

SAMPLE PREPARATION

# SPECTRAL

PG/AG



**metken**<sup>®</sup>  
Technology behind Specimen

**20**  
YEARS

# SPECTRAL® PG/AG



Sample preparation of metals and materials have become more and more important because of the rapid development and improvement of both software as well as OES and XRF-devices during the past few years that shifts the detection limit for trace analyses. It is crucial to have the sample properly prepared. The sample needs to be both representative, homogeneous and with an even surface in order to eliminate factors that can influence the results.

## SPECTRAL PG

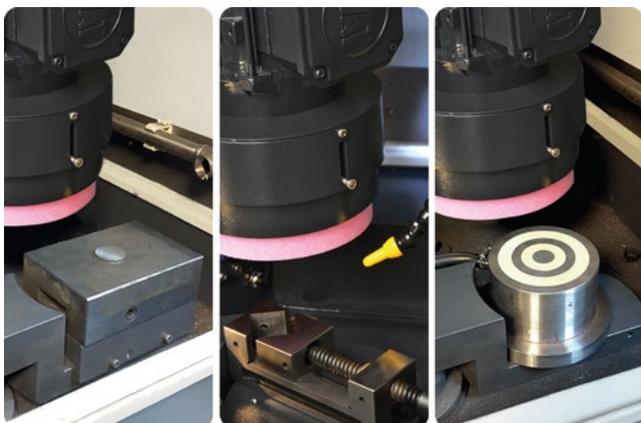
SPECTRAL PG is a compact bench-top pendulum grinder for fast grinding of iron and steel samples for spectroscopic analysis. It has a simple and reliable design with low noise and dust generation levels. It is completely enclosed and dustproof with LED spot light. The front cover can be completely opened for easy access to all sides.



Ergonomic Operation



SPECTRAL PG Grinding Machine



Magnetic Clamping Device

Mechanical Clamping Device

Electromagnetic Clamping Device

SPECTRAL PG is suitable for wet and dry grinding with minimum maintenance required which is mainly cleaning. It is possible to attach an external dust exhauster to the standard outlet at the rear side. The grinding arm is placed just in front of the machine making it ergonomic and easy to handle. SPECTRAL PG is especially suitable to grind hard materials like white cast irons. It is also possible to prepare other materials by using special stone cup wheels which are easy to exchange.

Vertical movement (Z-axis) of grinding head is by handwheel in front and positioning with 0,01 mm accuracy is possible. Reproducible flat surfaces are achieved with column mounted on taper bearings. Manual V-shaped clamping vice and Mechano-magnetic plates are available as accessories.

Spectral PG is equipped with braking device permitting a rapid stop of the grinding wheel. The machine is fitted with an interlocking safety device not allowing the hood being opened before the grinding motor is stopped.

## SPECTRAL AG

SPECTRAL AG is an automatic cup grinder for spectroscopic sample preparation of iron and steel samples.

Heavy duty cast aluminum base with motorized vertical drive provides accurate control. High-torque grinding motor rotating at 2800 rpm guarantees high material removal rate. SPECTRAL AG is equipped with automatic sample feed with fine speed control. Fast advance and reverse are available. Automatic cup wheel positioning is done with a laser measurement station. This ensures extremely precise positioning with shorter times. All important parameters of the grinding process like feedrate and grinding depth are preset with digital display. Pneumatic Clamping Device, Electromagnetic clamping device and T-slotted table are offered as optional accessories.

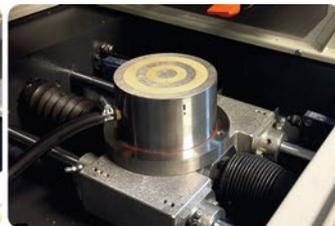
Air cooling unit is strongly recommended so that the surface temperature of the sample is kept at an optimum. The entire working area is totally enclosed. Electronic brake is integrated to the system for a rapid stop of the grinding stone. The interlocking safety device does not allow the hood to be opened before the grinding motor is stopped.



SPECTRAL AG Automatic Cup Grinder



Pneumatic Clamping Device



Electromagnetic Clamping Device



T-Slotted Table



Air Colling System

## AUTOMATIC OPERATION

### Automatic Operation

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

### Controlled Material Removal

SPECTRAL AG 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:

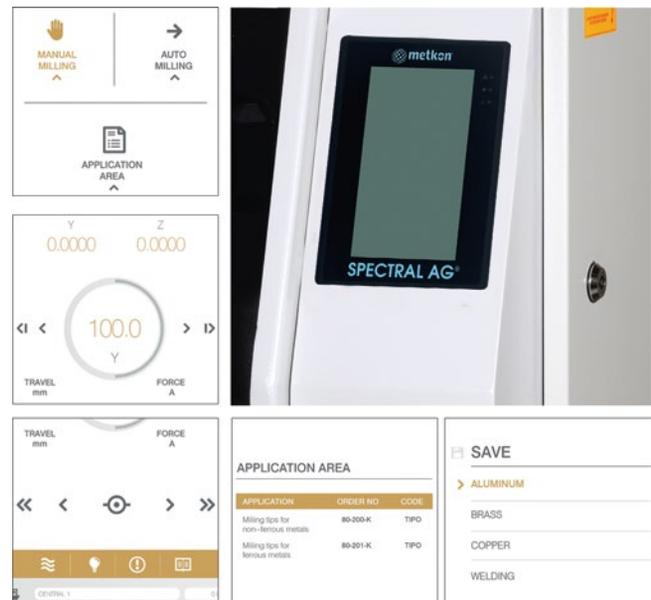
The preselection of the grinding feed rate is possible from the touch screen LCD. The feed rate is automatically adjusted, if needed reduced, resulting in perfect surfaces and eliminating sample and machine damage.

### Multi-pass Grinding

SPECTRAL AG 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

SPECTRAL AG 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

### Database

A library of 25 different grinding programs with related specimen name or number can be saved with all grinding parameters which can be recalled at any time. Data with Metkon grinding cups is also listed for easy selection.

## Specifications

**80 03 Spectral PG Swing Grinding Machine,**  
for fast spectroscopic sample preparation of iron and steel samples, 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 sample swing movement from the front side of the machine, 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, Sample cooling available with water cooling complete and ready for operation. Standard packing included.  
Without clamping devices.  
Without cooling tank.  
400V, 3-phase, 50 Hz.

### Accessories for Spectral PG

**GR 1801** Mechanical clamping device for samples upto 60 mm.  
**GR 1807** Permanent Magnetic Clamping Device, 100x150 mm.  
**GR 1820** Electromagnetic clamping plate  
**GR 1394-00** Recirculating coolant tank, stainless steel, 40 lt. capacity, with pump, hoses etc.  
**GR 1802-01** Floor Cabinet Forci Plan/DGP Plan/SPC MM/PG/AG

### Spare Part Kit for SPECTRAL PG

**GR 1851** Recommended Set of Spare Parts, SPC PG

**80 05 Spectral AG Automatic Grinding Machine,**  
for fast spectroscopic sample preparation of iron and steel samples, bench top compact design, Programmable with coloured 5,7" HMI touch screen control, with Siemens PLC control unit, closed housing, max. safety provided with interlocking switch, large working space with LED lighting, automatic sample feeding with adjustable fine speed, automatic height positioning of the grinding wheel for operation. 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 water cooling and/or compressed air. ready for operation.  
Without clamping devices.  
Without cooling system.  
400V, 3-phase, 50Hz.

### Accessories for Spectral AG

**GR 1819** Pneumatic Clamping Device with 3-Jaws  
(To be ordered simultaneously together with the machine order)  
**YM 7550-00** Soft Jaws for Pneumatic Clamping Device (GR 1819)  
**GR 1829** Mechanical 3-jaw chuck  
**GR 1820** Electromagnetic clamping plate  
(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 1816** T-slotted table  
**GR 1394-00** Recirculating coolant tank, stainless steel, 40 lt. capacity, with pump, hoses etc.  
**GR 1802-01** Floor Cabinet Forci Plan/DGP Plan/SPC MM/PG/AG



Order No	80 03	80 05
Model	SPECTRAL PG	SPECTRAL AG
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)	150	150
Radius of arc	52	-
Travel, mm	203	-
Table Feedrate, (mm/sn)	-	20-120
Y-Axis Stroke, (mm)	-	160
Z-Axis Stroke, (mm)	80	80
Operation	Manual	Automatic
HMI Touch Screen	-	7"
Program Memory	-	25
Grinding Depth Accuracy, (μ)	-	10
Dimensions, WxDxH, (cm)	69 x 83 x 73	88 x 66 x 74
Dimensions, WxDxH, (cm),with cabine	69 x 83 x 155	88 x 66 x 155
Weight, (kgs)	170	155

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



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