



PLANAR GRINDING  
**DIGIPREP Plan**  
**FORCI Plan**





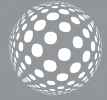
metken  
Technology for the Sciences

DIGIPREP PLAN

# FAST PLANAR GRINDING MACHINE



# DIGIPREP Plan



DIGIPREP Plan Automatic Planar Grinder is designed for first step initial planar grinding of very large specimens or a high volume of specimens in specimen holders. It is fast and efficient in providing high quality flat specimen surface thus saving time on the subsequent fine grinding and polishing steps. Specimen holders of 145 mm diameter having 6 specimens can be prepared in less than a minute with upto 5,9" [150 mm] stone cup which requires minimal dressing.

## DESIGN

DIGIPREP Plan is an automatic planar grinder for the first step plane grinding of metallographic specimens. It can easily provide enough specimens for two or three grinding/polishing machines.

Heavy duty cast aluminium base with mechanical vertical drive provides accurate control. High-torque grinding motor rotating at 2800 rpm guarantees high material removal rate. By using different cup grinding stones ferrous as well as non-ferrous specimens can be prepared easily. DIGIPREP Plan is equipped with automatic sample feed with fine speed control. Fast advance and reverse are available. All important parameters of the grinding process like feedrate and grinding depth are preset with digital display. Different jaw chucks to secure the specimen holder, T-slotted table and other clamping devices are offered as optional accessories.

A recirculating cooling unit is strongly recommended so that a rust inhibitor can be added and the grinding swarf can be collected. The entire working area is totally enclosed. Electronic brake is integrated to the system for a rapid stop of the grinding stone. The interlocking safety device does not allow the hood to be opened before the grinding motor is stopped.



Ergonomic operation resulting in high quality planar surface, thus saving time on the next preparation steps



DIGIPREP Plan with floor cabinet

# AUTOMATIC OPERATION



DIGIPREP PLAN has advanced techniques and software with programmable HMI touch screen controls increasing the productivity, sample consistency and operator comfort.

## Controlled Material Removal

DIGIPREP Plan allows you to preset the amount of material to be removed very accurately. The vertical movement of the grinding head is motorized with digital positioning and display on the touch screen LCD. The robust design of the column guarantees high reproducibility. The material to be removed from the specimen can be preset in increments of 10 microns

## Grinding Parameters

The preselection of the grinding feed rate is possible from the touch screen LCD. The feed rate is automatically adjusted, if needed reduced, resulting in perfect surfaces and eliminating sample and machine damage.

## Multi-pass Grinding

DIGIPREP Plan can be programmed to make multi-pass plane parallel grinding operations. It is possible to set the number of passes and the grinding depth of each pass which can be stored under a program number or name.

## Programmable Return Positions

DIGIPREP Plan has 3 different stop modes:

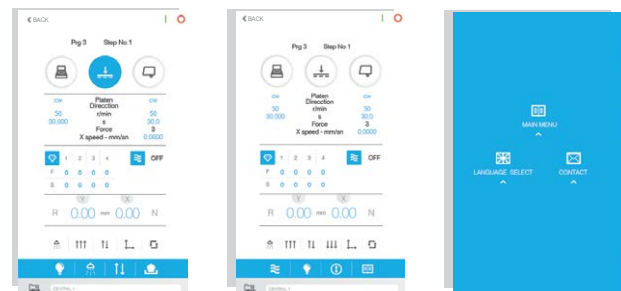
**Auto stop:** Stops when the specimen holder has been through.

**Relative Stop:** Stops when it has returned to its starting point.

**Absolute Stop:** Stops when the ultimate reset point in all axes has been reached.



HMI touch screen controls with various cutting methods and database with cutting programs and maintenance monitoring



DIGIPREP Plan



Automatic dressing of the grinding stone



LEVOMAT specimen loading fixture



Recirculating coolant system

## DIGIPREP 7 Grinding & Polishing Station

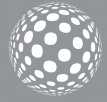
DIGIPREP PLAN can be combined with ACCURA 102 on a single cabinet to form the DIGIPREP 7 Grinding & Polishing Station. A typical 3 or 4 stage complete grinding & polishing process of a 6-sample specimen holder can be performed in 7 minutes on a DIGIPREP 7 Station.

## Database

A library of 99 different grinding programs with related specimen name or number can be saved with all grinding parameters which can be recalled at anytime. Data with Metkon grinding cups is also listed for easy selection.



# FORCI Plan



FORCI Plan Planar Coarse Grinder is designed for first step initial planar grinding of high volume of specimens in specimen holders. It is fast and efficient in providing high quality flat specimen surface thus saving time on the subsequent fine grinding and polishing steps. Specimen holders of 130 mm. can be prepared in less than a minute with dia. 150 mm. cup stone which requires minimal dressing.

## DESIGN

FORCI Plan is a compact bench-top pendulum grinder designed for first step initial planar grinding of metallographic specimens. It has a simple and reliable design with low noise and dust generation levels. It is completely enclosed and dustproof with LED spot light.

Heavy duty cast aluminum base with mechanical vertical drive provides accurate control. High-torque grinding motor rotating at 2800 rpm guarantees high material removal rate. By using different cup grinding stones ferrous as well as non-ferrous specimens can be prepared easily.

The grinding arm is placed just in front of the machine making it ergonomic and easy to handle. Vertical movement (Z-axis) of grinding head is by hand wheel in front and positioning with 0,01 mm accuracy is possible. It is possible to attach an external dust exhauster to the standard outlet at the rear side. Manual 4 Jaw chuck is available to secure the specimen holder.

A recirculating cooling unit is strongly recommended so that a rust inhibitor can be added and the grinding swarf can be collected. The entire working area is totally enclosed. FORCI Plan is equipped with braking device permitting a rapid stop of the grinding wheel. The interlocking safety device does not allow the hood to be opened before the grinding motor is stopped.



Ergonomic operation resulting in high quality planar surface, thus saving time on the next preparation steps

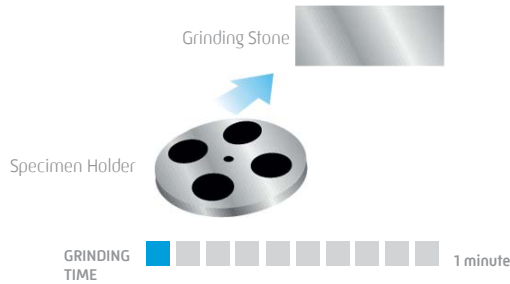
# METKON DIGI7 PREPARATION METHOD

## Results:

- Highest edge sharpness
- Mirror surface
- Shortest preparation time
- Clean working environment
- Cost effective preparation

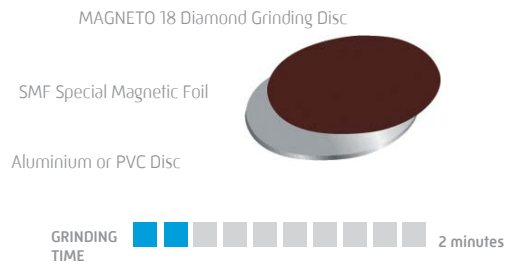
## STEP 1

Planar Grinding 60 grit **Grinding Stone, GSW/GSR**  
DIGIPREP Plan



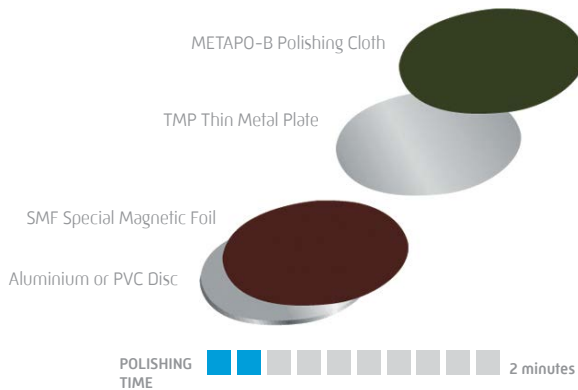
## STEP 2

Fine Grinding 18 micron **MAGNETO 18** Only Water is Needed  
ACCURA 102 **Diamond Disc**



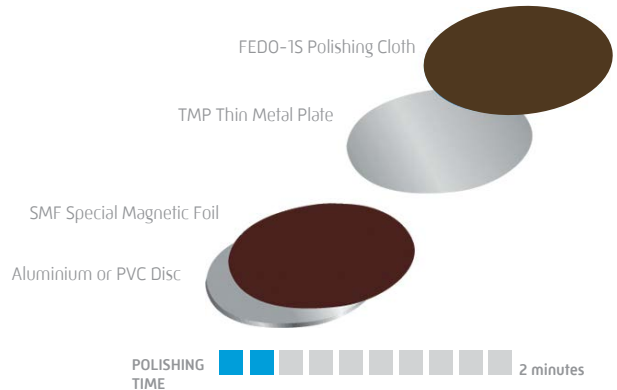
## STEP 3

Polishing **DIAPAT Diamond**  
ACCURA 102 **3 micron**



## STEP 4

End Polishing 1 micron **DIAPAT Diamond**  
ACCURA 102 **1 micron**



# SPECIFICATIONS

ORDER NO	45 06	36 12
MODEL NO	DIGIPREP PLAN	FORCI PLAN
Grinding Motor Power, kW[S1]	2,2	2,2
Grinding Motor Power, kW[S3]	3	3
Grinding wheel Speed, [rpm]	2800	2800
Cup wheel diameter, [mm]	Ø150	Ø150
Radius of Arc	-	52
Travel, mm	-	203
Table Feedrate, [mm/s]	20-120	-
HMI Touch screen, [inch]	7"	-
Program Memory	99	-
Grinding Depth Accuracy, [µ]	10	-
Y-Axis Stroke, [mm]	160	-
Z-Axis Stroke, [mm]	80	80
Operation	Automatic	Manual
Dimensions, WxDxH, [cm]	66 x 88 x 74	69 x 83 x 73
Dimensions, WxDxH, cm [ with cabinet ]	66 x 88 x 155	69 x 83 x 155
Weight, [kg]	185	170
Mains	3-phase, 400V 50Hz.AC	3-phase, 400V 50Hz.AC

## 45 06

### — DIGIPREP Plan

Automatic Planar Grinding Machine with Siemens PLC control unit. for initial planar grinding of metallographic specimens in specimen holders, bench top compact design, Programmable with coloured 7" HMI touch screen control, closed housing, max. safety provided with interlocking switch, large working space with LED lighting, automatic sample feeding with adjustable fine speed, controlled material removal with digital setting of grinding depth with accuracy of 0,01 mm., high torque 2,2 kW grinding motor, with 2800 rpm speed to obtain optimum surfaces on different materials, all parameters on coloured LCD display, sample cooling available with cooling fluid and/or compressed air, ready for operation, without clamping devices. without cooling 400V, 3-phase, 50Hz.

Includes a standard set of grinding consumables composed of;

- 1 pc.150 mm. Dia. AL2O3 Cup Grinding Stone for ferrous materials
- 5 lt of Metcool cooling fluid.

### Accessories for DIGIPREP Plan

#### GR 1830 GR 7599

- Mechanical 4-jaw chuck
- Pneumatic Clamping Device with 2 Jaws  
(To be ordered simultaneously together with the machine order)

#### GR 1828

- Automatic Sample Height Measurement System for full cyclic operation, with automatic dressing of cup grinding stone,  
(To be ordered simultaneously together with the machine order)

#### GR 1394-00

- Recirculating coolant tank, stainless steel, 40 lt. capacity, with pump, level indicator, hoses etc.

#### GR 1802-01

- Floor Cabinet for Forci Plan/DGP Plan/Spectral MM/PG/AG

## 36 12

### — FORCI Plan

Planar Grinding Machine For initial planar grinding of metallographic specimens in specimen holders, bench top compact design, closed housing, max. safety provided with interlocking switch, robust column mounted in taper roller bearings, low noise with motor of 2,2 kW and 2800 rpm., easy handling with manual sample swing movement from the front side of the machine, ergonomic vertical precision positioning of the grinding head with an accuracy of 0,01 mm., large working space with LED lamp, standard outlet for dust exhauster, complete and ready for operation. Standard packing included. Sample cooling available with cooling fluid. Without clamping devices. Without cooling tank. 400V, 3-phase, 50 Hz.

Includes a standard set of grinding consumables composed of;

- 1 pc.150 mm. Dia. AL2O3 Cup Grinding Stone for ferrous materials
- 5 lt of Metcool cooling fluid.

### Accessories for FORCI Plan

#### GR 1830

- Mechanical 4-jaw chuck

#### GR 1802-01

- Floor Cabinet for Forci Plan/DGP Plan/Spectral MM/PG/AG

#### GR 1394-00

- Recirculating coolant tank, stainless steel, 40 lt. capacity, with pump, hoses etc.

## 45 60

### — LEVOMAT

Specimen Loading Fixture, to level the specimens within the central force specimen holders, without specimen loading plate.

## 45 10

### Specimen Loading Plates

- Specimen Loading Plate Ø 130 mm

### Specimen Holders for DIGIPREP Plan (Central Force Application)

#### 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.

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

