

BUEHLER®

PowerPro™ 5000, 5000 Plus, 4000 & 3000 FAMILY OF VARIABLE SPEED GRINDER-POLISHERS

- *Powerful Heavy Duty Preparation System*
- *5000 Plus System Packages Include Grinder-Polisher, PriMet® Dispensers, Consumables and Other Accessories*
- *Prepares up to 2' and 50mm Specimens and Difficult to Prepare Materials With Ease*
- *Zaxis™ Macro Material Removal by Depth*
- *Dual Head Speed, Variable Base Speed, Single and Central Specimen Force*
- *Programmable, Including 25 Buehler Proven Preparation Methods*
- *Automatic Force Application Based on Number and Size of Specimens*
- *Compatible With 10' (254mm) and 12' (305mm) Diameter Platens and Consumables*
- *CE Approved*



BUEHLER



PowerPro 5000, 5000 Plus, 4000 & 3000: Powerful Systems With Controlled Performance



The Buehler Family of PowerPro™ Systems are high performance, powerful, and extremely versatile variable speed grinder-polishers. Each machine is designed with innovative features that will enhance the performance and production in any laboratory environment. The PowerPro family consists of three systems, the PowerPro™ 5000, PowerPro™ 4000 and PowerPro™ 3000. Each machine comes equipped with a powerful 2 Hp (1800 Watt) base motor that will grind and polish even the most difficult materials to photo-ready specimens.

The touch pad controls and liquid crystal display (LCD) on all PowerPro Systems are durable and easy-to-use. Screens on all the PowerPro family members are easy-to-read with preloaded default parameters allowing even the newest operators to set up their preparation steps quickly and easily. Operating parameters such as Force, Base Speed, and Water may be adjusted during the preparation sequence.

All PowerPro Systems have dual head speed allowing you to slow the head down for materials prone to smear or use increased speed when time is critical or for special materials that need an extra boost to assist in material removal. The choice of complementary or contra head direction is essential for economic use of expensive abrasive suspensions and assists in minimizing specimen damage, especially for coating's and friable materials.

The PowerPro Family of Variable Speed Grinder-Polishers give optimum performance whether you use 10" (254mm) or 12" (305mm) platens and preparation methods. All of this advanced technology is housed in a rugged mineral cast base, designed for durability in even the toughest environments.

The PowerPro 5000 Plus Systems approach combines the PowerPro 5000, PriMet® 3000 Modular Dispensing System with Satellite, accessories, the Apex® DGD, and consumables into one easy to order package for your laboratory.

PowerPro 5000, PowerPro 4000 & PowerPro 3000 Comparison Chart

Features	PowerPro 5000	PowerPro 4000	PowerPro 3000
2 Hp (1800 W) Base Motor	X	X	X
LCD Controls	X	X	X
Available with and without Zaxis™	X	X	X
Dual Head Speed Selection of 60/150 rpm	X	X	X
Comp/Contra Head Direction	X	X	X
Variable Platen Speed of 50-400rpm	X	X	X
Programmable/Editable Sum-Met Methods	X		
Last Setting Retained Programmability and “Grind” and “Polish” Quick Selection		X	X
Automatic Calculation of Force Based on User Input of Size and Number of Specimens	X		
Pause Function (Time Parameter Operation)	X	X	X
Automatic Head Height Control	X	X	
Platen Cool	X	X	X
Soft Start	X	X	X
Central and Single Force Application	X	X	
Central Force Only Application			X
Central Force Application 5-120 lbs. (20-535N)	X	X	X
Single Force Application 1-20 lbs. (5-25N)	X	X	
Zaxis Macro Material Force 5-40 lbs. (20-180N)*	X*	X*	X*
Hands Away Safe Operation	X	X	X
10" (254mm) or 12" (305mm) Platens	X	X	X
Eight Languages Available	X	X	X
Imperial and Metric	X	X	X

**If Zaxis System Purchased*

The PowerPro 5000 & 5000 Plus Variable Speed Grinder-Polisher



The PowerPro™ 5000

The PowerPro™ 5000 is the first table-top system to prepare specimens using the Zaxis™ Macro Material Removal System in addition to conventional time-based methods. Zaxis is a unique feature that allows material to be removed by desired depth. Zaxis gives the operator control to grind to a desired plane such as the center of a part, fastener or weldment. Pair the Zaxis with the Apex® Diamond Grinding Disc (DGD) System, and both accuracy and repeatability are optimized.

The Buehler Apex® System offers a variety of long-lasting, moderate to high removal rate consumables engineered to grind materials quickly, minimizing preparation steps and time. The Apex DGD and DGD Color give repeatable results and are the consumables of choice for the PowerPro 5000's Zaxis Macro Material Removal System.

The fully programmable PowerPro 5000 has a remarkable memory for detail. The operator may choose from 25 proven Buehler Sum-Met™ Preparation Methods or program up to 25 of their own. When

combined with the PriMet® 3000 Modular Dispensing System, the 25 Sum-Met™ methods will dispense the preprogrammed amount of abrasive per step for fast, consistent results every time. The PowerPro 5000, using input from the operator on number and size of specimens, calculates the optimum force needed, increasing the consistency of every batch of specimens.

The PowerPro 5000 prepares specimens in both Single and Central force. When using Single preparation mode, the automatic head height adjustment will assist in keeping the Single specimen holder at the correct height relative to the platen surface. This allows the use of a wide variety of consumable systems of differing thicknesses for optimum results every time. Whether you need Central or Single force, the PowerPro systems offer a wide variety of specimen holders and accessories for every material application.

The PowerPro 5000 Plus System includes recommended accessories and consumables for your application in a convenient easy-to-order package.

Technical Data for the PowerPro 5000

Operation Modes

- Semi-Automatic Operation of Base and Power Head with programmability
- Semi-Automatic with Zaxis, Macro Material Removal**
- Zaxis Removal Mode range of 0.100" (2.5mm) in 0.0004" (10µm) increments**

Specimen Capacity

Central Mode:

- 10-1", 25mm, 1¼", and 30mm Specimens
- 6-1½" and 6-40 mm Specimens
- 5-2" and 5-50mm Specimens
- Large, and Irregular Specimens

Single Mode:

- 6-2" Specimens
- Distance rings available for 30mm, 1¼", 1½", 40mm, and 1" Specimens

Specimen Force

- Single and Central Mode
- In Zaxis Mode Central Force Range 5-40 lbs (20-180N)**
- Central Force Application 5-120 lb. (20-535 N) in 5 lbs. (5 N increments)
- Single Force Application 1-20 lbs. (5-90N)
- In central mode, automatic force calculations based upon user input specimen size and number

Base Parameters

- Large 2.0 HP (1800 Watts) Motor
- Platen Speed 50-400 rpm, in 10 rpm increments
- Quiet Belt Drive
- Flexible water supply hose
- Power On/Off
- Water On/Off with manual flow adjustment
- Platen Cool On/Off
- Platen Rinse On/Off /10-30 seconds (10 second intervals) fresh water only

Power Head Parameters

- Pneumatic Head
- Large 0.6 HP (774 Watt) Motor
- Dual Speed: 60 and 150 rpm
- Quiet Belt Drive
- Step Depth 0.100" (2.5mm) in 0.0004" (10µm) increments**
- Time: 10 sec-99:59 min: sec (in 10 second increments) per step
- Head/Platen relative rotational direction: Complementary or Contra
- Soft Start
- Pause Function in "time" parameter only
- Integrated Lubricant Dispenser System with gravity fed dispensing and flow adjustment valve
- Head Height: Automatically adjusts head height for various thickness consumable surfaces to 0.12" (3mm) above grinding surface
- Displays: Step Number, Current Method, Step Depth**, Total Depth**, Step Time, Total Time
- Other functions: Cycle On/Off, Add Step, Delete Step, Delete All, Skip Step, Repeat Step, Load Method, Save Method, Clear Totals, Various Warning and Information Messages

PriMet® Dispensing Systems

(when purchased)

- Peristaltic Dispensing
- Up to 10 solution dispensing
- PriMet® 3000 programmability ties directly to PowerPro 5000 with dispensing parameters for 25 Buehler Sum-Met™ proven preparation methods
- 25 User programmable methods

Controls

Microprocessor Controlled Programmability:

- 25 proven Buehler Sum-Met™ preparation methods
- 25 User programmable methods
- User Friendly 240 x 60 pixels LCD Display

Touch Pad Controls

- Eight Language User Interface: English, French, German, Japanese, Korean, Mandarin Chinese, Portuguese, & Spanish
- Units: Imperial or Metric
- RS232 communication port

Construction

- Heavy Duty, Corrosion Resistant Mineral Cast Base for stability and chemical resistance
- Corrosion and Impact Resistant Power Head Cabinet

Safety Features

- Hands Away Safe Start Controls
- Safe Isolated electronics and 12V Controls
- Large Emergency Stop Pushbutton
- CE Marked

Power

- 170-264V/50-60 Hz/1 phase/ 2200 Watts/10 amps

Water Supply

- ¾" OD tube (9.5 mm) supply. Requires 40-100 psi (2.8- 6.9 Bar). Requires Water Filter Kit, included with PowerPro.

Water Return

- 2¾" (60mm) OD tube

Air Supply

- 0.23" OD tube (6mm) supply. Requires filtered, lubricated and regulated air to 70 psi (4.8 Bar). Accessory Air Kit available.

Shipping Weight

- 300 lbs. (136 kg)

Accessories

- Large Recirculating System: Operator choice of fresh or recirculating system water for use with all PowerPro Systems.
- 24 Gal. (90 L) Capacity

PowerPro Dimensions

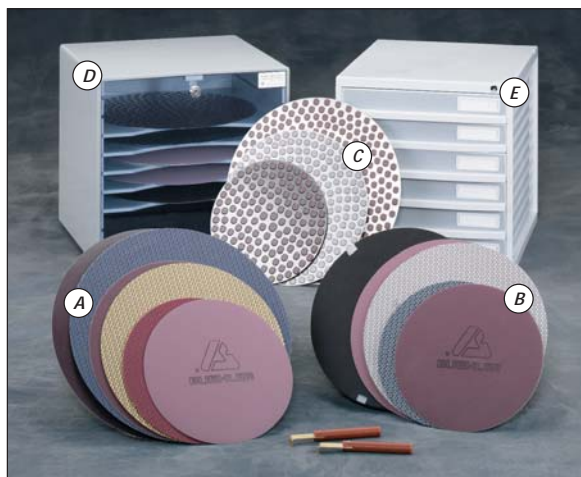
W	X	D*	X	H
24"	x	24"	x	28"
603 mm	x	618mm	x	700mm

*750mm including 30" head swing

**If Zaxis System Purchased



The PriMet 3000 Modular Dispensing System may be used with up to eight PriMet Satellites.



A) Apex DGD Color & Apex DGD, B) Apex DGD Color & Apex DGD, C) ApexHercules, D) 19-06-09 Apex Storage Cabinet, E) 19-06-06 Apex Storage Cabinet

The PowerPro 5000 Plus System

The PowerPro 5000 Plus System package combines the PowerPro 5000 Specimen Preparation System with renowned Buehler consumables. With the Buehler included accessories, the Specimen Loading Fixture, a Specimen Loading Plate, a customer selected specimen holder, the PriMet 3000 Modular Dispensing System with Satellite, you have a custom system designed to give you consistent results, quickly and effectively every time. Your local Buehler Sales Engineer will help you select consumables for your particular materials based off of Sum-Met, The Buehler Guide to Materials Preparation. When your PowerPro5000 Plus System arrives, you will have everything you need to begin work without delay. The PowerPro 5000 Plus System provides applications solutions for your laboratory in one easy-to-use package.

The PriMet® Family of Dispensing Systems

The PriMet 3000 Modular Dispensing System is an expandable system for controlled application of diamond, alumina, and colloidal silica suspensions. Up to eight PriMet Satellites may be added for a total of ten solutions dispensed. This programmable system works in tandem with the PowerPro 5000. The PriMet Satellites are used as an accessory dispenser to the PowerPro 4000 and PowerPro 3000 to produce consistent, economical preparation results.

40-2800 PriMet® 3000 Modular Dispensing System

40-2810 PriMet® Modular Dispensing Satellite

40-2811 PriMet Modular Dispensing Satellite, Less

40-2823 PriMet hand switch and **40-2825** 12 Volt transformer

40-2704 PriMet 3000 and Satellite Connector to all PowerPro Systems

40-2706 PriMet 3000 and Satellite Connector to Polishers including PowerPro 5000

The Apex® Family

The Apex® Diamond Grinding Discs (DGD) are the consumables of choice for the PowerPro's Zaxis Macro Material Removal System. The Apex DGD's engineered surface contains metallurgical quality abrasive in a long wearing surface. Useful for most grinding applications, the Apex DGD is the only recommended grinding surface to use for accurate material removal with the PowerPro 5000. Silicon carbide papers due to their short life and less rigidly fixed abrasives are not recommended for controlled material removal as they will result in inaccuracies. The Apex DGD's are also excellent for traditional time based preparation methods, offer high material removal rates, superb specimen flatness, and are designed to save both time and money by replacing multiple silicon carbide steps. Each disc is designed to replace a large volume of various grinding and polishing surfaces.

Apex Diamond Grinding Discs

Micron	10' (254mm)	12' (305mm)	Micron	10' (254mm)	12' (305mm)
165 micron	41-5010	41-5012	15 micron	41-5510	41-5512
125 micron	41-5110	41-5112	9 micron	41-5610	41-5612
70 micron	41-5210	41-5212	6 micron	41-5710	41-5712
45 micron	41-5310	41-5312	3 micron	41-5810	41-5812
30 micron	41-5410	41-5412	0.5 micron	41-5910	41-5912

Apex® DGD Color

Apex® DGD Color provides long wear, resin-bonded, fixed abrasive surfaces for every application. These discs provide high material removal rates and excellent edge retention and flatness.

Color	10' (254mm)	12' (305mm)	Color	10' (254mm)	12' (305mm)
Red	41-3510	41-3512	White	41-3810	41-3812
Purple	41-3610	41-3612	Blue	41-3910	41-3912
Yellow	41-3710	41-3712			

The ApexHercules™ Rigid Grinding Discs are engineered surfaces that are used with MetaDi® and MetaDi® Supreme Diamond Suspensions to grind specimens. The ApexHercules interrupted surface provides moderate material rates, superb sample flatness, excellent edge retention and effective swarf removal. Each disc is designed to last up to 200 sample holders under normal usage and is available in two configurations.

41-2740-310-001 ApexHercules H (for materials greater than HRC20, HV236), for 10" (254mm) Diameter Platens

41-2740-410-001 ApexHercules S (for materials less than or equal to HRC20, HV236), for 10" (254mm) Diameter Platens

41-2740-312-001 ApexHercules H (for materials greater than HRC20, HV236), for 12" (305mm) Diameter Platens

41-2740-412-001 ApexHercules S (for materials less than or equal to HRC20, HV236), for 12" (305mm) Diameter Platens

Apex MagnoSys is an economical, convenient quick-change magnetic system for use when magnetic polishing debris is not a concern. The Apex MagnoSys is an aluminum platen already equipped with the MagnoFix magnetic disc - no assembly required. The Apex MagnoMet and MagnoPad (Teflon coated) are thin metallic plates for use with any PSA backed cloth or grinding surface and can be used with either the MagnoDisc or the MagnoFix.

Disc	10' (254mm)	12' (305mm)
Apex MagnoDisc Aluminum Platen with MagnoFix installed	162571	163071
Apex MagnoFix - PSA Backed Magnetic Disc	162570	163070
Apex MagnoMet Metallic Plate	162572	163072
Apex MagnoPad Teflon Coated Metallic Plate	162573	163073

The Apex® Quick-Change Magnetic System is a patented magnetic-based system used in conjunction with the Apex DGD, the ApexHercules™, abrasive papers, cloths and pads. Combine any platen with the Apex® M Magnetic Disc and an Apex® Bimetallic Plate and you can use, store and reuse any pressure sensitive adhesive (PSA) backed consumable in an environmentally friendly manner. Unlike competitive systems, there is no excessive waste metal to dispose of in our environment. The patented Apex B Bimetallic Plate is the only system on the market that prevents magnetic swarf from clinging to the grinding surface and potentially damaging your specimens.

41-2739-610-001 Apex M Magnetic Disc for 10" (254mm) Diameter Platens

41-2739-210-001 Apex B Bimetallic Plate for 10" (254mm) Diameter Platens

41-2739-612-001 Apex M Magnetic Disc for 12" (305mm) Diameter Platens

41-2739-212-001 Apex B Bimetallic Plate for 12" (305mm) Diameter Platens

The Apex® Storage Cabinets enable convenient contaminant free storage platens, abrasive surfaces, cloths and pads. The cabinets are constructed of heavy duty plastic for durable, easy to clean storage.

19-06-09 Apex Storage Cabinet for all discs and platens up to 12" (305mm) with clear viewing window and 5 adjustable shelves.

19-06-10 Four additional shelves for 19-06-09

The PowerPro 4000

Variable Speed Grinder-Polisher



The PowerPro 4000

Retaining all the power and good looks of the PowerPro 5000, the PowerPro 4000 Variable Speed Grinder-Polisher is also high performance, extremely versatile, and offers a few unique features of its own. Like all members of the PowerPro family, the PowerPro 4000 is a single platen system for both 10" (254mm) and 12" (305mm) platen selection. The LCD touch pad controls are durable, easy to use, and control such parameters as Force, Base RPM, Head Speed and Head Direction, Water and Platen On/Off. While the Buehler Sum-Met methods and programmability are available in the PowerPro 5000, the PowerPro 4000 features a simplified LCD user interface with last settings retained

programmability for grinding and polishing parameters. The LCD displays "Grind" and "Polish", and unless changed, with a single button push by the operator, these settings are retained and may be recalled for use over and over again. This means when you end your preparation sequence using "Polish" parameters, you may press "Grind" and you are ready to start again with your previously selected grinding parameters without resetting any steps in your procedure. This is another way the PowerPro Systems offer ease of use and increased repeatability. The unique Zaxis Macro Material Removal System is also available in the PowerPro 4000.

Technical Data for the PowerPro 4000

Operation Modes

- Semi-Automatic Operation of Base and Power Head with programmability
- Semi-Automatic with Zaxis, Macro Material Removal**
- Zaxis Removal Mode range of 0.100" (2.5mm) in 0.0004" (10µm) increments**

Specimen Capacity

Central Mode:

- 10-1", 25mm, 1¼", and 30mm Specimens
- 6-1½" and 6-40 mm Specimens
- 5-2" and 5-50mm Specimens
- Large, and Irregular Specimens

Single Mode:

- 6-2" Specimens
- Distance rings available for 30mm, 1¼", 1½", 40mm, and 1" Specimens

Specimen Force

- Single and Central Mode
- In Zaxis Mode Central Force Range 5-40 lbs (20-180N)**
- Central Force Application 5-120 lbs (20-535 N) in 5 lbs (5N increments)
- Single Force Application 1-20lbs. (5-90N)

Base Parameters

- Large 2.0 HP (1800 Watts) Motor
- Platen Speed 50-400 rpm, in 10 rpm increments
- Quiet Belt Drive
- Flexible water supply hose
- Power On/Off
- Water On/Off with manual flow adjustment
- Platen Cool On/Off

Power Head Parameters

- Pneumatic Head
- Large 0.6 HP (774 Watt) Motor
- Dual Speed: 60 and 150 rpm
- Quiet Belt Drive

- Head/Platen relative rotational direction: Complementary or Contra
- Soft Start
- Pause Function in "time" parameter only
- Integrated Lubricant Dispenser System with gravity fed dispensing and flow adjustment valve
- Head Height: Automatically adjusts head height for various thickness consumable surfaces to 0.12" (3mm) above grinding surface
- Other functions: Cycle On/Off, Various Warning and Information Messages, Grind, Polish

PriMet® Dispensing Systems

(when purchased)

- Peristaltic Dispensing
- Up to 10 solution dispensing

Controls

- User Friendly 240 x 60 pixels LCD Display

Touch Pad Controls

- Eight Language User Interface: English, French, German, Japanese, Korean, Mandarin Chinese, Portuguese, & Spanish
- Units: Imperial or Metric
- RS232 communication port

Construction

- Heavy Duty, Corrosion Resistant Mineral Cast Base for stability and chemical resistance
- Corrosion and Impact Resistant Power Head Cabinet

Safety Features

- Hands Away Safe Start Controls
- Safe Isolated electronics and 12V Controls
- Large Emergency Stop Pushbutton
- CE Marked

Power

- 170-264V/50-60 Hz/1 phase/ 2200 Watts/10 amps

Water Supply

- ¾" OD tube (9.5 mm) supply. Requires 40-100 psi (2.8- 6.9 Bar). Requires Water Filter Kit, included with PowerPro.

Water Return

- 2¾" (60mm) OD tube

Air Supply

- 0.23" OD tube (6mm) supply. Requires filtered, lubricated and regulated air to 70 psi (4.8 Bar). Accessory Air Kit available.

Shipping Weight

- 300 lbs. (136 kg)

Accessories

- Large Recirculating System: Operator choice of fresh or recirculating system water for use with all PowerPro Systems.
- 24 Gal. (90 L) Capacity

PowerPro Dimensions

W	X	D*	X	H
24"	x	24"	x	28"
603 mm	x	618mm	x	700mm

*750mm including 30" head swing

**If Zaxis System Purchased

The PowerPro 3000 Variable Speed Grinder-Polisher



The PowerPro 3000

The PowerPro 3000 Variable Speed Grinder-Polisher is Buehler's third member of the PowerPro family. The PowerPro 3000, like the 4000 and 5000, is housed in the same durable mineral housing, protecting it from harsh laboratory work environments. This table-top system is operated by a powerful 2 Hp (1800kW) motor, has LCD touch pad controls, and may be purchased with the Zaxis Macro Material Removal System. Like the PowerPro 4000, the PowerPro 3000 features a simplified operator interface and will store the last operating parameters for both grinding and polishing parameters. The LCD displays "Grind" and

"Polish", and unless changed, with a single button push by the operator, these settings are retained and may be recalled for use over and over again. This means when you end your preparation sequence using "Polish" parameters, you may press "Grind" and you are ready to start again with your previously selected grinding parameters without resetting any of your steps.

Another difference between the PowerPro 3000 and the PowerPro 4000, is that the PowerPro 3000 is designed for laboratories that need to only prepare specimens using Central force application.

Technical Data for the PowerPro 3000

Operation Modes

- Semi-Automatic Operation of Base and Power Head with programmability
- Semi-Automatic with Zaxis, Macro Material Removal**
- Zaxis Removal Mode range of 0.100" (2.5mm) in 0.0004" (10µm) increments**

Specimen Capacity

Central Mode:

- 10-1", 25mm, 1¼", and 30mm Specimens
- 6-1½" and 6-40 mm Specimens
- 5-2" and 5-50mm Specimens
- Large, and Irregular Specimens

Specimen Force

- Central Mode
- In Zaxis Mode Central Force Range 5-40 lbs (20-180N)**
- Central Force Application 5-120 lb. (20-535 N) in 5 lbs. (5 N increments)

Base Parameters

- Large 2.0 HP (1800 Watts) Motor
- Wheel Speed 50-400 rpm, in 10 rpm increments
- Quiet Belt Drive
- Flexible water supply hose
- Power On/Off
- Water On/Off with manual flow adjustment
- Platen Cool On/Off

Power Head Parameters

- Pneumatic Head
- Large 0.6 HP (774 Watt) Motor
- Dual Speed: 60 and 150 rpm
- Quiet Belt Drive
- Head/Platen relative rotational direction: Complementary or Contra
- Soft Start

- Pause Function in "time" parameter only
- Integrated Lubricant Dispenser System with gravity fed dispensing and flow adjustment valve
- Other functions: Cycle On/Off, Various Warning and Information Messages, Grind, Polish

PriMet® Dispensing Systems

(when purchased)

- Safe Peristaltic Dispensing
- Up to 10 solution dispensing

Controls

- User Friendly 240 x 60 pixels LCD Display

Touch Pad Controls

- Eight Language User Interface: English, French, German, Japanese, Korean, Mandarin Chinese, Portuguese, & Spanish
- Units: Imperial or Metric
- RS232 communication port

Construction

- Heavy Duty, Corrosion Resistant Mineral Cast Base for stability and chemical resistance
- Corrosion and Impact Resistant Power Head Cabinet

Safety Features

- Hands Away Safe Start Controls
- Safe Isolated electronics and 12V Controls
- Large Emergency Stop Pushbutton
- CE Marked

Power

- 170-264V/50-60 Hz/1 phase/ 2200 Watts/10 amps

Water Supply

- ¾" OD tube (9.5 mm) supply. Requires 40-100 psi (2.8- 6.9 Bar). Requires Water Filter Kit, included with PowerPro.

Water Return

- 2¾" (60mm) OD tube

Air Supply

- 0.23" OD tube (6mm) supply. Requires filtered, lubricated and regulated air to 70 psi (4.8 Bar). Accessory Air Kit available.

Shipping Weight

- 300 lb. (136 kg)

Accessories

- Large Recirculating System: Operator choice of fresh or recirculating system water for use with all PowerPro Systems.
- 24 Gal. (90 L) Capacity

PowerPro Dimensions

W	X	D*	X	H
24"	x	24"	x	28"
603 mm	x	618mm	x	700mm

*750mm including 30" head swing

**If Zaxis System Purchased

Specifications

49-6000 PowerPro 5000 Variable Speed Grinder-Polisher System, Table-top, Single Platen System, Fully programmable Grinder-Polisher with preprogrammed Buehler Sum-Met Methods and Zaxis Macro Material Removal System. Zaxis removes material by depth, in addition to conventional time based preparation. Additional features include Single and Central mode preparation, dual head speed and variable base speeds, water on/off, variable force, large 2 Hp (1800kW) motor, built in splash ring, Lubricant Dispenser System, Automatic Force Calculation, Water Filtration Kit and operating instructions. Universal voltage 170-264/50-60Hz/1 phase. Platens, specimen holders and air kit sold separately.

49-6001 PowerPro 5000 Variable Speed Grinder-Polisher System is the same as the 49-6000 except without Zaxis, Macro Material Removal System

49-6113 PowerPro 4000 Variable Speed Grinder-Polisher System is the same as the 49-6000 with these exceptions: Standard without preprogrammed Buehler Sum-Met methods and Automatic Force Calculation. Additionally, the PowerPro 4000 stores the last operating parameters for both grinding and polishing. Just press Grind, set your operating parameters and unless changed, your grinding parameters are stored to be used again and again. Just like Grind, choose your Polishing parameters and the last settings will be retained by the PowerPro 4000.

49-6050 PowerPro 4000 Variable Speed Grinder-Polisher System is the same as the 49-6113 except without Zaxis, Macro Material Removal System

49-6114 PowerPro 3000 Variable Speed Grinder-Polisher System is the same as 40-6113 except that it operates in Central force application only.

49-6100 PowerPro 3000 Variable Speed Grinder-Polisher System is the same as the 49-6114 except without Zaxis Macro Material Removal System

49-6115 PowerPro 5000 Plus System, primarily for Central Force application. In addition to the 49-6000 above, the Plus System comes complete with all the accessories and consumables you need to begin work. The Plus system includes 1 PriMet® 3000 Modular Dispensing System, 2 PriMet® Dispensing Satellites, 1 Specimen Loading Fixture, 1 Specimen Loading Plate*, 1 Specimen Holder*, 10" (254mm) or 12" (305mm) platen, and a customized Buehler Consumables Package*. The Buehler consumables package provides a tailored solution for your laboratories specific application. Your local Buehler Sales Engineer works with you to select consumables for your application as based off of Buehler Sum-Met™, our book on materials preparation. The consumables package supplies a generous amount of consumables so you can work for a period of time before having to worry about reordering or waiting for more consumables to arrive. The Buehler consumables package includes: 1 Apex® DGD or Color DGD in your choice of micron size, 1 Apex® M Magnetic Disc, and 3 Apex® B Bimetallic Plates. The remainder of the consumables package consists of the consumables you select with help from your Buehler Sales Engineer for maximum value of the package. The PowerPro 5000 Plus System is attractively priced, offering the most value for a complete laboratory solution.

49-6116 PowerPro 5000 Plus System, primarily for Single Force application, same as Systems Package 49-6115 except comes without Specimen Loading Fixture and Specimen Loading Plate, and includes Single Force Specimen Holder.

49-6110 Zaxis Macro Material Removal System for 49-6001, 49-6050, 49-6100. This retrofit system requires the PowerPro to be returned to Buehler USA for factory installation.

* Specified by Customer

PowerPro 5000 Displays



The easy- to- use control panel on all PowerPro Systems has durable touch buttons, and a big display. All PowerPro Systems use a "Hands Free" start process and an easily accessible Emergency Stop optimizing safety.



The LCD, for time based preparation, shows the individual Step Number, Total Time completed in the method, (real time) Step Time Remaining, Pause, Cycle On/Off, Water On/Off, Lube On/Off, and the screen number.



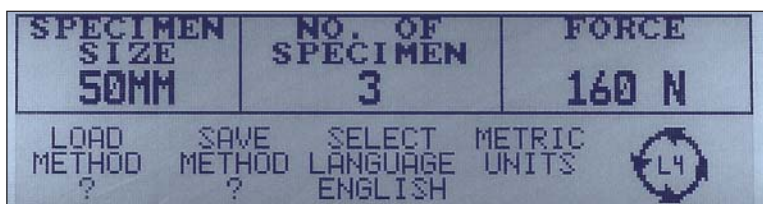
Grinding to depth is accomplished in imperial or metric units using Xaxis. Platen Cool reduces heat generated in higher volume applications, reduces suspension evaporation and increases cloth life. The operator may also choose recirculated or fresh water (when used with the 49-6111), and On/Off activation of the PriMet Dispensing Systems.



Single and Central preparation modes are available in the PowerPro 5000 and 4000 models. One of the 25 Buehler "B" methods may be selected in the PowerPro 5000 and modified to create 25 User "U" methods as determined by the operator.



The operator sets individual Step Depths when using the Xaxis Macro Material Removal feature to grind to desired depth. The Total Depth in the method, the set Step Depth, Total Time, and the Step Depth Remaining can be displayed for targeting convenience. A total of 10 steps per method may be added, modified and deleted.



The PowerPro 5000 automatically calculates the correct force to use in central mode based upon specimen size and number. This increases lab efficiency and specimen consistency. Preparation methods are easily saved and reloaded, with language and metric/imperial units selected for each method.

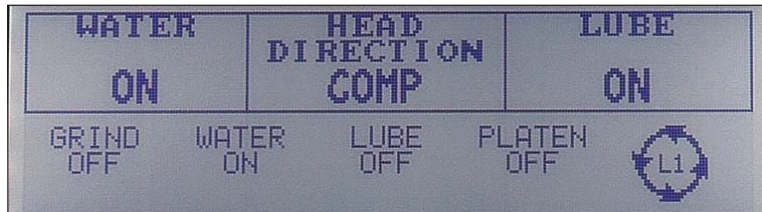


Soft Start On/Off, Head Direction of Complimentary/ Contra may be selected, and a Head Speed of 60 or 150 may be chosen as desired by the operator.

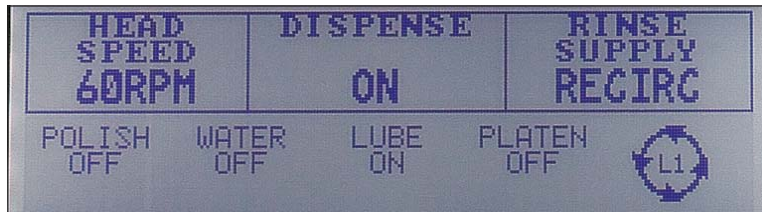
PowerPro 4000 & PowerPro 3000 Displays



Like the PowerPro 5000, the PowerPro 4000 & PowerPro 3000's front panels consist of 13 soft-key buttons with tactile feedback, an emergency stop and a large LCD with back-lighting. A simplified, two step "Grind" & "Polish" user interface is the key feature of the PowerPro 4000 & PowerPro 3000. Switching between the two steps is as simple as pressing one button.



When Grind Off is shown the operator is running the polishing step. The operator can change any default parameter and the last settings are retained for future use. Parameters illustrated that the operator can control for both the grinding and polishing steps include Water On/Off, Head Direction Complimentary/Contra, and Lube On/Off.



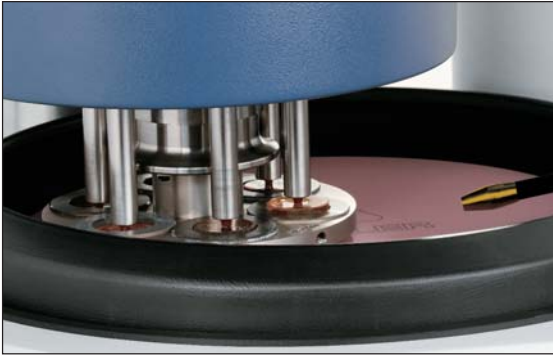
When Polish Off is shown the operator is running the grinding step. Parameters illustrated that the operator can control for both the grinding and polishing steps include Head Speed 60/150 rpm, and PriMet activation via Dispense On/Off. Rinse Supply can be set to either fresh or recirculated water (when used with the 49-6111).



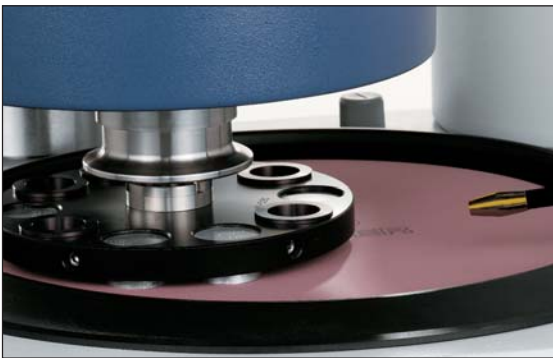
Central mode is standard on both the PowerPro 4000 & PowerPro 3000. The parameters Time, Force in Newtons or Pounds, and base Platen Speed can be adjusted by the operator for both the grinding and polishing steps.



Single mode is only available on the PowerPro 4000, not the PowerPro 3000. Both the PowerPro 4000 and PowerPro 3000 have the options to switch languages and between metric and imperial units.



Individual pistons on the PowerPro 5000 and 4000 apply load on 1-6 specimens during the Single Force application. Specimens may be removed from the holder between steps for examination. The built-in splash guard is adjustable for optimal water control and hand space and is shown in the upper position.



During Central Force operation the samples are rigidly fixed in the holder for the entire preparation process. The Macro Material Removal feature, Zaxis is only used with central force and is available on all PowerPro Systems. The splash guard is shown in the lower position.



The Specimen Loading Fixture and Specimen Loading Plate level the specimens within the Central holder and are required for accuracy when using the Zaxis Macro Material Removal System.



The gravity fed Lubricant Dispenser System has adjustable flow to apply extenders such as MetaDP[®] Fluid during operation and is controlled via the LCD Lube On/Off function during a step.



The power head is easily moved to the side or positioned on the platform edge and locked in place.



A variety of Specimen Holders are available for a multitude of sample sizes and shapes.

System Accessories for all PowerPro Systems

20-1364 Air Kit, accessory to filter, lubricate and regulate air

49-1777 Aluminum Platen, 12" (305mm)

40-0500 Aluminum Platen, 10" (254mm)

49-6110 Zaxis Macro Controlled Removal System for PowerPro 5000, 4000, 3000 (must be factory installed in Buehler USA facility)

49-6111 Recirculating System, 24 gallon (91 liters) for all PowerPro Systems with wheeled cart

49-6112 Lubricant Dispenser Bottle, extra. Gravity fed dispensing for extenders such as MetaDi® Fluid.

60-2410 Specimen Loading Fixture (Required for Zaxis Macro Material Removal System and recommended for all central force specimen holders)

60-2412 Specimen Loading Plate reversible for 10" (254mm) and 12" (305mm) size specimen holders (Required for Zaxis Macro Material Removal System and for all central force specimen holders)*

60-2413 Specimen Loading Plate reversible for 8" (203mm) and 12" (305mm) size specimen holders (Required for Zaxis Macro Material Removal System and for all central force specimen holders)**

60-2414 Specimen Loading Plate reversible for 12" (305mm) and 14" (355mm) size specimen holders (Required for Macro Material Removal System and for all central force specimen holders)***

Single Force Specimen Holder and Accessories (not for use with the PowerPro 3000)

60-2100 Single Specimen Holder, with 6 x 2" Cavities for single force

application. Purchase distance rings to specimen size.

60-2102 Distance Ring, 6 for 30mm OD specimens 10" and 12" (254 and 305mm) Platen Systems

60-2103 Distance Ring, 6 for 1¼" OD specimens for 12" (254 and 305mm) Platen Systems

60-2104 Distance Ring, 6 for 1½" OD specimens for 12" (305mm) Platen Systems

60-2105 Distance Ring, 6 for 40mm OD specimens for 12" (305mm) Platen Systems

60-2106 Distance Ring, 6 for 1" OD specimens for 10" and 12" (254 and 305mm) Platen Systems

Central Force Specimen Holders, 12" (305mm)

49-8002 Drive Adapter for Specimen Holder, Recommend purchase of 1 per specimen holder.

49-8007 Drive Adapter for Old Style Specimen Holder, Recommend purchase of 1 per specimen holder.

60-5250 Specimen Holder, Teardrop, 3 x 3" x 1.375" (76mm x 35mm)

60-5252 Specimen Holder, Rectangular, 9 x 1¼" (229mm x 32mm)

60-5254 Specimen Holder, Blank

60-5266 Specimen Holder, Clamp 12 x 25mm for 10" and 12" (305mm) Platen Systems

60-5267 Specimen Holder, Clamp 10 x 30mm for 10" and 12" (254 and 305mm) Platen Systems

60-5268 Specimen Holder, Clamp 8 x 40mm for 12" (305mm) Platen Systems

60-5269 Specimen Holder, Clamp 3 x 50mm for 12" (305mm) Platen Systems

60-5270 Specimen Holder, rectangular, 3" x 1.375" (76 x 35mm) for 12" (305mm) Platen Systems

60-5274 Specimen Holder, blank for 10" and 12" (254 and 305mm) Platen Systems

60-5281 Specimen Holder, Barrel, 10 x 1" for 10" and 12" (254 and 305mm) Platen Systems

60-5282 Specimen Holder, Barrel, 10 x 1¼" for 10" and 12" (254 and 305mm) Platen Systems

60-5283 Specimen Holder, Barrel, 6 x 1½" for 12" (305mm) Platen Systems

60-5287 Specimen Holder, Barrel, 10 x 30mm 10" and 12" (254 and 305mm) Platen Systems

60-5288 Specimen Holder, Barrel, 10 x 40mm for 12" (305mm) Platen Systems

60-5289 Specimen Holder, Barrel, 3 x 2" for 12" (305mm) Platen Systems

60-5296 Specimen Holder, teardrop, 5 x 2" (50mm) for 12" (305mm) Platen Systems

60-5297 Specimen Holder, small rectangular, 5 x 55mm x 30mm for 12" (305mm) Platen Systems

60-5298 Specimen Holder, large rectangular, 3 x 70mm x 40mm for 12" (305mm) Platen Systems

60-5299 Specimen Holder, Barrel, 5 x 2" for 12" (305mm) Platen Systems

**Actual Specimen Plate OD's
6.2" (157mm) side 1, 7.1" (181mm) side 2*

***Actual Specimen Plate OD's
5.1" (130mm) side 1, 7.1" (181mm) side 2*

****Actual Specimen Plate OD's
7.1" (181mm) side 1, 8.3" (210mm) side 2*

For a full selection of Apex products, MetaDi Diamond, polishing suspensions, extenders and cloths, please refer to the Buehler Quality at Work-Consumables Buyer's Guide. Buehler continuously makes product improvements; therefore, technical specifications are subject to change without notice.

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