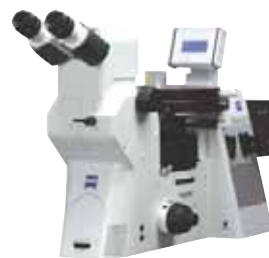


# ALLIED

HIGH TECH PRODUCTS, INC.

## *Product Catalog*



*Quality Products for Metallographic  
Sample Preparation & Analysis*



# WELCOME TO ALLIED HIGH TECH PRODUCTS, INC.

## 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 almost **30** years, Allied has been meeting the needs of companies in the microelectronics, materials science, materials manufacturing, aerospace, military, 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 several hundred 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

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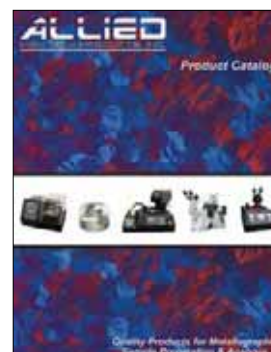


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### INDUSTRIES



Microelectronics  
Materials Science  
Materials Mfg.  
Aerospace/Military  
Photonics/  
Fiber Optics  
Education/R&D



### On the cover:

Micrograph of pure magnesium captured with the Carl Zeiss AxioCam MRc 5 digital camera on the Axiolmager microscope using a 10X EC Epiplan Neofluar objective and polarized light.

## **We're not satisfied until you are**

If you are not completely satisfied with any Allied consumable product, simply return it within 30 days of purchase. We will either replace it or refund your money based on your method of payment. Most Allied equipment carries a full 2-year warranty. We do not want you to have anything from Allied High Tech that is not completely satisfactory!

## **5 reasons to choose Allied!**

### **1 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
- ☐ Surface mail

### **2 Five convenient ways to buy**

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### **3 Our service is always prompt, friendly and personal**

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

### **4 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. We're dedicated to quality!

### **5 We stock it so we can ship your orders immediately**

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.



# **ADVANCING TECHNOLOGY IN SAMPLE PREPARATION**





Robert E. Smith, COO

Clayton A. Smith, President

Robert C. Smith, CEO



### **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 our customers.



### **CUSTOMER SERVICE**

Allied's commitment to "*the ultimate service experience*" starts with our friendly and helpful customer service personnel. Our ultimate goal is your complete satisfaction!



### **SHIPPING/RECEIVING**

Allied utilizes the finest transportation available to ensure immediate delivery to our customers.



### **STATE-OF-THE-ART LABORATORY**

Allied's laboratory technicians provide product demonstrations and training, develop specialized sample procedures for customers worldwide, and evaluate new products prior to introduction.  
"Our lab's for you!"



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



**EMPLOYEE FITNESS AREA**  
Healthy employees are a key element in providing customers with professional and efficient service.



**ENGINEERING CENTER**  
Using the latest 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.

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**DIAMOND BAND SAW**  
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## TechCut 5™ Precision High Speed Saw

A versatile, programmable precision high speed saw designed to cut a wide variety and size of materials. The **TechCut 5™** automatically sections materials at high speeds, increasing sample throughput. The microprocessor-based system utilizes a stepper motor to control 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 new Quick-Release 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.

### Features:

- ❖ Interchangeable, Quick-Release Fixturing System
- ❖ Automatic sample advancement (Y-axis), adjustable from 0.05 to 3 inches per minute
- ❖ Soft starting function
- ❖ Capacity: 6" W x 6" L x 2½" H (152 x 152 x 64 mm)
- ❖ Accepts 3-8 inch (76-203 mm) blades with either ½-inch (12.7 mm) or 1¼-inch (32 mm) arbor hole
- ❖ Variable blade speed: 500-5000 RPM
- ❖ Adjustable cut-depth with high-speed auto-retraction
- ❖ Adjustable sample force (low, medium, high) optimizes feed rate automatically
- ❖ Sample rotation and pulse modes for difficult, round or thick samples (when used with optional Rotational Cutting Attachment #5-5545)
- ❖ 1¼ HP (950 W) high torque motor
- ❖ Touch-pad switches control all functions
- ❖ Backlit 4-line LCD display
- ❖ Protective splash cover with safety auto shut-off sensor
- ❖ Recirculating coolant system with adjustable nozzles and cleaning hose, 1¼-gallon capacity (3½-gallon external system available)
- ❖ Dimensions: 21" W x 31" D x 25" H (533 x 780 x 635 mm)
- ❖ Weight: 147 lb. (67 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 



#5-5330 Quick-Release T-Slot Table provides a versatile platform for various fixturing options. Shown here with #5-4050 Vertical Adjusting Clamps

### T-Slot Table & Accessories: **New!**

5-5330	Quick-Release T-Slot Table
5-5350	Clamp Set for up to 1/4" Thick Samples (Pk/4)
5-5525	Quick-Slide Stainless Steel Vise, 2" Capacity
5-4050	Vertical Adjusting Clamp, 2¼" Capacity

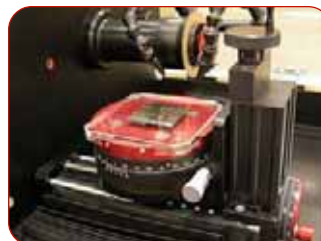
**New!**



#5-5320 X-Axis Table with #5-5545 Rotational Cutting Attachment



#5-5320 X-Axis Table with #5-5520 Cam-Lock Holding Device



#5-5325 X-Axis Table with #5-5530 Z-Stage and #5-5540 Rotation Stage



Cam-lock base enables simple fixturing changes. #5-5525 Quick-Slide Vise w/ #5-5320 X-Axis Table

Item	Description
5-5300	<b>TechCut 5™</b> w/Quick-Release Fixturing, 115 V
5-5300-230	<b>TechCut 5™</b> w/Quick-Release Fixturing, 230 V
<b>Includes:</b> #20-1015 3" Flange Set, #80-ASSORT-4 Assorted 8" Cut-Off Blades and 32 oz. Cutting Fluid	

### Indexing Tables & Accessories:


5-5320	Quick-Release X-Axis Table (25 µm Resolution)
5-5325	Quick-Release X-Axis Table (2 µm Resolution)
5-5520	Cam-Lock Holding Device
15-1045	Multipurpose Fixture for #5-5520
5-5525	Quick-Slide Stainless Steel Vise, 2" Capacity
5-5530	Z-Stage, 1" Travel with 0.001" Increments
5-5540	Rotation Stage, 360° with 0.1° Resolution
5-5545	Rotational Cutting Attachment with Holders
5-5555	Dual Saddle Clamp Set
5-5560	Teardrop Holder for 25 mm - 2" mounts



# TechCut 4™ Precision Low Speed Saw

A low speed saw excellent for cutting smaller, delicate samples that cannot tolerate increased heat caused by high speed sectioning. The gravity-fed cutting system uses adjustable weights to apply or counterbalance downward force to the sample during sectioning. Cutting fluid is drawn from the reservoir by the rotating blade and applied to the sample. With a 3 to 6 inch blade range, samples up to 2 inches thick can be sectioned.

## Features:

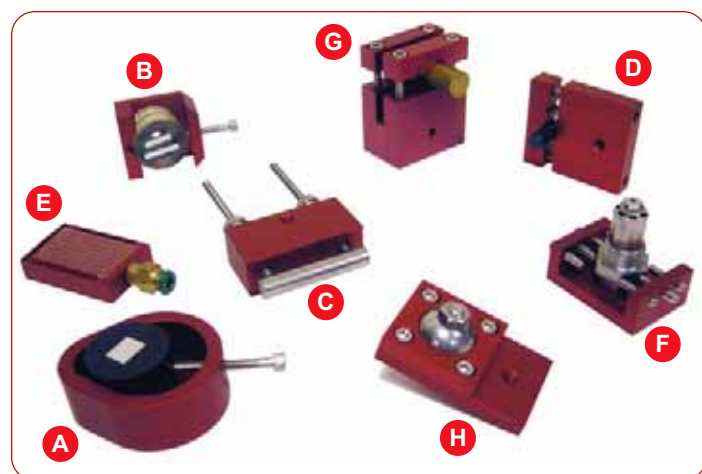
- ❖ Gravity-fed cutting system
- ❖ 3-6 inch (75-150 mm) diameter blade range, ½-inch (12.7 mm) arbor hole
- ❖ Variable speed with LED display: 10-500 RPM (10 RPM increments)
- ❖ Cutting capacity: 2-inch (51 mm) diameter
- ❖ Micrometer sample indexing, 1-micron resolution, 1½-inch range
- ❖ Spring-loaded dressing stick attachment allows dressing while sectioning
- ❖ Automatic optical shut-off sensor with adjustable stop to control depth of cut
- ❖ Precision-machined aluminum and stainless steel construction offers maximum corrosion resistance and durability
- ❖ 1/17 HP (45 W) motor with durable reduction gearbox for constant high-torque output
- ❖ Sliding weights provide variable sample loading: 0-300 grams
- ❖ Removable coolant reservoir
- ❖ Touch-pad switches control all functions
- ❖ Removable splash shield
- ❖ Removable catch screen prevents sectioned pieces from falling into reservoir
- ❖ Dimensions: 11" W x 17" D x 14" H (279 x 432 x 356 mm)
- ❖ Weight: 36 lb. (16 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 



Unique spring-retractable dressing stick attachment allows dressing while sectioning



Removeable splash shield



## Item Description

- 5-5000 **TechCut 4™**, 115 V  
 5-5000-230 **TechCut 4™**, 230 V

**Includes:** #60-20075 5" Diamond Wafering Blade, #5-5005 Mount Holder, #5-5010 V-Block Fixture, #5-5020 Single Saddle Clamp, 32 oz. Low Speed Cutting Fluid and #60-20105 Dressing Stick

## Accessories:

5-5005	Teardrop Holder for 25 mm - 1½" mounts	<b>A</b>
5-5010	V-Block Fixture, 1" Capacity	<b>B</b>
5-5015	Bone Fixture	<b>C</b>
5-5020	Single Saddle Clamp	<b>D</b>
5-5025	Glass Slide/Thin Section Fixture, Vacuum Type	<b>E</b>
5-5030	Irregular Shaped Sample Fixture	<b>F</b>
5-5035	Dual Saddle Clamp	<b>G</b>
5-5040	Swivel Attachment (to adapt other fixtures for angle cutting)	<b>H</b>
5-5045	2½" Flange Set	



## Trim Saw

Excellent for rapid sectioning of printed circuit boards, ceramic substrates, electronic packages and other non-metals. Cutting fluid is drawn from the reservoir by the rotating blade and applied to the sample. Durable molded plastic construction prevents corrosion.

### Features:

- ❖ 1/8 HP (90 W) motor, variable speed: 500-3000 RPM
- ❖ 4-6 inch (100-150 mm) diameter blade range, 1/2-inch (12.7 mm) arbor hole
- ❖ Durable plastic injection molded body prevents corrosion
- ❖ Plexiglass cover (removable) for safety and splash protection
- ❖ Large cutting platform: 6 1/2" W x 12 1/2" D (165 x 318 mm)
- ❖ Adjustable table rip fence for repeatable, guided sectioning
- ❖ Coolant reservoir, 1/2-gallon (1.9 L) capacity
- ❖ Dimensions: 16" W x 16" D x 14" H (406 x 406 x 356 mm)
- ❖ Weight: 25 lb. (11.3 kg)
- ❖ One (1) year warranty

Item	Description
70-30010	<b>Trim Saw</b> , 115 V
70-30010-230	<b>Trim Saw</b> , 230 V
<b>Includes:</b> #65-10030 6" Diamond Wafering Blade and 32 oz. Cutting Fluid	

## Diamond Band Saw

Versatile sectioning machine, excellent for coarse or non-linear cutting of materials such as printed circuit boards, electronic packages, substrates, polymers and other non-metals. Coolant is drawn from the reservoir by the blade and applied to the sample. Durable injection molded plastic construction prevents corrosion.

### Features:

- ❖ 1/3 HP (250 W) motor, 2850 RPM
- ❖ Blade speed: 60 feet per second (FPS)
- ❖ Coolant tank, 1-gallon (3.8 L) capacity
- ❖ Durable plastic injection body prevents corrosion
- ❖ Large cutting platform 12" W x 11" D (305 x 280 mm) accommodates oversized samples
- ❖ Allows tight-radius sectioning for sample extraction from large pieces
- ❖ Single knob, blade tension adjustment
- ❖ Dimensions: 11" W x 15" D x 18" H (279 x 381 x 457 mm)
- ❖ Weight: 20 lb. (9 kg)
- ❖ One (1) year warranty



Item	Description
70-1500	<b>Diamond Band Saw</b> , 115 V
70-1500-230	<b>Diamond Band Saw</b> , 230 V
<b>Includes:</b> #70-1506 Diamond Plated Saw Blade and 32 oz. Cutting Fluid	
<b>Accessories:</b>	
70-1505	Diamond Plated Blade with Teflon™ Replacement Guides (Pk/2)




## PowerCut 10™ Cut-Off Saw

A powerful, manual bench-top abrasive cut-off saw for sectioning various types and sizes of metallographic samples.

The **PowerCut 10™** uses blades ranging from 8 to 10 inches in diameter, allowing materials up to 3 inches thick to be sectioned. A side port accommodates longer samples such as bar stock.

### Features:

- ❖ 10-inch (250 mm) diameter blade capacity
- ❖ Accepts blades with either 1 1/4" or 32 mm arbor hole
- ❖ Powerful 3.5 HP (2600 W) motor, 3450 RPM
- ❖ Cutting capacity: up to 3-inch (76 mm) bar stock
- ❖ 5 inch distance between blade and motor allows longer/larger parts to be sectioned
- ❖ Quick-Slide stainless steel vise with 3-inch (76 mm) capacity
- ❖ Two (2) T-slot tables allow front-to-back and side-to-side vise/clamp positioning
- ❖ Optional vertical adjusting clamp available for odd-shaped samples
- ❖ Large, fog-resistant, shatterproof viewing window
- ❖ Illuminated cutting chamber
- ❖ Recirculating coolant system with cleaning hose, 7-gallon capacity
- ❖ Stainless steel coolant tank with removable settling pan
- ❖ Counterbalanced motor with direct drive
- ❖ Lubrication fittings on motor hinge allow smooth blade feed
- ❖ Corrosion and impact resistant cover
- ❖ Sturdy cast aluminum base
- ❖ Side-port for cutting long bar stock
- ❖ Electronic brake stops blade for operator safety
- ❖ Safety auto shut-off switch for cover
- ❖ Emergency shut-off switch
- ❖ Dimensions: 24" W x 29" D x 17" H (610 x 737 x 432 mm)
- ❖ Weight: 168 lb. (76 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 



*Dual T-slot tables can accommodate two #5-4005 quick-slide vises to provide maximum sample support for burr-free cutting*



*Dual T-slot tables provide a versatile platform for various fixturing options to secure irregular-shaped samples (#5-4050 Vertical Adjusting Clamps shown)*

Item	Description
5-4000	<b>PowerCut 10™</b> , 230 V
5-4000-415	<b>PowerCut 10™</b> , 415 V
<b>Includes:</b> #5-4005 Quick-Slide Stainless Steel Vise, 128 oz. Cutting Fluid and #80-ASSORT Assorted 10" Blades	
<b>Accessories:</b>	
5-4005	Quick-Slide Vise, 3" Capacity Dimensions: 2" W x 1.85" H x 7" L
5-4010	Quick-Slide Vise, Low Profile, 3" Capacity Dimensions: 2" W x 1.4" H x 7" L
5-4030	Cabinet/Stand Dimensions: 26" W x 31" D x 37" H
5-4050	Vertical Adjusting Clamp, 2 1/4" Capacity



*The optional #5-4030 Cabinet/Stand is also useful for blade, tool and coolant tank storage*

## Wafering Blades

Wafering blades are available in **Bonded**, **Plated** or **Solid Core** configurations with Diamond, CBN (cubic boron nitride), Aluminum Oxide or Silicon Carbide 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.



*Metal Bonded Blades*

### Diamond, Metal Bond

#### High Concentration

Recommended for general laboratory sectioning, either low (<1000 RPM) or high (>1000 RPM) speeds.

Item	Dimensions
60-20065	3" x .006" x 0.5" (76 x .15 x 12.7 mm)
60-20070	4" x .012" x 0.5" (102 x .31 x 12.7 mm)
60-20075	5" x .015" x 0.5" (127 x .38 x 12.7 mm)
60-20080	6" x .020" x 0.5" (152 x .51 x 12.7 mm)
60-20081	7" x .025" x 0.5" (178 x .64 x 12.7 mm)
60-20084	8" x .030" x 0.5" (203 x .76 x 12.7 mm)

#### 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 (<1000 RPM) speeds.

Item	Dimensions
60-20085	3" x .006" x 0.5" (76 x .15 x 12.7 mm)
60-20090	4" x .012" x 0.5" (102 x .31 x 12.7 mm)
60-20095	5" x .015" x 0.5" (127 x .38 x 12.7 mm)
60-20100	6" x .020" x 0.5" (152 x .51 x 12.7 mm)
60-20101	7" x .025" x 0.5" (178 x .64 x 12.7 mm)
60-20104	8" x .030" x 0.5" (203 x .76 x 12.7 mm)



*Resin Bonded Blades*

### Diamond, Resin Bond

Recommended for cutting hard, brittle or delicate materials including ceramics, carbides, composites and exotic metals where low heat generation or improved surface finish is desired. Most commonly used at higher (>1000 RPM) speeds.

Item	Dimensions
60-20069	4" x .020" x 0.5" (102 x .51 x 12.7 mm)
60-20074	5" x .020" x 0.5" (127 x .51 x 12.7 mm)
60-20079	6" x .020" x 0.5" (152 x .51 x 12.7 mm)
60-20086	7" x .025" x 0.5" (178 x .64 x 12.7 mm)
60-20088	8" x .030" x 0.5" (203 x .76 x 12.7 mm)



*Metal Bonded Diamond Blade*

### CBN, Metal Bond

Recommended for sectioning ferrous metals including steels, iron, cobalt, nickel and lead based alloys. Most commonly used at lower (<1000 RPM) speeds.

Item	Dimensions
60-20071	4" x .012" x 0.5" (102 x .31 x 12.7 mm)
60-20076	5" x .015" x 0.5" (127 x .38 x 12.7 mm)
60-20082	6" x .020" x 0.5" (152 x .51 x 12.7 mm)
60-20083	7" x .025" x 0.5" (178 x .64 x 12.7 mm)

### CBN, Resin Bond

Recommended for sectioning hard steels above Rc 60. Most commonly used at higher (>1000 RPM) speeds.

Item	Dimensions
60-30005	5" x .020" x 0.5" (127 x .51 x 12.7 mm)
60-30010	6" x .020" x 0.5" (152 x .51 x 12.7 mm)
60-30015	7" x .025" x 0.5" (178 x .64 x 12.7 mm)
60-30020	8" x .030" x 0.5" (203 x .76 x 12.7 mm)



## Plated Blades

Plated blades consist of a solid metal core with diamonds nickel-plated to the rim. They provide aggressive cutting action on samples containing resins and soft materials including PCBs, fiber composites and plastics. They are recommended where surface finish, dimensional accuracy or long life of bonded blades is not critical.



*Diamond Plated, Segmented Rim Blade*

## Diamond, Segmented Rim

Recommended for sectioning resin or plastic composites, and other materials where metals are not predominate. The diamond segments draw coolant into the cut, providing aggressive, cooler sectioning. Used at either low (<1000 RPM) or high (>1000 RPM) speeds.

Item	Dimensions
65-10005	4" x .008" x 0.5" (102 x .20 x 12.7 mm)
65-10010	4" x .020" x 0.5" (102 x .51 x 12.7 mm)
65-10025	6" x .020" x 0.5" (152 x .51 x 12.7 mm)
65-10030	6" x .040" x 0.5" (152 x 1.0 x 12.7 mm)

## Diamond, Continuous Rim

For fast, general sectioning of a wide variety of materials. Used at either low (<1000 RPM) or high (>1000 RPM) speeds.

Item	Dimensions
75-10005	4" x .012" x 0.5" (102 x .31 x 12.7 mm)
75-10010	4" x .020" x 0.5" (102 x .51 x 12.7 mm)
75-10020	5" x .020" x 0.5" (127 x .51 x 12.7 mm)
75-10035	6" x .040" x 0.5" (152 x 1.0 x 12.7 mm)
75-10045	8" x .025" x 0.5" (203 x .64 x 12.7 mm)

## Dressing Stick, Silicon Carbide

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

Item	Dimensions
60-20105	6" x 0.5" x 0.5" (152 x 12.7 x 12.7 mm)



## Cutting Fluid, Low Speed

Designed exclusively for low speed cutting (<1000 RPM) applications where a thicker formula is needed to lubricate blades, remove debris from the cut and reduce friction.

Item	Description
60-20110	32 oz. (950 mL)



## Solid Core Blades

Solid core cut-off blades consist of abrasive mineral mixed with either resin or rubber 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. Recommended for higher speed cutting on non-gravity fed saws.



## Rubber Bond (Pk/10)

Rubber bond blades are recommended for cutting metals and softer materials and offer long life.

Al <sub>2</sub> O <sub>3</sub>	Dimensions	SiC
80-11190	5" x .025" x 0.5" (127 x .64 x 12.7 mm)	80-11195
80-11200	6" x .030" x 0.5" (152 x .76 x 12.7 mm)	80-11205
80-11210	7" x .030" x 0.5" (178 x .76 x 12.7 mm)	80-11215
80-11220	8" x .035" x 0.5" (203 x .89 x 12.7 mm)	80-11225

## Resin Bond (Pk/10)

Resin bond blades are excellent when sectioning hard metals or when it is important to reduce heat generation.

**Note:** Requires a spacer flange for saws with 1/2-inch arbors. Fits on abrasive cut-off saws with 1 1/4-inch arbors.

Al <sub>2</sub> O <sub>3</sub>	Dimensions	SiC
80-11300	6" x .024" x 1.25" (152 x .61 x 31.75 mm)	80-11400
80-11305	7" x .030" x 1.25" (178 x .76 x 31.75 mm)	80-11405
80-11310	8" x .030" x 1.25" (203 x .76 x 31.75 mm)	80-11410

## Cutting Fluid, High Speed

Recommended for high speed cutting (>1000 RPM) applications to extend the life of cut-off blades and reduce heat. This nontoxic formula contains non-foaming and rust-inhibiting additives, and mixes 2-5% in water.

Item	Description
80-10145	32 oz. (950 mL)
80-10140	128 oz. (3.8 L)



## Cut-Off Blades

Allied's Abrasive Cut-Off Blades are specially formulated for metallurgical sectioning. Aluminum oxide ( $\text{Al}_2\text{O}_3$ ), silicon carbide (SiC), diamond and CBN (cubic boron nitride) 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 arbor inserts are supplied on resin and rubber/resin blades. Blade arbor holes fit BOTH 32 mm and 1¼" 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 bonded** blades cut cooler with less resistance and friction and do not emit a burned rubber odor as with rubber bonded blades.

**Rubber bonded** blades are ideal for production environments where durability and longer life are desired.

**Rubber/resin bonded** blades offer both durability and cooler cutting characteristics.

**Metal bonded** blades (diamond) provide longer blade life and durability for less critical surface finish requirements.

9" (225 mm)	Application/Material	Abrasive	Bond	Thickness Inch (mm)	Unit	Item
	Tool Steels/Rc 60+	Al <sub>2</sub> O <sub>3</sub>	Rubber/Resin	.062" (1.6)	Pk/10	80-50000
			Rubber	.062" (1.6)		80-50005
	Hardened Steels/ Super Alloys Rc 45-60		Rubber	.062" (1.6)		80-50010
				.040" (1.0)		80-50015
	Carbon Steels/ Medium Hard Steels Rc 30-45		Resin	.060" (1.5)		80-50022
			Rubber	.062" (1.6)		80-50025
	Delicate Cutting			.040" (1.0)		80-50030
	Rubber		.032" (0.8)	80-50035		
	Soft/Annealed Steels		Resin	.080" (2.0)		80-50040
	Tough Non-Ferrous/ Titanium Alloys		SiC	Resin	.055" 1.4)	NEW!
		Rubber		.062" (1.6)	80-50055	
				.040" (1.0)	80-50060	
	Soft Non-Ferrous/Al/Cu Alloys	Rubber/Resin		.062" (1.6)	80-50065	

10" (250 mm)	Application/Material	Abrasive	Bond	Thickness Inch (mm)	Unit	Item
	Tool Steels/Rc 60+	Al <sub>2</sub> O <sub>3</sub>	Rubber/Resin	.062" (1.6)	Pk/10	80-40000
			Resin	.060" (1.5)		80-40001
	Hardened Steels/ Super Alloys Rc 45-60		Rubber	.062" (1.6)		80-40010
				.040" (1.0)		80-40015
	Carbon Steels/ Medium Hard Steels Rc 30-45		Resin	.040" (1.0)		80-40021*
				.060" (1.5)		80-40022
			Rubber	.062" (1.6)		80-40025
				.040" (1.0)		80-40030
	Delicate Cutting		Rubber	.032" (0.8)		80-40035
	Soft/Annealed Steels		Resin	.080" (2.0)		80-40040
	Tough Non-Ferrous/ Titanium Alloys	SiC	Resin	.055" (1.4)	New!	80-40045
				.040" (1.0)	80-40054*	
			Rubber	.062" (1.6)	80-40055	
				.040" (1.0)	80-40060	
	Soft Non-Ferrous/Al/Cu Alloys	Rubber/Resin	.062" (1.6)	80-40065		
	Ceramics/Composites	Diamond	Metal	.050" (1.3)	Each	60-40070
	Carbides/Fragile Non-Metallics		Resin	.050" (1.3)		60-40075
	Hardened Steels/Rc 60+	CBN	Resin	.050" (1.3)		60-40080

\*Fits 1¼" spindle arbors only!





12"  
(300 mm)

Application/Material	Abrasive	Bond	Thickness Inch (mm)	Unit	Item	
Tool Steels/Rc 60+	Al <sub>2</sub> O <sub>3</sub>	Rubber/Resin	.090" (2.3)	Pk/10	80-30000	
		Resin	.070" (1.8)		80-30001	
Hardened Steels/ Super Alloys Rc 45-60		Resin	.070" (1.8)		80-30008	
		Rubber	.062" (1.6)		80-30010	
			.040" (1.0)		80-30015	
Carbon Steels/ Medium Hard Steels Rc 30-45		Resin	.070" (1.8)		80-30023	
		Rubber	.062" (1.6)		80-30025	
			.040" (1.0)		80-30030	
Soft/Annealed Steels		Resin	.080" (2.0)		80-30035	
Tough Non-Ferrous/ Titanium Alloys		SiC	Resin	.065" (1.7)	New!	80-30045
				.040" (1.0)	80-30052	
	Rubber		.062" (1.6)	80-30050		
			.040" (1.0)	80-30055		
Soft Non-Ferrous/Al/Cu Alloys	Diamond	Rubber/Resin	.090" (2.3)	Each	80-30060	
Ceramics/Composites		Metal	.062" (1.6)		60-30065	
Carbides/Fragile Non-Metallics		Resin	.062" (1.6)		60-30070	
Hardened Steels/Rc 60+	CBN	Resin	.062" (1.6)		60-30075	

14" (350 mm)	Application/Material	Abrasive	Bond	Thickness Inch (mm)	Unit	Item
	Tool Steels/Rc 60+	Al <sub>2</sub> O <sub>3</sub>	Resin	.110" (2.8)	Pk/10	80-10001
	Hardened Steels/ Super Alloys Rc 45-60		Resin	.110" (2.8)		80-10002
			Rubber	.062" (1.6)		80-10010
	Carbon Steels/ Medium Hard Steels Rc 30-45		Resin	.080" (2.0)		80-10015
			Rubber	.062" (1.6)		80-10020
	Soft/Annealed Steels		Resin	.080" (2.0)		80-10025
	Tough Non-Ferrous/ Titanium Alloys	SiC	Rubber	.062" (1.6)	80-10030	
			Resin	.075" (1.9)	NEW! 80-10045	
	Soft Non-Ferrous/Al/Cu Alloys		Rubber/Resin	.090" (2.3)	80-10035	
	Ceramics/Composites	Diamond	Metal	.062" (1.6)	Each	60-10040
	Carbides/Fragile Non-Metallics		Resin	.062" (1.6)		60-10045
Hardened Steels/Rc 60+	CBN	Resin	.062" (1.6)		60-10046	


# TechPress 2™ Mounting Press

The **TechPress 2™** hydraulic-pneumatic automatic mounting press is used to encapsulate samples for metallographic preparation. The microprocessor based system allows up to 50 mounting steps to be programmed, including cycle start/stop, preheating time and temperature, heating time and temperature, predefined or operator-defined mold pressures and cooling time. Temperature is displayed in both Fahrenheit and Celsius throughout the mounting procedure.

Two mounts can be produced at one time using the duplexing spacer. Depending on mold size, cycle times range from 7-12 minutes.

**Mold assemblies are sold separately and include a duplexing spacer**

## Features:

- ❖ Prepare up to 2 mounts in 7 minutes
- ❖ Programmable up to 99 mounting menus including cycle start/stop, preheat/heating time and temperature, cooling time and pressure
- ❖ Touch-pad switches control all functions
- ❖ Interchangeable mold assemblies from 25 mm through 2 inch, include a duplexing spacer, allowing up to two mounts per cycle
- ❖ Bayonet cap with non-heat conducting handles remain cool during operation
- ❖ Impact, corrosion and heat-resistant cover
- ❖ Visual and audible cycle completion alarm
- ❖ Large heat-sink/holding tray to remove remaining heat from bayonet cap/die
- ❖ Backlit LCD display
- ❖ Password protectable menus
- ❖ Heating power: 1500 W
- ❖ Molding pressure: up to 5500 psi/379 Bar
- ❖ Preheat/molding temp: 0-200 °C/32-392 °F
- ❖ Preheat/molding time: 0-60 minutes
- ❖ Cooling time: 0-60 minutes
- ❖ Dimensions: 18" W x 22" D x 28" H (457 x 559 x 711 mm)
- ❖ Weight: 98 lb. (45 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 



*Prepare up to 2 mounts in just 7 minutes!*



*Duplexing spacer provided with each mold assembly allows 2 mounts to be produced per cycle. Bayonet cap rests on a convenient heat-sink/holding tray between cycles.*

Item	Description
30-1000	<b>TechPress 2™</b> , 115 V
30-1000-230	<b>TechPress 2™</b> , 230 V
<b>Includes:</b> #135-10005 Black Phenolic Mounting Powder, 5 lb., Measuring Scoop, Brass Cleaning Brush and Funnel	

## Mold Assemblies:

30-1005	1" Mount with Duplexing Spacer
30-1010	1¼" Mount with Duplexing Spacer
30-1015	1½" Mount with Duplexing Spacer
30-1020	2" Mount with Duplexing Spacer
30-1025	25 mm Mount with Duplexing Spacer
30-1030	30 mm Mount with Duplexing Spacer
30-1035	40 mm Mount with Duplexing Spacer
30-1040	50 mm Mount with Duplexing Spacer





## Compression Mounting

Hot 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 for this application.

### Phenolic Powders

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

Item	Description
135-10005	Black, 5 lb. (2.3 kg)
135-10007	Black, 25 lb. (11.5 kg)
135-10005-B	Black, 250 lb. (113 kg) <b>New!</b>
135-10010	Green, 5 lb. (2.3 kg)
135-10012	Green, 25 lb. (11.5 kg)
135-10010-B	Green, 250 lb. (113 kg) <b>New!</b>
135-10015	Red, 5 lb. (2.3 kg)
135-10017	Red, 25 lb. (11.5 kg)
135-10015-B	Red, 250 lb. (113 kg) <b>New!</b>

### Phenolic Preforms

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

Item	Description
135-20005	Black, for 30 mm or 1¼" Mold (Pk/500)
135-30005	Black, for 1½" or 40 mm Mold (Pk/500)
135-40005	Black, for 2" or 50 mm Mold (Pk/100)
135-20010	Green, for 30 mm or 1¼" Mold (Pk/500)
135-30010	Green, for 1½" or 40 mm Mold (Pk/500)
135-40010	Green, for 2" or 50 mm Mold (Pk/100)
135-20015	Red, for 30 mm or 1¼" Mold (Pk/500)
135-30015	Red, for 1½" or 40 mm Mold (Pk/500)
135-40015	Red, for 2" or 50 mm Mold (Pk/100)

### Blue Diallyl Phthalate Powder

Glass or mineral-filled mounting material that provides excellent edge retention and chemical resistance.

Item	Description
160-10005	Glass-Filled, 5 lb. (2.3 kg)
160-10010	Mineral-Filled, 5 lb. (2.3 kg)

### Black Glass-Filled Epoxy Powder

Very hard epoxy mounting material with glass fiber filler that provides excellent specimen adhesion and edge retention. Mold release is recommended (see page 20).

Item	Description
150-10105	5 lb. (2.3 kg)
150-10110	25 lb. (11.5 kg)

### Conductive Powder

Mounting material 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.

Item	Description
155-10010	Copper-Based, 1 lb. (0.45 kg)
155-20010	Graphite-Based, 1 lb. (0.45 kg)
155-20015	Graphite-Based, 5 lb. (2.3 kg) <b>New!</b>

### Transparent Thermoplastic Powder

A clear mounting material for easy sample observation.

Item	Description
165-10005	5 lb. (2.3 kg)

## Cold Mounting

Cold mounting materials are used to encapsulate samples that cannot withstand the heat and pressure of compression mounting, when better flow and penetration of the mounting material is needed or when a large quantity of samples must be encapsulated at once.

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

**Epoxyes:** Typically chosen for their excellent flow and penetration, epoxyes are used when better adhesion, less shrinkage and clarity are required.

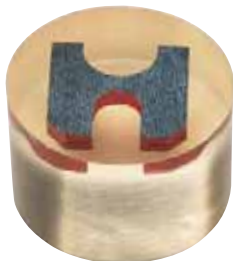
### QuickCure Acrylic

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

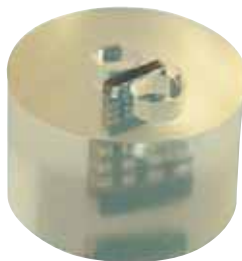
#### Features:

- ❖ Cure time: 15-20 minutes
- ❖ 82 Shore D hardness
- ❖ Excellent clarity when cured under pressure
- ❖ Mixed by volume

Item	Description
170-10000	QuickCure Kit
<b>Includes:</b> #170-10005 5 lb. Powder, (2) #170-10025 32 oz. Liquid, 50 mixing cups & stir sticks and measuring scoop	
170-10020	2 lb. Powder (0.9 kg)
170-10005	5 lb. Powder (2.3 kg)
170-10025	32 oz. Liquid (950 mL)



QuickCure



QuickSet

## Pressure Chambers

The use of pressure with acrylics and epoxy mounting resins prevents the formation of bubbles (outgassing) caused from elevated exothermic temperatures during hardening. This also produces clearer mounts with better edge retention, improved adhesion of the mounting media and reduced shrinkage.

The 10" diameter chamber (#175-10000) accommodates large molds and PCB (printed circuit board) sample holders.

Item	Description
175-10000	Chamber, 10" Diameter x 4½" Deep Max. rating: 35 psi/2.4 BAR
175-10005	Chamber, 4¾" Diameter x 3¾" Deep Max. rating: 35 psi/2.4 BAR
175-10010	Air Pump, 115 V



Acrylic kits include powder, liquid, mixing cups, stir sticks and scoop

### QuickSet Acrylic

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

#### Features:

- ❖ Cure time: 6-8 minutes
- ❖ 84 Shore D hardness
- ❖ Excellent hole penetration on PCBs
- ❖ Low shrinkage improves adhesion
- ❖ Mixed by volume

Item	Description
185-10000	QuickSet Kit
<b>Includes:</b> #185-10005 5 lb. Powder, #185-10010 64 oz. Liquid, 50 mixing cups & stir sticks and measuring scoop	
185-10020	2 lb. Powder (0.9 kg)
185-10005	5 lb. Powder (2.3 kg)
185-10030	25 lb. Powder (11.5 kg)
185-10040	100 lb. Powder (45 kg)
185-10025	32 oz. Liquid (950 mL)
185-10010	64 oz. Liquid (1.9 L)
185-10035	2.5 Gallon Liquid (9.5 L)
185-10036	5 Gallon Liquid (19 L)





## EpoxyMount

A fast-curing epoxy that 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 (1¼" diameter x 1" thick)
- ❖ Heat (38 °C/100 °F) accelerates cure time to 45 mins.
- ❖ 87 Shore D hardness

Item	Description
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145-10005	EpoxyMount Kit
-----------	----------------

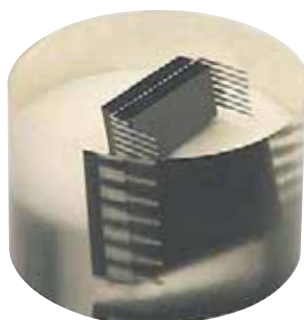
**Includes:** #145-10010 120 oz. Resin, #145-10015 40 oz. Hardener, 50 mixing cups & stir sticks and dispensing pump

145-10010	120 oz. Resin (3.4 kg) with pump
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145-10015	40 oz. Hardener (1.1 kg)
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145-10025	48 oz. Resin (1.4 kg)
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145-10030	16 oz. Hardener (450 g)
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EpoxyMount



EpoxySet

## 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 (1¼" diameter x 1" thick)
- ❖ 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)

Item	Description
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145-20000	EpoxySet Kit
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**Includes:** #145-20005 128 oz. Resin, #145-20010 16 oz. Hardener, 50 mixing cups & stir sticks and dispensing pump

145-20005	128 oz. Resin (3.6 kg) with pump
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145-20010	16 oz. Hardener (450 g)
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145-20015	51 oz. Resin (1.5 kg)
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145-20020	7 oz. Hardener (200 g)
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## VacuPrep™ Impregnation System New!

The **VacuPrep™** is used to remove entrapped air from uncured epoxy and/or draw epoxy into open pores and cavities in samples, to provide maximum bonding and support. This maintains sample integrity during abrasive preparation, reducing the chances of cracking or delamination.



### Features:

- ❖ Removes air bubbles and voids from uncured epoxy
- ❖ Holds up to (30) 1¼-inch (32 mm) cups
- ❖ Through-port allows optional epoxy fill under vacuum
- ❖ Cup holder for mixed epoxy
- ❖ Clear top allows sample viewing during process
- ❖ Pulls up to 28" Hg vacuum
- ❖ Large 10" diameter x 4.5" height chamber
- ❖ Stainless components resist corrosive gases
- ❖ Quiet, pump-free operation
- ❖ Operates with compressed air, 80 psi
- ❖ Dimensions: 13" W x 18" D x 6" H (330 x 457 x 152 mm)
- ❖ Weight: 21 lb. (9.5 kg)
- ❖ Designed & manufactured by Allied in the USA 

Item	Description
------	-------------

175-30000	<b>VacuPrep™</b>
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**Includes:** Mixing cups and 25' of tubing

## A. PCB Indexing Pins

Used to align through-holes when encapsulating multiple printed circuit board samples in one mount.

Item	Description
132-10000	1" Length x 0.094" Diameter (Pk/1000)
132-10005	41 mm Length x 2 mm Diameter (Pk/500)

## B. Glass Cover Slips

Adhere slips to delicate or small samples to support and protect the surface when preparing unencapsulated cross-sections. Good for eliminating delamination on ICs.

Item	Description
72-20000	18 mm Square (Pk/160)

## C. Stir Sticks & Applicators

Use Stir Sticks for mixing epoxy or acrylic components. Use Applicators for cleaning and applying etchant to samples.

Item	Description
210-10000	Wood Stir Sticks (Pk/1000)
210-30000	Cotton Tipped Applicators, 6" (Pk/1000)

## D. Epoxy Dissolver

A blend of solvents that when heated removes cured epoxy from a specimen.

Item	Description
145-50210	16 oz. (480 mL)

## E. Graduated Mixing Cup

For mixing epoxy or acrylic components, the chemical-resistant cup is graduated for volumetric measurement and will not contaminate mounting components.

Item	Description
199-10000	6 oz. (180 mL) Capacity (Pk/100)

## F. Electronic Balance/Scale

For precise weight measurement of epoxy components.

Item	Description
145-90000	400 Gram Capacity, 0.01 g Resolution

## G. Mold Release

Used to prevent hot or cold mounting materials from adhering to the mold.

Item	Description
200-10005	16 oz. (480 mL) Spray (Hot)
200-10006	16 oz. (480 mL) PTFE Spray (Hot or Cold)
200-10100	2 oz. (60 mL) Powder (Hot)
200-10010	16 oz. (480 mL) Spray (Cold)
200-10015	8 oz. (240 mL) PTFE Liquid (Hot or Cold)

A.



B.



C.



D.



E.



F.



G.



NEW  
FORMULA!





H.

I.



J.



K.



L.



## H. Sample Holding Clips

Used to hold thin samples on edge for encapsulation. Use metal for hot compression mounting, and plastic for cold mounting. Clips with stand-offs isolate the sample, eliminating gaps or air bubbles at the clip/sample interface.

Item	Description
205-10000	Stainless Steel "Roll Type" (Pk/100)
205-10005	Plastic "Roll Type" (Pk/100)
205-10050	Plastic "Roll Type" (Pk/1000)
205-10200	Clear Plastic w/Stand-Offs (Pk/100)
205-10205	Multi-Colored Plastic w/Stand-Offs (Pk/100)

**NEW!**

## I. 2-Part Mounting Cups (Pk/12)

Reusable cup has a separable bottom allowing easy mount removal after curing.

Item	Size
197-10000	1" (25 mm) Diameter
197-10005	1¼" (32 mm) Diameter
197-10010	1½" (38 mm) Diameter

## J. Disposable Mounting Cups (Pk/50)

Economical choice for high volume mounting requirements. Tear-away pull tabs allow for easy mount removal.

Item	Size
198-10000	1¼" (32 mm) Diameter
198-10005	1.6" (42 mm) Diameter
198-10010	1.9" (48 mm) Diameter
198-10015	3.4" (86 mm) Diameter

## K. Mount Protection Caps (Pk/50)

Used to protect polished samples from dust or scratching from excessive handling.

Item	Size
198-20000	1¼" (32 mm) Diameter
198-20005	1½" (38 mm) Diameter
198-20010	2" (51 mm) Diameter

## L. Silicone Mold Cups **NEW!**

Durable, reusable silicone mold cups used with epoxy or acrylic mounting materials. See sample holders on page 28 for matching size.

Item	Description
197-20005	2" (51 mm) Diameter
197-20011	1" x 2" (25 x 51 mm) Rectangle
197-20025	1.3" x 2.6" (33 x 66 mm) Rectangle
197-20030	1.9" x 1.9" (48 x 48 mm) Rectangle
197-20050	2" x 3.6" (51 x 91 mm) Rectangle

## N. EpoxyBond 110™

EpoxyBond 110™ is a hard, fast-curing epoxy adhesive commonly used to bond glass cover slips to small or delicate samples (i.e., ICs), adhere multiple samples for TEM stacking, precoat samples prior to encapsulation, fill PCB microvias and for other mounting applications. The two part formula is mixed 10 to 1 and cures bubble free in 5 minutes at 150 °C (302 °F). Once cured, it is chemically resistant to etchants and will not outgas under vacuum.

### Item Description

71-10000	EpoxyBond 110, ½ oz. (15 mL) Kit
71-10005	EpoxyBond 110, 4 oz. (120 mL) Kit

Kits Include: Mixing cups, spring clips (large and small) and mixing instructions.

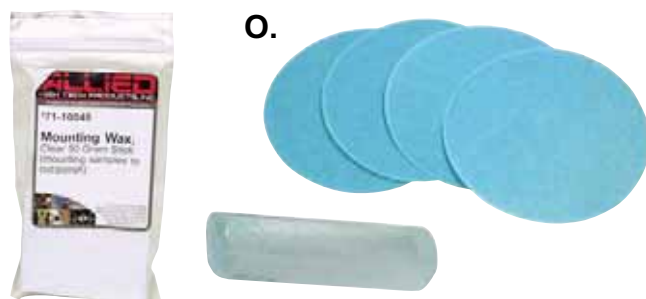
## O. Mounting Wax

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. Recommended for dicing, thin sections and parallel delayering.

### Item Description

71-10040	Hot Mounting Wax, Clear, 50 Gram Stick
71-10400	Sheet Wax, 4" Diameter Disc (Pk/50)



## Mount Storage Cabinet

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

### Item Description

30-8000	Mount Storage Cabinet with 10 drawers
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### Accessories:

30-8005	Mount Divider, (144) 1" or 25 mm diameter
30-8010	Mount Divider, (100) 1¼" or 30 mm diameter
30-8015	Mount Divider, (81) 1½" or 40 mm diameter
30-8020	Mount Divider, (36) 2" or 50 mm diameter

### Specifications:

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



## P. 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.

Loc-Tite 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.

### Item Description

71-20000	M-Bond 610, (4) 25 Gram Kits
71-40045	Loc-Tite 460™, 20 Gram Bottle



Shown with door removed for visual clarity



## METPREP 4™ SYSTEMS

(Pages 24-26)

### AD-5™ FLUID DISPENSER

(Page 27)



### METPREP 3™ SYSTEMS

(Pages 24-26)



### DUALPREP 3™ SYSTEMS

(Pages 24-26)



### MULTIPREP™ SYSTEMS

(Pages 30-31)



### TWINPREP 3™

(Page 33)



### M-PREP MACHINES™

(Page 32)



## Grinding/Polishing Machines

The **MetPrep™** and **DualPrep™** Grinding/Polishing machines, when combined 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 provide ideal solutions that accommodate any lab, application or material.

Intuitive menu navigation with user-friendly push-button 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. The jog mode provides convenient "one-button" activation of the platen without activating the Power Head to allow initial charging of cloths or manual grinding/polishing.

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



### Features:

- ❖ Programmable up to 25 polishing 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, %)
- ❖ Variable platen and jog speed, 10 RPM increments (see RPM Specifications in chart on page 25)
- ❖ Variable cycle time: 0-120 minutes (15 second increments)
- ❖ Seamless integration with optional AD-5™ Fluid Dispenser for fully automatic operation
- ❖ Each system incorporates powerful motors to provide constant high-torque output
- ❖ Quick-change platen design, anodized to resist wear and corrosion
- ❖ Electronic coolant control with adjustable flow control valve(s)
- ❖ Touch-pad switches control all functions
- ❖ Bowl flush to prevent debris buildup
- ❖ Emergency shut-off switch
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA







MetPrep 4™/PH-6™ System



25 programmable steps

### Grinder/Polisher Specifications

	MetPrep 3™		MetPrep 4™		DualPrep 3™	
Voltage	115 V & 230 V		115 V	230 V	115 V	230 V
Horsepower	5/8		1½	2	1½	2
Watts	470		1100	1500	1100	1500
Platen RPM	40-600		50-400	40-600	50-400	40-600
Jog RPM	40-600		50-400	40-600	50-400	40-600
Platen	8"		10" & 12"		8" & 10"	



### Accessories

Platen Diameter	Aluminum Platen	Magnetic Platen	Paper Holding Band
8"	5-2005	5-2005M	125-10011
10"	5-6010	5-6010M	125-10012
12"	5-6005	5-6005M	125-10013

**Aluminum Platens** are precision lapped parallel with a hard anodized surface (Rc 60+).

**Magnetic Platens** are used to adhere all magnetic system discs.

**Paper Holding Bands** secure plain back discs to a platen as an adhesive back alternative.

### Platen Storage Cabinet **NEW!**

Durable aluminum cabinet accommodates up to ten (10) aluminum trays/shelves (reversible) for storage of platens, discs or cloths. Hinged, clear plastic door with magnetic lock prevents dust contamination. Can be stacked or wall mounted. Includes five (5) trays.

#### Specifications:

Dimensions: 14" W x 14" D x 14" H (355 x 355 x 355 mm)  
Weight: 35 lb. (16 kg)

Item	Description
5-8100	Storage Cabinet for platens, discs or cloths up to 12" diameter
5-8105	Aluminum Tray/Shelf



Shown with door removed for visual clarity


## Power Heads

The **PH-3™**, **PH-4™** and **PH-6™** Power Heads offer maximum versatility for low to high volume semiautomatic 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 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)**

### Features:

- ❖ Central and Individual sample force functionality
- ❖ Soft-start and stop force control
- ❖ Unique tilt-up feature allows easy access to platen and holder
- ❖ Simple quick-change attachment and removal of sample holders
- ❖ Quick-lock allows sample holder positioning across entire platen surface
- ❖ 1/4 HP (190 W) motor with durable reduction gearbox provides constant high-torque output
- ❖ Variable rotation speed: 0-150 RPM (10 RPM increments)
- ❖ Complementary and contra rotation
- ❖ Designed & manufactured by Allied in the USA 



*Unique tilt-up feature for easy access*

## Power Head Specifications

Power Head	PH-3™	PH-4™	PH-6™
RPM	Variable 0-150		
Horsepower (Watts)	1/4 HP (190 W)		
	<b>Individual Force</b>		
Number of Samples	1 - 3	1 - 4	1 - 6
Force Range (LbF/N)	0-16/0-70	0-22/0-96	0-22/0-96
Mount Size Capacity	40 mm	2"/51 mm	2"/51 mm
	<b>Central Force</b>		
Number of Samples	3 - 6	3 - 9	3 - 12
Force Range (LbF/N)	5-50/22-219	5-90/22-394	5-90/22-394



*PH-6™ Individual Force configuration: six (6) individual pistons apply force to the mount(s) (1½" mounts shown).*

## Grinder-Polisher/Power Head Systems

System	V AC	PH-3™	PH-4™	PH-6™
<b>MetPrep 3™</b> 8" (200 mm)	115	5-2500	-	-
	230	5-2500-230	-	-
<b>MetPrep 4™</b> 10" (250 mm)	115	-	5-6510	5-6610
	230	-	5-6510-230	5-6610-230
<b>MetPrep 4™</b> 12" (300 mm)	115	-	5-6512	5-6612
	230	-	5-6512-230	5-6612-230
<b>DualPrep 3™</b> 8" (200 mm)	115	5-9508	-	-
	230	5-9508-230	-	-
<b>DualPrep 3™</b> 10" (250 mm)	115	-	5-9510	5-9610
	230	-	5-9510-230	5-9610-230

## System Specifications

	MetPrep 3™ / PH-3™	MetPrep 4™ / PH-4™ or 6™	DualPrep 3™ / PH-3™ or 4™
W	15" (381 mm)	24" (610 mm)	31" (780 mm)
Dimensions D	27" (686 mm)	28" (711 mm)	27" (686 mm)
H	23" (584 mm)	24" (610 mm)	23" (584 mm)
Weight	136 lb. (62 kg)	225 lb. (102 kg)	214 lb. (102 kg)

## AD-5™ Fluid Dispenser

The **AD-5™** Fluid Dispenser provides automatic, unattended application of abrasive polishing suspensions or lubricants. Its function can be controlled through Allied's MetPrep 3™, MetPrep 4™ and DualPrep 3™ grinders/polishers, or can be used with **ANY** brand polishing machine as a stand-alone system.

Timed, volume-controlled, variable-frequency dispensing delivers reproducible results by eliminating inconsistencies between operators. This increases productivity and efficiency in the lab, 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.




AD-5™ Fluid Dispenser shown with MetPrep 4™/PH-4™ System



25 programmable menus

### Features:

- ❖ Five (5) dispensing positions, 16 oz. (500 mL) capacity
- ❖ User-defined menu labeling (abrasive type & size, lubricant, cloth, material, and menu name)
- ❖ Remote function allows seamless integration and automatic activation with Allied's power head systems
- ❖ Pulse Duration: 0.5-6.0 seconds (0.5-second increments)
- ❖ Pulse Frequency: 1-10 per minute
- ❖ Local function allows operation with any grinder/polisher
- ❖ One-touch priming function allows quick, initial charging of new cloths
- ❖ One-touch activation independent of menu for simple operation
- ❖ Allows dispensing of colloidal suspensions (silica, silica/alumina and alumina) with rinse/flush function to avoid clogging
- ❖ Sequential programming of menus
- ❖ Peristaltic pump-controlled dispensing
- ❖ Up to 25 programmable menus
- ❖ Optional password protection of menus
- ❖ Touch-pad switches control all functions
- ❖ Backlit 4-line LCD
- ❖ Corrosion/impact resistant cover
- ❖ Dimensions: 8" W x 25" D x 9" H (203 x 635 x 228 mm)
- ❖ Weight: 28 lb. (13 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 

Item	Description
5-7000	<b>AD-5™</b> , 115 V
5-7000-230	<b>AD-5™</b> , 230 V
<b>Includes:</b> (5) 500 mL HDPE Dispensing Bottles and Bottle Labels	



## Central Force Holders

**Central Force Sample Holders** secure mounts/ samples on a common plane. A minimum of three samples must be prepared at once for balance.

**Teardrop Sample Holders** allow flexibility in the shape and size of the sample that can be held. A set-screw secures each sample.

**Dual-Cavity Sample Holders** feature a single tightening point, which is useful for rapid insertion and removal of up to two round or irregular shaped specimens per cavity. An advantage of the design is that it can hold one or two samples in a common cavity.

*Custom shapes and sizes are available upon request.*

### 5-33XX Series Holders

Used with any diameter platen.  
Outside diameter = 140 mm

Item	Description
5-3301	Sample Holder Blank Disc w/Heating Stage
5-3330	(6) 25 mm - 1¼" Samples, Teardrop
5-3340	(5) 25 - 40 mm Samples, Teardrop
5-3361	(6) 25 mm - 1¼" Samples, Dual-Cavity
5-3380	Sample Loading Fixture, for 5-33XX Series

### 5-34XX Series Holders

Use with either 10" or 12" diameter platens.  
Outside diameter = 160 mm

Item	Description
5-3401	Sample Holder Blank Disc w/Heating Stage
5-3435	(6) 25 mm - 1½" Samples, Teardrop
5-3440	(3) 25 mm - 2" Samples, Teardrop
5-3445	(9) 25 mm - 1¼" Samples, Teardrop
5-3460	(8) 25 mm - 1¼" Samples, Dual-Cavity
5-3461	(6) 30 - 40 mm Samples, Dual-Cavity
5-3490	(5) 1.2" x 2.1" (30 x 53 mm) Rectangular
5-3491	(3) 1.6" x 2.7" (40 x 68 mm) Rectangular
5-3494	(3) 2" x 2" (51 x 51 mm) Square
5-3480	Sample Loading Fixture, for 5-34XX Series

### 5-36XX Series Holders

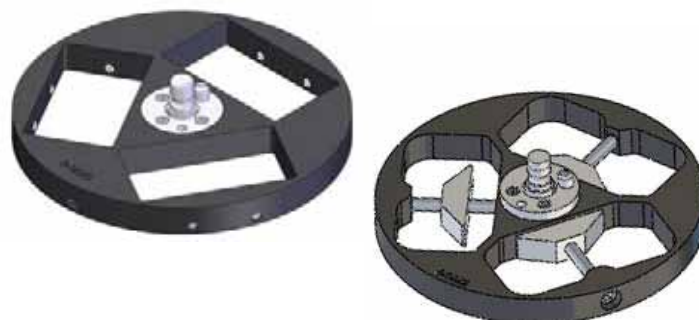
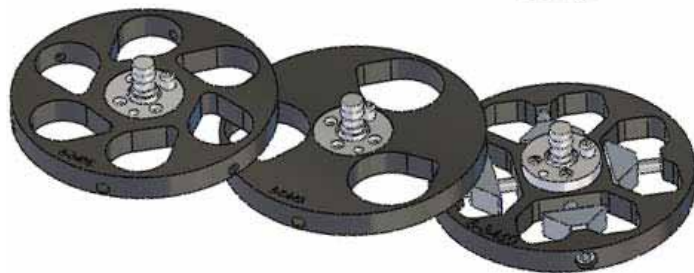
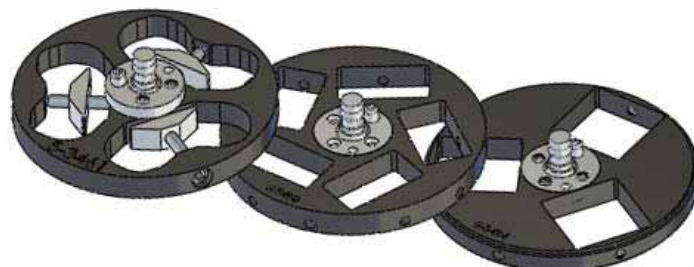
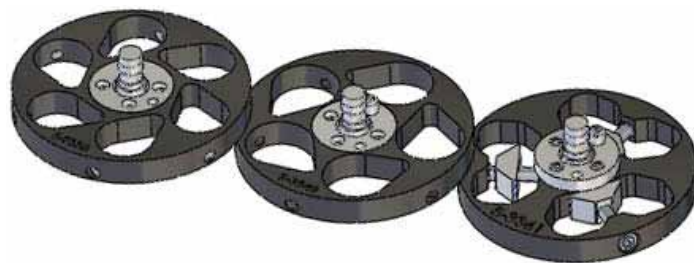
Use with 12" diameter platens only.  
Outside diameter = 200 mm

Item	Description
5-3601	Sample Holder Blank Disc w/Heating Stage
5-3605	(12) 25 mm - 1¼" Samples, Dual-Cavity
5-3635	(6) 25 mm - 1½" Samples, Teardrop
5-3650	(3) 2.1" x 3.7" (53 x 94 mm) Rectangular
5-3661	(8) 30 - 40 mm Samples, Dual-Cavity
5-3662	(6) 1½" - 2" Samples, Dual-Cavity
5-3680	Sample Loading Fixture, for 5-36XX Series

## Sample Holder Compatibility Chart

Sample holder selection is based on platen diameter, sample dimensions and force mode.

		Platen Diameter		
Function	Series	8"	10"	12"
Central (pg 28)	5-33XX	X	X	X
	5-34XX	-	X	X
	5-36XX	-	-	X
Individual (pg 29)	5-37XX	-	X	X
	5-38XX	X	-	-
	5-39XX	-	-	X



## Individual Force Holders

**Individual Force** functionality allows 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.

### 5-38XX Series Holders

Used with PH-3™ Power Head

Item	Description
5-3835	(3) 1" (25 mm) Mounts
5-3840	(3) 30 mm Mounts
5-3845	(3) 1¼" (32 mm) Mounts
5-3850	(3) 1½" (38 mm) Mounts
5-3855	(3) 40 mm Mounts



### 5-37XX Series Holders

Used with PH-4™ Power Head

Item	Description
5-3735	(4) 1" (25 mm) Mounts
5-3740	(4) 30 mm Mounts
5-3745	(4) 1¼" (32 mm) Mounts
5-3750	(4) 1½" (38 mm) Mounts
5-3755	(4) 40 mm Mounts
5-3760	(4) 50 mm Mounts
5-3765	(4) 2" (51mm) Mounts



### 5-39XX Series Holders

Used with PH-6™ Power Head

Item	Description
5-3935	(6) 1" (25 mm) Mounts
5-3940	(6) 30 mm Mounts
5-3945	(6) 1¼" (32 mm) Mounts
5-3950	(6) 1½" (38 mm) Mounts
5-3955	(6) 40 mm Mounts
5-3960	(6) 50 mm Mounts
5-3965	(6) 2" (51mm) Mounts



### Material Removal Measuring Instrument **New!**

Measuring instrument used to determine material removal from samples mounted in central force sample holders (see page 28). Features include a digital indicator with 1 µm (Metric) or 0.00005" (Imperial) resolution and plunger cable for remotely lifting the indicator tip.

Item	Description
5-3385	Measuring Instrument, for 5-33XX Holders
5-3485	Measuring Instrument, for 5-34XX Holders
5-3685	Measuring Instrument, for 5-36XX Holders







MultiPrep™ System, 8" Platen with optional AD-5" Fluid Dispenser

## MultiPrep™ Systems

The **MultiPrep™ System** 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 sample results by eliminating inconsistencies between users, regardless of their skill.

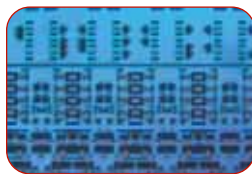
Dual micrometers (pitch and roll) allow precise sample tilt adjustments relative to the abrasive plane. A rigid Z-indexing spindle maintains the pre-defined geometric orientation throughout the grinding/polishing process.

Digital indicators enable quantifiable material removal, which can be monitored real-time, or pre-set for unattended operation. Variable speed rotation and oscillation maximize use of the entire abrasive/polishing disc and minimize artifacts. Adjustable load control expands its capability to handle a range of small (delicate) to large samples.

Common applications include parallel circuit delayering, cross-sectioning, serial/3-D preparation, wedge polishing and more.



FE SEM IC Cross-Section



Parallel Delayering of an IC



TEM Cross-Section of an IC



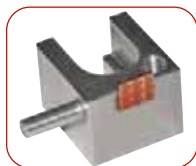
Preparation of Thin-Film TEM Specimens

## Accessories

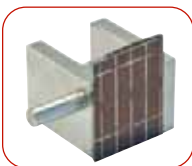
A wide variety of fixtures and accessories are available for either 8 or 12 inch platen systems. The cam-locking interface offers tool-free attachment and removal for ease of use. Fixtures are precision machined out of high-grade aluminum (conductive) or stainless steel (corrosion resistant), then either lapped, heat or surface treated for maximum performance and durability.



#15-1005  
Cam-Lock Adapter



#15-1010  
Cross-Sectioning  
Paddle



#15-1010-RE  
Cross-Sectioning  
Paddle with  
Reference Edge



#15-1013  
TEM Wedge/FIB  
Paddle w/Pyrex  
Insert



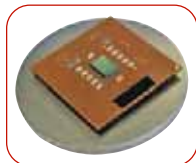
#15-1014  
TEM Wedge/FIB  
Thinning Paddle



#15-1018  
Pyrex Fixture for  
SIMS, TEM  
Preparation



#15-1020  
Parallel Polishing  
Fixture, 2 1/4" (57 mm)



#15-1020-80 or  
#15-1020-100  
Parallel Polishing  
Fixture, 80 or 100 mm



#15-1025  
Mount Holder, 1 1/2"  
Diameter Capacity



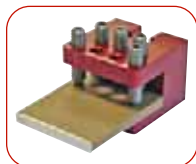
#15-1035  
Weight Kit



#15-1045  
Multipurpose  
Sample Fixture,  
2" Wide



#15-1046  
Multipurpose  
Diagonal Fixture,  
2" Wide



#15-1047  
Multipurpose  
Sample Fixture,  
1" Wide



#15-1048  
Multipurpose  
Diagonal Fixture,  
1" Wide



#15-1050  
Cross-Sectioning  
Paddle, Clamp  
Style



#15-1051  
Cross-Sectioning  
Paddle, Clamp  
Style, Diagonal  
Orientation




#120-30015  
Digital Indicator  
Measurement  
System

**NEW!**



**Features:**

- ❖ Front digital indicator displays real-time material removal (sample advancement), 1 micron resolution
- ❖ Precision spindle design indexes the sample perpendicular to the platen, and can rotate simultaneously
- ❖ Dual axis, micrometer-controlled angular positioning of the sample (pitch and roll),  $\pm 10/-2.5^\circ$  range, 0.01° accuracy
- ❖ Rear digital indicator displays vertical positioning (static) with zeroing function, 1 micron resolution
- ❖ Automatic sample oscillation, adjustable sweep with 6 speeds
- ❖ Gear-driven spindle for applications demanding higher rotational torque, i.e., larger or encapsulated samples
- ❖ Cam-locking system eliminates the need for tools and allows for precise repositioning of fixtures
- ❖ Full or limited automatic sample rotation with 8 speeds
- ❖ Variable sample load, 0-600 grams, in 100-gram increments
- ❖ Variable platen speed: 5-350 RPM (5 RPM increments)
- ❖ Touch-pad switches to control all functions
- ❖ 1/4 HP (190 W) motor with durable reduction gearbox provides high-torque
- ❖ Digital timer and tachometer
- ❖ Clockwise/counterclockwise platen rotation
- ❖ Bowl flush to prevent debris buildup
- ❖ Electronic coolant control with adjustable valve
- ❖ CE compliant
- ❖ Dimensions: MultiPrep™ 8": 15" W x 26" D x 20" H (381 x 660 x 508 mm)  
MultiPrep™ 12": 22" W x 26" D x 21" H (560 x 660 x 535 mm)
- ❖ Weight: MultiPrep™ 8": 125 lb. (57 kg)  
MultiPrep™ 12": 165 lb. (75 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 

**Why choose the 12" MultiPrep?**

A 12" platen and scaled positioning device with higher torque rotation/oscillation motors allow preparation of large or multiple samples exceeding an area of 1600 mm<sup>2</sup>.



Cross-Section of Multiple Gold Bond Wires



Solder ball interface with connector pin

**MultiPrep™ System, 8" Platen**

Item	Description
15-2000-GI	<b>MultiPrep™ System, 8"</b> , 115 V
15-2000-GI-230	<b>MultiPrep™ System, 8"</b> , 230 V

**Includes:** #10-1005 8" Aluminum Platen, Splash Ring, Platen Cover, #15-1020 Parallel Polishing Fixture, #15-1030 Dial Indicator Calibration Kit, Accessory Case, #50-30076 8" Diamond Lapping Film Assortment Pack, #90-150-350 8" Red Final C Adhesive Back Polishing Cloth, #180-25015 0.04 Micron Colloidal Silica Suspension, 16 oz. and MultiPrep™ Procedures & Alignment Video CDs

**Accessories:**

10-1005	8" (203 mm) Aluminum Platen
10-1005M	8" (203 mm) Magnetic System Platen

**MultiPrep™ System, 12" Platen**

Item	Description
15-2000-12	<b>MultiPrep™ System, 12"</b> , 115 V
15-2000-12-230	<b>MultiPrep™ System, 12"</b> , 230 V

**Includes:** #10-1010 12" Aluminum Platen, Splash Ring, Platen Cover, #15-1020 Parallel Polishing Fixture, #15-1030 Dial Indicator Calibration Kit, Accessory Case and MultiPrep™ Procedures & Alignment CDs

**Accessories:**

10-1010	12" (305 mm) Aluminum Platen
10-1010M	12" (305 mm) Magnetic System Platen

## M-Prep™ Grinding/Polishing Machines

The **M-Prep™** grinding/polishing machines are recommended for manual sample preparation and are available with either 8" (203 mm), 10" (254 mm) or 12" (305 mm) diameter platens. They feature analog control of all operations including platen speed, coolant flow (adjustable) and run/stop, and provide excellent torque throughout the speed range for standard applications.



M-Prep 3™ 8" Grinder/Polisher



M-Prep 4™ 12" Grinder/Polisher

### M-Prep 3™ 8" Grinder/Polisher

Item	Description
5-2100	<b>M-Prep 3™</b> , 115 V
5-2100-230	<b>M-Prep 3™</b> , 230 V
<b>Includes:</b> #5-2005 8" Aluminum Platen, Splash Ring, Platen Cover and #ASSORT-PSA 8" Silicon Carbide Discs Assortment Pack	

### M-Prep 4™ 10" Grinder/Polisher

Item	Description
5-6110	<b>M-Prep 4™</b> , 115 V
5-6110-230	<b>M-Prep 4™</b> , 230 V
<b>Includes:</b> #5-6010 10" Aluminum Platen, Splash Ring, Platen Cover and #ASSORT-PSA10 10" Silicon Carbide Discs Assortment Pack	

### M-Prep 4™ 12" Grinder/Polisher

Item	Description
5-6112	<b>M-Prep 4™</b> , 115 V
5-6112-230	<b>M-Prep 4™</b> , 230 V
<b>Includes:</b> #5-6005 12" Aluminum Platen, Splash Ring, Platen Cover and #ASSORT-PSA12 12" Silicon Carbide Discs Assortment Pack	

#### Features:

- ❖ Variable platen speed: 25-500 RPM
- ❖ Stable aluminum/stainless steel construction
- ❖ Quick-change platen design, anodized to resist wear and corrosion
- ❖ Corrosion/impact resistant cover
- ❖ Low profile, table top design
- ❖ Electronic coolant control with adjustable valve
- ❖ Bowl flush to prevent debris buildup
- ❖ Powerful, high torque motors:  
M-Prep 3™: 5/8 HP (470 W)  
M-Prep 4™: 3/4 HP (560 W)
- ❖ Dimensions:  
M-Prep 3™: 15" W x 26" D x 9" H  
(381 x 660 x 229 mm)  
M-Prep 4™: 22" W x 27" D x 10½" H  
(560 x 690 x 267 mm)
- ❖ Weight:  
M-Prep 3™: 66 lb. (30 kg)  
M-Prep 4™: 101 lb. (45 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA




## TwinPrep 3™ Grinding/Polishing Machines

The **TwinPrep 3™** grinding/polishing machines are recommended for manual sample preparation. They feature analog control of platen speed, power, and left or right coolant flow (adjustable). Platens rotate independently at speeds ranging from 25-500 RPM, and the motors provide excellent torque for standard applications. Available with either 8" (203 mm) or 10" (254 mm) diameter platens.



### Features:

- ❖ Two (2) independently controlled platens
- ❖ Dual, 5/8 HP (470 W) high torque motors
- ❖ Quick-change platen design
- ❖ Variable platen speed: 25-500 RPM
- ❖ Stable, corrosion resistant aluminum and stainless steel construction
- ❖ Two (2) independent electronic coolant controls with adjustable valves
- ❖ Bowl flush prevents buildup of debris
- ❖ Dimensions: 31" W x 26" D x 9.5" H (780 x 660 x 240 mm)
- ❖ Weight: 136 lb. (62 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 

*TwinPrep 3™ 8" Grinder/Polisher*



### TwinPrep 3™ 8" Grinder/Polisher

Item	Description
5-7508	<b>TwinPrep 3™</b> , 115 V
5-7508-230	<b>TwinPrep 3™</b> , 230 V

**Includes:** (2) #5-2005 8" Aluminum Platens, (2) Splash Rings, (2) Platen Covers and #ASSORT-PSA 8" Silicon Carbide Discs Assortment Pack

### TwinPrep 3™ 10" Grinder/Polisher

Item	Description
5-7510	<b>TwinPrep 3™</b> , 115 V
5-7510-230	<b>TwinPrep 3™</b> , 230 V

**Includes:** (2) #5-6010 10" Aluminum Platens, (2) Splash Rings, (2) Platen Covers and #ASSORT-PSA10 10" Silicon Carbide Discs Assortment Pack

### Accessories

The following accessories are available for the M-Prep 3™, M-Prep 4™ and TwinPrep 3™ machines.

Platen Diameter	Aluminum Platen	Magnetic Platen	Paper Holding Band
<b>8"</b>	5-2005	5-2005M	125-10011
<b>10"</b>	5-6010	5-6010M	125-10012
<b>12"</b>	5-6005	5-6005M	125-10013

**Aluminum Platens** are precision lapped parallel with a hard anodized surface (Rc 60+).

**Magnetic Platens** are used to adhere all magnetic system discs.

**Paper Holding Bands** secure plain back discs to a platen as an adhesive back alternative.






MetPrep 3™ Grinding/Polishing Machine

## MetPrep 3™ Grinding/Polishing Machine

The **MetPrep3™** grinding/polishing machine is excellent for manual preparation for standard applications, or when polishing delicate samples using hand-held tools. It features digital control of all operations including run/stop, platen speed, platen direction and coolant flow. Its sturdy construction and isolated platen spindle eliminate vibration. Precision lapped platens assure vertical run-out of less than 5 microns, and are excellent for applications requiring lapping films. Platen rotation speeds range from either 5-350 RPM or 40-600 RPM, in either clockwise or counterclockwise direction, with smooth, consistent low-end torque. An electronic solenoid activates coolant, and an adjustable valve allows for desired flow control.

### Features:

- ❖ Variable platen speed: 5-350 RPM or 40-600 RPM
- ❖ Powerful, high torque motors:  
#5-2000 Series: 1/4 HP (190 W)  
#5-2050 Series: 5/8 HP (470 W)
- ❖ Stable aluminum/stainless steel construction
- ❖ Clockwise/counterclockwise platen rotation
- ❖ Touch-pad switches control all functions
- ❖ Quick-change platen design
- ❖ Electronic coolant control with adjustable valve
- ❖ Bowl flush to prevent debris buildup
- ❖ Dimensions: 15" W x 26" D x 9" H  
(381 x 660 x 230 mm)
- ❖ Weight: 97 lb. (44 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 

Item	Description
5-2000	<b>MetPrep 3™</b> , 115 V, 5-350 RPM
5-2000-230	<b>MetPrep 3™</b> , 230 V, 5-350 RPM
5-2050	<b>MetPrep 3™</b> , 115 V, 40-600 RPM
5-2050-230	<b>MetPrep 3™</b> , 230 V, 40-600 RPM

**Includes:** #5-2005 8" Aluminum Platen, Splash Ring, Platen Cover and #ASSORT-PSA 8" Silicon Carbide Discs Assortment Pack

### Accessories:

5-2005	8" (203 mm) Aluminum Platen
5-2005M	8" (203 mm) Magnetic System Platen
69-10025	8" (203 mm) Frosted Glass Polishing Plate
69-10030	8" (203 mm) Plain Glass Support Plate

## TEM Wedge Polisher

Used to thin materials to electron transparency for TEM observation. The rear micrometer heads allow radial or axial (wedge) angle adjustments in 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 (no tools needed), allowing quick, easy removal for sample inspection and exact repositioning throughout the polishing procedure. The small Pyrex footprint reduces planarization time due to less surface area making contact with the abrasive.



### Features:

- ❖ Lightweight anodized aluminum body for corrosion resistance
- ❖ Cam-lock lever can be mounted on the right or left side according to operator's preference
- ❖ Low profile fixtures fit under objectives in most microscopes
- ❖ Aluminum cross-sectioning paddle 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

Used to cross-section small, unencapsulated samples such as ICs and other electronic devices.

The handheld tool's unique design is stable, well-balanced and has a low center of gravity to avoid rocking during polishing. Adjustable Teflon™ feet are used to align the sample with the desired polishing plane. The cross-sectioning paddle is attached using a cam-locking system (no tools needed), allowing quick, easy paddle removal for sample inspection and exact repositioning throughout the polishing procedure.

Item	Description
69-50000	Cross-Sectioning Tool Kit

### Accessories:

69-30010	Feet, Teflon™ (Pk/2)
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## GRINDING/POLISHING CONSUMABLES

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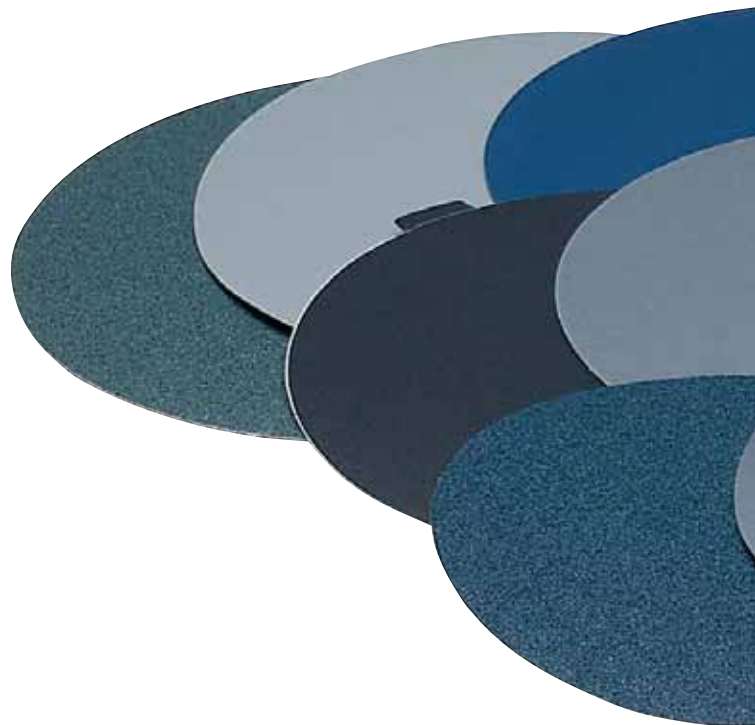
## Silicon Carbide Abrasive Discs

Designed for metallographic applications to coarse and fine grind a wide variety of materials. They 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 distortion and deformation.

Allied's silicon carbide abrasive discs are made with high quality C weight backing and are recommended for general laboratory requirements.

### Features:

- ❖ Premium resin bonding system retains abrasive for sustained material removal and longer wear rates
- ❖ Durable C weight backing with latex additive for superior water resistance
- ❖ Special adhesive backing allows effortless removal of the disc from platen without adhesive transfer
- ❖ Pull tabs on all adhesive back discs for easy removal of adhesive liner



## Abrasive Grade Comparison Chart

U.S. Industrial Grit																	
60	80	100	120	150	180	220	240	280	320	360	400	600	800	1200			
European FEPA or P-Grading																	
60	80	120	180	220	280	320	360	400	500	600	800	1000	1200	2400	4000		
Micron Grading																	
260	200	160	125	100	80	68	60	52	46	40	35	30	26	22	18	15	12
																10	9
																6	5

### Plain Back Discs (Pk/100)

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

(Includes 25 each 180, 320, 600, 1200 Grit)

#### \*Why use 600 Fine Grit?

- ❖ Minimizes "loading" when preparing samples cold mounted in epoxy or acrylic
- ❖ Provides finer surface finish which may reduce overall polishing time

#### \*\*Why use 1200 Fine Grit?

- ❖ When continued material removal is desired, following intermediate grinding steps (typically after 600 grit)
- ❖ Recommended for pre-diamond polishing, softer materials that smear, and step grinding for failure analysis

**Note:** As compared to 1200 (P-4000) grit, which is sputter coated and "polishes" more than "cuts", fine grit 1200 is electrostatically coated and "cuts" more than "polishes"





*Pull tab makes removing adhesive liner easy!*

### Adhesive Back Discs (Pk/100)

Grit (FEPA)	2-7/8"	8"	10"	12"
		(~200 mm)	(~250 mm)	(~300 mm)
60 (P-60)	-	50-10045	50-11045	50-10215
80 (P-80)	-	50-10046	50-11047	50-10217
120 (P-120)	-	50-10050	50-11050	50-10220
180 (P-180)	-	50-10055	50-11055	50-10225
240 (P-280)	50-00060	50-10060	50-11060	50-10230
320 (P-400)	50-00065	50-10065	50-11065	50-10235
400 (P-800)	50-00070	50-10070	50-11070	50-10240
600 (P-1200)	50-00075	50-10075	50-11075	50-10245
600 Fine*	-	50-10074	50-11074	50-10244
800 (P-2400)	50-00076	50-10076	50-11076	50-10246
1200 (P-4000)	50-00077	50-10077	50-11077	50-10247
1200 Fine**	-	50-10078	50-11078	50-10248
Assortment	ASSORT-1	ASSORT-PSA	ASSORT-PSA10	ASSORT-PSA12
(Includes 25 each 180, 320, 600, 1200 Grit)				

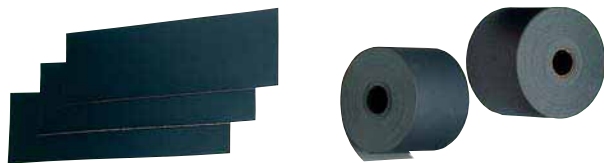
**8" (203 mm) Fine Grit Discs (Pk/100)**

Fine grit silicon carbide discs are electrostatically coated, allowing continued stock removal (cutting) after the 600 grit step. They differ from standard 800/2400 and 1200/4000 grit discs, which are sputter coated and "polish" more than "cut." Recommended for pre-diamond polishing, softer materials that smear or step grinding for failure analysis.

Item	Description
53-10035	1000 Grit Plain Back
53-10040	1200 Grit Plain Back
53-10042	1500 Grit Plain Back
53-10043	2000 Grit Plain Back
53-10044	2500 Grit Plain Back

**Silicon Carbide Strips & Rolls**

3" x 11" Adhesive Back Strips (Pk/100)	Grit	3-7/16" x 75' Plain Back Rolls (Each)
50-10535	240	50-10395
50-10540	320	50-10400
50-10545	400	50-10405
50-10550	600	50-10410
50-10555	800	50-10411
50-10560	1200	50-10412

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

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

Item	Description
52-10005	Double Sided Adhesive Discs, 8"
52-10003	Double Sided Adhesive Discs, 10"
52-10000	Double Sided Adhesive Discs, 12"

**Magnetic Fastening Discs (Pk/5) NEW!**

A rigid magnetic system disc with an adhesive surface that allows plain back silicon carbide abrasive discs to be secured to magnetic platens. Provides 25-75 disc pulls depending on grit size, cycle time and force.

Item	Description
52-20008	Magnetic System Fastening Discs, 8"
52-20010	Magnetic System Fastening Discs, 10"
52-20012	Magnetic System Fastening Discs, 12"

**Zirconia Alumina Discs (Pk/25)**

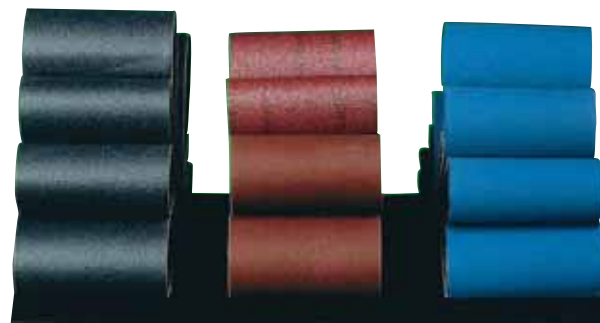
Zirconia Alumina provides rapid material removal and excellent wear resistance without generating excessive heat. Use Zirconia Alumina when grinding hard, ferrous metals and alloys on automatic or high speed manual grinding machines. All discs are adhesive backed.

Grit	8" (~200 mm)	10" (~250 mm)	12" (~300 mm)
60	50-10045-Z	50-11045-Z	50-10215-Z
120	50-10050-Z	50-11050-Z	50-10220-Z

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

Durable cloth-backed abrasive belts for various grinding requirements. Use Silicon Carbide for general laboratory applications, Aluminum Oxide for ferrous metals and Zirconia Alumina for heavy stock removal.

Grit	SiC	Al <sub>2</sub> O <sub>3</sub>	ZrAl
60	50-10415	-	50-10420-Z
80	50-10420	50-10460	50-10425-Z
120	50-10425	50-10470	50-10435-Z
180	50-10430	50-10475	-
240	50-10435	50-10480	-

**Grinding Stones**

Use Al<sub>2</sub>O<sub>3</sub> for grinding ferrous metals and alloys. Silicon Carbide is recommended 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.

Item	Description
81-10900	Aluminum Oxide, 150 Grit, 14" x 1 3/4" x 1 1/2"
81-10905	Silicon Carbide, 150 Grit, 14" x 1 3/4" x 1 1/2"
81-10920	Aluminum Oxide, 150 Grit, 8" x 2" x 1 1/4"



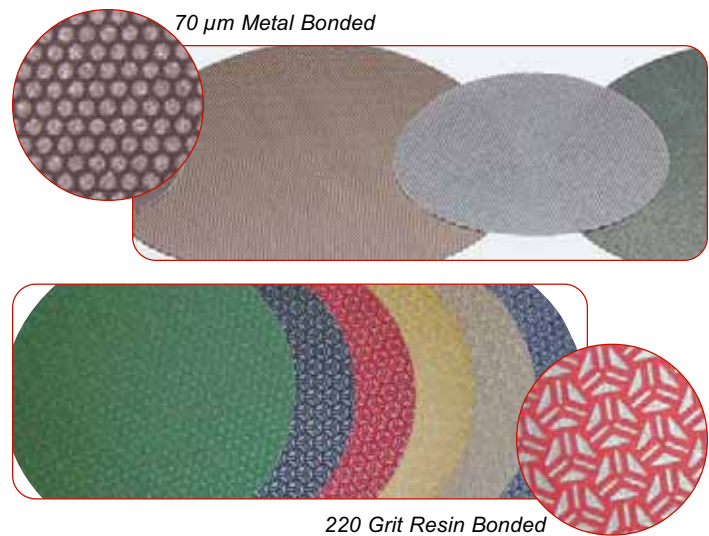
## Dia-Grid Diamond Discs

Dia-Grid Diamond Discs are recommended for hard-to-grind materials. They feature diamond particles nickel-plated (Metal Bond) or secured by resin (Resin Bond) in a unique raised matrix that enhances cooling of the sample, provides increased cutting rates and allows efficient removal of debris. They are extremely durable, and provide excellent edge retention and sample flatness.

**Metal Bond:** Recommended for materials including ceramics, composites, carbides and metal matrix composites.

**Resin Bond:** Recommended for a wide variety of materials including hard metals and non-metal coatings in place of silicon carbide grinding papers prior to coarse or intermediate polishing.

They are available with either adhesive backing for standard platens, or magnetic system backing for magnetic platens.



### Metal Bond

Magnetic System			Grade	Adhesive Back		
8"	10"	12"		8"	10"	12"
50-50000M	50-50100M	50-51000M	260 µm	50-50000	50-50100	50-51000
50-50005M	50-50105M	50-51005M	125 µm	50-50005	50-50105	50-51005
50-50010M	50-50110M	50-51010M	70 µm	50-50010	50-50110	50-51010
50-50015M	50-50115M	50-51015M	30 µm	50-50015	50-50115	50-51015
50-50025M	50-50125M	50-51025M	15 µm	50-50025	50-50125	50-51025
50-50035M	50-50135M	50-51035M	9 µm	50-50035	50-50135	50-51035
50-50040M	50-50140M	50-51040M	6 µm	50-50040	50-50140	50-51040

### Resin Bond

Magnetic System			Grade	Adhesive Back		
8"	10"	12"		8"	10"	12"
50-80800M	50-81000M	50-81200M	80 Grit	50-80800	50-81000	50-81200
50-80805M	50-81005M	50-81205M	120 Grit	50-80805	50-81005	50-81205
50-80810M	50-81010M	50-81210M	220 Grit	50-80810	50-81010	50-81210
50-80820M	50-81020M	50-81220M	40 µm	50-80820	50-81020	50-81220
50-80825M	50-81025M	50-81225M	25 µm	50-80825	50-81025	50-81225
50-80830M	50-81030M	50-81230M	9 µm	50-80830	50-81030	50-81230

## Plated Diamond Discs, 8" (203 mm)

Plated Diamond Discs feature a solid surface layer of nickel-plated diamond. Recommended when grinding unencapsulated samples of non-metallic materials such as high-alumina ceramic, tungsten carbide, quartz, sapphire and silicon.

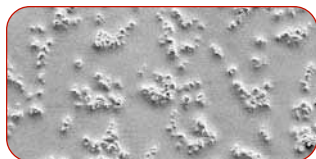


Magnetic System	Grade	Adhesive Back
50-60110M	160 µm	50-60110
50-60115M	70 µm	50-60115
50-60120M	45 µm	50-60120
50-60125M	30 µm	50-60125
50-60130M	15 µm	50-60130
50-60135M	6 µm	50-60135

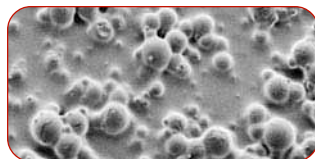




## Diamond Lapping Film



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



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. Typically used for unencapsulated cross-sectioning, TEM wedge/plan-view polishing, backside polishing and FIB sample thinning.

Micron (µm)	8" Plain Back	8" Adhesive Back	12" Plain Back
35	50-30038	50-30118	50-31238
30	50-30040	50-30120	50-31240
15	50-30045	50-30125	50-31245
9	50-30050	50-30130	50-31250
6	50-30055	50-30135	50-31255
3	50-30060	50-30140	50-31260
1	50-30065	50-30145	50-31265
0.5	50-30070	50-30150	50-31270
0.25	50-30073	50-30153	-
0.1	50-30075	50-30155	50-31275
Assort	50-30076*	50-30156*	-

\*includes one (1) of each micron size

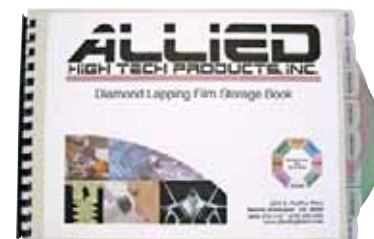
### Type B Discs (Pk/5)

**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.

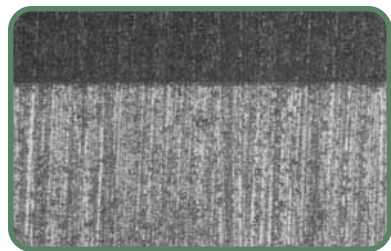
Micron (µm)	8" Plain Back	8" Adhesive Back	12" Adhesive Back
9	50-30050B	50-30130B	50-30170B
6	50-30055B	50-30135B	50-30175B
3	50-30060B	50-30140B	50-30180B
1	50-30065B	50-30145B	50-30185B
0.5	50-30070B	50-30150B	50-30190B

### Storage Book

Chemically pure, lintless blotting paper dries and protects lapping film. Wax paper separates each blotter.



Item	Description
50-30000	Storage Book for 8" Films



30 µm @ 100X (20 seconds)



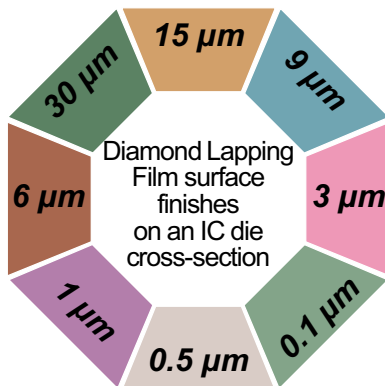
15 µm @ 100X (20 seconds)



9 µm @ 100X (20 seconds)



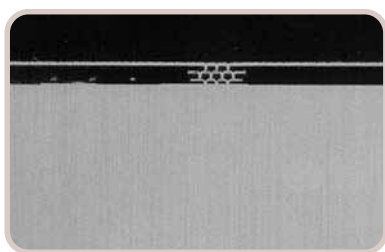
6 µm @ 100X (20 seconds)



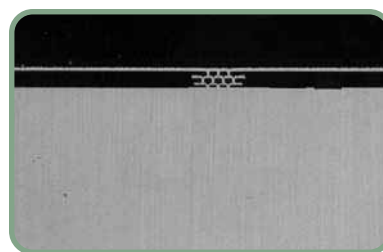
3 µm @ 100X (20 seconds)



1 µm @ 500X (20 seconds)



0.5 µm @ 1,000X (20 seconds)



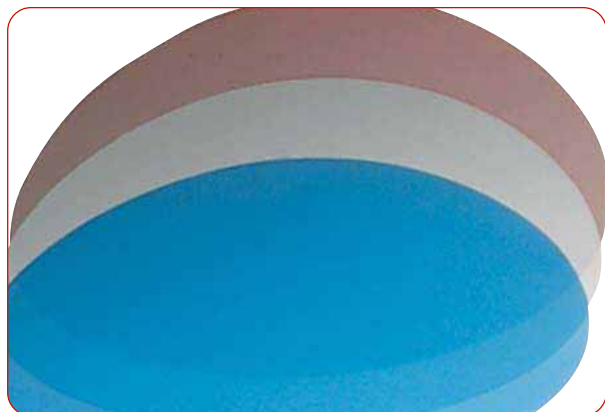
0.1 µm @ 1,000X (20 seconds)

## Al<sub>2</sub>O<sub>3</sub>, SiC & SiO Lapping Film

Lapping film consists of a mylar film coated with resin containing either aluminum oxide, silicon carbide or silicon oxide abrasive. It is recommended for fine grinding and lapping applications where edge retention is important.

### Features:

- ❖ Micron graded premium abrasives to produce precise finishes in grades 30 to 0.01 micron
- ❖ Precision backing for uniformity and sample planarity
- ❖ Resists water, oil and most solvents
- ❖ Color-coded for quick identification
- ❖ Use for encapsulated or non-encapsulated samples
- ❖ Not recommended for power head applications



**Aluminum Oxide:** for ferrous metals, glass

**Silicon Carbide:** for non-ferrous metals, polymers

**Silicon Oxide:** as an alternative to colloids and cloths for final polish on SEM and TEM samples

### 8" (203 mm) Plain Back Discs (Pk/50)

Micron (µm)	Al <sub>2</sub> O <sub>3</sub>	SiC	SiO
30	50-20040	50-20075	-
15	-	50-20080	-
12	50-20045	-	-
9	50-20050	50-20085	-
5	50-20052	50-20090	-
3	50-20055	-	-
1	50-20060	50-20095	-
0.3	50-20065	-	-
0.05	50-20067	-	-
0.01	-	-	50-20097 (Pk/20)
Assortment	50-20070*	50-20105*	-

\*includes ten (10) of each micron size

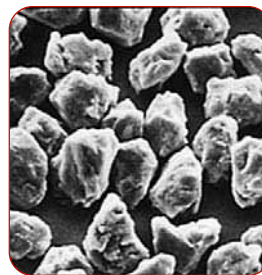


## Diamond Polishing

Diamond is preferred for most polishing applications when compared with 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 in most cases. Diamond also cuts faster, requiring less time to achieve an improved surface finish and produce a more accurate representation of microstructure with fewer artifacts (smearing, scratches, etc.). All products are precision graded (using Swiss micronizing standards) for high performance.

## Diamond Compounds

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



Polycrystalline Diamond



Monocrystalline Diamond

**Polycrystalline Diamond** has many more cutting surfaces per particle, resulting in higher removal rates. As it cuts, it breaks down in its original shape, allowing for finer finishes in less time than when using monocrystalline diamond. Because polycrystalline has no cleavage planes, it cannot splinter like monocrystalline diamond. It causes less sub-surface deformation, and is excellent when polishing samples composed of different materials/hardness.

**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.



### Polycrystalline

### Monocrystalline

5 Gram	18 Gram	Micron (μm)	5 Gram	18 Gram
90-21055-S	90-20995-S	0.05	-	-
90-21060-S	90-21000-S	0.10	-	-
90-21065-S	90-21005-S	0.25	90-21065	90-21005
90-21070-S	90-21010-S	0.50	90-21070	90-21010
90-21075-S	90-21015-S	1	90-21075	90-21015
90-21080-S	90-21020-S	3	90-21080	90-21020
90-21085-S	90-21025-S	6	90-21085	90-21025
90-21090-S	90-21030-S	9	90-21090	90-21030
90-21095-S	90-21035-S	15	90-21095	90-21035
90-21100-S	90-21040-S	30	90-21100	90-21040
-	-	45	90-21105	90-21045



## Diamond Suspensions

Allied diamond suspensions are specifically formulated to assure 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 and 16 oz. bottles include a flip-top and trigger sprayer for dispensing. Gallons include a pre-labeled 16 oz. empty bottle for dispensing convenience.

### Alcohol Based **NEW!**

An alcohol based suspension made with 100% polycrystalline diamond, recommended for water sensitive materials such as zinc, magnesium, and steel with non-metallic inclusions. Use with alcohol based lubricants only. Recommended for manual application or automatic "spray"/"drip" dispensing systems, where lubricant is also applied.

Polycrystalline		
Micron (µm)	16 oz. (480 mL)	Gallon (3.8 L)
0.25	90-3AB0.25	90-3AB0.25-G
1	90-3AB1	90-3AB1-G
3	90-3AB3	90-3AB3-G
6	90-3AB6	90-3AB6-G
9	90-3AB9	90-3AB9-G
15	90-3AB15	90-3AB15-G



### Glycol Based

A water-soluble and environmentally friendly diamond suspension mixed with glycol lubricant. Ideal for manual application or automatic "drip" dispensing systems. Color-coded for easy identification of micron size.

Polycrystalline		Mono	
16 oz. (480 mL)	Gallon (3.8 L)	Micron (µm)	16 oz. (480 mL)
90-29995	90-29995-G	0.05	-
90-30000	90-30000-G	0.10	-
90-30005	90-30005-G	0.25	-
90-30010	90-30010-G	0.50	-
90-30015	90-30015-G	1	90-31015
90-30020	90-30020-G	3	90-31020
90-30025	90-30025-G	6	90-31025
90-30030	90-30030-G	9	90-31030
90-30035	90-30035-G	15	90-31035
90-30040	90-30040-G	30	90-31030
-	-	45	90-31045

### 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.

Polycrystalline				Monocrystalline	
8 oz. (240 mL)	16 oz. (480 mL)	Gallon (3.8 L)	Micron (µm)	16 oz. (480 mL)	Gallon (3.8 L)
90-32995	90-31995	90-31995-G	0.05	-	-
90-33000	90-32000	90-32000-G	0.10	-	-
90-33005	90-32005	90-32005-G	0.25	-	-
90-33010	90-32010	90-32010-G	0.50	-	-
90-33015	90-32015	90-32015-G	1	90-32115	90-32115-G
90-33020	90-32020	90-32020-G	3	90-32120	90-32120-G
90-33025	90-32025	90-32025-G	6	90-32125	90-32125-G
90-33030	90-32030	90-32030-G	9	90-32130	90-32130-G
90-33035	90-32035	90-32035-G	15	90-32135	90-32135-G
90-33040	90-32040	90-32040-G	30	90-32140	90-32140-G
-	-	-	45	90-32145	90-32145-G

## 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. Applied manually or with automatic dispensing systems.

### BlueLube™ & PurpleLube™

Water-free, alcohol based lubricants are excellent for increased stock removal, when water cannot be tolerated or when used with alcohol based diamond suspensions.

**BlueLube™** is a low viscosity denatured alcohol based polishing lubricant.

**PurpleLube™** is a low viscosity ethanol based polishing lubricant formulated to minimize alcohol scent.

BlueLube	Description	PurpleLube
90-206010	16 oz. (480 mL)	90-205010
90-206005	32 oz. (950 mL)	90-205005
90-206000	128 oz. (3.8 L)	90-205000
90-205995	5 Gallon (19 L)	90-204995

**NEW!**



### RedLube™

A high viscosity propylene glycol based lubricant used for metallographic preparation of soft and/or ductile materials.

Item	Description
90-207010	16 oz. (480 mL)
90-207005	32 oz. (950 mL)
90-207000	128 oz. (3.8 L)
90-206995	5 Gallon (19 L)

### GreenLube™

A medium viscosity hexylene glycol based lubricant used for general metallographic preparation.

Item	Description
90-209010	16 oz. (480 mL)
90-209005	32 oz. (950 mL)
90-209000	128 oz. (3.8 L)
90-208995	5 Gallon (19 L)



### Diamond Aerosol Spray

A non-CFC, 5-ounce (150 mL) aerosol spray consisting of polycrystalline diamond mixed with a liquid carrier. The carrier quickly evaporates after application, leaving a uniform layer of diamond particles on the cloth. It can be used with any lubricant and is water soluble.

Item	Description
90-173000	0.25 Micron
90-173005	1 Micron
90-173010	3 Micron
90-173015	6 Micron
90-173020	9 Micron
90-173025	15 Micron



## 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.

### 0.05 & 0.02 $\mu\text{m}$ Non-Crystallizing Silica

Allied offers two non-crystallizing silica suspensions, both with 9.8 pH. The 0.05 micron formula is an excellent final polish for a wide variety of materials, especially non-ferrous metals, PCBs and ICs. The 0.02 micron formula provides ultrafine surface finishes for demanding SEM/TEM analysis.

0.05 $\mu\text{m}$	Description	0.02 $\mu\text{m}$
180-20015	16 oz. (480 mL)	180-40015
180-20010	32 oz. (950 mL)	180-40010
180-20000	128 oz. (3.8 L)	180-40000

### 0.06 $\mu\text{m}$ Silica

A more aggressive silica suspension with a pH of 8.5. Used to achieve faster, more defined grain boundaries on metals and rapid material removal when delayering ICs. Crystallizes if not flushed with water immediately after use.

Item	Description
180-50015	16 oz. (480 mL)
180-50010	32 oz. (950 mL)
180-50000	128 oz. (3.8 L)



### 0.05 $\mu\text{m}$ Silica/Alumina

A unique mixture of colloidal silica and alumina with a pH of 8.5. The addition of gamma alumina allows improved mechanical polishing when compared to colloidal silica. Used to final polish both ferrous and non-ferrous metals, metal-matrix composites and various non-metallic materials.

Item	Description
180-70015	16 oz. (480 mL)
180-70010	32 oz. (950 mL)
180-70000	128 oz. (3.8 L)



### 0.04 $\mu\text{m}$ Non-Stick/Rinsable Silica **NEW!**

An excellent final polishing suspension for most materials, this proprietary formula features a pH of 10.5 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.

Item	Description
180-25015	16 oz. (480 mL)
180-25010	32 oz. (950 mL)
180-25000	128 oz. (3.8 L)



### 0.05 & 0.03 $\mu\text{m}$ Alumina

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

0.05 $\mu\text{m}$	Description	0.03 $\mu\text{m}$
180-30015	16 oz. (480 mL)	180-80015
180-30010	32 oz. (950 mL)	180-80010
180-30000	128 oz. (3.8 L)	180-80000





### Alumina Powder

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 assure optimum polishing results. Mix with DI water to produce a liquid slurry. 0.05 µm particle type/shape is Gamma, 0.3 and 1.0 µm are Alpha.

De-agglomerated alumina powder is specially treated to reduce the number of agglomerates (groups of particles in each grade of manufactured alumina).

Standard	Description	De-agglo.
90-187015	0.05 µm, 1 lb. (450 g)	90-187050
90-187020	0.05 µm, 5 lb. (2.3 kg)	90-187055
90-187085	0.3 µm, 1 lb. (450 g)	90-187120
90-187090	0.3 µm, 5 lb. (2.3 kg)	90-187125
90-187155	1 µm, 1 lb. (450 g)	90-187190
90-187160	1 µm, 5 lb. (2.3 kg)	90-187195



### Alumina Suspension

Alumina suspensions are de-agglomerated and water based. Chemically stable, the pre-mixed formulas are a clean, convenient alternative to powders and are ideal for the finest finishes.

Item	Description
90-187505	0.05 µm, 6 oz. (180 mL)
90-187540	0.05 µm, 32 oz. (950 mL)
90-187575	0.05 µm, 128 oz. (3.8 L)
90-187510	0.3 µm, 6 oz. (180 mL)
90-187545	0.3 µm, 32 oz. (950 mL)
90-187580	0.3 µm, 128 oz. (3.8 L)
90-187515	1 µm, 6 oz. (180 mL)
90-187550	1 µm, 32 oz. (950 mL)
90-187585	1 µm, 128 oz. (3.8 L)

Both powder and suspensions contain 99.99% pure  $Al_2O_3$

### OpTech™ Polishing Slurry

OpTech 0.5 and 3 µm are slurries composed of ceria/alumina and silica/alumina/diamond abrasives, respectively. They provide an excellent finish on materials such as glass, fiber optics, quartz, sapphire and ceramics.

Item	Description
90-188000	0.5 µm, 16 oz. (480 mL)
90-188020	3 µm, 16 oz. (480 mL)



### Cerium Oxide Suspension

Cerium oxide suspension is primarily used for polishing glass and optical materials. However, it also works well for polishing lead, solder and other soft materials.

Item	Description
90-187915	0.5 µm, 6 oz. (180 mL)





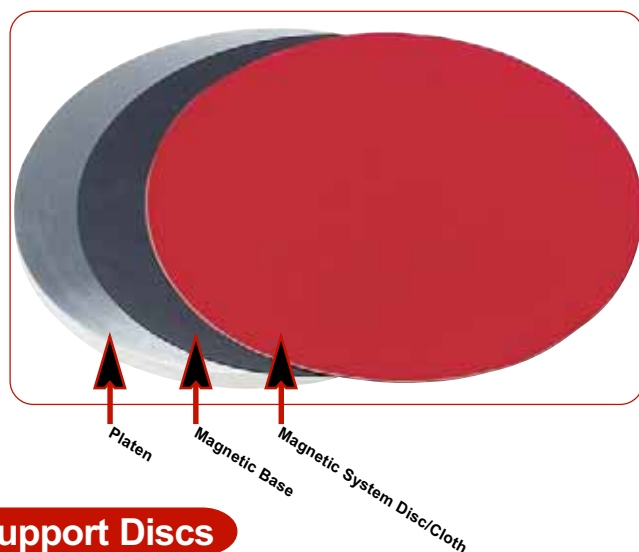
## Polishing Cloths

A wide range of woven, non-woven and napped (flocked) 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 magnetic system backing for magnetic platens.

**Woven:** Woven cloths feature low compression, applying effective pressure to the loose abrasive particles for maximum material removal and flatness/planarity. The cross-weave pattern is ideal for fine grinding or coarse and intermediate polishing.

**Non-woven:** Non-woven cloths also feature low compression with softer surfaces, better suited for intermediate and final polishing of soft non-ferrous metals, ferrous alloys and polymers/plastics.

**Napped (flocked):** Made from various length fibers and fabric stiffness, they are used for final polishing as the flock pattern "brushes" the sample to clean and remove intermediate and coarse polishing scratches. Stiff/rigid fibers are commonly used for polishing soft metals and materials.



## Support Discs

Stainless steel support discs allow adhesive backed cloths/abrasive discs to be changed quickly and easily when using magnetic platens.

Item	Description
55-50000	Stainless Steel Support Disc, 8" (203 mm)
55-50002	Stainless Steel Support Disc, 10" (254 mm)
55-50005	Stainless Steel Support Disc, 12" (305 mm)

## Magnetic System

Magnetic system polishing cloths feature a thin, permanently laminated flexible rubber backing with magnetic properties that adhere to magnetic platens. This easy-to-use system reduces the number of platens required and improves operational efficiency, while offering the same performance as adhesive backed cloths.

### Reasons to consider magnetic system:

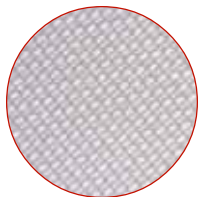
- ❖ Ease of interchangeability (reduced lifting of heavy platens)
- ❖ Reduced investment (platen cost is minimized)
- ❖ Safety (no sharp edges eliminates cut injuries)
- ❖ Easy to use (tool-free removal)
- ❖ Works with ANY magnetic platen



## Magnetic Bases

Adhesive backed magnetic bases adhere to standard platens, allowing any magnetic system product to be utilized.

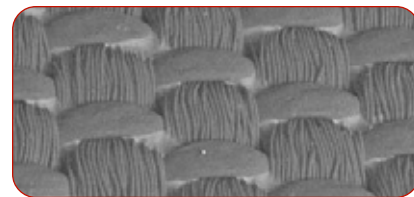
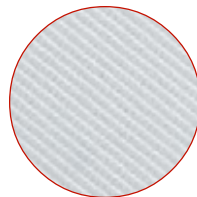
Item	Description
90-208300	Magnetic Base, 8" (203 mm)
90-208302	Magnetic Base, 10" (254 mm)
90-208305	Magnetic Base, 12" (305 mm)



### PLAN-Cloth

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

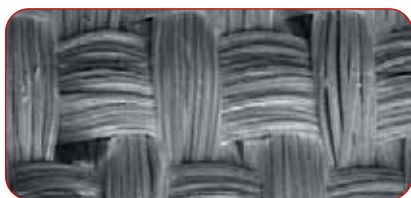
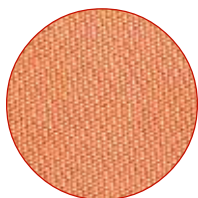
Adhesive (Pk/10)	Description	Mag System (Pk/5)
85-150-005	8" (203 mm)	85-500-005
85-150-010	10" (254 mm)	85-500-010
85-150-015	12" (305 mm)	85-500-015
85-150-020	14" (355 mm)	85-500-020



### PLAN-B

Very hard, resin-coated, dense woven polyester for use with diamond (15-3 micron). Maintains superior edge retention and flatness and provides aggressive material removal for coarse to intermediate polishing of metals, ceramics and refractory materials.

Adhesive (Pk/5)	Description	Mag System (Pk/5)
90-150-580	8" (203 mm)	90-500-580
90-150-585	10" (254 mm)	90-500-585
90-150-590	12" (305 mm)	90-500-590
90-150-595	14" (355 mm)	90-500-595



### Gold Label

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

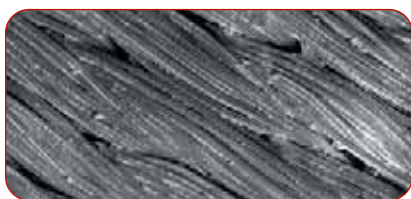
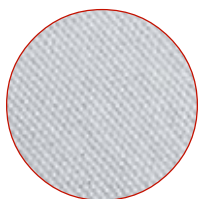
Adhesive (Pk/10)	Description	Mag System (Pk/5)
90-150-208	2-7/8"	-
90-150-210	8" (203 mm)	90-500-210
90-150-217	10" (254 mm)	90-500-217
90-150-220	12" (305 mm)	90-500-220



### Nylon

Woven nylon for use with diamond (15-3 micron). Provides good flatness and edge retention for most materials.

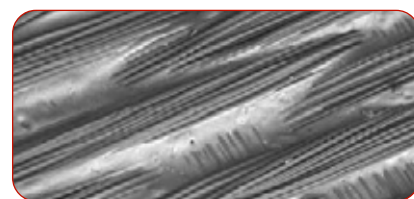
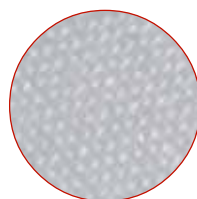
Adhesive (Pk/10)	Description	Mag System (Pk/5)
90-150-060	8" (203 mm)	90-500-060
90-150-066	10" (254 mm)	90-500-066
90-150-070	12" (305 mm)	90-500-070



### TECH-Cloth

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

Adhesive (Pk/10)	Description	Mag System (Pk/5)
85-150-360	8" (203 mm)	85-500-360
85-150-365	10" (254 mm)	85-500-365
85-150-370	12" (305 mm)	85-500-370
85-150-375	14" (355 mm)	85-500-375

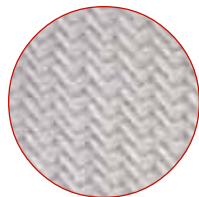


### White Label

Very dense, woven, low-nap silk for use with diamond (6-0.25 micron). 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.

Adhesive (Pk/5)	Description	Mag System (Pk/5)
90-150-500	8" (203 mm)	90-500-500
90-150-505	10" (254 mm)	90-500-505
90-150-510	12" (305 mm)	90-500-510
90-150-515	14" (355 mm)	90-500-515





### DiaMat

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

Adhesive (Pk/5)	Description	Mag System (Pk/5)
90-150-550	8" (203 mm)	90-500-550
90-150-555	10" (254 mm)	90-500-555
90-150-560	12" (305 mm)	90-500-560
90-150-565	14" (355 mm)	90-500-565



### Kempad

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

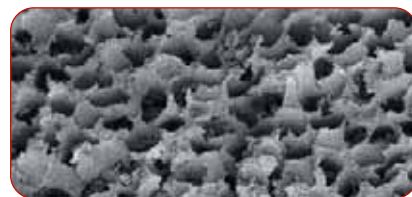
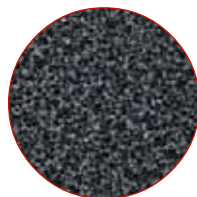
Adhesive (Pk/10)	Description	Mag System (Pk/5)
90-150-003	2-7/8"	-
90-150-005	8" (203 mm)	90-500-005
90-150-015	10" (254 mm)	90-500-015
90-150-020	12" (305 mm)	90-500-020



### Pan-B

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

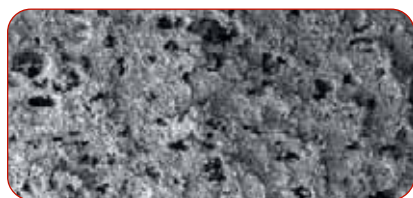
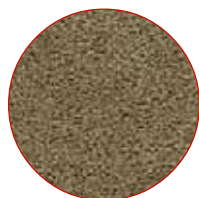
Adhesive (Pk/10)	Description	Mag System (Pk/5)
85-150-100	8" (203 mm)	85-500-100
85-150-105	10" (254 mm)	85-500-105
85-150-110	12" (305 mm)	85-500-110



### Chem-Pol

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

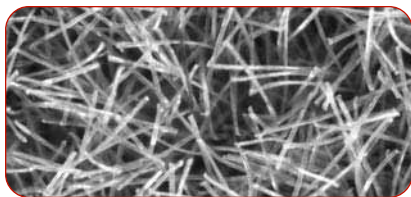
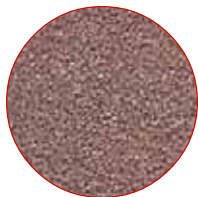
Adhesive (Pk/5)	Description	Mag System (Pk/5)
180-10045	2-7/8"	-
180-10050	8" (203 mm)	180-10550
180-10058	10" (254 mm)	180-10558
180-10060	12" (305 mm)	180-10560
180-10065	14" (355 mm)	180-10565



### Final A

High density, non-woven, low-nap porous polyurethane pad for use with diamond (1-0.05 micron), colloidal suspensions or alumina. 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.

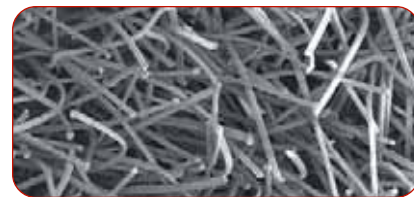
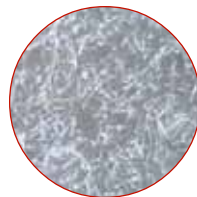
Adhesive (Pk/5)	Description	Mag System (Pk/5)
180-10005	8" (203 mm)	180-10505
180-10010	10" (254 mm)	180-10510
180-10015	12" (305 mm)	180-10515



### Spec-Cloth

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

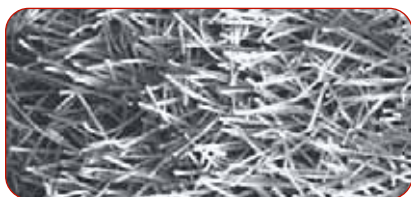
Adhesive (Pk/10)	Description	Mag System (Pk/5)
90-150-265	2-7/8"	-
90-150-285	8" (203 mm)	90-500-285
90-150-292	10" (254 mm)	90-500-292
90-150-295	12" (305 mm)	90-500-295



### Vel-Cloth

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

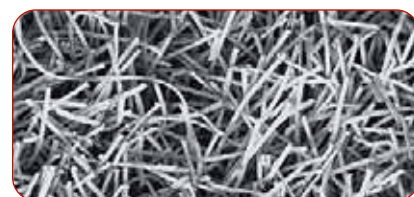
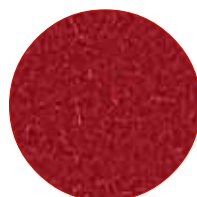
Adhesive (Pk/10)	Description	Mag System (Pk/5)
90-150-400	8" (203 mm)	90-500-400
90-150-412	10" (254 mm)	90-500-412
90-150-410	12" (305 mm)	90-500-410



### Final B

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

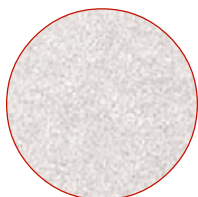
Adhesive (Pk/10)	Description	Mag System (Pk/5)
90-150-230	8" (203 mm)	90-500-230
90-150-232	10" (254 mm)	90-500-232
90-150-235	12" (305 mm)	90-500-235



### Red Final C

Dense, low-nap synthetic silk flock for use with diamond (3-0.25 micron), 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.

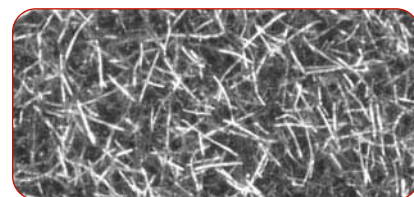
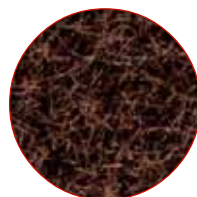
Adhesive (Pk/5)	Description	Mag System (Pk/5)
90-150-350	8" (203 mm)	90-500-350
90-150-352	10" (254 mm)	90-500-352
90-150-355	12" (305 mm)	90-500-355



### Final P

Dense, low-nap, rigid synthetic flock for use with diamond (3-0.1 micron), colloidal suspensions or alumina. Ideal for final polishing soft metals such as copper and aluminum.

Adhesive (Pk/10)	Description	Mag System (Pk/5)
85-150-500	8" (203 mm)	85-500-500
85-150-505	10" (254 mm)	85-500-505
85-150-510	12" (305 mm)	85-500-510



### Final-POL

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

Adhesive (Pk/5)	Description	Mag System (Pk/5)
90-150-705	8" (203 mm)	90-500-705
90-150-710	10" (254 mm)	90-500-710
90-150-715	12" (305 mm)	90-500-715
90-150-720	14" (355 mm)	90-500-720

**New!**



# X-MILL™

(Pages 52 - 55)




# X-Mill™ Precision Milling/Polishing System **NEW!**

The **X-Mill™** is an automated, precision CNC machine with an intuitive user interface designed to be operated by laboratory personnel. The wizard-guided operation simplifies and ensures repeatable setup for reliable, reproducible results.

It is an ideal sample preparation tool for microelectronic devices, supporting applications including backside/frontside failure analysis, reverse engineering and materials research.

A variety of cutting, grinding and polishing tools are available for all types of materials.

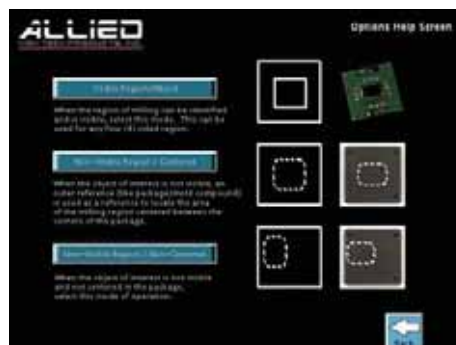
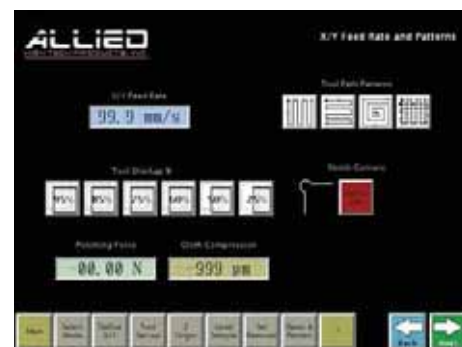
## Features:

- ❖ 12" color LCD, touch-screen graphic user interface
- ❖ Easy-to-use, wizard-based workflow guides the operator through system setup to define: X/Y/Z milling position; X/Y milling rate; Z-force; Z-increment; milling pattern/tool path; tool overlap and more
- ❖ Requires no G-coding or programming knowledge
- ❖ Live video navigation to define X/Y milling region
- ❖ Closed-loop X/Y-axis positioning, 1 micron resolution
- ❖ Closed-loop Z-axis positioning, 0.1 micron resolution, 1 micron accuracy
- ❖ Closed-loop Z-axis force control, 0.15 to 10 N
- ❖ Two modes of Z-control: Force mode, where the tool maintains a preset force on the sample; Position mode, where the tool indexes incrementally to the target depth
- ❖ Selectable milling patterns and tool path overlap 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 allows unattended operation
- ❖ Allows automatic centering of the milling region
- ❖ Name, save and recall steps/sequences
- ❖ Pneumatic collet allows quick and easy tool change
- ❖ Powerful 3-Phase AC Spindle, 5,000-100,000 RPM grinds through ceramic, silicon, metals, glass and more
- ❖ Quiet operation, ~15-20 dB over ambient
- ❖ Table-top, compact footprint
- ❖ 100 x 100 mm milling region
- ❖ Uses 3 mm or 1/8" shank x 1.5" (38 mm) length tools (0.25 mm - 12 mm grinding/polishing tip)
- ❖ Dimensions: 21" W x 27" D x 25" H (533 x 686 x 622 mm)
- ❖ Weight: 185 lb. (84 kg)
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 



*Video navigation ensures precise milling region definition*

*Intuitive button graphics/icons allow simple operation*



*On-screen help menus assist operator from start to finish*

## Item Description

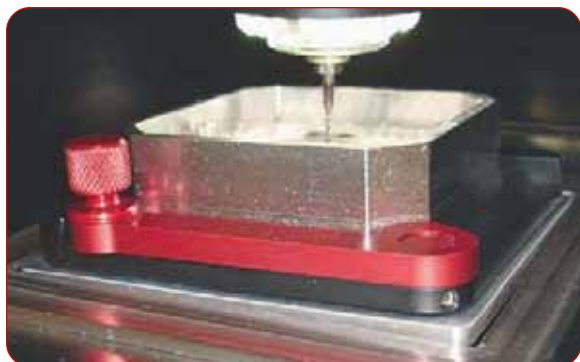
15-9000 **X-Mill™**, 115 V

15-9000-230 **X-Mill™**, 230 V

**Includes:** #15-9125 2" x 2" Fixture, #15-92ASSORT Assorted Consumables and Installation/Calibration Kit

## Motorized Leveling Stage

The leveling stage automatically aligns the top (upper) sample surface plane parallel with the milling plane. It is used to correct sample tilt due to wax variation from mounting, or when the object of interest (e.g., die in a molded package) is not parallel with the molded top surface.



Item	Description
15-9150	Motorized Leveling Stage

## Dust Extraction System, HEPA

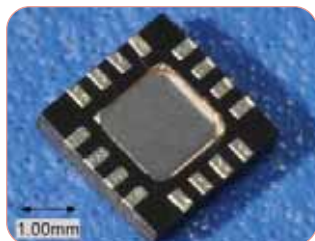
This quiet, dry vacuum removes airborne particulates and provides protection from exposure to contaminants generated from dry milling processes.

It has a two-stage filtering system that captures larger particulates in the primary stage, followed with a HEPA filter that removes particulates down to sub-micron levels.



Item	Description
15-9180	Dust Extraction System, 115 V
15-9185	Dust Extraction System, 230 V

## Common X-Mill™ applications:



*Backside sample preparation on small MLP-style package*



*Backside biased photoemission and laser imaging*



*Detail of backside die thinning*

## Fixtures

A variety of fixtures are available to accommodate various sized samples. Small tabs secure a borosilicate (glass) carrier onto which samples are mounted using wax. The serrated interfaces of the fixture reduce 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 to accommodate leads on device packages, capacitors or flip-chip die.

The fixture depth allows the sample to be submerged in cutting fluid during operation, maintaining lower sample and tool temperature, increasing tool life and eliminating airborne particulates.

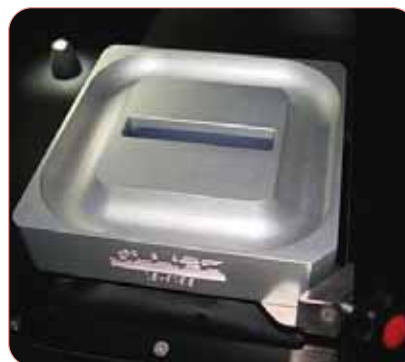


Item	Description
15-9125	2" x 2" with 20 borosilicate carriers
15-9126	Borosilicate Glass Inserts, 2" x 2" (Pk/20)
15-9135	3" x 3" with 10 borosilicate carriers
15-9136	Borosilicate Glass Inserts, 3" x 3" (Pk/10)
15-9140	4" x 4" with 10 borosilicate carriers
15-9141	Borosilicate Glass Inserts, 4" x 4" (Pk/10)

## Tool Dressing System

The dressing system is used to clean plated tools that become loaded (clogged) with debris to extend their life.

Item	Description
15-9155	Tool Dressing System
60-20106	Dressing Stick, Silicon Carbide (Pk/4)



*Loaded*



*Dressed*





## Carbide End Mills

Made of solid carbide for maximum performance and durability, they are used to cut metal (Cu, Au, Al, solder), circuit board material and other non-metallics.

**2-Flute** end mills have deeper, longer gullets for greater chip-carrying capacity, are center cutting and are available in diameters as small as 0.25 mm.

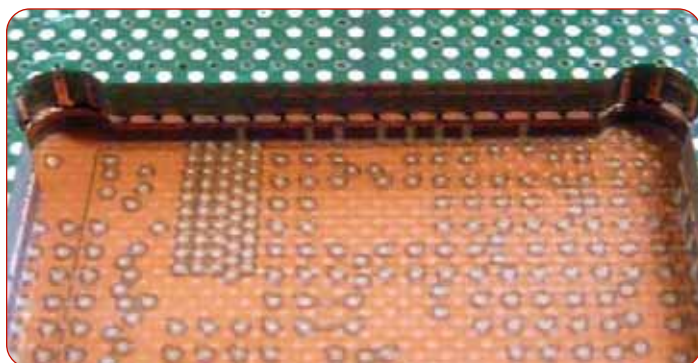
**4-Flute** end mills last longer than 2-flute because wear is distributed over a greater area. They also remove material more quickly, produce finer finishes and can be moved across the sample at a higher rate.

### 2-Flute (Pk/4)

PCB	Description	Al & Cu
15-922FP0.25	0.25 mm Ø x 1.5" (38 mm) L	15-922F0.25
15-922FP0.5	0.5 mm Ø x 1.5" (38 mm) L	15-922F0.5
15-922FP0.7	0.7 mm Ø x 1.5" (38 mm) L	15-922F0.7
15-922FP1.0	1.0 mm Ø x 1.5" (38 mm) L	15-922F1.0
15-922FP1.5	1.5 mm Ø x 1.5" (38 mm) L	15-922F1.5
15-922FP3.0	3.0 mm Ø x 1.5" (38 mm) L	15-922F3.0

### 4-Flute (Pk/4)

PCB	Description	Al & Cu
15-924FP0.7	0.7 mm Ø x 1.5" (38 mm) L	15-924F0.7
15-924FP1.0	1.0 mm Ø x 1.5" (38 mm) L	15-924F1.0
15-924FP1.5	1.5 mm Ø x 1.5" (38 mm) L	15-924F1.5
15-924FP3.0	3.0 mm Ø x 1.5" (38 mm) L	15-924F3.0



*Cut easily through PCB materials*



## Diamond Metal Bonded Tools (Pk/2)

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

Item	Description
15-92FMB0.70	Fine, 0.7 mm Ø x 1.5" (38 mm) L
15-92FMB1.0	Fine, 1.0 mm Ø x 1.5" (38 mm) L
15-92FMB1.5	Fine, 1.5 mm Ø x 1.5" (38 mm) L
15-92FMB3.0	Fine, 3.0 mm Ø x 1.5" (38 mm) L
15-92VFMB0.70	Very Fine, 0.7 mm Ø x 1.5" (38 mm) L
15-92VFMB1.0	Very Fine, 1.0 mm Ø x 1.5" (38 mm) L
15-92VFMB1.5	Very Fine, 1.5 mm Ø x 1.5" (38 mm) L
15-92VFMB3.0	Very Fine, 3.0 mm Ø x 1.5" (38 mm) L



## Diamond Plated Tools (Pk/4)

Suitable for bulk removal of plastic/composite materials and other non-metallic materials including glass and ceramic.

Item	Description
15-92CP1.0	Coarse, 1.0 mm Ø x 1.5" (38 mm) L
15-92CP1.5	Coarse, 1.5 mm Ø x 1.5" (38 mm) L
15-92CP3.0	Coarse, 3.0 mm Ø x 1.5" (38 mm) L
15-92FP0.7	Fine, 0.7 mm Ø x 1.5" (38 mm) L
15-92FP1.0	Fine, 1.0 mm Ø x 1.5" (38 mm) L
15-92FP1.5	Fine, 1.5 mm Ø x 1.5" (38 mm) L
15-92FP3.0	Fine, 3.0 mm Ø x 1.5" (38 mm) L



## Mounts - Grinding/Polishing (Pk/5)

Designed to be used with grinding and/or polishing discs for preparation of areas greater than 25 mm<sup>2</sup>.

They are made of a special hardened grade of steel for rigidity and precision ground to eliminate vibration at high speeds.



Item	Description
15-92PS3	3 mm Ø x 1.5" (38 mm) L
15-92PS5	5 mm Ø x 1.5" (38 mm) L
15-92PS9	9 mm Ø x 1.5" (38 mm) L
15-92PS12	12 mm Ø x 1.5" (38 mm) L

## Grinding Discs (Pk/100)

Diamond grinding discs are ideal for grinding/thinning silicon, glass and ceramic. They are secured to mounts using glue (see Loc-Tite 460™ page 22). Diameter selection depends on corner radius and restrictions of sample.



Fine	Description	Very Fine
15-92FGD3	3 mm Ø	15-92VFGD3
15-92FGD5	5 mm Ø	15-92VFGD5
15-92FGD9	9 mm Ø	15-92VFGD9
15-92FGD12	12 mm Ø	15-92VFGD12

## Polishing Discs (Pk/50)

For use with diamond compound (paste) and/or colloidal silica for polishing applications. They are secured to mounts using either glue (X-Pad) or adhesive backing.



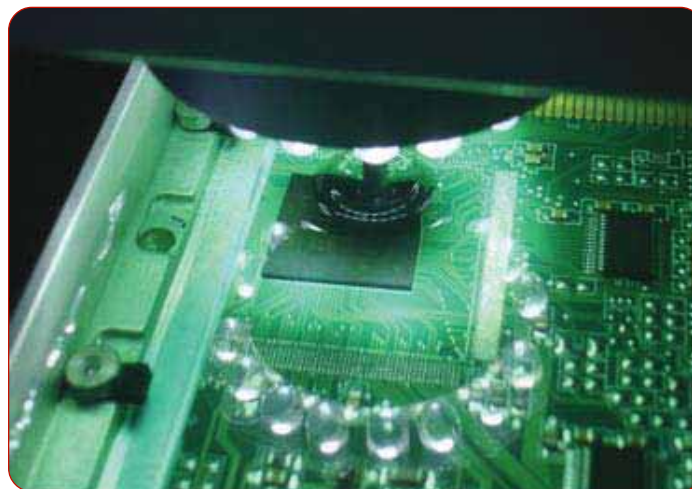
Item	Description
180-10032	X-Pad Plain Back, 3 mm Ø
180-10033	X-Pad Plain Back, 5 mm Ø
180-10034	X-Pad Plain Back, 9 mm Ø
180-10035	X-Pad Plain Back, 12 mm Ø
90-150-543	DiaMat Adhesive Back, 5 mm Ø
90-150-544	DiaMat Adhesive Back, 9 mm Ø
90-150-545	DiaMat Adhesive Back, 12 mm Ø
90-150-193	Encloth Adhesive Back, 5 mm Ø
90-150-194	Encloth Adhesive Back, 9 mm Ø
90-150-195	Encloth Adhesive Back, 12 mm Ø
180-10023	Final A Adhesive Back, 5 mm Ø
180-10024	Final A Adhesive Back, 9 mm Ø
180-10025	Final A Adhesive Back, 12 mm Ø

## X-Lube™ Cutting-Grinding-Polishing Fluid

X-Lube™ is a solvent-free lubricant used for cutting, grinding and polishing applications. It is used to submerge samples while cutting/grinding to avoid overheating, or added in small quantities with diamond compound for polishing applications. Specially formulated to minimize splashing.



Item	Description
15-92XL128	128 oz. (3.8 L)
15-92XL32	32 oz. (950 mL)
15-92XL16	16 oz. (480 mL)



Fixture filled with X-Lube™ to contain particulates while milling

## Polishing Tools (Pk/4)

These small diameter tools are used for polishing inside small cavities/milling regions. The tools have cloths permanently bonded to the end of a precision ground steel shaft.

Use with diamond compounds and colloidal silica to produce mirror-like finishes.



3 and 1 mm Ø X-Pad

Item	Description
15-92XP3.0	X-Pad, 3.0 mm Ø x 1.5" (38 mm) L
15-92GL3.0	Gold Label, 3.0 mm Ø x 1.5" (38 mm) L
15-92RFC3.0	Red Final C, 3.0 mm Ø x 1.5" (38 mm) L
15-92XP1.0	X-Pad, 1.0 mm Ø x 1.5" (38 mm) L

## 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, a mechanical timer and a cover. Units with digital timers and/or heaters are also available.

Item	Description
95-10005	Model 1510, 1/2 Gallon Capacity, 5½" L x 6" W x 4" D Tank Size
95-10110	Solid Tray
95-10113	Mesh Basket
95-10115	Perforated Tray
95-10120	Beaker Cover (1 x 600 mL)
95-10025	Model 2510, 3/4 Gallon Capacity, 9½" L x 5½" W x 4" D Tank Size
95-10130	Solid Tray
95-10133	Mesh Basket
95-10135	Perforated Tray
95-10140	Beaker Cover (2 x 600 mL)
95-10045	Model 3510, 1½ Gallon Capacity, 11½" L x 6" W x 6" D Tank Size
95-10150	Solid Tray
95-10153	Mesh Basket
95-10155	Perforated Tray
95-10160	Beaker Cover (3 x 250 mL)
95-10065	Model 5510, 2½ Gallon Capacity, 11½" L x 9½" W x 6" D Tank Size
95-10170	Solid Tray
95-10175	Perforated Tray
95-10180	Beaker Cover (4 x 600 mL)
95-10085	Model 8510, 5½ Gallon Capacity, 19½" L x 11" W x 6" D Tank Size
95-10190	Solid Tray
95-10195	Perforated Tray
95-10200	Beaker Cover (6 x 600 mL)



## GP Cleaning Solution

A biodegradable, caustic-free solution 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.

Mixed with water at 10-12% by volume.

Item	Description
95-10230	32 oz. (950 mL)
95-10235	128 oz. (3.8 L)



## Micro Organic Soap

A high-purity cleaning solution for removing micro-contaminants and polishing solutions from samples prior to microscopic examination. Excellent for removing colloidal silica.

Mixed with water at 2-5% by volume.

Item	Description
148-10000	32 oz. (950 mL)



## Graduated Beakers:

95-10205	250 mL Pyrex Glass
95-10215	600 mL Pyrex Glass
95-10220	600 mL Stainless Steel

## Compressed Air Spray **NEW!**

A dry, nontoxic, nonflammable air for removing water, dust or other particles from polished samples, optics or other laboratory items.

Item	Description
200-20000	14 oz. (392 g) Aerosol Can
200-20005	Case/12 Cans





## INVERTED MICROSCOPES

(Page 58-59)



## UPRIGHT MICROSCOPES

(Page 60-61)



## STEREO MICROSCOPES

(Pages 62-63)



## IMAGING/ARCHIVING WORKSTATIONS

(Page 66-67)

## LIGHT SOURCES, GUIDES & LED ILLUMINATION SYSTEMS

(Page 64)





## Zeiss Microscopes

Allied offers the complete line of materials microscopes from Carl Zeiss, including inverted, upright and stereo 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] and polarization) are available to customize the ideal instrument for your particular application.

Contact Allied for technical, configuration and pricing information.



*Brightfield*



*Advanced Darkfield*

## Axiovert 40 MAT

The **Axiovert 40 MAT** inverted microscope has a low profile design and is well-suited for routine examination of mounted samples. Contrasting methods for reflected light include: brightfield, darkfield, DIC, polarization and fluorescence.

### Features/Options:

- ❖ 4-position (brightfield/darkfield) or 5-position (brightfield only) objective turret
- ❖ 12.5-1500X optical magnification range
- ❖ Sturdy mechanical X/Y stages accommodate large/heavy specimens, with or without rotation capability
- ❖ Photoport for digital, video or 35 mm SLR cameras
- ❖ 3-position reflector slider allows quick changing of contrasting techniques (up to 6 available)
- ❖ 12 V/35 W halogen light source with built-in power supply (100 W halogen, mercury and xenon illumination available)



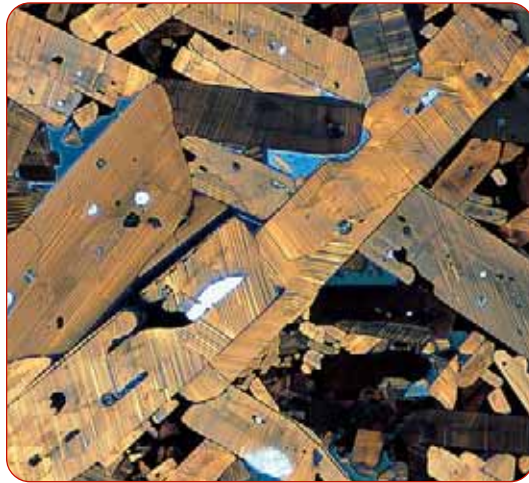
*Polarization contrast with tint plate*



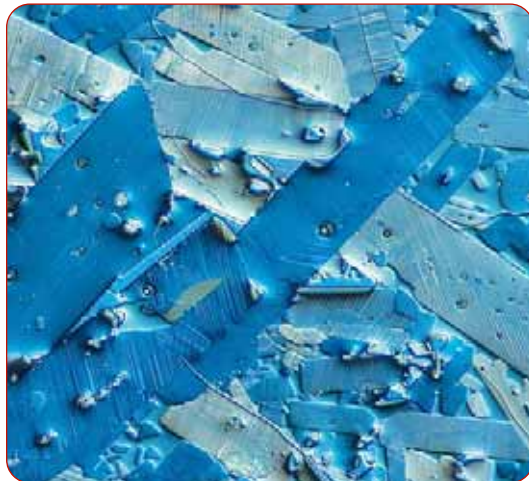
D1m - Manual, Encoded

Z1m - Motorized, Encoded

A1m - Manual, Non-Encoded



Polarization contrast



Circular-Differential Interference Contrast (C-DIC)

## AxioObserver

The **AxioObserver** is a research-grade metallograph designed for examination of mounted samples. Contrasting methods for reflected light include brightfield, advanced darkfield, circular DIC, polarization and fluorescence.

### Features:

- ❖ 6-position objective turret offers 1.25 to 150X objective magnification without exchange
- ❖ 12.5-1500X optical magnification range
- ❖ Optional Optovar tube lens (1.25, 1.6, 2.5X) allows higher range of magnification up to 3750X
- ❖ Apochromatic corrected Köhler illuminated light path
- ❖ Innovative contrast techniques: advanced darkfield, C-DIC
- ❖ Encoded components 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 (D1m and Z1m only)
- ❖ Full integration with AxioVision provides automatic scaling when changing objectives to ensure accurate measurements (D1m and Z1m only)
- ❖ LCD indicates objective magnification and lamp voltage
- ❖ Light Manager stores illumination settings of each objective and contrast technique, recalled automatically as each objective is positioned
- ❖ Sturdy mechanical X/Y stage with low position coaxial controls (left or right), minimum 130 x 85 mm range
- ❖ Photoport for digital, video or 35 mm SLR cameras
- ❖ 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 or xenon illumination available)



## Axiolmager

The **Axiolmager** upright microscope features innovative, unprecedented technology in optical microscopy and is configurable for either manual or motorized operation.

### Features:

- ❖ Apochromatically corrected light train (unique to Zeiss) providing the best color correction available
- ❖ Köhler lighting principle is 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 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 photo tube
- ❖ Detachable stage carriers
- ❖ Dovetail interface allows height adjustment of stage carriers
- ❖ 7-position encoded objective turret offers 1.25 to 150X objective magnification without exchange
- ❖ 12.5-1500X optical magnification range



*Axiolmager A2m Manual, Encoded*



*65 mm vertical stage travel allows inspection of samples without having to remove them from the sample fixture/holder*



*Axiolmager Z2m Motorized, Encoded*

- ❖ Optical multiplication up to 4X (optional)
- ❖ Innovative contrast techniques: advanced darkfield and C-DIC
- ❖ Encoded components 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
- ❖ Full integration with AxioVision provides automatic scaling when changing objectives to ensure accurate measurements
- ❖ X, Y and Z measurement capability without computer interface (Z2m only)
- ❖ Sturdy mechanical X/Y stage with low position coaxial controls (left or right), minimum 75 x 50 mm range
- ❖ Photoport for digital, video or 35 mm SLR cameras
- ❖ Manual and motorized versions available
- ❖ Low-position fine and coarse focus knobs
- ❖ Light manager stores illumination settings of each objective and contrast technique, recalled automatically as each objective is positioned
- ❖ 12 V/100 W halogen light source with built-in power supply (mercury or xenon illumination available)



## Axiolmager Vario **NEW!**

The **Axiolmager Vario** provides maximum precision combined with the largest possible sample space — for research, development and quality assurance. It is an ideal solution for larger samples, including solar cells, wafers, flat panel displays and more. It features an ultra stable column, reliable focus, repeat accuracy, and a variety of stages and sample holders.

### Features:

- ❖ Impressive sample space with vertical extension up to 254 mm (Z) and stage travel up to 300 mm (X/Y)
- ❖ 6-position encoded objective turret offers 1.25 to 150X objective magnification without exchange
- ❖ 12.5-1500X optical magnification range
- ❖ Optical multiplication up to 4X (optional)
- ❖ Innovative contrast techniques: advanced darkfield and C-DIC
- ❖ Encoded components 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
- ❖ Full integration with AxioVision provides automatic scaling when changing objectives to ensure accurate measurements
- ❖ Photoport for digital, video or 35 mm SLR cameras
- ❖ Manual and motorized versions available
- ❖ Light manager stores illumination settings of each objective and contrast technique
- ❖ X, Y, and Z measurement capability
- ❖ 12 V/100 W halogen light source (mercury or xenon illumination available)



*Axiolmager Vario*

## AxioLab A1 **NEW!**

The **AxioLab A1** sets new standards for entry-level upright microscopes, offering an excellent price-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 objective turret offers 1.25 to 150X objective magnification without exchange
- ❖ Enhanced Contrast Optics provide the flattest field and best contrast available, from 12.5 to 1500X optical magnification
- ❖ 4-position reflector turret with push & click contrast modules
- ❖ Color-corrected reflected-light beam path with aperture and field diaphragm
- ❖ 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



*AxioLab A1*

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



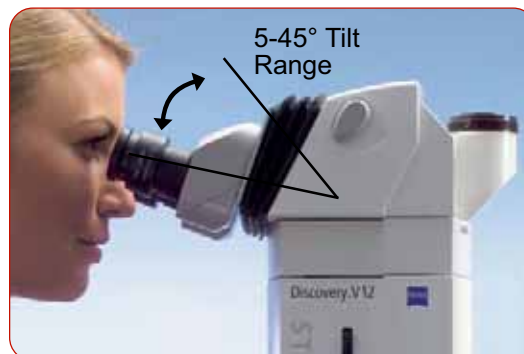
Discovery V12

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.



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 touch screen 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 tilting trinocular head (ergotube) provides variable viewing angles, height adjustment and interpupillary width adjustments for improved operational comfort.



## Stemi 2000-C

The **Stemi 2000-C** offers the advantage of an upright and correct image together with high performance and surprising flexibility. An advanced lens system considerably expands the zoom range, enlarges the object fields and provides comfortable, long working distances.

The photo port accommodates a wide variety of cameras.

### Features:

- ❖ Provides sharp, distortion free 3-D images from top to bottom of its zoom range
- ❖ Continuous or click-stop zoom adjustment
- ❖ 6.5 to 50X magnification range (optional lenses and eyepieces allow from 1.95 to 250X)
- ❖ 10X adjustable width eyepieces (16X and 25X available)
- ❖ 76 mm body diameter
- ❖ Can be used with standard bases or boom stands
- ❖ 23 mm field of view



*Shown with Ball-Bearing Boom Stand*



## Stemi DV-4

The **Stemi DV-4** stereomicroscope features a compact design that is easy to use and provides optimum utility. A proprietary zoom lens guarantees images of excellent resolution, definition and brightness throughout its zoom range.

### Features:

- ❖ 10X adjustable focusing eyepieces (15X eyepieces available)
- ❖ 4:1 zoom range, 8 to 32X magnification range, 92 mm working distance
- ❖ Large, easy-to-use focusing knobs
- ❖ Push-button controlled brightness settings (continuous or stepped) for each illumination mode
- ❖ Integrated LED illumination for reflected, transmitted and mixed light
- ❖ Long service life of the LED system (approx 25,000 hours) makes bulb replacement unnecessary
- ❖ Optional eyepiece C-Mount adapter allows use with digital cameras
- ❖ Mechanically corrected zoom optics, parfocal and distortion-free imaging deliver the best optical quality in this class of stereomicroscopes

Item	Description
12-435421	Stemi DV-4, 100-240 V AC



## Zeiss CL Series NEW!

Providing homogenous, flicker-free LED illumination, the CL series is the performance leader in light sources. Both units feature an LCD to display intensity control, operation mode and memory function, as well as 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 LED emits up to 900 lumens and is equipped with a CAN interface, which allows the light source to be controllable by the SyCoP (motorized Discovery series stereomicroscopes) and AxioVision 4™ software.



Item	Description
12-4357009100	CL 6000 LED Light Source, 600 lm, 115 V
12-4357009000	CL 9000 LED Light Source, 900 lm, 115 V
120-155204	Light Guide, Dual Branch Flexible, 4.5 mm Diameter x 1000 mm Length
120-158210	Focusing Lens (without Filter)
120-158205	Polarizing Filter for 120-158210
120-157420	Slit Ringlight, 66 mm ID
120-158430	Polarizer/Analyzer for 120-157420
120-153000	Halogen Bulb for KL1500, 15 V/150 W
120-253000	Halogen Bulb for KL2500, 24 V/250 W

## 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. Includes standard EKE bulb.



Item	Description
120-A20500	Schott Coldvision 150 Watt Halogen Light Source, 115 V
120-A20520	Schott Coldvision 150 Watt Halogen Light Source, 115 V with Iris Diaphragm
120-A08500	Light Guide, Dual Branch Gooseneck, 7.6 mm Diameter x 460 mm Length
120-A08620	Ringlight, 47/62 mm, Vertical Exit
120-A08615	Polarizer/Analyzer for 120-A08620
120-A08635	Ringlight, 38/53 mm, Vertical Exit
120-A08632	Polarizer/Analyzer for #120-A08635
120-EKE	Halogen Bulb, 21 V/150 W

## LED Illumination Systems NEW!

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 5,600K
- ❖ Nearly constant color temperature when dimming
- ❖ High reliability of 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)
- ❖ Direction of light is selectable (12 options) for maximum versatility (VisiLED)



Item	Description
120-600100	EasyLED Spot Light, 17 mm Diameter
120-600120	EasyLED Dual Spot Light, 17 mm Dia.
120-600200	EasyLED Ringlight, 66 mm ID
120-600400	EasyLED Transmitted Light Stage
120-400000	VisiLED, MC 1500 Multiple Controller
120-400040	VisiLED, MC 1000 Controller
120-400010	VisiLED, MC 750 Controller
120-400100	VisiLED Ringlight S40, 55-110 mm WD
120-400225	VisiLED Ringlight S80, 25-50 mm WD
120-400255	VisiLED Ringlight S80, 55-135 mm WD
120-400300	VisiLED Ringlight S40, 5-15 mm WD D/F
120-400400	VisiLED Transmitted Light Stage

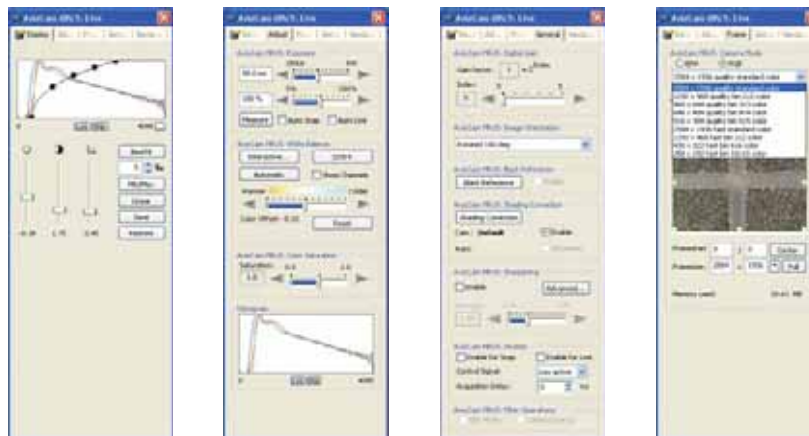
# AxioCam Digital Cameras

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 included 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

### Cameras for Quantitative Analysis

### Cameras for Routine/Basic Analysis

HRc	MRc 5	MRc	Camera	ICc 3	ICc 1	ERc 5s
CCD	CCD	CCD	<b>Sensor Type</b>	CCD	CCD	CMOS
2/3"	2/3"	2/3"	<b>Sensor Size</b>	1/1.8"	1/2"	2/5"
1:2200 @ 25 MHz	1:1300	1:2200	<b>Dynamic Range</b>	1:350	1:280	1:80
1:2500 @ 12.5 MHz						
400 $\mu$ s to 600 s	250 $\mu$ s to 60 s	400 $\mu$ s to 60 s	<b>Exposure Time</b>	1 ms to 4 s	1 ms to 4 s	10 $\mu$ s to 2 s
3 x 12-bit @ 25 MHz	3 x 12-bit	3 x 12-bit	<b>Digitization/ Bit Depth</b>	3 x 8-bit	3 x 8-bit	3 x 8-bit
3 x 14-bit @ 12.5 MHz				3 x 12-bit		
13 MP	5 MP	1.4 MP	<b>Resolution</b>	3.3 MP	1.4 MP	5 MP
4164 x 3120	2584 x 1936	1388 x 1030		2080 x 1540	1392 x 1040	2560 x 1920
6.45 $\mu$ m	3.4 $\mu$ m	6.45 $\mu$ m	<b>Pixel Size</b>	3.45 $\mu$ m	4.65 $\mu$ m	2.2 $\mu$ m
Yes	Yes	Yes	<b>Peltier Cooling</b>	No	No	No
FireWire	FireWire	FireWire	<b>Interface</b>	FireWire	FireWire	USB, S-Video, HDMI, SD Card



# AxioVision 4™ Image Analysis Software

From materials research and development to microelectronics, industrial quality control and assurance, more and more materials laboratories are utilizing the advantages of digital microscopy.

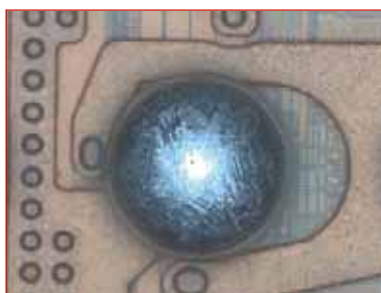
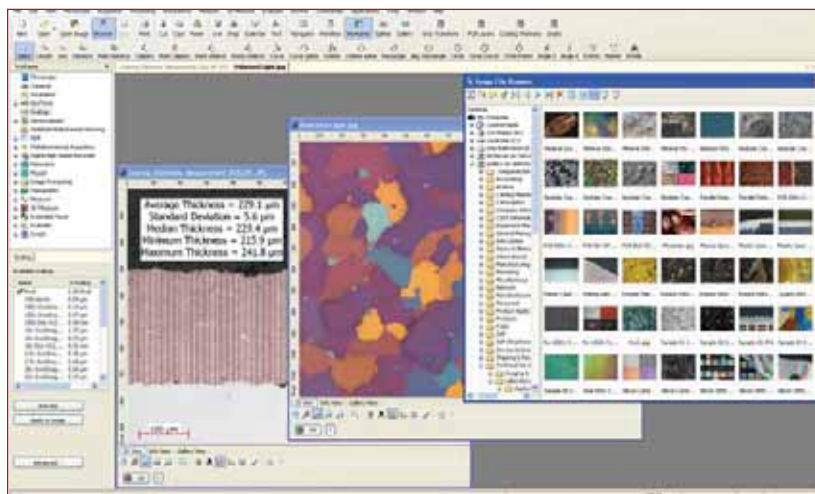
Carl Zeiss is driving this process with solutions that are continually setting new standards. A major component is **AxioVision 4™**, image analysis software for the microscopist. With its unique modular architecture, it is equally suited for both newcomers and advanced users. It features seamless integration between camera and microscope.

## Features:

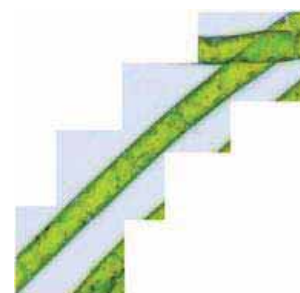
- ❖ Measurement of lines, angles, arcs, circles, area, perimeter and more
- ❖ Annotations/Text
- ❖ Contrast and filtering adjustment
- ❖ TWAIN Interface
- ❖ Full camera control
  - Exposure
  - White balance
  - Shade correction
  - Histogram
  - Image orientation
- ❖ Customizable workflows
- ❖ Report generation

## Modular Components:

- ❖ Panorama/MosaicX
- ❖ Extended Focus
- ❖ Auto Measurement (Image Segmentation)
- ❖ Z-Stack (combining images from multiple focal planes – only on motorized microscopes)
- ❖ Imaging Plus (advanced image processing)
- ❖ Commander (one click report generation)
- ❖ VBA programming
- ❖ Mark & Find (motorized stage required)
- ❖ Autofocus (motorized stand only)
- ❖ Interactive Measurement
- ❖ Archiving: Cumulus
- ❖ Online Measurement (measurement on live images)
- ❖ High Dynamic Range Imaging
- ❖ Topography



*Z-Stack/Extended Focus acquires and combines images from multiple focal planes to create a single sharp image*



*Panorama/MosaicX allows simple "tiling" or stitching of multiple images to make one large common image*

## Why Consider AxioVision?

### Integration with Zeiss Microscope and Camera

– With each objective change, the magnification is captured and scalings are applied automatically (encoded microscopes). With snapped images, all data such as magnification, camera exposure and bit depth are cataloged.

**Functionality** – Zeiss gives you 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, there are two organizations for maximum support.

**Versatility** – A workflow can be designed so tasks can be implemented 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 and date.

## Imaging Workstations

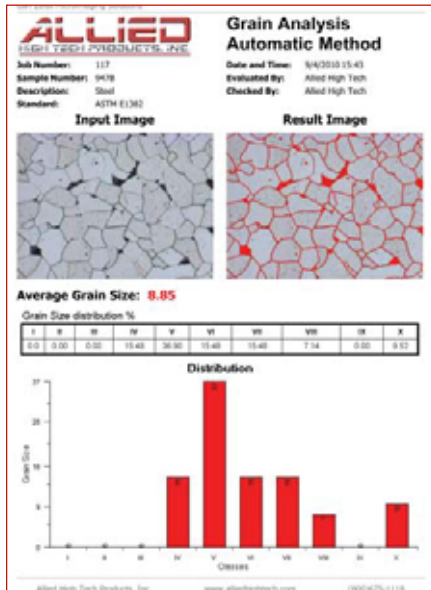
Allied offers a wide range of computer systems, cameras, camera adapters, printers, and accessories to help build a complete imaging workstation optimized for your specific application.



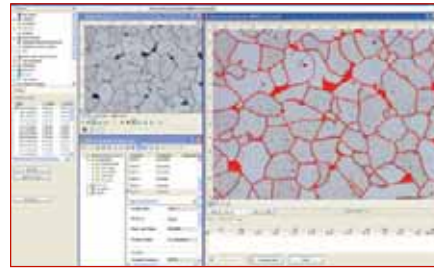


# Image Analysis/Application Kits

For routine image analysis, Zeiss offers individual software packages capable of providing one-click reports that are fully customizable with company logo, layout, data and much more.

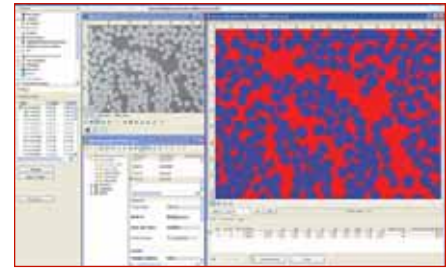


## One-Click Reports!



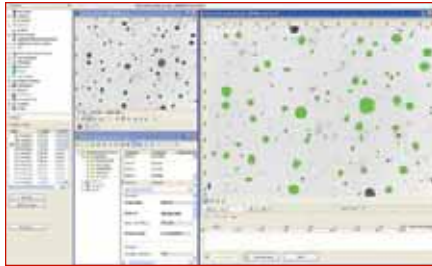
### Grains

- ❖ 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



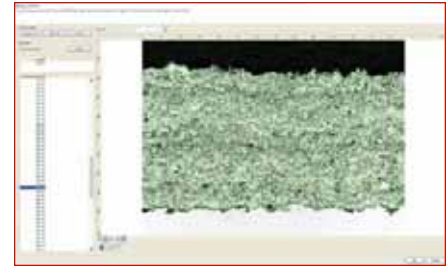
### Graphite

- ❖ Graphite measurement in cast iron
- ❖ ASTM, ISO, EN, SAE standards
- ❖ Three measurement methods: Spherulite; Lamellar; Sinter-Cast



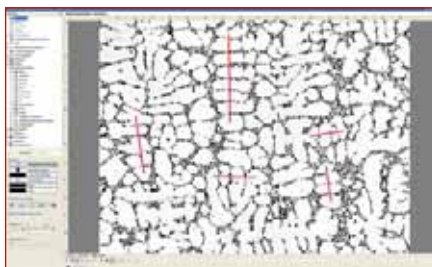
### NMI

- ❖ Non-Metallic inclusions in steel: oxides; sulphides; nitrides
- ❖ ASTM, ISO, DIN, EN, JIS standards
- ❖ Worst Field and oversized particle measurement



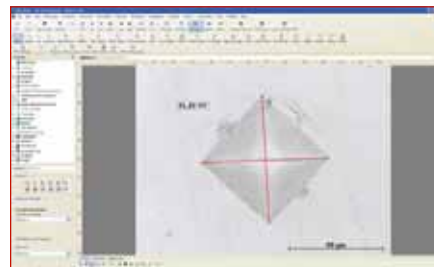
### Coating Thickness

- ❖ Automatic measurement of coating thickness: raw thickness values; average thickness; statistics
- ❖ Single image or batch processing of multiple images



### Dendritic Arm Spacing

- ❖ Arm spacing measurement
- ❖ Cell size measurement



### Microhardness

- ❖ Interactive measurement of Vickers or Knoop microhardness
- ❖ Communicate with microhardness tester through MHT4 or MHT10 controller
- ❖ Reads Newton, Gram-force, or Pound-force units



### PCB Layers

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

[illegible]





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Most items listed in this catalog are standard stock items and are available for immediate/next-day delivery (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 or common carrier, FOB Shipping Point (from Rancho Dominguez, CA). Next Day Air, 2nd Day Air, Federal Express, 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 are also prepared to ship via UPS Consignee Billing or UPS Collect as may be your preference.

### PAYMENT TERMS:

Net 30 Days from date of invoice. We also accept:



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