



grinding & polishing



metkon®
FORCIPOL 1V
GRINDER - POLISHER

FORCIPOL FORCIPOL
FORCIMAT FORCIMAT



Physical Test Solutions

FORCIPOL[®]

Grinder & Polishers

FORCIMAT[®]

Automatic Head

The FORCIPOL Series of grinding and polishing machines offer practical and economical solutions to your metallographic sample preparation needs...

FORCIMAT is a microprocessor controlled sample mover designed to be used with FORCIPOL grinder / polishers. It is ideal for medium size labs where consistent results are desired.



FORCIPOL 300-1V, Variable speed unit for 300mm. wheel application



FORCIPOL 1M, Dual speed unit



FORCIPOL 1, Fixed speed unit

Versatile

All materials testing laboratories in the industrial, research or educational field have a demand for sample preparation. Whether your requirements call for individual components or basic sample preparation, FORCIPOL family of instruments will meet your needs.

FORCIPOL Series of instruments are available as Single wheel and Dual wheel Units (200/250/300 mm wheel size). Both single or double wheel versions are available with constant, dual or infinitely variable rotating speeds with digital display. This allows the setting of the optimum speed for each individual preparation process. The modern electronics provide a smooth speed variation.

Durable

The drive elements are fixed on heavy duty aluminium alloy casting. The wheels are mounted on ball bearings allowing the application of high pressures to prepare even large specimens. Ball bearings used provide quite and vibration free operation. Water inlet and flexible water outlets with control valves for wet grinding are standard features. Motor on/off and water on/off buttons are mounted on the front panel. FORCIPOL instruments can be used for grinding, lapping and polishing with magnetic backed discs and cloths or by quick and simple exchange of wheels.

Upgradeable

When the number of specimens to be prepared increases, FORCIPOL instruments can be fitted with FORCIMAT automatic head for automation. FORCIMAT automatic head provides high rate of sample preparation and frees the operator from the grinding and polishing procedures.



FORCIPOL 1V, Variable speed grinder/polisher with FORCIMAT Automatic Head.



FORCIPOL 2V, Variable speed unit with two discs



By using the FORCIMAT automatic head, the efficiency increases and same consistent sample quality is guaranteed

Forcipol 1 Forcipol 1 with 300 rpm fixed speed is the most basic unit in the Forcipol series. It is suitable for both manual and automatic operation.

Forcipol 1V For laboratories preparing a wide range of different materials, Forcipol 1V is the ideal grinder/polisher with its indefinitely variable speed range between 50-600 rpm.

Forcipol 1E Sensitive and fragile materials, especially in the electronics and components industries need to be handled carefully. Forcipol 1E with its low and variable speed between 20-120 rpm is the right choice for such applications.

Forcipol 1S Forcipol 1S has high variable speed between 100 and 1200 rpm. It is very good for polishing with alumina for polishing of cast irons and final polishing of wide variety of materials with short polishing times.

Forcipol 1M Forcipol 1M has dual speeds of 300 and 150 rpm. 300 rpm is used for grinding and 150 rpm is suitable for manual or automatic polishing with automatic head.

Forcipol 300-1V For large specimens and/or for having a spacious working environment with Forcimat automatic head, Forcipol 300-1V offers an ideal solution with its 300 mm working wheel. Its variable speed between 50-600 rpm makes it suitable for grinding and polishing of wide range of materials.

Forcipol 2 Forcipol 2 has two discs with fixed speed of 300 rpm. It can be used for manual grinding and polishing. When desired it can be fitted with Forcimat automatic head for fine grinding and polishing.

Forcipol 2V Having two discs and variable speed range between 50 and 600 rpm, Forcipol 2V is the most universal grinder/polisher, especially for labs having wide variety of materials. When coupled with Forcimat, Forcipol 2V becomes a versatile automatic sample preparation system with high operator comfort.

Automatic Operation

The FORCIMAT Automatic Head is mounted on a rigid hardened post which is fixed to the base of the FORCIPOL grinder/polisher. It can be adapted to all FORCIPOL series grinder/polishers, and is easily and rapidly positioned by means of a quick-locking clamping mechanism.

The sample holder can prepare 6 samples simultaneously and it is driven by a 60 Watt DC motor at 120 rpm. The pneumatically applied individual force is adjustable between 5 N (1.1 lb.) and 60 N (13.5 lb.) from the front panel and is displayed on a gauge. The housing is made of GRP with a touchpad front panel.

An adjustable and exchangeable drip lubricator is standard and the dosing level is done through an adjustable flow valve. A choice of easily exchangeable sample holders with set of rings from 25 to 50 mm and 1" to 2" diameter are available for use on the FORCIMAT.

The samples (1 to 6) are placed in the sample holder and the dosing level of the drip lubricator is adjusted. Sample force is set on the front panel of the FORCIMAT. Cycle time, wheel speed and direction are set on the control panel of the FORCIPOL grinder/polisher. When the start button is depressed, both the FORCIMAT and FORCIPOL start operating simultaneously. Upon completion of the cycle, both instruments stop and an audio signal notifies the operator.



FORCIPOL Specifications

Order No	Models	No. of stations	Motor (s)	RPM	Wheel Diameter	Dimensions (mm)	Weight, kg
36 01	FORCIPOL 1	1	0.5 HP, 220V 50 Hz., 1 pH	300	200/250 mm	380 x 690 x 340	29
36 02	FORCIPOL 1 V	1	0.75 HP, 220 V 50 Hz., 1 pH	50-600 Var.	200/250 mm	380 x 690 x 340	30
36 03	FORCIPOL 1 E	1	0.5 HP, 220 V 50 Hz., 1 pH	20-120 Var.	200/250 mm	380 x 690 x 340	30
36 04	FORCIPOL 1 S	1	0.75 HP, 220 V 50 Hz., 1 pH	100-1200 Var.	200/250 mm	380 x 690 x 340	30
36 05	FORCIPOL 1M	1	0.75 HP, 220 V 50 Hz., 1 pH	150/300	200/250 mm	380 x 690 x 340	29
36 06	FORCIPOL 300-1V	1	1.0 HP, 220 V 50 Hz., 1 pH	50-600 Var	300 mm	420 x 730 x 350	37
36 08	FORCIPOL 2	2	0.75 HP, 220 V 50 Hz., 1 pH	300	200/250 mm	700 x 690 x 340	39
36 09	FORCIPOL 2 V	2	0.75 HP, 220 V 50 Hz., 1 pH	50-600 Var	200/250 mm	700 x 690 x 340	40

Wheels, splash guards, paper ring and covers are extra. (pls choose from list below)

Accessories

	200 mm Application		250 mm Application		300 mm Application
31 01	PVC Wheel, 200 mm	31 21	PVC Wheel, 250 mm	31 31	PVC Wheel, 300 mm
31 02	Aluminium Wheel, 200 mm	31 22	Aluminium Wheel, 250 mm	31 32	Aluminium Wheel, 300 mm
31 53	Splash Guard, 200 mm	31 63	Splash Guard, 250 mm	31 73	Splash Guard, 300 mm
31 04	Paper Ring, 200 mm	31 24	Paper Ring, 250 mm	31 34	Paper Ring, 300 mm
31 06	Cover 200 mm	31 06	Cover 250 mm	31 36	Cover 300 mm

FORCIMAT Specifications

FORCIMAT Automatic Head, microprocessor controlled, pneumatically adjustable individual force loading system, Upto 6 specimens, front panel with touch-pad controls, specimen holder rotating at 120 rpm, 60 Watt DC motor, quick-locking swing mounted design, audible warning signal, communication capability with all FORCIPOL® instruments, steel mounting column and with one standard drip lubricator, complete and ready for operation.

Order No: 30 09

3183 Special Splash Guard, 250 mm, for automatic heads.

3193 Special Splash Guard, 300 mm, for automatic heads.

Specimen Holders

Specimen Holder 4 x Ø 40 mm Specimens Order No: 33 01

Set of rings for 30 mm specimens Order No: 33 02

Set of rings for 25 mm for 1" specimens Order No: 33 03

Set of rings for 1 1/2" specimens Order No: 33 04

Set of rings for 1 1/4" specimens Order No: 33 05

Blank specimen holder Order No: 33 06

Specimen Holder 4xØ50mm specimens Order No: 33 07

Specimen Holder 4xØ2" specimens Order No: 33 08

Technical Data

Mains Voltage : 220 V, 50 Hz, AC 1 Phase

Motor : 60 Watt, DC

Rotational speed: 120 rpm

Sample Capability : 1 to 6

Force: Min. 5N, max. 60N

Compressed air: 6 bar

Dimensions: 230x430x250 mm

Wight: 16 kg.

*Other voltages and frequencies available upon request. Please state when ordering. All specifications are subject to change without notice.