



SAMPLE PREPARATION

# SPECTRAL

# SPECTRAL®



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 200



SPECTRAL 200 is a table-top portable surface grinder for the preparation of steel samples for spectroscopy. Its compact design with vibration free operation makes it a practice instrument to work with. Low noise and dust generation levels as well as standard outlet for dust exhauster are additional advantages.

200 mm grinding disc is dynamically balanced for smooth running. Grinding paper is sucked to the grinding disc which does not require any glue. Papers with 40-120 grit can be used to obtain the desired surface quality. SPECTRAL 200 is equipped with electronic brake system bringing the motor to a quick full stop just in seconds after it has been stopped. A safety switch guarantees automatic switch off when the lid is opened.



## SPECTRAL 350



SPECTRAL 350 Dual Disc Grinder is used to achieve excellent precision flat surfaces of iron and steel samples for spectroscopic analysis. The robust and vibration-free construction has been designed for continuous operation at high sample throughput.

SPECTRAL 350 has two independently driven grinding discs of 350 mm which are dynamically balanced for smooth running and the speed of each disc can be set either to 1400 rpm or 2800 rpm. Coarse and fine grinding on two separate grinding discs can be done on the same machine. Due to its special design, grinding paper is sucked to the grinding disc which does not require any glue. SPECTRAL 350 can be equipped with a strong aspiration device in addition to its special design, increasing vacuum for suction which retains the abrasive paper on the disc, eliminating the requirement for any adhesives or fixing attachments. Therefore, the abrasive papers can be used on their full widths and are very easy to exchange.

Strong Aspiration Device(Blower) unit available as an accessory with easily replaceable filter creates a dust-free working environment. Both discs are covered by halfway by a lid and the sheet metal allows grinding only in a segment for operator comfort and protection. Magnetic and mechanical specimen holders available ensure maximum operator safety.

SPECTRAL 350 is further equipped with breaking device permitting a rapid stopping of the turning discs. The machine is fitted with an interlocking safety device not allowing the lid being opened before the motors are stopped.

## SPECTRAL MM

SPECTRAL MM is an automatic milling machine for fast milling of non-ferrous and steel samples for emission and X-ray spectrometer analysis. Automatic fine surface milling guarantees the highest level of reproducibility through automatic processing of the specimen. SPECTRAL MM has a robust and reliable design with low noise and emission levels. It is completely enclosed and sound-insulated with LED spot-light. The front cover can be completely opened for easy access to all sides.

SPECTRAL MM is equipped with automatic sample feed with fine speed control. Fast advance and reverse are available. All important parameters of the milling process like feedrate, milling depth, spindle speed are adjustable on the touch screen LCD. The spindle speed can be adjusted to different materials to achieve optimum surfaces. Reproducible flat surfaces are obtained with column mounted on taper bearings.

SPECTRAL MM is suitable for different sample shapes (cylindrical, mushroom shaped etc.) with diameters upto 80 mm. It can be fitted with special cutter head with 8" diamond or tungsten carbide tips. Three-point-chuck is included in the standard scope of supply of the machine. Other additional clamping devices are available as optional accessories.



SPECTRAL MM is equipped with highest level of the safety standards. Several safety circuits guarantee optimum protection for the operator. An electronic brake system is integrated to the system for a rapid stop of the milling head. The interlocking safety device does not allow the hood to be opened before the milling motor is stopped.



Compact bench top unit ( left )  
Various milling tips available ( above )  
Container for milling chips underneath ( above right )

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

**Controlled Material Removal**

SPECTRAL MM allows you to preset the amount of material to be removed very accurately. The vertical movement of the milling 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

**Milling Parameters:**

The preselection of the milling feed rate (0,1-5mm/sec) 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 Milling**

SPECTRAL MM can be programmed to make multi-pass milling operations. It is possible to set the number of passes and the milling depth of each pass which can be stored under a program number or name.

**Programmable Return Positions**

SPECTRAL MM has 3 different stop modes:  
Auto stop: Stops when the specimen 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.

**Database**

A library of 25 different milling programs with related specimen name or number can be saved with all milling parameters which can be recalled at anytime.



Programmable HMI touch screen controls ( above right )

Spectral MM with floor cabinet ( right )

## 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.

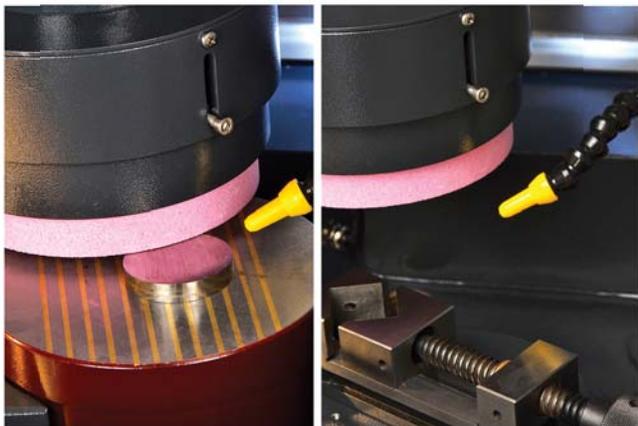


Ergonomic operation

SPECTRAL PG 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, Electromagnetic 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.



Magnetic plate

Clamping vise

### SPECTRAL 200

Table-top Surface Grinder for spectroscopic sample preparation of steels and irons, vibration-free construction, robust steel housing, 0,55 kW motor, standard outlet for exhauster, easy to clean and ready for operation.

110V, 1 phase 50/60 Hz.

Order No: 80 01

### SPECTRAL 350

Dual Disk Surface Grinder for spectroscopic sample preparation of steels and irons, course and fine grinding possible on two separate disks of 350 mm dia. which are dynamically balanced, two individual driving motors (2,2 kW each) with dual speeds of 1400/2800 rpm, equipped with braking device for a rapid stop of the turning discs, suction created by special design retaining the abrasive paper on the disk (no need to glue or fix), easily replaceable filter, disks covered halfway by lids allowing grinding only on a segment, with interlocking safety switch not allowing the top cover being opened before the motors are stopped, ergonomically designed and ready for operation.

220V, 3 phase 50/60 Hz.

Order No: 80 02

Strong Aspiration Device (Blower) Unit

Order No: GR 1364

### Accessories for SPECTRAL 200 & SPECTRAL 350

Sample Holder for round specimens, Magnetic type.

Order No: GR 1804

Sample Holder for round specimens, Mechanical type.

Order No: GR 1805

### SPECTRAL PG

Pendulum Grinding Machine, for fast spectroscopic sample preparation of iron and steel samples, bench top compact design, closed housing, max. safety provided with interlocking switch, pendulum arm mounted in taper roller bearings, low noise with motor of 1,1 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 halogen lamp, standard outlet for dust exhauster, standard outlet for water connection, complete and ready for operation.

Without clamping devices.

Order No: 80 03

220V, 3 phase 50/60 Hz.

### Accessories for SPECTRAL PG

Magnetic Plate, 160 mm. Dia.

Order No: GR 1807

Electromagnetic plate, 160 mm. Dia.

Order No: GR 1800

Standard clamping device for large samples upto 60 mm.

Order No: GR 1801

Floor Cabinet

Order No: GR 1802

AL2O3 white grinding stone for hard steels

Order No: 80-150

AL2O3 pink grinding stone for hard steels

Order No: 80-151

### SPECTRAL MM

Automatic fine surface milling machine, for preparation of steels and non-ferrous metal samples for OES and XRF analysis, bench top compact design, Programmable with 3,8" HMI touch screen control, closed housing, max. safety provided with interlocking switch, large working space with halogen lighting, chip container 3-point chuck suitable for all shapes of sample forms, (cylindrical, mushroom, etc.), for samples upto 80 mm dia. automatic sample feeding with adjustable fine speed control, digital depth setting, digital setting of milling height with accuracy of 0,01 mm., cutting motor 1,1 kW, digital setting of cutter rotational speed to obtain optimum surfaces for different materials, ready for operation.

220V, 1 phase 50/60 Hz.

Order No: 80 04

### Accessories for SPECTRAL MM

Cutter head 63 mm with 5 diamond tips.

Order No: GR 1808

Floor Cabinet

Order No: GR 1803

\* Other voltages and frequencies available upon request.

Please state when ordering.

All specifications are subject to change without notice.