



GRINDING & POLISHING

# VELOX 402





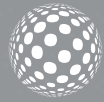
metkon  
Technology based Systems

VELOX 402

**FULLY AUTOMATIC  
GRINDING & POLISHING SYSTEM**



# VELOX 402



VELOX 402 Fully Automatic Programmable Grinding/Polishing System is developed for operator free sample preparation for high volume sample throughput starting from planar/coarse grinding to cleaning and drying. You only need to place the sample holder, select the program number for your specific application and depress the "Start" button. That's it! Your samples will be ready for analysis fully automatically.

## DESIGN

VELOX 402 Automatic programmable grinding and polishing system is available with 4 grinding/polishing stations (1 coarse grinding, 1 fine grinding and 2 polishing) which can accommodate 250 mm diameter wheel as well as 300 mm. diameter wheels. The grinding/polishing stations can be configured independently according to the specific requirement of the abrasives. The vibration free, robust steel construction ensures extremely flat specimen surfaces.

The high speed grinding station with a variable speed between 100 – 1200 RPM enables quick planar/course grinding of the specimen surface. For fine grinding and polishing stations the variable speed between 50-600 RPM makes it suitable for grinding and polishing of wide range of materials. Each station can be configured for specific abrasive requirements. Water, diamond suspensions, diamond lubricant, aluminum oxide and colloidal silica dispensing are fully integrated and controlled through touch screen.

Servo-motor driven Head proceeds from one step to the next automatically securing the highest level of accuracy and reproducibility. Automatic Head can apply both "Central" and/or "Individual" forces. It can accommodate single samples as well as multi - sample holders thus offering a perfect solution for all levels of sample throughput requirements. A built-in encoder allows you to measure the amount of material removed from the surface. The desired grinding depth can be set to grind different type of samples and also for applications that needs special accuracy.

### User Friendly HMI Touch Screen

VELOX 402 has advanced techniques and software with programmable 10" large colored HMI touch screen controls increasing the productivity, sample consistency and operator comfort. It is used to prepare high volumes of metallographic, ceramic and mineralogical specimens with consistent reproducible quality.



Programmable HMI touch screen controls

3 Lights Signal Beacon

All preparation parameters [Force, Cycle time, Wheel speed and direction, Mode of operation (individual or central pressure), Dispensing frequency and cleaning drying parameter] can be stored in memory under a specific program number. All the operator needs to do is to call up a specific program and press the "Start" button. That's it! Your samples will be ready for analysis without any operator intervention.

A library of 25 different preparation programs with related specimen name or number can be saved with all parameters of each grinding/polishing station which can be recalled at any time. Upon completion of the cycle, an acoustic signal lets the operator know that the cycle is over and the samples are ready for analysis. When required, it is also possible to intervene in the program and change the parameters without stopping the instrument.



### Cleaning and Drying

Fully automatic sample cleaning station with water and ethanol is a standard accessory for VELOX 402. Optional Ultrasonic Cleaning is available to thoroughly remove all traces of contamination tightly adhering or embedded onto specimen surfaces. The level of liquid in ultrasonic cleaning station is monitored continuously and refilled automatically when the liquid level is not sufficient.

After completion of the final cleaning process the sample holder is positioned above the hot air dryer for the drying process. The cleaning and the drying steps can be programmed separately for each grinding/polishing station.

### Dosing System

Two Built-in Peristaltic Dispensers are located in the cabinet and guarantees exactly the same dosing every time. Diamond suspensions / lubricants and aluminum oxide suspensions can be fed. Dosing parameters like; frequency, fluid selection etc. are controlled through the programme memory of the VELOX 402. Each dispenser has 3 peristaltic pumps for diamond suspensions / lubricant and 1 pump for aluminum oxide suspension. The liquid is dosed exactly to where the operator wants it on the polishing cloth. No vaporization or spray mist occurs.



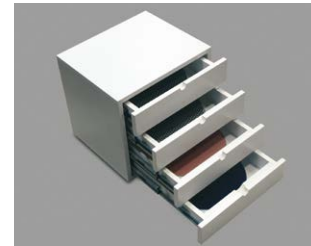
Storage For Specimen Holders



Automatic Fluid Dispenser



Stand For Levomat



Storage For Consumables



Enviro recirculating filtering unit

### ENVIRO Recirculating Filtering System

ENVIRO Filter Unit is a closed loop recirculating filter system which is optionally available. It has a 20 lt reservoir capacity with 1 micron filter entering the grinder / polisher intake. Enviro can also be coupled with line water and 80 micron filtering system for disposal. It is possible to equip Digiprep Velox with Enviro at the same time. One for grinding stations and one for polishing stations.



# GRINDING & POLISHING SYSTEM

## Safety

VELOX 402 has the highest safety standards. The equipment is provided with safety light curtain allowing easier process monitoring and easier access to the preparation area. It prevents access to moving or rotating parts during operation. When operator fingers, hand and ankles approaches to the operation area, the equipment stops immediately. A stack light is located on the top of the equipment to provide visual and audible indication of machine status.



Fully Automatic Programmable Grinding/Polishing System

# SPECIFICATION

<b>ORDER NO</b>	<b>45 07</b>
<b>MODEL NO</b>	<b>402</b>
Stations	4 Grinding/Polishing
Specimen Cleaning	Water + Ethanol
Ultrasonic Cleaning	Optional
Specimen Drying	Hot Air Drier
Specimen Holder Type	Central + Individual
Disc Diameter, mm	Ø250 & Ø300
Dosing Unit	8 peristaltic pumps
Coarse Grinding Speed	100-1200 RPM
Fine Grinding/Polishing Speed	50-600 RPM
Base Motor Power	1,1 kW
Head Speed	50-150 RPM
Head Motor Power	100 W
Horizontal Movement System	Servo Motor
Individual Force	5-70N
Central Force	30-500N
Grinding Depth Measurement Sensor	Yes
HMI Touch Screen	10 inches
Recirculation Cooling System	2 x Enviro (Optional)
Beacon(Warning Light)	Yes, (3 colors)
Dimensions, mm, WxDxH	2946 x 926 x 1791
Weight, kgs	1350

## 45 07

### — VELOX 402

Fully automatic programmable grinding and polishing system. Fast, precise and operator-free sample preparation for high volume sample throughput, with 4 stations (1 coarse grinding, 1 fine grinding and 2 polishing), Fully automatic sample cleaning station with water and ethanol, Hot air drying station with timer, Independent grinding & polishing stations with 1,5 HP powerful motor, Comp. or Contra rotational direction, Soft Start /Stop, Suitable for both 250 mm and 300 mm applications, Variable wheel speed ; 100 - 1200 rpm for coarse grinding, 50 - 600 rpm for fine grinding and polishing stations, programmable sample preparation with coloured 10" HMI touch screen control with Siemens PLC control unit, Head movement automatically proceeding from one station to the other with servo driven motor, Z-axis material removal with depth control, central and/or individual force application, with variable specimen holder speed 50-150 rpm, 100 Watt DC motor, audible warning signal, with holding chuck, Air supply tubes, integrated Automatic Fluid Dispenser for each polishing station, with 8 micro peristaltic pumps, allowing significant savings and perfect reproducibility, (6 for diamond suspensions/lubricant and 2 for alumina suspensions), Complete and ready for operation. Without Specimen Holders. 230 V, 1-phase, 50 Hz.

#### Accessories for VELOX 402

### GR 0803

— Working kit consisting of 250mm aluminum wheel (4 pcs), 250mm splash guard (4 pcs) and including the following standard set of consumables;

- Special Magnetic Foil (4 pcs), Ø 250 mm.
- Thin Metal Plate (4 pcs), Ø 250 mm
- Magneto grinding disc 75 mic., 250 mm dia.
- Magneto grinding disc 18 mic., 250 mm dia.
- An assortment of 5 polishing cloths 250 mm dia.
- Diamond suspensions two pcs of each of 6 µ, 3 µ, 1 µ and lubricant

### GR 0804

— Working kit consisting of 300mm aluminum wheel (4 pcs), 300mm splash guard (4 pcs) and including the following standard set of consumables;

- Special Magnetic Foil (4 pcs), Ø 300 mm.
- Thin Metal Plate (4 pcs), Ø 300 mm
- Magneto grinding disc 75 mic., 300 mm dia.
- Magneto grinding disc 18 mic., 300 mm dia.
- An assortment of 5 polishing cloths 300 mm dia.
- Diamond suspensions two pcs of each of 6 µ, 3 µ, 1 µ and lubricant

### GR 0880

— Ultrasonic cleaning unit (To be ordered simultaneously together with the machine order)

### GR 0780

— Stand for LEVOMAT with storage for sample holders and consumables

### 31 00

— Drawer cabinet for storing discs

#### Specimen Holders for Individual Force Application [for FORCIMAT 52/102, ACCURA 102, VELOX 402]

### 33 31

— Individual force specimen holder, Ø145mm, for 6 x Ø25 mm specimens.

### 33 32

— Individual force specimen holder, Ø145mm, for 6 x Ø30 mm specimens.

### 33 33

— Individual force specimen holder, Ø145mm, for 6 x Ø40 mm specimens.

### 33 34

— Individual force specimen holder, Ø145mm, for 3 x Ø50 mm specimens.

### 33 35

— Individual force specimen holder, Ø145mm, for 6 x Ø1" specimens.

### 33 36

— Individual force specimen holder, Ø145mm, for 6 x Ø1 1/4" specimens.

### 33 37

— Individual force specimen holder, Ø145mm, for 6 x Ø1 1/2" specimens.

### 33 38

— Individual force specimen holder, Ø145mm, for 3 x Ø2" specimens.

### 33 39

— Individual force specimen holder, Ø145mm, Blank.

### 33 02

— Set of insert rings for Ø30 mm (to be used with 33 23)

### 33 03

— Set of insert rings for Ø25 mm or Ø1" (to be used with 33 23)

### 33 04

— Set of insert rings for Ø1 1/4" (to be used with 33 23)

### 33 05

— Set of insert rings for Ø1 1/2" (to be used with 33 23)

### Specimen Holders for Central Force Application (for FORCIMAT 102, ACCURA 102, VELOX 402)

- 46 81 — Clamp type specimen holder, Ø130mm, 6 specimens with Ø25 mm.
- 46 82 — Clamp type specimen holder, Ø130mm, 6 specimens with Ø30 mm.
- 46 83 — Clamp type specimen holder, Ø130mm, 4 specimens with Ø40 mm.
- 46 84 — Clamp type specimen holder, Ø130mm, 6 specimens with Ø1"
- 46 85 — Clamp type specimen holder, Ø130mm, 6 specimens with Ø1 1/4"
- 46 86 — Clamp type specimen holder, Ø130mm, 4 specimens with Ø1 1/2"
  
- 46 88 — Teardrop specimen holder, Ø130 mm, 6 specimen x 10 – 32 mm.
- 46 89 — Teardrop specimen holder, Ø130 mm, 4 specimen x 10 – 42 mm.
  
- 46 44 — Clamp type specimen holder, Ø 130 mm for 4 rectangular specimen 25 X 32 mm.
- 46 45 — Clamp type specimen holder, Ø 160 mm for 3 rectangular specimen 40 x 70 mm.
  
- 46 91 — Clamp type specimen holder, Ø160mm, 10 specimens with Ø25 mm.
- 46 92 — Clamp type specimen holder, Ø160mm, 8 specimens with Ø30 mm.
- 46 93 — Clamp type specimen holder, Ø160mm, 6 specimens with Ø40 mm.
- 46 94 — Clamp type specimen holder, Ø160mm, 4 specimens with Ø50 mm.
- 46 95 — Clamp type specimen holder, Ø160mm, 10 specimens with Ø1"
- 46 96 — Clamp type specimen holder, Ø160mm, 8 specimens with Ø1 1/4"
- 46 97 — Clamp type specimen holder, Ø160mm, 6 specimens with Ø1 1/2"
- 46 98 — Clamp type specimen holder, Ø160mm, 4 specimens with Ø2"
- 46 39 — Clamp type specimen holder, Ø220mm, 3 specimens for irregular shaped samples

[Specimen holders with Ø160mm can only be used with 300 mm wheels]

### Accessories for Specimen Loading

- 45 60 — LEVOMAT  
Specimen Loading Fixture, to level the specimens within the central force specimen holders, without specimen loading plate.

### Specimen Loading Plates

- 45 10 — Specimen Loading Plate Ø 130 mm
- 45 11 — Specimen Loading Plate Ø 160 mm

### ENVIRO Recirculating Filtering System

- GR 0865 — ENVIRO Recirculating Filtering System,  
Closed loop 1 micron filtering system with 20 lt. recirculating water tank, suitable to operate with line water on 80 micron filter as well. Requires 4 bar compressed air.  
Ready for operation with all Metkon Grinder/Polishers

- YM 6214-00 — Filter, 10 inches 1 Micron

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

