



metkon[®]
Technology behind Specimen



SAMPLE PREPARATION
SPECTRAL
MM 102

SPECTRAL MM 102 is designed for automatic sample preparation of OES and XRF analysis.



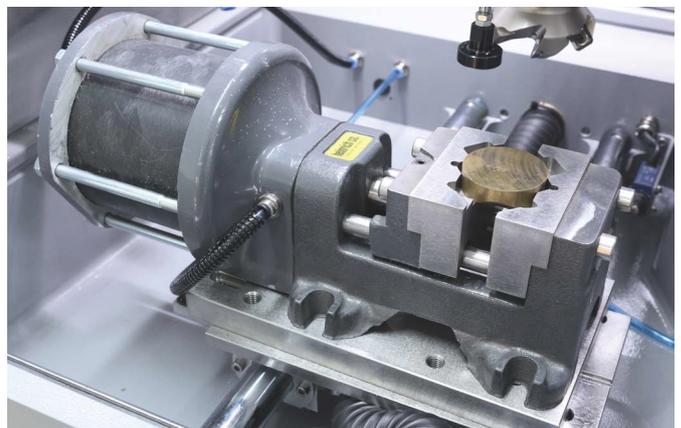
AUTOMATIC SURFACE MILLING FOR FERROUS & NON-FERROUS METALS

DESIGN

SPECTRAL MM 102 is an automatic milling machine for fast milling of non-ferrous, iron&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 102 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 102 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 102 is suitable for different sample shapes (cylindrical, mushroom shaped etc.) with diameters upto 60 mm. It can be fitted with special cutter head with diamond or tungsten carbide tips. The clamping devices are available as optional accessories.



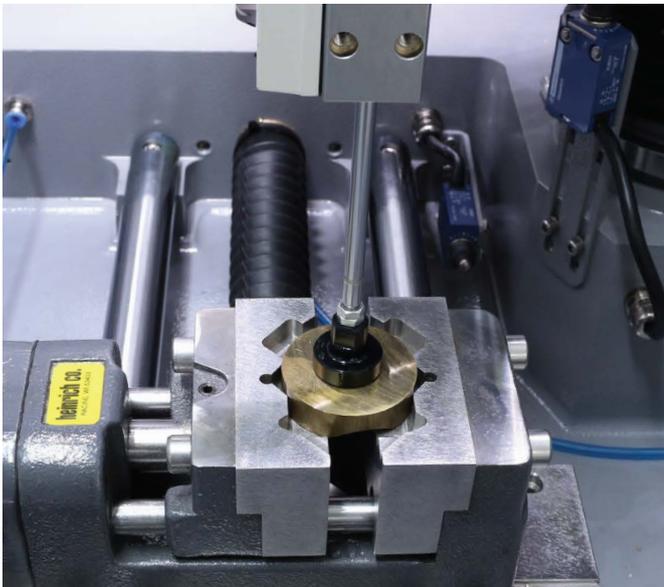
Pneumatic Clamping Device



SPECTRAL

MM 102

SPECTRAL MM 102 is designed for automatic sample preparation of OES and XRF analysis. It is fast and efficient in providing high quality specimen surface thus saving time. SPECTRAL MM 102 has advanced techniques and software with programmable HMI touch screen controls increasing the productivity, sample consistency and operator comfort. With the ability to store and recall preparation programs on the LCD screen, same consistent results are obtained. SPECTRAL MM 102 is a perfect choice for milling of all non-ferrous materials. It can also be used for milling steels upto 50 HRC



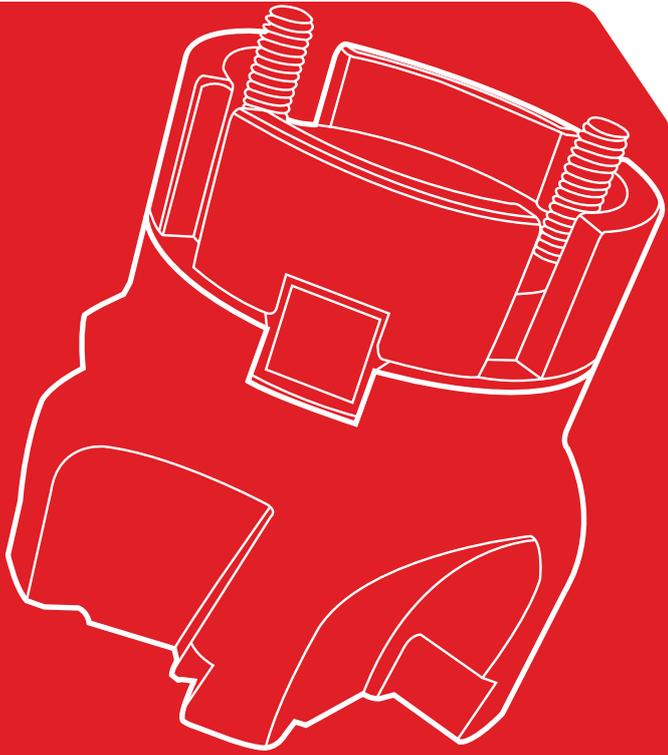
Automatic Sample Height Measurement System

Running a small job on a big machine can be inefficient, and may even cut into profits. SPECTRAL MM 102 provide an economical solution for milling iron, steel and stainless steel samples upto 50 HRC and max 80 samples per shift in a compact package that is loaded with full-size features.

SPECTRAL MM 102 is perfect for small to medium size foundries or plants. And it's a valuable addition for plants needing a "second-op" machine, or an additional sample milling machine where space is limited.

SPECTRAL MM 102 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.

The front sliding door can be completely open for easy handling. A large window of Lexan and sealed LED lamp in the milling chamber allow precise observation of the milling process at an optimum degree of safety.



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

DATABASE

A library of 99 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.



Air Cooling System

A smart clamping solution for practical daily use: pneumatic clamping device offers advantages in milling and general use. The pneumatic clamping device can be used for accurate clamping and increase productivity and ensure repeatable alignment. Air cooling system is also offered optionally which is ideal for applications hard material.

SPECTRAL MM 102 has advanced techniques and software with programmable HMI touch screen controls increasing the productivity, sample consistency and operator comfort. .

Controlled Material Removal

SPECTRAL MM 102 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



Sample Preparation for Spectroscopy

Optical emission spectrometry (OES) and X-Ray fluorescence are most commonly used techniques for the analysis of metals and solid samples.

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. For the preparation of solid metal samples METKON offers manual and automatic sample preparation machines - from the small table-top disc surface grinder to automatic milling machine. With METKON Sample Preparation Machines, you feel yourself ready for the analysis.

Milling Parameters

The preselection of the milling feed rate (0,5-30 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 MM 102 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 102 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.



Container for Milling Tips

SPECIFICATIONS

81 04 - SPECTRAL MM 102

Automatic fine surface milling machine for preparation of non-ferrous metal samples for OES and XRF analysis, bench top compact design, Siemens PLC control unit, Programmable with colored 7" HMI touch screen control, closed housing, max. safety provided with interlocking switch, large working space with LED lighting, chip container, extraordinary access for easy handling with sliding door, for samples up to 70 mm dia. automatic sample feeding with adjustable fine speed control, controlled material removal from the specimen with accuracy of 0.01 mm, cutting motor 3 kW, with electronic brake system and overload protection, with variable rotational motor speed 500-4000 rpm to obtain optimum surfaces for different materials, ready for operation.

Without milling head. Without clamping devices. Without cooling system.

400 V, 3-phase, 50 Hz.

Accessories for Spectral MM 102

GR 1835 - Milling head 63 mm for 5 cutting tips max 55 mm, SPC MM 102

GR 1836 - Milling head 80 mm for 6 cutting tips max 70 mm, SPC MM 102

GR 1838 - Milling head 63 mm. for iron & steel samples, 45- 64 HRC (max. 50 mm sample)

GR 1839 - Milling head 80 mm. for iron & steel samples, 45- 64 HRC (max. 67 mm sample)

GR 1810 - Manual measuring tool for cutter positioning

GR 1911 - Automatic Sample Height Measurement System for full cyclic operation. (To be ordered simultaneously together with the machine order)

GR 1841 - Automation Software for full cyclic operation. (To be ordered simultaneously together with GR 1911)

GR 1801 - Mechanical clamping device for samples up to 60 mm.

GR 1948 - Universal Jaws for Mechanical Clamping Device (GR 1801)

GR 1949 - Jaws for Thin Specimens for Mechanical Clamping Device (GR 1801)

GR 1943 - Mechanical 3-jaw chuck

GR 1913 - Pneumatic Clamping Device (To be ordered simultaneously together with the machine order)

GR 1946 - Universal Jaws for Pneumatic Clamping Device (GR 1913)

GR 1947 - Jaws for Thin Specimens for Pneumatic Clamping Device (GR 1913)

GR 1816 - T-slotted table

GR 1909 - Air cooling system for Spectral MM 102 (To be ordered simultaneously together with the machine order)

GR 1907 - Floor Cabinet for FORCIPLAN 52/SPECTRAL MM/PG/AG 102

GR 1908 - Mobile Chip Container for SPECTRAL MM 102 (Only used with GR 1907 Floor Cabinet)

GR 1928 - Recommended Set of Spare Parts, SPC MM 102

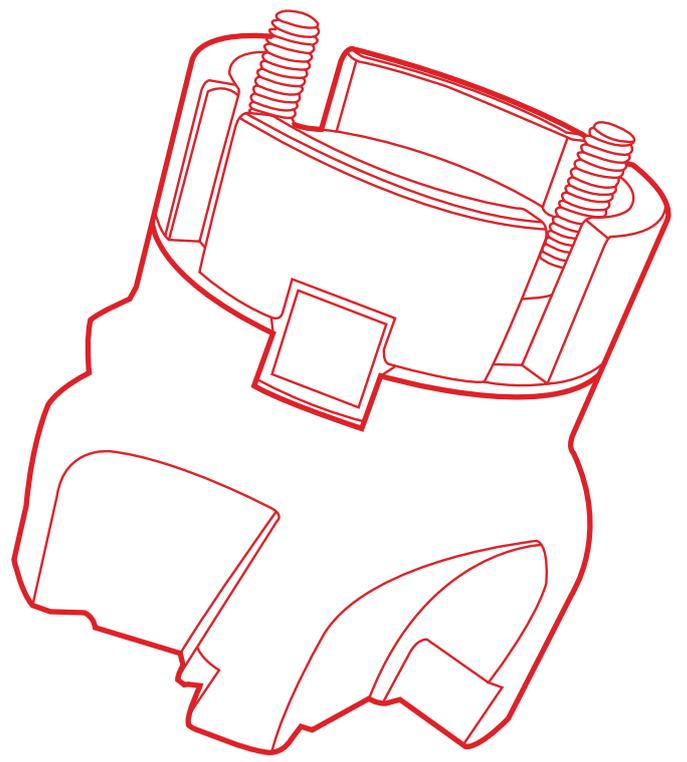
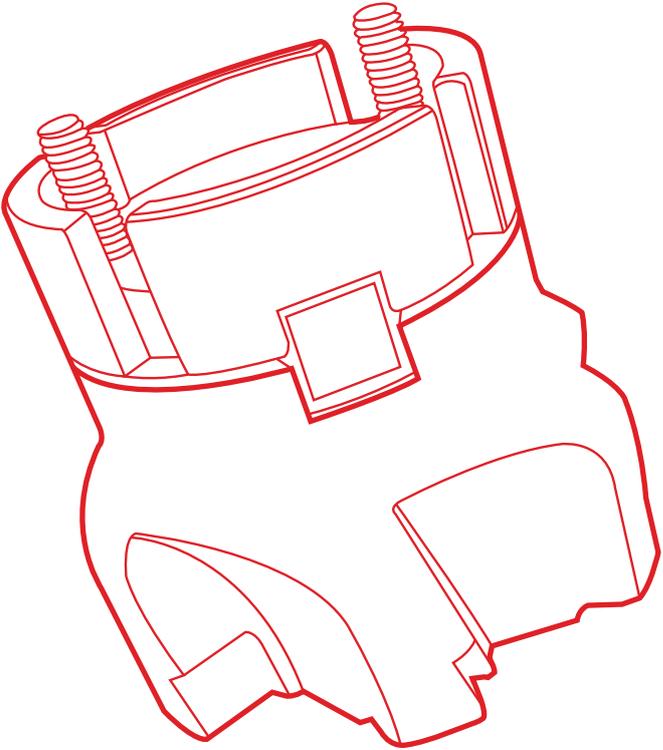
Installation, Operator Training and Limited Service Training for Spectral MM 102 / AG 102

HIZ 014 - "Installation, Operator Training and Limited Service Training" at customer site by Metkon Service Engineer for products Spectral MM 102 / AG 102.

(Travel and living expenses are to be charged at actual cost additionally)

ORDER NO	81 04
MODEL NO	SESPECTRAL MM 102
Milling Head Movement	Auto
Table Feeding Y-axis	Auto
HMI Touch Screencontroller, (inch)	7"
Milling Dia. Capacity, (63 mm)	Ø55
Milling Dia. Capacity, (80 mm)	Ø70
Max Sample Size, Height (mm)	60 mm
Y-axis travel, (mm)	210 mm
Z-axis travel, (mm)	60 mm
Milling Power kW[S1]	3
Milling Head Speed, (rpm)	500 - 4000
Table Feedrate, (mm/s)	500µ-30000µ
Max Milling Depth (mm)	3 (for nonferrous)
Axial Feeding (mm)	Auto
Size WxDxH (cm)	94x83x97
Size WxDxH (with cabinet), (cm)	94X83x175
Weight, (kg)	300
Weight, (kg) (with cabinet)	385

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





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