

BENETEC^{Ltd}

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Sample Preparation Equipment & Supplies

Cutting, Mounting & Polishing,
Metallurgical Samples & Other Materials

LABPOL AUTO 4/6 Polishing/Grinding Machine

Automatic Polishing Machines with individual sample loading

The Labpol Auto 4/6 is an advanced design of Automatic Polisher/Grinder in which polishing or grinding protocols can be created as a program by entering the required parameters on a keypad and then stored for future use.

The base cabinet contains the rotating platen, which is driven by a powerful DC motor via a belt drive. This provides adequate torque for grinding 6 samples simultaneously. Platen sizes of 8in diameter, 250mm or 12in diameter can be fitted onto the platen support. The platen speed is adjustable from 50 rpm to 500 rpm and the platen can be rotated clockwise(CW) or counterclockwise(CCW).

The polishing head accepts a sample holder for 4 or 6 samples. Sample sizes up to 50mm diameter can be fitted. The sample holder is rotated at a constant speed by the head motor. An arrangement of 4 or 6 air cylinders is located around the rotating specimen holder shaft. The moving pistons in each air cylinder are fully extended by applying airline pressure and locate at the centre point of each sample position. In this way each sample is individually loaded. Sample levelling is unnecessary and adaptors are used for a specific sample diameter, thereby reducing the tendency for the samples to tilt during polishing. Because of the individual loading the polisher/grinder can be run with only one sample or as many as six.

The polishing/grinding head can be rotated clear of the cabinet for easy change of platens and so that the unit can be used as for manual polishing or grinding.

Using the Labpol Auto 4/6 could not be simpler. The system is controlled by a logic controller and the inputs are via a keypad. A program can be created by scrolling through the following parameters:

PLATEN SPEED
POLISHING OR GRINDING TIME
WATER (for grinding) ON/OFF
PLATEN DIRECTION CW/CCW
DOSING UNIT (for polishing) ON/OFF

and entering values for a particular protocol.

Up to 8 programs created in this way can be stored and recalled for use as required. The sample loading pressure can also be varied up to 5 bar / 75psi.

The controlled application (or dosing) of diamond suspensions on a platen during polishing is an essential for reproducible polishing. The Labpol Auto 4/6 has outputs for the Labpol Dosing Unit. Two models of dosing unit are available with capacity for 2 or 4 liquid polishing suspensions. Spray jets in each suspension are pressure activated. They are positioned over the platens and deliver drops of liquid at a frequency which has been electronically set. Magnetic stirrers can be optionally fitted under each bottle to keep the suspensions agitated to prevent agglomeration.



Operating Keypad for creating
and running programs

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SPECIFICATION

LABPOL AUTO 4 AUTOMATIC POLISHING MACHINE

Automatic Polishing Machine with individual sample loading
For 4 Sample Mounts

Base Unit

Motor Drive: 440W / 0.6HP DC motor driving through a 5:1 pulley ratio
Variable Speed Controller: 50 – 500 rpm
Platen Size: 8in /200mm, 250mm, or 12in/300mm platen
Platen Guard and Insert

Auto 4 Polishing Head: -

Sample capacity: 4 Sample mounts up to 40mm / 1 1/2 in dia
(Specify holder required)
Sample Loading: Individual pneumatic loading
Variable pressure (0-5 Bar),
Pressure set manually
Sample Rotation: Fixed speed 120 rpm
0.18KW/0.25 HP AC motor

Electrical System: -

Operation of the machine is via a human-machine (HMI) interface.
Main functions selected are:

- Start Cycle
- Select Program 1-8
- Edit Program
- Manual Mode – head disabled

Parameters to be set for each program are:

Platen direction, platen speed, time, water ON/OFF, dosing unit ON/OFF.

Storage of up to 8 programs

LABPOL AUTO 6 AUTOMATIC POLISHING MACHINE

Automatic Polishing Machine with individual sample loading
For 6 Sample Mounts

Base Unit

Motor Drive: 440W/0.6HP DC motor driving through a 5:1 pulley ratio
Variable Speed Controller: 50 – 500 rpm
Platen Size: 250mm, or 12in/300mm platen
Plate Guard and Insert

Auto 6 Polishing Head: -

Sample capacity: 6 Sample mounts up to 50mm dia/2in dia
(Specify sample holder required)
Sample Loading: Individual pneumatic loading
Variable pressure (0-5 bar)
Pressure set separately
Sample Rotation: Fixed speed 120 rpm
0.18KW/0.25 HP AC motor

Electrical System: -

Operation of the machine is via a human-machine (HMI) interface.
Main functions selected are:

- Start/Stop Cycle
- Select Program 1-8
- Edit Program
- Manual Mode – head disabled

Parameters to be set for each program are:

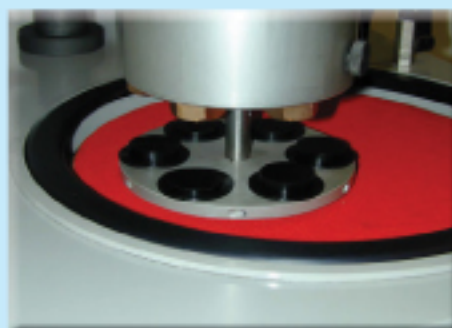
Platen direction, platen speed, time, water ON/OFF, dosing unit ON/OFF.

Storage of up to 8 programs

Dosing Unit

The Labpol Electronic Dispenser is used to dispense diamond, alumina or lubricating fluid in a controlled manner on the platen of the Labpol Automatic Machine during polishing. The dispenser is in two parts; firstly 2 or 4 dispensing solutions with air pressure operated dispensing tubes for giving a programmed sequence of liquid droplets on the rotating platen. There is also an electronic control unit on which the following parameter can be set and displayed digitally –air pressure level, duration of liquid spray, interval between sprays.

A dual magnetic stirrer unit is available to limit agglomeration of the diamond particles and ensure even concentration of polishing material.



Sample holder fitted with 3 40mm samples and 3 1 1/4 in samples



Selection of functions
F1 – F5 on display
F1 START CYCLE
F2 STOP CYCLE
F3 SELECT PROGRAM 1-8
F4 EDIT PROGRAM
F5 MANUAL USE

ORDERING INFORMATION

8-AI2-401-00	Labpol Auto4 Automatic Polisher/Grinder	220V 50Hz 1ph
8-AI2-402-00	Labpol Auto4 Automatic Polisher/Grinder	110V 60Hz 1ph
8-AI2-401-25	Set of 4 adaptors for 25mm samples	
8-AI2-401-30	Set of 4 adaptors for 30mm samples	
8-AI2-401-40	Set of 4 adaptors for 40mm samples	
8-AI2-401-1	Set of 4 adaptors for 1in samples	
8-AI2-401-1.25	Set of 4 adaptors for 1.25in samples	
8-AI2-401-1.5	Set of 4 adaptors for 1.5in samples	
8-AI2-601-00	Labpol Auto6 Automatic Polisher/Grinder	220V 50Hz 1ph
8-AI2-602-00	Labpol Auto6 Automatic Polisher/Grinder	110V 60Hz 1ph
8-AI2-601-25	Set of 6 adaptors for 25mm samples	
8-AI2-601-30	Set of 6 adaptors for 30mm samples	
8-AI2-601-40	Set of 6 adaptors for 40mm samples	
8-AI2-601-50	Set of 6 adaptors for 50mm samples	
8-AI2-601-1	Set of 6 adaptors for 1in samples	
8-AI2-601-1.25	Set of 6 adaptors for 1.25in samples	
8-AI2-601-1.5	Set of 6 adaptors for 1.5in samples	
8-AI2-601-2	Set of 6 adaptors for 2in samples	
8-DI2-401-20	Dosing Unit/ 2 suspensions	220V
8-DI2-402-40	Dosing Unit/ 4 suspensions	220V
8-DI2-401-20	Dosing Unit/ 2 suspensions	110V
8-DI2-402-40	Dosing Unit/ 4 suspensions	110V
8-DI2-401-20	Dosing Unit 2 suspensionmagnetic stirrer unit	
8-DI2-401-40	Dosing Unit/ 4 suspensionmagnetic stirrer unit	

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