

MetPrep 3™/PH-3™ Grinding/Polishing System



- ❖ **Intuitive Operation**
 - ❖ **Durable, Powerful, Reliable**
 - ❖ **25 Programmable Steps**
 - ❖ **Variable Platen and Sample Speed**
 - ❖ **Central or Individual Sample Force Modes**

MetPrep 3™/PH-3™ Grinding/Polishing System


The **MetPrep 3™** Grinding/Polishing machine, when combined with the **PH-3™** Power Head, is a powerful system for semiautomatic operation, ideal for low to high volume sample preparation requirements. A wide variety of combinations provide ideal solutions that accommodate any application, lab or material.

Intuitive operation with user-friendly push-button interface and backlit LCD make it easy to use and program. The microprocessor-based system allows up to 25 programmable steps, including parameters for platen speed, direction (comp/contra), cycle time, fluid selection, sample force, sample rotation speed, platen rinse and force reduction.

A “Procedure Development” step 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.

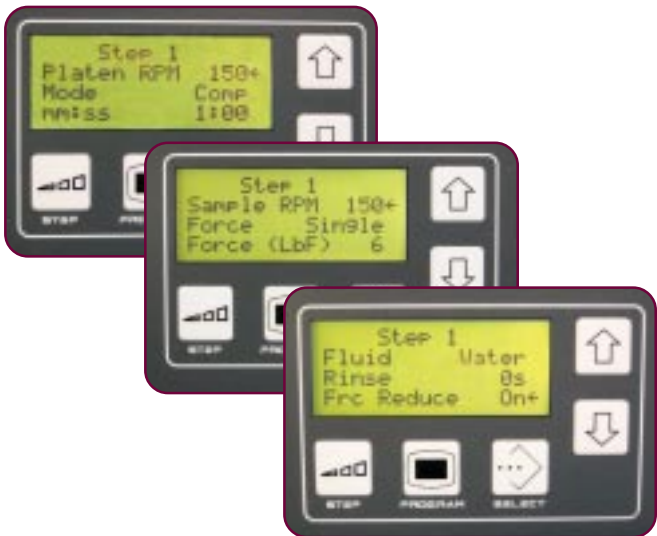
Either aluminum or magnetic platens may be used with any plain/adhesive backed or magnetic system disc.

MetPrep 3™ Features:

- ❖ Touch-pad switches control all functions
- ❖ Backlit 4-line LCD
- ❖ 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 speed: 40-600 RPM (10 RPM increments)
- ❖ Variable platen jog speed: 40-600 RPM (10 RPM increments)
- ❖ Powerful 5/8 HP (470 W) 3-Phase AC motor provides constant high-torque output
- ❖ Variable cycle time: 0-60 minutes (15 second increments)
- ❖ Seamless integration with optional AD-5™ Fluid Dispenser for fully automatic operation
- ❖ Quick-change platen design, anodized to resist wear and corrosion
- ❖ Electronic coolant control with adjustable flow control valve
- ❖ Bowl flush to prevent debris buildup
- ❖ Emergency shut-off switch
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA 



PH-3™ Central Force Configuration



Up to 25 programmable steps

Technical Data/Features

| | |
|--------------|-----------------|
| Platen RPM | 40-600 |
| Jog RPM | 40-600 |
| Platen | 8" (200 mm) |
| Horsepower | 5/8 (470 W) |
| W | 15" (381 mm) |
| Dimensions D | 26" (660 mm) |
| | H 25" (635 mm) |
| Weight | 136 lb. (62 kg) |

Power Head

The **PH-3™** Power Head offers 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 six (6) samples to be prepared simultaneously, depending on 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.

A variety of sample holders are available for various mount and sample sizes.

Sample Holders are sold separately

PH-3™ Features:

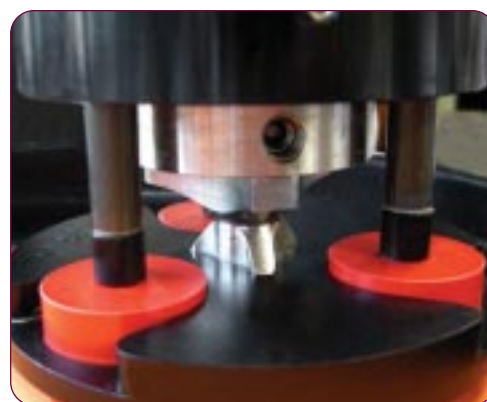
- ❖ Central and Individual sample force modes
- ❖ Soft-start and force reduction control
- ❖ Unique tilt-up feature allows easy access to platen and holder
- ❖ Simple push/pull attachment and removal of sample holders
- ❖ Sample holders available in teardrop or dual-cavity style
- ❖ Lateral swivel provides versatile sample holder positioning
- ❖ ¼ HP (190 W) DC motor with durable reduction gearbox provides constant high-torque output
- ❖ Variable sample rotation speed: 0-150 RPM (10 RPM increments)
- ❖ Complementary or contra rotation modes

Power Head Specifications

| | PH-3™ |
|---------------------|-------------------------|
| Sample RPM | 0-150 |
| Horsepower | ¼ (190 W) |
| | Individual Force |
| Number of Samples | 1 - 3 |
| Force Range (LbF/N) | 0-16/0-70 |
| Maximum Mount Size | 40 mm |
| | Central Force |
| Number of Samples | 3 - 6 |
| Force Range (LbF/N) | 5-50/22-219 |



Unique tilt-up feature for easy access to sample holder and platen



PH-3™ Individual Force Configuration: three (3) individual pistons apply force to the mount(s)

System Item Numbers

| Platen Diameter | Voltage AC | MetPrep 3™ PH-3™ |
|-----------------|------------|------------------|
| 8" (200 mm) | 115 | 5-2500 |
| | 230 | 5-2500-230 |

Central Force Holders

Designed for preparing three (3) or more samples at one time. They are easier to clean and handle compared to individual holders, and are recommended for high-volume preparation requirements.

Teardrop Sample Holders allow flexibility in the shape and size of the sample that can be held.

Dual-Cavity Sample Holders feature a single tightening point, 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 either one or two samples in a common cavity.

Custom shapes and sizes can be designed and manufactured upon request.



Central force sample holders feature a stable, low profile design allowing observation on an upright microscope (shown on a Zeiss Axiolmager Microscope)

5-33XX Series Holders

Outside diameter = 140 mm

| | |
|--------|---|
| 5-3301 | Sample Holder Blank Disc w/Heating Stage for securing unmounted samples using wax |
| 5-3330 | (6) 1-1¼" Samples, Teardrop |
| 5-3340 | (5) 1" - 40 mm Samples, Teardrop |
| 5-3361 | (6) 1-1¼" Samples, Dual-Cavity |
| 5-3380 | Sample Loading Fixture, for 5-33XX Holders |



Individual Force Holders

Designed to allow as few as one or up to multiple samples to be prepared simultaneously. The advantage of individual preparation is that it allows removal of any number of samples during the grinding/polishing operation without affecting balance of the system. They are 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. Recommended when preparing fragile materials or materials requiring lighter force (EBSD).

5-38XX Series Holders

Use with PH-3™ Power Head

| | |
|--------|------------------------|
| 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 |



Accessories

Aluminum platens are used with plain or adhesive back SiC discs or adhesive back, multiple-use grinding/polishing discs. If using with multiple-use grinding/polishing discs, it is recommended that one platen per disc be used.

Magnetic Platens feature a non-slip magnetic foil which is permanently adhered to an aluminum platen and used with Magnetic System grinding and polishing discs. They provide a convenient method for quick and easy changing of the disc without the need to exchange or invest in multiple platens.

Paper holding bands are used to secure plain back abrasive discs to aluminum platens. The inside of the band edge is designed to accommodate discs that may overhang the platen edge so the paper does not fold onto itself. They are adjustable to fit metric and imperial size platens.

| Platen Diameter | Aluminum Platen | Magnetic Platen | Paper Holding Band |
|-----------------|-----------------|-----------------|--------------------|
| 8"/200 mm | 5-2005 | 5-2005M | 125-10011 |



Aluminum Platen



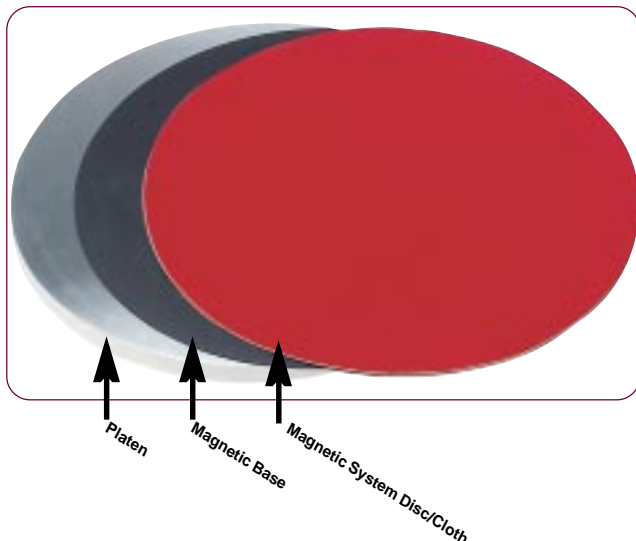
Magnetic Platen

Magnetic System

Magnetic system grinding discs and polishing cloths feature a thin, permanently laminated flexible rubber backing with magnetic properties that adhere to all magnetic platens or magnetic bases applied to standard 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)
- ❖ Ease 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, including polishing cloths, Dia-Grid and metal bonded diamond discs.

| Item | Description |
|-----------|----------------------------|
| 90-208300 | Magnetic Base, 8" (203 mm) |

Platen/Disc/Cloth Storage Cabinet

Durable aluminum cabinet accomodates 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. Supplied with five (5) trays.

| Item | Description |
|--------|---|
| 5-8100 | Storage Cabinet for Platens, Discs or Cloths up to 12" diameter |
| 5-8105 | Tray/Shelf for #5-8100 Cabinet |

Specifications:

| | |
|-------------|--|
| Dimensions: | 14" W x 14" D x 14" H (355 x 355 x 355 mm) |
| Weight: | 25 lb. (11 kg) |



(Shown with door removed for visual clarity)

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. Dividers sold separately. A locking door provides a sealed environment. Desiccant is included.

| Item | Description |
|---------|--|
| 30-8000 | Mount Storage Cabinet with 10 Drawers, 1440 Mount Capacity |

Accessories:

| | |
|---------|---|
| 30-8005 | Mount Divider, (144) 1" (25 mm) Mounts |
| 30-8010 | Mount Divider, (100) 1¼" (32 mm) Mounts |
| 30-8015 | Mount Divider, (81) 1½" (38 mm) Mounts |
| 30-8020 | Mount Divider, (36) 2" (51 mm) Mounts |

Specifications:

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



(Shown with door removed for visual clarity)

Material Removal Measuring Instrument

Measuring instrument to determine material removal from samples mounted in central force sample holders. 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 Material Removal using 5-33XX Sample Holders |





AD-5™ Fluid Dispenser

The **AD-5™** Fluid Dispenser provides automatic, unattended application of 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 guarantees reproducible results by eliminating inconsistencies between operators, increasing productivity and efficiency in the lab. Intuitive navigation and simple-logic programming make the dispenser easy-to-use.

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

Features:

- ❖ Five (5) dispensing positions, 16 oz. (500 mL) capacity
- ❖ User-defined labeling of each step (abrasive type & size, lubricant, cloth, material, and step name)
- ❖ One-touch priming function allows quick, initial charging of new cloths
- ❖ One-touch activation independent of step for simple operation
- ❖ Allows dispensing of colloidal suspensions (silica, silica/alumina and alumina) with rinse/flush function to avoid clogging
- ❖ Sequential programming of steps
- ❖ Peristaltic pump controlled dispensing
- ❖ 25 programmable steps
- ❖ Two (2) year warranty
- ❖ Designed & manufactured by Allied in the USA



Custom Label each step



Data displayed during operation



25 programmable steps

| Item | Description |
|------------|-------------------------------------|
| 5-7000 | AD-5™ Fluid Dispenser, 115 V |
| 5-7000-230 | AD-5™ Fluid Dispenser, 230 V |

Includes: Operation Manual, Power Cord (country specific), bottle labels

Specifications:

Dimensions: 8" W x 25" D x 9" H (203 x 635 x 228 mm)
Weight: 28 lb. (13 kg)

Global Distribution of



Equipment is subject to change due to innovations/improvements at any time.

Document No: D5-25XPBV1.0



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