



SAMPLE PREPARATION

# SPECTRAL

MMax



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

**20**  
YEARS

# SPECTRAL<sup>®</sup> MMax



The SPECTRAL MMax is designed for fully automatic sample preparation of steel and cast iron as well as nonferrous samples for OES and XRF analysis. The automatic processing cycle ensures extremely fast and reproducible results with programmable 10” HMI touch screen controls. The milling preparation procedure reduces the contamination drastically and effectively.

- Modern and sturdy design
- Fully automatic, easy and quick operation
- Programmable with coloured HMI touch screen controls
- Automatic specimen height measurement for automatic Z-axis positioning
- Preparation of production and calibration samples
- Quick and easy exchange of milling head
- Standard air cooling
- Special clamping device to hold a wide variety of sample shapes and sizes
- Reproducible and plane sample surface
- Inbuilt chip collection unit
- Side openings for Robotic feeding systems

## SPECTRAL MMax

SPECTRAL MMax is a fully automatic milling machine for fast milling of steel, cast iron and nonferrous samples for optic emission and X-ray spectrometer analysis. Automatic fine surface milling guarantees the highest level of reproducibility through automatic processing of the specimen. SPECTRAL MMax 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 MMax 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.

SPECTRAL MM is suitable for different sample shapes with diameters upto 60 mm. and max. 65 HRC hardness. The special clamping device is included in the standard scope of supply of the machine. The clamping device is designed for fast and positive clamping of a wide variety of sample sizes and shapes as round/cylindrical or conical), oval, mushrooms, or lollipop.



Ergonomic Operation



Reproducible Sample Surface

Spectral MMax Fully Automatic fine surface milling machine

SPECTRAL MMax has advanced techniques and software with programmable 10" large HMI touch screen controls increasing the productivity, sample consistency and operator comfort.

**Controlled Material Removal**

SPECTRAL MMax 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 (0,1-16 mm/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 MMax 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 MMax 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.

Apart from these there are also different stop modes available for special applications such as "Back to starting point without milling" and "Spectral Milling: Fine milling on return position".

**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 any time. Data with Metkon milling tips is also listed for easy selection.



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



Inbuilt chip collection unit

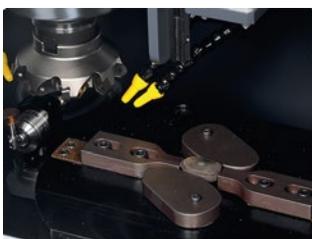
Sample positioning time is drastically reduced and overall efficiency improved with the ability of automatic sample height measurement.

The spindle changing time is kept at minimum with the quick release function of the spindle without the need for any special tools.

The deburring device is an optional accessory for Spectral MMax. The deburring of round calibration samples within dia. 35 – 50 mm. is possible with the special milling head.

The large hood enables easy access for operation and maintenance. De-dusting system is not required as the milling swarf is collected in an easy removable collector tray.

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



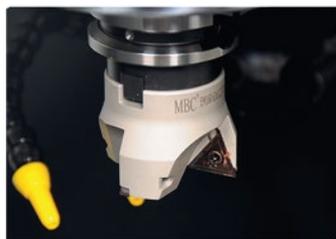
Pneumatic Clamping Device



Automatic Clamping And Sample Height Measurement



Easy Exchange Milling Head



Optional Deburring Device

## Specifications

### 80 06 Spectral MMax

#### Fully Automatic fine surface milling machine,

for preparation of steels, cast iron and non-ferrous metal samples for OES and XRF analysis, Programmable with coloured 10" HMI touch screen control, Siemens PLC control unit, closed housing, max. safety provided with interlocking switch, large working space with LED lighting, chip cotainer, special clamping device suitable for all shapes of sample forms, (cylindrical, round, oval, etc.), for samples upto 60 mm dia., with max. 65 HRC, integrated air cooling system, automatic height positioning of the milling head for operation. automatic sample feeding with adjustable fine speed control, digital depth setting, digital setting of milling height with accuracy of 0,01 mm., milling motor 5,5 kW,digital setting of head rotational speed to obtain optimum surfaces for different materials, ready for operation. Without milling head.  
400 V, 3-phase, 50 Hz.

#### Accessories for Spectral MMax

- GR 1823** Milling Head for ferrous materials 80 mm. with 7 cutting tips
- GR 1824** Milling Head for ferrous materials 100 mm. with 8 cutting tips
- GR 1834** Milling Head for nonferrous materials, 100 mm. with 8 cutting tips
- GR 1825** Milling Head with integrated deburring
- GR 1826** Automatic height calibration after changing of milling head type for different materials



Ergonomic Operation



Spectral MMax Fully Automatic fine surface milling machine



| Order No                            | 80 06   |
|-------------------------------------|---|
| Model                               | Spectral MMax   |
| Sample Positioning before Operation | Automatic   |
| Motor power, kW                     | 5,5 kW  |
| HMI Touch Screen Controller, (inch) | 10"   |
| Program Capacity                    | 25  |
| Sample Height Measurement           | Automatic   |
| Processable sample material         | Iron, carbon steel, high-grade steel, non-ferrous metal             |
| Sample Shapes                       | Without pin, round (cylindrical or conical), oval, double thickness |
| Sample Height                       | Min. 7 mm. Max. 60 mm.  |
| Sample Dia., mm                     | Max. Ø60 mm   |
| Sample Hardness                     | Max. 65 HRC   |
| Cooling System                      | Standard Air Cooling  |
| Sample Holder System                | Pneumatic Automatic Clamping  |
| Milling Head Dia. (mm)              | 80/100  |
| Milling Head Speed, (rpm)           | 200-1500 rpm  |
| Table Feedrate, (mm/s)              | 0,2 – 16  |
| Size, WxDxH, (cm)                   | 100 x 110 x 220   |
| Weight, kgs                         | 1400  |

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



**Metkon Instruments Inc.**  
Demirtas Dumlupinar Organize San. Bölgesi Ali Osman Sönmez Cd. No:14 Bursa / TURKEY  
Tel: +90.224.261 18 40 Fax: +90.224.261 18 44  
e-mail: metkonsales@metkon.com Web: www.metkon.com

Distributor:

