



ABRASIVE CUTTING  
**SERVOCUT  
502**



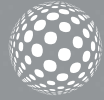


# AUTOMATIC

ABRASIVE CUTTING MACHINE



# SERVOCUT 502



SERVOCUT 502 is an advanced high-capacity cutting machine especially designed for very large specimens.

- Modern and sturdy design
- Extraordinary access for easy handling
- Powerful, with spacious cutting chamber
- Unique belt protection system
- Advanced cutting features for hard and difficult work pieces
- Advanced safety features
- Ergonomic joystick control offers excellent application versatility
- Programmable with colored HMI touch screen controls

## DESIGN

SERVOCUT 502 is an advanced high capacity cutting machine, offers the advantage of combining different cutting techniques and methods to obtain superior cut surfaces for a broad range of heavy-duty cutting applications. Automatic cutting guarantees the highest level of reproducibility through automatic processing of the specimen.

SERVOCUT 502 has a robust and reliable design with low noise and emission levels. The modern and sturdy design with powerful 11 kW cutting motor ensures fast and efficient cutting through the hardest and complex materials.

**SERVOCUT 502 has X-Y-Z triple axes cutting capability:**

### Z-axis Chop cutting

The specimen is clamped and the cut-off wheel approaches the specimen.

### Y-axis Table-feed cutting

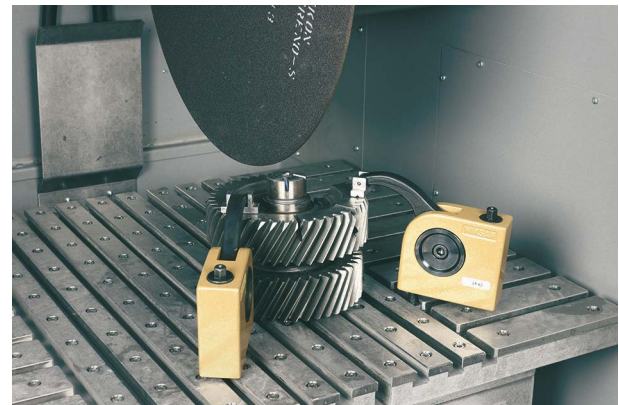
Feeding the clamped specimen into a rotating cut-off wheel using a T-slotted feed table.

### X-axis Parallel Cutting (optional)

Parallel serial sectioning in the x-axis with optional movable x-table.

A large, T-slotted feed table located in the cutter's generous work area can accommodate a variety of different clamping devices which need to be selected. The feed table provides a long travel depth making the SERVOCUT 502 ideal for cutting long or deep samples in a single pass. Stainless small parts tray to catch small specimens is supplied with the cutting table as standard.

The front sliding door and side cover can be completely opened for easy access and handling to all sides. Side access ports make it possible to make transverse sections on long specimens. A large window of Lexan and a sealed LED lamp in the cutting chamber allow precise observation of the cutting process at an optimum degree of safety.

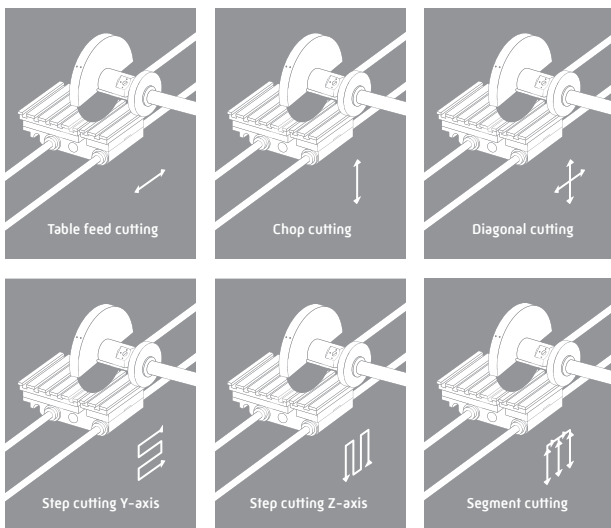


Extra large cutting chamber with easy access and handling.

## Safety

SERVOCUT 502 automatic cutting machine has the highest safety standards. The interlocking safety device does not allow the motor to be started unless the sliding door or the side access ports are closed. The sliding door cannot be opened before the cutting motor is stopped. The electronic brake system, which is a standard feature, brings the cutter to a quick full stop in seconds after it has been switched off. A two-hand control feature ensures that the operator's hands are completely out during positioning and prevented from reaching into the moving components with open sliding door. An optional stack light is located on the top of the equipment to provide visual and audible indication of machine status. Easily accessed and operated E-stop button ensures immediate shut down.

# AUTOMATIC OPERATION



SERVOCUT 502 Automatic cutting machine has advanced techniques and software with programmable HMI touch screen controls increasing the productivity, sample consistency and minimize operator intervention. Control of X/Y/Z Axis can also be performed with the ergonomic proportional Joystick that offers smooth and precise positioning.

## Cutting Methods

Chop cutting [Z-axis] and Table feed cutting [Y-axis] combined with pulse cutting is standard. New cutting methods ensures easy cutting of large and complex specimens.

## Multi-Slice Cutting

The optional automatic x-table allows programmable plane parallel sectioning. Slices of equal thickness with number of slices as well as programming slices of different thickness is possible.

## Optional Cutting Methods

Optional cutting methods make SERVOCUT 502 perfect choice for a broad range of heavy-duty cutting applications.

**Diagonal Cut:** For increased cutting capacity.

**Step Cut:** For extra hard materials.

**Segment Cut:** For difficult and complex shaped materials.

**Combined Cut:** For increasing cutting capacity.

## Cutting Parameters

The preselection of the cutting force level as well as the setting of cutting feed rate [0,02-5mm/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 in all automatic models for cutting extra hard specimens. Integrated speed regulating unit is available to adjust the cut-off wheel speed between 600-2400 rpm.

## Programmable Return Positions

SERVOCUT 502 has 3 different stop modes:

**Stay at the end of cutting:** Stops when the specimen has been cut through.

**Back to starting point:** Stops when it has returned to its starting point.

**Back to reference point:** 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



Ergonomic Joystick Control



Two Hand Control For Safety Operation



## 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.



Easy Exchange of Cut Off Wheel



FUMEFILTER, Fume and Mist Removing Unit



## NEW CUTTING FEATURES

### 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.

### Table Oscillation

During chop cutting the table makes an oscillation movement to minimize the contact area to reduce the risk of specimen damage.

### Rapid Pulse

Reduces contact time and ensures maximum cooling of specimen.









### Combined Cut (Optional)

For cutting larger specimens that cannot be cut in one cycle. Y and Z axis are combined for additional cutting capacity. First the cutting is performed with Z-axis chop cutting, subsequently the specimen is cut with Y-axis Table-feed.



Fast cutting with efficient cooling

## CLAMPING DEVICES

<p>Quick Acting Clamping Vise Assembly</p>  <p>GR 0121 GR 0122</p>	<p>Serial Clamping Device for clamping multiple specimens from 1 to 2</p>  <p>GR 0609</p>	<p>Angular Precision Clamping Device in 3-Axis Direction</p>  <p>GR 0612</p>	<p>Vertical Clamping Device with clamping shoe</p>  <p>15 02</p>	<p>Height Block</p>  <p>15 04</p>	<p>Chain spanner set with anchor block</p>  <p>GR 0033</p>	<p>V-Block for holding parts above table slots</p>  <p>15 00</p>	<p>Adjustable V-Support</p>  <p>GR 0615 GR 0616 GR 0617 GR 0618</p>
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Many sample preparations 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 devices for use with SERVOCUT abrasive cutters. METKON cut-off machines are equipped with stainless T - slot clamping tables. All clamping devices are made of stainless steel and can be attached to the cutters T - slot beds in seconds for fast and positive clamping of parts having virtually any configuration.

## ACCESSORIES

### Manual/Automatic Table Drive System

T-table can be controlled both automatically and manually with a hand-wheel.

### FUMEFILTER

An advanced fume and mist removing unit that is optionally available for SERVOCUT 502. Removes coolant mist for better illumination and viewing with centrifugal separator.

### Laser Alignment Unit

For rapid and accurate positioning of the cut-off wheel and helps to define the exact cutting line.

### 3-Lights Warning Beacon With Audible Signal

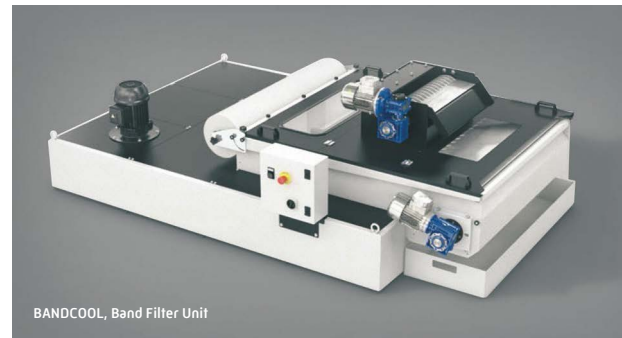
Informs operator about machine status from the long distance.

### Cooling System

A closed loop recirculating cooling unit is a standard part of the machine. The cutting surface is cooled by spray nozzles whose water jets hit both the cutting wheel and the specimen. This provides an efficient cooling of the sample and prevents the overheating of the surface structure.

### BANDCOOL

It is optionally available for cutting materials which generate a lot of swarf or for higher volume usage. Band filter conveyor for the automatic collection and disposal of swarf with large capacity of 115 Lt. for long continuous usage. It is environmentally friendly filtering the coolant and depositing the swarf in a separate container for easy disposal.



BANDCOOL, Band Filter Unit

### Coolant Level Sensor

Informs operator when coolant level is insufficient.

### Magnetic Collector Rods

Collects the finest magnetic particles from the cooling liquid and keep it clean.

### AutoClean

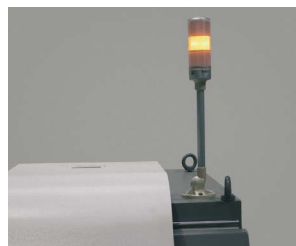
Cleaning & Maintenance is an important job and can be time-consuming. The AutoClean function provides a thorough cleaning of the entire cutting chamber. The AutoClean function reduces operator effort, saves time and lowers maintenance while improving overall operation and accuracy of the instrument. The cleaning gun which is mounted externally for easy access can be used for cleaning the remained residual on horizontal surfaces.



FUMEFILTER, Fume and Mist Removing Unit



Laser Alignment Unit



3-Lights Warning Beacon



Auto Clean Function

# SPECIFICATIONS

ORDER NO	15 77	15 77-AX
MODEL NO	502	502-AX
Max. Cut-off Wheel Diameter	Ø500 mm	Ø500 mm
Max. Cutting Capacity, Ø	Ø180 mm	Ø180 mm
Max. Cutting Capacity, HxD	100x400 mm	100x400 mm
Z-Axis Travel, (mm)	350 mm	350 mm
Y-Axis Travel, (mm)	380 mm	380 mm
X-Axis Travel, (mm)	-	200 mm
T-Table Dimension, (mm)	764x608 mm	(634+200)x608 mm
T-Slot dimension, (mm)	12 mm	12 mm
Cutting Motor Power (S1)	11 kW	11 kW
Variable Wheel Speed	600-2400 RPM	600-2400 RPM
Cutting Feedrate, (µm/s)	20-5000 µm/s	20-5000 µm/s
HMI Touch Screen Controller	7 inch	7 inch
Chop Cutting in Z- Axis	Auto	Auto
Table Feed Cutting in Y-Axis	Auto	Auto
Parallel Cutting in X-axis	-	Standard
Table Oscillating Cutting	Standard	Standard
Rapid Pulse Cutting	Standard	Standard
Smart Feed Control	Standard	Standard
Step Cut; Segment Cut; Diagonal Cut Combined Cut	Optional	Optional
Automatic Cleaning System	Optional	Optional
Size WxDxH (cm)	140x134x185	140x134x185
Weight	1100 kgs	1100 kgs
Recirculation Cooling Unit	135 lt	135 lt

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

## 15 77

### — SERVO CUT 502

Automatic Abrasive Cutting Machine Programmable with 7" HMI touch screen control, with Siemens PLC control unit, with automatic chop cutting and automatic table feed cutting systems, with various cutting methods, programmable with coloured LCD display of cutting parameters, accurate and motorized positioning of the specimen in X - Y and Z axis (X-axis for plane parallel cutting is optional), ergonomic joystick with adjustable speed control, integrated feed path control, power dependent adjustable feedrate, variable cutting force, rapid pulse cutting mode, bar graph overload display, with unique belt protection system, powerful cutting motor, with variable cutting speed 600-2400 rpm, with electronic brake system, cutting capacity upto 130/180 mm solid stock, with cut-off wheels upto Ø400/500mm, twin T-slotted table (Y-direction only) made of stainless steel, bottom part as rugged alloy base casting, extraordinary access for easy handling with sliding door and side openings, with extra advanced cutting methods: "Rapid Pulse Cutting, Table Oscillation Cutting, Instafeed Cutting, Automatic Chop Cutting, Automatic Table Feed Cutting, Joystick Cutting" Ready for operation. Without clamping devices, without recirculating cooling unit.

**Includes a standard set of cutting consumables composed of;**

- An assortment of 20 cut-off wheels with 500 mm dia.
- 5 lt of Metcool cooling fluid.
- 400 V, 3 phase, 50/60 Hz.

## 15 77-AX

### — SERVO CUT 502-AX

as above(15 77) and including an automatically driven X-axis table with 200 mm travel for programmable serial plane parallel cutting.

## GR 0925

— Software package for optional cutting methods;

- Diagonal Cut
- Step Cut
- Segment Cut
- Combined Cut

## GR 1225

### Power Supply for SERVO CUT 502

— Transformer kit for 200-240 VAC, 3 phase, 50/60 Hz mains voltage.

## GR 1544

## YM 8815

## GR 1559

— Recirculation cooling tank with pump system, 135 lt tank capacity

— Fine filter sheets for recirculation cooling tank (GR 1544), 10 pcs

— Coolant level sensor for recirculation cooling tank,

— Informs operator when coolant level is insufficient.

— Magnetic collector rod for recirculation cooling tank

## GR 1540

## GR 1553

— BANDCOOL Band Filter Unit for SERVO CUT 502

— Band filter conveyor for the automatic collection and disposal

of swarf, with capacity of 115 lt., with fluid level indicator,

complete system on wheels, with connection kit.

400V, 3phase, 50Hz

— Filter roll for BANDCOOL, 50 m, SRC 302/402/502

## YM 8878

### Clamping Devices for SERVO CUT 502

— Quick Acting Clamping Vise Assembly, Right, for SRC 502 (Stainless Steel)

— Quick Acting Clamping Vise Assembly, Left, for SRC 502 (Stainless Steel)

— MBU 1031 Vertical Clamping Device with clamping shoe,

clamping height upto 115mm.

— MK 10 22 Height Block, 70 mm

— Serial Clamping Device for clamping multiple specimens from 1 to 2

— Angular Precision Clamping Device in 3-Axis Direction

— Chain spanner set with anchor block

— V-Block for holding parts above table slots

— Adjustable V-Support, Small (Height Range: 57-67mm)

— Adjustable V-Support, Medium (Height Range: 65-85mm)

— Adjustable V-Support, Large (Height Range: 85-115mm)

— Adjustable V-Support, Extra Large (Height Range: 115-155mm)

## GR 1554

### Accessories for SERVO CUT 502

— FUMEFILTER Centrifugal Separator for SRC 502

— Removes coolant mist for better illumination and viewing

[To be ordered simultaneously together with the machine order]

— Spare Filter Kit for FUMEFILTER (GR 1554)

— AUTOCLEAN Automatic Cleaning System for cutting chamber

[To be ordered simultaneously together with the machine order]

— 3 lights warning beacon with audible signal

[To be ordered simultaneously together with the machine order]

— Laser alignment unit for SERVO CUT 402/502

[To be ordered simultaneously together with the machine order]

— Protection box for left side opening, 50 cm, for cutting long parts

— Manual/Auto Table drive system with electromagnetic clutch (y-axis)

[To be ordered simultaneously together with the machine order]

— Flange Set with larger diameter, Ø166 mm

— Extension Box for cutting long specimens from the left hand side

opening, 50 cm length, for SERVO CUT 502

## GR 1965

### Spare Part Kit for SERVO CUT 502

— Recommended Set of Spare Parts, SERVO CUT 502

