metkon
Technology behind Specimen

PRECISION CUTTING

MICRACUT 200-S

QUARTER CENTURY OF EXPERIENCE

metkon.com

AUTOMATIC
HIGH-SPEED PRECISION CUTTER

MICRACUT 200-S

MICRACUT 200-S is a high-speed automatic precision cutting machine that used for precise and deformation-free cutting of "Metals, Ceramics, Electronic Components, Crystals, Composites, Biomaterials, Sintered Carbides, Minerals, etc." MICRACUT 200-S has also grinding capability for applications that need extremely precise material removal. MICRACUT 200-S has its place in virtually any metallurgical, geological, electronics, research, biomedical or industrial laboratory. The applications are endless.

- Universal use for very wide range of applications
- Suitable for both precise cutting and precise grinding
- Ability to cut PCBs and flat samples
- Programmable with colored HMI touch screen controls
- Motorized sample movement in Z-axis
- Precise X-axis positioning with 5 µm accuracy
- Inbuilt recirculation coolant tank

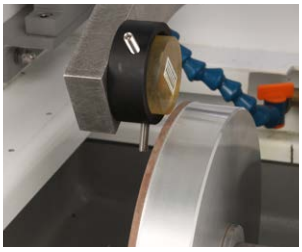
DESIGN

MICRACUT 200-S is capable of cutting most materials such as, brittle or ductile metals, hard or soft metals, composites, ceramics, rocks, biomaterials, laminates, electronic components, PCB boards, sheet metals etc. It is designed for cutting all types of materials with minimal structural deformation. The cut surface is ready for microscopic examination with minimal polishing. In addition, MICRACUT 200-S is able to make precise grinding with 5 µm accuracy.

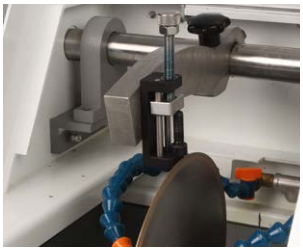
MICRACUT 200-S has special design for universal use. Two different types of cutting tables can be mounted on the cutting chamber for different types of applications. The fixed cutting table attachment is used for cutting flat PCB boards or small geological samples by hand. The movable cutting table attachment is used for manual table feed cutting of PCB boards, sheet metals, small metallic or non-metallic samples.

MICRACUT 200-S has motorized sample movement in Z-axis that makes possible to benefit from extra advanced cutting methods such as "Automatic Z-Axis Cutting, Hybrid Cutting, Rapid Pulse Cutting, Instafeed Cutting, Semi-Automatic Serial Parallel Cutting, Semi-Automatic Precise Grinding". At the end of the cut, the motor automatically stops and an audible signal notifies the operator. It is also possible to make manual cutting by the handle on the left side of machine.

MICRACUT 200-S accomodates diamond, CBN and abrasive wheels up to 200 mm (8") diameter and the speed range is between 100 and 5000 rpm. The sample can be positioned in X-axis by electronic micrometer enables the operator to set the cutting width with a 5 microns accuracy. The X-axis position value can be seen simultaneuosly on the touch screen. The coolant tray is removable from the instrument for easy cleaning. The cutting chamber is fully enclosed by a transparent hood. Blade dresser is standard part of machine that ensures an easy and fast dressing of diamond and CBN cutting wheels even during cutting operation.



Diamond Cup Grinding



Wide range of specimen vises

Safety

MICRACUT 200-S precision cutters has the highest safety standards. The magnetic safety switch does not allow the motor to be started unless transparent hood is closed. If transparent hood is opened during cutting, the motor immediately stops automatically. Easily accessed and operated emergency stop button ensures immediate shut down.

MICRACUT 200-S precision cutters has advanced techniques and software with programmable HMI touch screen controls increasing the productivity, sample consistency and minimize operator intervention.

Cutting Parameters

The preselection of the cutting force level as well as the setting of cutting feed rate (0,005-10mm/sec) is possible from the touch screen LCD. The feed rate is automatically adjusted, if needed reduced, resulting in perfect cuts and eliminating sample and machine damage. Pulse cutting mode is a standard feature for cutting extra hard specimens. Integrated speed regulating unit is available to adjust the cut-off wheel speed between 100-5000 rpm.

Semi-Automatic Parallel Cutting

MICRACUT 200-S is equipped with an electronic micrometer for precise positioning and slicing of samples on the X-axis. The X-axis position of the sample can be instantly displayed on the LCD screen. The number and thickness of slices can be preset on the LCD screen. At the end of each slicing process, the software visually indicates how many mm the operator should move the sample on the X-axis for the next slice, thus guiding the operator to prevent the wrong thickness of slices.

Programmable Return Positions

MICRACUT 200-S has two different stop modes:
Back to starting point: Stops when it has returned to its starting point.
Back to reference point: Stops when the ultimate reset point in sample has been reached.

Database

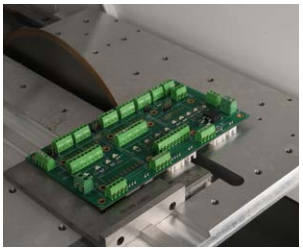
A library of 99 different cutting programs with related specimen name or number can be saved with all cutting parameters which can be recalled at any time. Data with Metkon cutting consumables is also listed for easy selection.

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

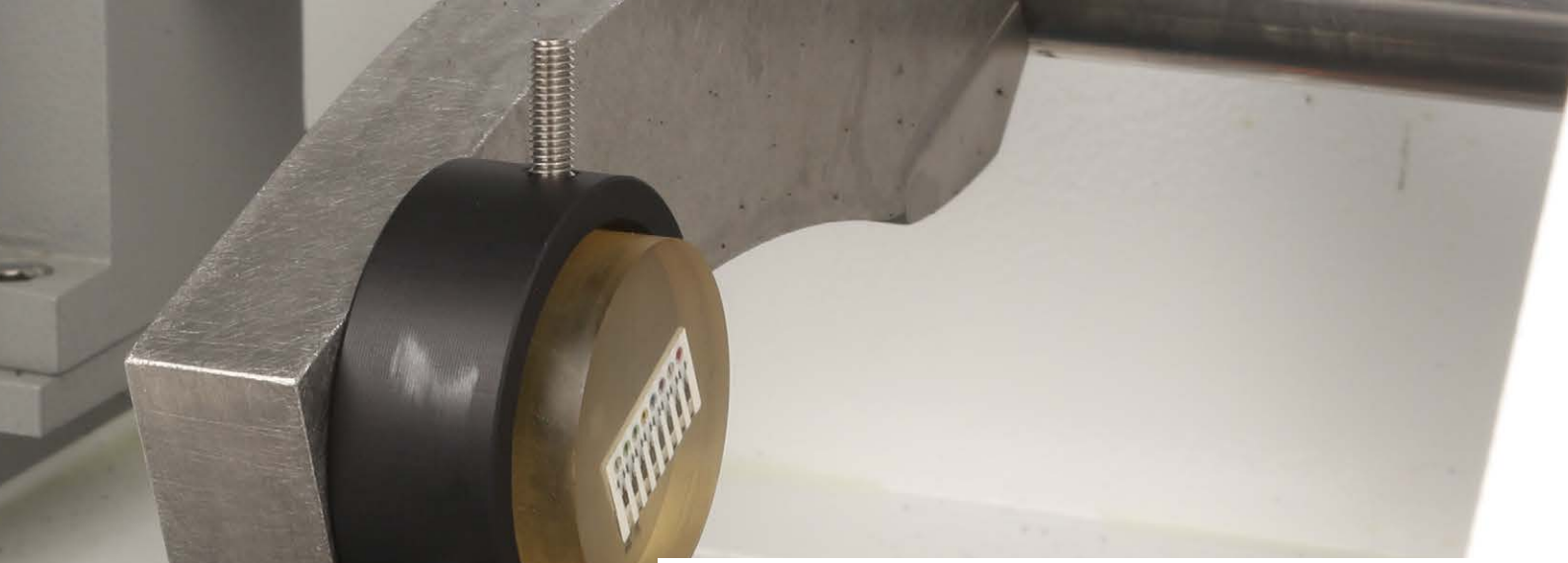
Manual X-Axis with accurate positioning

Ability to make manual cutting

Integrated Cooling Tank



Fixed or movable cutting table attachments to cut extra flat specimens, sheet metals & PCB's



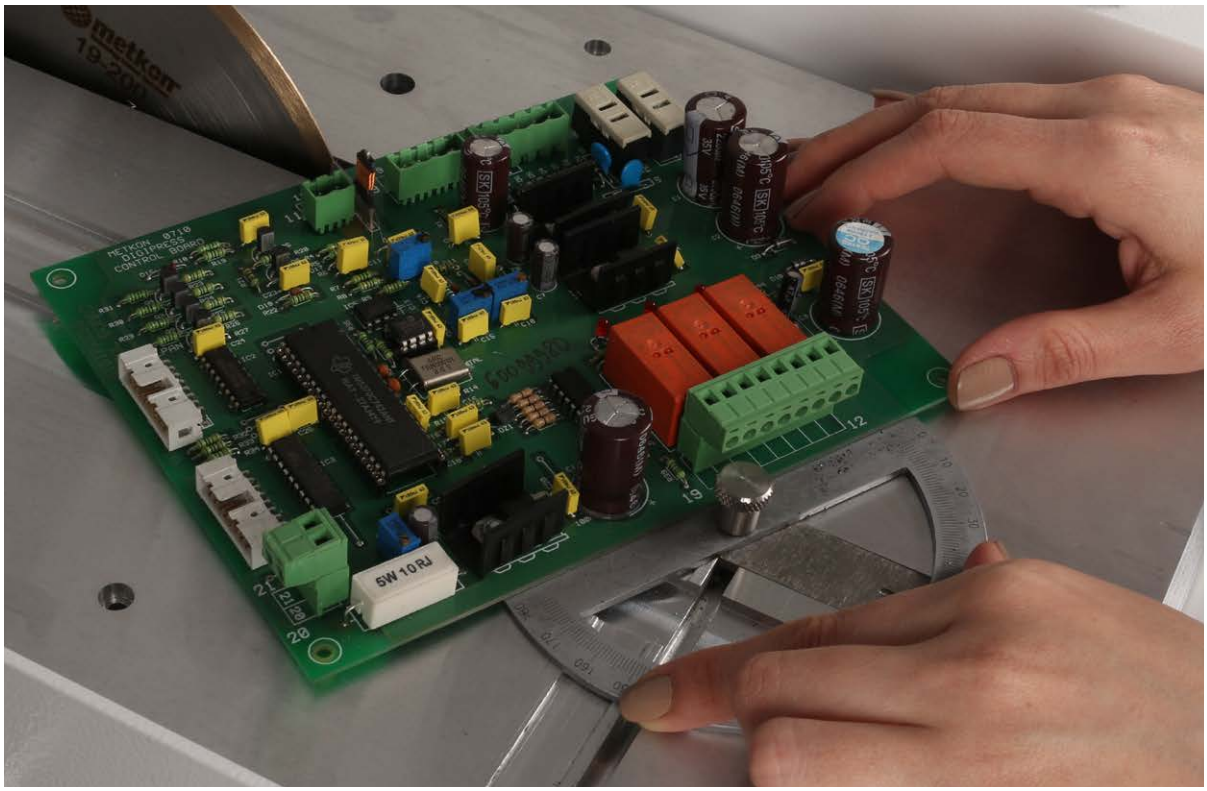
NEW CUTTING FEATURES

Hybrid Cutting
The Hybrid Cutting is a standard feature of MICRACUT 200-S. If the sample consists of more than one layer and each layer needs to be cut at different speeds, the Hybrid Cutting feature will fully meet this need. Thanks to the Hybrid Cutting feature, up to 5 different cutting parameters (feed rate, disc speed, pulse, force, distance, etc.) can be set within the same cutting process. When the disc comes to the next cutting layer, the cutting process continues with the cutting parameters belonging to that layer without interrupting the cutting process.

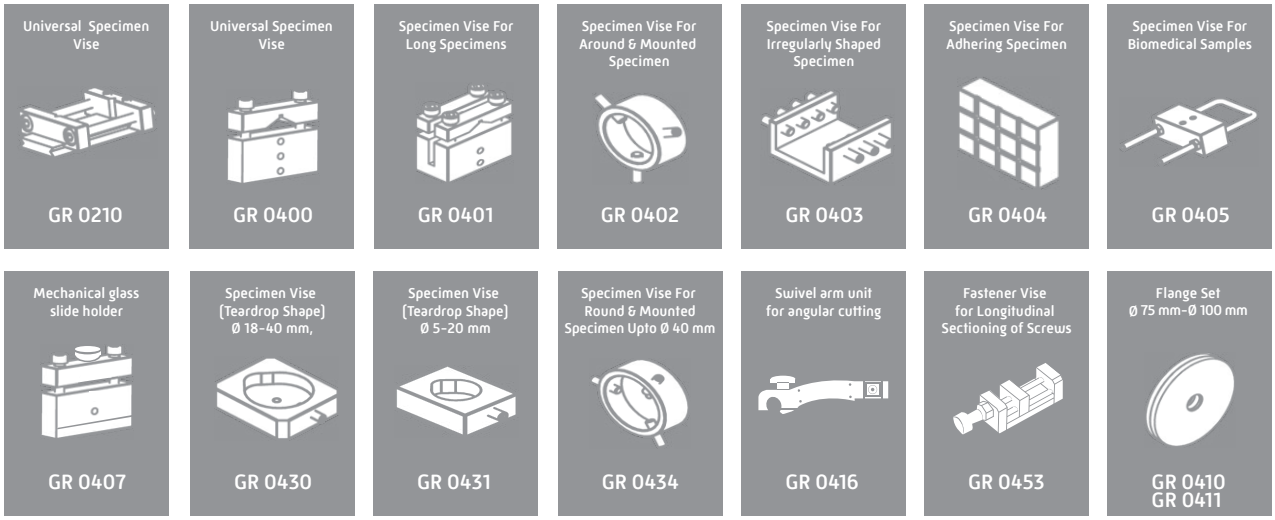
Instafeed
Optimizes the feedrate according to the specimen hardness and the preset cutting force. It increases the cut off wheel life and ensures optimum cutting without overloading.

Semi-Automatic Precise Grinding
A diamond cup grinding wheel can be attached to the MICRACUT 200-S. In this way, the layer desired to be examined can be exposed by removing chips from the sample very precisely. Just like in parallel slicing, the operator is informed on the LCD screen how far the specimen will be advanced in the X-axis between the grinding steps. Unlike parallel slicing, how many passes to be grinded in each step can be adjusted and the device performs these passes automatically. Unlike the cutting process, the feed rate can be adjusted between 0.5 - 50 mm / sec during grinding.

Rapid Pulse
Reduces contact time and ensures maximum cooling of specimen.



SPECIMEN VISES & FLANGES



Many sample preparation applications require the sectioning of a specimen from a small or irregularly shaped sample or component part. The small size or irregular sample shape can create positioning and clamping difficulties for the operator. To overcome these difficulties,

METKON offers a number of special clamping vises for use with MICRACUT 200-S precision cutters. METKON 200-S precision cutter is equipped with a stainless steel clamping arm. All clamping vises are made of corrosion resistant material and can be attached to the cutters clamping arm in seconds for fast and positive clamping of parts having virtually any configuration.

ACCESSORIES

Fixed Cutting Table

The optional fixed cutting table can be easily mounted on the MICRACUT 200-S. Extra flat specimens and PCBs can be easily cut by hand on this table. The table has a wide working area of 288x460 mm and parts up to 200x200x35 mm can be cut easily. Thanks to the angle cutting tool, the desired angle can be cut.

Movable Cutting Table

The optional movable cutting table can be easily mounted on the MICRACUT 200-S, just like the fixed cutting table. This table can move 220 mm in the Y-axis. Thus, when the transparent cover of the device is closed, cutting can be made by moving the table from outside. Since the cover allows closed use, it is possible to cut metal sheets safely by using abrasive cutting discs. It can also be cut into PCBs and other large sheet-shaped parts. Specimens can be attached to the table with a simple fixture apparatus, so precise cutting can be performed without the need to hold the specimen by hand and without the risk of the specimen moving during cutting. The table has a large sample mounting area of 288x300 mm and parts up to 170x200x35 mm can be cut easily. Thanks to the angle cutting apparatus, the desired angle can be cut.

Parallel Slicing Tool

Optional parallel slicing tool can be mounted on both fixed and movable cutting tables. The parallel cutting tool can move 0-25 mm in the X-axis and allows slices of the desired thickness to be taken from the flat samples.

Wide range of specimen vises

Dressing Unit

Movable Cutting Table Attachment

Fixed Cutting Table Attachment

Clamping Fixture

Optional sample clamping fixtures are used to clamp specimens on the movable cutting table. In this way, precise cutting can be done without the need to hold the sample by hand and without the risk of the sample moving during cutting.

SPECIFICATIONS

ORDER NO	16 07
MODEL NO	MICRACUT 200-S
Cut-off Wheel Diameter, (mm)	up to Ø200 mm
Cutting Capacity, Ø (mm)	Ø75 mm
Sample Movement in Z-Axis	Motorized
Sample Movement in X-Axis	Manual
X-Axis Positioning Range, (mm)	0-50 mm
X-Axis Positioning Accuracy, (µm)	5 µm
Cutting Feed Speed, (µm/s)	5 - 10000 µm/s
Cutting Motor Power, (kW) (S1)	0.55 kW
Disc Speed, (RPM)	100 – 5000 RPM
Control Panel	7" HMI Touch Screen
Program Capacity	99 Program Memory
Cutting Modes	Automatic Cutting in Z-Axis Manual Cutting in Z-Axis Manual Table-Feed Cutting in Y-Axis
Pulse Cutting	Yes (Rapid Pulse Cutting)
Automatic Feedrate	Yes (Instafeed Cutting)
Multi-Section Cutting	Yes (Hybrid Cutting)
Parallel Cutting, X-Axis	Yes (Semi-Automatic)
Precise Grinding Feature	Yes (Manual/Semi-Automatic)
Grinding Wheel Diameter, (mm)	Ø175 mm
Grinding Feed Speed, (µm/s)	500 - 50000 µm/s
Cooling Unit, (lt)	4.5 lt (integrated)
Illumination	LED
Dressing During Cutting Operation	Yes
Motor Drive System	Direct Drive
Dimensions, WxDxH, (mm)	640 x 732 x 529h mm
Weight	90 kgs

16 07 — **MICRACUT 200-S**

Automatic High-Speed Precision Cutter
Programmable with 7" HMI touch screen control, with Siemens PLC control unit, with motorized cutting system, automatic or manual cutting modes, motorized precise grinding with 5 microns accuracy, accurate positioning of the specimen in X-axis with 5 microns positioning accuracy, 0-50 mm positioning range in X-axis with readout on HMI touch screen, smart guide for X-axis positioning, integrated feed path control, power dependent adjustable feedrate, variable cutting force, rapid pulse cutting mode, bar graph overload display, powerful 0.55 kW cutting motor, with variable cutting speed 100-5000 rpm, with electronic brake system, cutting capacity up to 75 mm solid stock, with cut-off wheels up to Ø200 mm or diamond cup grinding wheels up to Ø175 mm, with built-in dressing unit, with built-in removable cooling unit, transparent protection hood, with extra advanced cutting methods,
Ready for operation.

Includes a standard set of cutting consumables composed of;
- 1 pc. Diamond cutting Disc 200 mm dia.
- 1 lt of Metcool II cooling fluid.
  230 V, 50/60 Hz, AC.

Cutting Tables for MICRACUT 200-S

GR 0215 — Fixed Cutting Table Attachment
for manual cutting of extra flat specimens and PCB 's on MICRACUT 200-S including angle cutting tool. 288x460 mm table size, cutting capacity is up to 200x200x35 mm (WxDxH) for flat specimens.

GR 0115 — Movable Cutting Table Attachment
for manual cutting of extra flat specimens, sheet metals and PCB 's on MICRACUT 200-S including angle cutting tool, flexible use with optional parallel slicing tool. 288x300 mm table size, 220 mm movement range in Y-axis. cutting capacity is up to 170x200x35 mm (WxDxH) for flat specimens.

Accessories for cutting tables

GR 0222 — Parallel slicing tool for Movable/Fixed Cutting Table
0-25 mm range in X-axis

GR 0223 — Vertical clamping fixture for Movable Cutting Table

Spares

YM 1590-00 — Dressing Stone

Specimen Vises for MICRACUT 200-S

GR 0210 — Universal Specimen Vise for MICRACUT 200-S/202
GR 0400 — Universal Specimen Vise
GR 0401 — Specimen vise with double parallel vice for long specimens.
GR 0402 — Specimen vise for round and mounted specimens, ø32mm.
GR 0403 — Specimen vise for irregular shaped specimens.
GR 0404 — Specimen vise for adhering specimens.
GR 0405 — Specimen vise for biomedical samples.
GR 0407 — Mechanical glass slide holder
GR 0430 — Specimen vise (teardrop shape) for specimens ø18-40mm.
GR 0431 — Specimen vise (teardrop shape) for specimens ø5-20mm.
GR 0434 — Specimen vise for round cylindrical specimens (max. up to 40 mm dia.)
GR 0416 — Swivel arm unit for angular cutting, MICRACUT 200-S
GR 0453 — Fastener vise for longitudinal sectioning of screws, fasteners tubes, etc. from 12 to 45 mm. in length

Optional Flange Sets for MICRACUT 200-S

GR 0410 — Set of Flanges, ø75 mm, suitable for 12,7 and 25,4 mm arbor dias.
GR 0411 — Set of Flanges, ø100 mm, suitable for 12,7 and 25,4 mm arbor dias.

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

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