vickers, Knoop, Rockwell, and Rockwell Superficial configurations. As the leading metrology company in the world, Mitutoyo provides dependable product and technical support, state of the art calibration and repair services, and cutting-edge research and development.

With intuitive controls, easy operation, and unparalleled stability, these systems are a high-quality addition to any testing and analysis environment. A variety of indenters, objectives, test forces, motorized components, and external interfaces, among other accessories, are available to customize a tester for any application.

Micro Vickers/Knoop

NEW!

<table>
<thead>
<tr>
<th>Measuring microscope</th>
<th>Wide range of test force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designed for measuring indentation dimensions, the microscope utilizes an integrated 10X eyepiece (video camera system #125-810354A can be installed).</td>
<td>Precision electromagnetic controls allow the desired test force to be set between the following:</td>
</tr>
<tr>
<td>LED illumination</td>
<td>HM-210: 10 gf to 1000 gf</td>
</tr>
<tr>
<td>LED illumination unit provides long service life and low power consumption.</td>
<td>HM-220: 0.05 gf to 2000 gf</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Automatic turret</th>
<th>Long working distance objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>The positions of the indenter and objective lens can be automatically switched using the touchscreen (can also be manually switched).</td>
<td>Six (6) infinity corrected objectives are available. 10X, 20X, 50X, and 100X magnifications are used when measuring indentations; 2X and 5X are used for widefield observation.</td>
</tr>
<tr>
<td>Up to four (4) objective lenses and two (2) indenters can be installed.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Manual XY stage with digital micrometers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>During test-site positioning, the positional information is digitally displayed on both the micrometers and the touchscreen.</td>
<td></td>
</tr>
<tr>
<td>• 1” x 1” (25 x 25 mm) standard</td>
<td></td>
</tr>
<tr>
<td>• 2” x 2” (50 x 50 mm) optional</td>
<td></td>
</tr>
</tbody>
</table>
**Interfacing to external instruments**

Test results can be printed on a printer or output to a PC using the following:

- USB 2.0 interface (for data communication) for PC
- Digimatic interface for DP-1VR, U-WAVE, and USB-ITN
- Serial interface for DPU-414

**Video camera system #125-810354A**

CCD camera and 8.4" TFT monitor enable observation and measurement of indentations at high magnification, reducing operator error.

**Touchscreen controller**

The touchscreen provides a full suite of basic functions necessary for hardness testing, including pass/fail determination, hardness value conversions, and statistical calculations. The easy-to-understand graphic display enables intuitive operation. Functions for converting values and compensating for curved surfaces, as well as test condition guiding functions, are all provided as standard features.

**GUIDE FOR CONDITION SETTING**

Enter the specimen thickness and the presumed hardness to set a test force that satisfies the conditions.

**SETUP 1**

Select a conversion scale, enter a setting for Pass/Fail determination, and specify external output.

**DURATION**

In addition to the test force dwell time, the user can specify loading and unloading testing times.

**MEASUREMENT**

Display test conditions and test results.
High speed USB Camera
The 3 megapixel, high speed USB camera allows fast and accurate measurements of the indentations.

LED Illumination
LED illumination unit provides long service life and low power consumption.

Automatic XY stage
Automatic stage enhances measurement efficiency, reduces variation due to operator errors, and enables repeatable test patterns via AVPAK. Joystick included for control without PC.

AVPAK Software
AVPAK software provides seamless integration between the microhardness tester and camera for completely automatic measurement and analysis. With multiple screen layouts for control, testing status, and result display, it is easy to use, highly customizable, and powerful for a variety of applications.

Software Features:
- Indenter/objective turret control
- Illumination control
- Live camera view
- Automatic focus
- Contrast level meter
- Report generation
- Hardness distribution diagram
- Hardness curve
- Test pattern creation, saving, and pasting
- Stage control and coordinate measurement
- Graphic view of stored images
- Digital zoom of test region
- Handling of multiple specimens
- In-process indentation status display
- High-performance image processing for automatic indentation measurement
- Rapid hardness calculations and conversions
- Pass/fail determination
- Curved surface compensation
- Statistical calculations
Accessories - Micro Vickers/Knoop

Self-Leveling Vise
#125-810020
This vise secures any mounted specimen that has a measuring surface difficult to stabilize perpendicular to the indenter axis.

Clamping Vise
#125-810016
This vise with 2” (51 mm) maximum opening secures a wide variety of sample sizes.

Digimatic Mini-Processor
DP-1VR Printer
#125-2645045A
Easily print measurement data from the digimatic gage or perform statistical analysis with this device.

Test Blocks
Test blocks are available for a wide range of microhardness values and loads.

Macro Vickers/Knoop

LED illumination
LED illumination unit provides long service life and low power consumption.

Automatic turret
Up to three (3) long working distance objective lenses (from 2X to 100X) and two (2) indenters can be automatically switched via PC using AVPAK (can also be manually switched).

Touchscreen Controller
The intuitive touchscreen provides a full suite of functions, including pass/fail determination, hardness value conversion, curved surface compensation, offset information, and test condition settings.

Monitor display
CCD camera and 8.4” TFT monitor enable observation and measurement of indentations and high magnification, reducing operator error (10X eyepiece also available for measurement without the camera).

Wide range of test force
Precision electromagnetic controls allow the desired test force to be set between the following:
HV-110: 1 kgf to 50 kgf
HV-120: 0.3 kgf to 30 kgf

Fully automated tester with motorized stage/focus and AVPAK software are also available.
Rockwell Hardness Testers

**Easy-to-Read Display**
Easy-to-read digital display with touchpad to control results, conversions, scale selection, OK/NG judgment, and output to printer.

**Simple Scale Selection**
Change between Rockwell and Superficial hardness scales with this simple dial.

**Automatic Braking and Loading**
Manual specimen advancement is used until the automatic brake and automatic loading sequence starts.

**Dead Weight Loading**
Dead weight loading selectable by dial produces accurate and reproducible test forces.

**HR-430MS**
Test results can be printed via the SPC and serial interfaces.

**Easy-to-read digital display**

**Preliminary test force knob**

**Rockwell Hardness Test Method**
Easily turn test force knob to “R” (Rockwell) or “S” (Superficial)

**Rockwell Superficial Hardness Test Method**
Projected-Nose Indenter
Projected-nose indenter arm and spotlight enable easy placement of indentations on difficult specimens.

Closed Loop Force Control
Closed loop electronic test force provides accurate control for loading, dwelling and unloading conditions.

Automatic Braking and Loading
Manual specimen advancement is used until the automatic brake and automatic loading sequence starts.

Versatile Data Output
Data is output via SPC, serial, and centronics interfaces for reporting and statistical analysis.

Backlit LCD Display
Touchscreen LCD controls hardness value, conversions, test conditions, OK/NG judgment, statistics, data offset, cylindrical/spherical compensation, and more.

HR-521

Accessories - Macro Vickers/Knoop, Rockwell, Rockwell Superficial

Flat Anvils
Diameter: 2.5" (64 mm)
Diameter: 1.5" (38 mm)
2.5" diameter is included with testers. 1.5" diameter and large round table anvils are available.

V Anvils
Diameter: 1.5" (38 mm)
Groove width: .38" (9.7 mm)
Diameter: 1.5" (38 mm)
Groove width: 1.5" (38 mm)
Diameter: .38" (9.7 mm)
Groove width: .38" (9.7 mm)
30 mm V-groove included with testers. 50 mm and 6 mm grooves are also available.

Test Blocks
Test blocks are available for a wide range of hardness values and loads.

Digimatic Mini-Processor
DP-1VR Printer
125-2645045A
Easily print measurement data from the digimatic gage or perform statistical analysis with this device.
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Most items listed in this catalog are standard stock items and are available for immediate/next-day shipment (exceptions will be noted at the time orders are placed). Special order sizes and/or configurations are available for most items in the catalog, but may require a lead time for delivery, and may not be returned unless found to be defective.

**FREIGHT:**
All orders are shipped UPS / FedEx or common carrier, FOB Shipping Point (from Rancho Dominguez, CA). Next Day Air, 2nd Day Air, etc. are available at customer request, at additional cost. Freight is prepaid and added along with handling and miscellaneous charges (i.e. Hazardous Charges, C.O.D., etc.) on all invoices. We also ship via Consignee Billing or Collect using customer’s account number.

**PAYMENT TERMS:**
Net 30 Days from date of invoice, upon credit approval. We also accept: 🛒 🛒 🛒

**RETURNED GOODS POLICY:**
Standard products may be returned with prior authorization and an approved Return Consumables Authorization (RCA) or Return Equipment Authorization (REA) number. Allied will gladly accept returned goods within thirty (30) days following the date of invoice. Returns for special orders, unless found to be defective, are not accepted.

**LIMITED WARRANTY:**
Allied High Tech Products, Inc. warrants that all products will be free from defects in workmanship and material. It is further warranted that Allied products, when operated in accordance with operating instructions or specifications, will perform the work for which they are designed. Allied High Tech Products, Inc. will not be liable for compensatory damages beyond this limited warranty.