



CUTTING

# SERVOCUT

501

# SERVOCUT®

501

**SERVOCUT 501 is an advanced universal metallographic cutting machine used to cut a very wide range of materials.**

- Powerful, with spacious cutting chamber
- Fully automatic
- Programmable with HMI touch screen controls
- X-Y-Z three axes cutting capability
- Automatic control of cutting parameters
- Chop cutting and Table-feed cutting combined with pulse cutting
- Optional cutting methods for hard and difficult workpieces; StepCut, SegmentCut, DiagonalCut
- Multi-slice automatic serial cutting of plane parallel sections

## Design

Specimen integrity begins with high quality cutting. Perfectly cut surfaces reduce the number of subsequent preparation stages and shorten the total sample preparation time to the minimum.

SERVOCUT 501 offers the advantage of combining different cutting techniques and methods into the same machine to obtain superior cut surfaces for a broad range of heavy duty cutting applications.

SERVOCUT 501 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-bed.

SERVOCUT 501 consists of a cast aluminium base on which the motor and the working space are provided in the form of two separate housings. 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. A standard 80 mm dia. outlet for fume extraction is at the back of the hood.

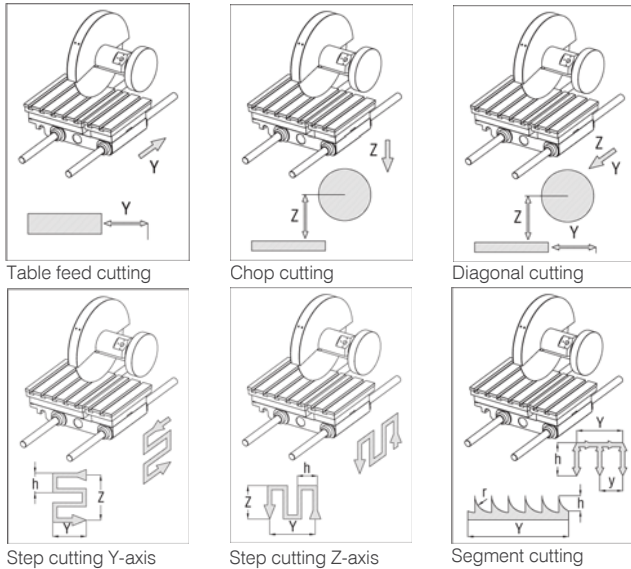
A large, T-slotted feed table located in the cutter's generous work area can accommodate a variety of different clamping devices which need to be selected. The feed table provides a long travel depth making the SERVOCUT 501 ideal for cutting long or deep samples in a single pass. Side access port makes it possible to make transverse sections on long specimens. Stainless small parts tray to catch small specimens is supplied with the cutting table as standard.

SERVOCUT 501 cutting machine has the highest safety standards. The interlocking safety device does not allow the motor to be started unless the hood is closed. The hood can not 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.



Extra large cutting chamber with optional movable X-bed

## Automatic Operation



### Cutting Parameters:

The preselection of the cutting force level as well as the setting of cutting 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 cuts and eliminating sample and machine damage. Pulse cutting mode is a standard feature in all automatic models for cutting extra hard specimens. Optional speed regulating unit is available to adjust the cut-off wheel speed between 600-2400 rpm.

### Programmable Return Positions

SERVOGUT 501 has 3 different stop modes:

Auto stop: Stops when the specimen has been cut 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 cutting programs with related specimen name or number can be saved with all cutting parameters which can be recalled at anytime. Data with Metkon cutting consumables is also listed for easy selection.

SERVOGUT 501 automatic models have advanced techniques and software with programmable HMI touch screen controls increasing the productivity, sample consistency and operator comfort.

### Cutting Methods

Chop cutting ( Z-axis ) and Table feed cutting ( Y-axis ) combined with pulse cutting in automatic models is standard.

Optional Cutting Methods:

Diagonal Cut - for increased cutting capacity.

Step Cut - for extra hard materials

Segment Cut - for difficult workpieces

are available which make SERVOGUT 501 the perfect choice for a broad range of heavy duty cutting applications.

### 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.



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



Efficient cooling to prevent overheating



Fume condenser



Recirculating cooling unit

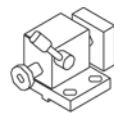


Band filter unit

## Clamping Devices

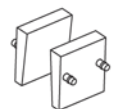
Many sample preparations applications require the sectioning of a specimen from a small or irregularly shaped sample or component part. The small size or irregular sample shape can create positioning and clamping difficulties for the operator. To overcome these difficulties, METKON offers a number of special clamping devices for use with SERVOGUT 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.

Quick Acting  
Clamping Vise  
Assembly,Right



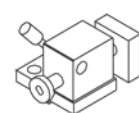
GR 0172

Prism Jaw Block  
Set for Round  
Specimens



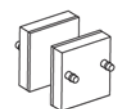
GR 0010

Quick Acting  
Clamping Vise  
Assembly,Left



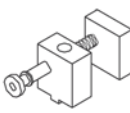
GR 0170

Rubber Coated  
Jaws for Sensitive  
Specimens



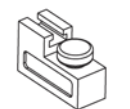
GR 0011

Compact Vise  
Assembly  
Spring Loaded



GR 0151

Height Block



15 03

Vertical  
Clamping  
Spring loaded



15 01

Longitudinal  
V - Shoe



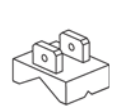
YM 1058

Adjustable  
Mechanical  
Stop



GR 0150

Traverse  
V - Shoe



YM 1059

# Specifications

## 14 77 SERVOCUT 501-AA

Automatic Abrasive Cutting Machine  
 Programmable with 5,7" HMI touch screen control, with automatic chop cutting and automatic table-feed cutting systems, with various cutting methods, programmable with 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), integrated feed path control, power dependent adjustable feed rate, variable cutting force, pulse cutting mode, bar graph overload display, compact cutting motor, 1950 rpm cutting speed, with electronic brake system, cutting capacity upto 160/180 mm solid stock, with cut-off wheels upto ø450/500mm, twin T-slotted table(Y-direction only) made of stainless steel, bottom part as rugged alloy base casting, 110 lt recirculating cooling unit with connection hoses, ready for operation.  
 Without clamping devices.  
 220V, 3 phase, 50/60 Hz

**14 77-AX** as above(14 77) and including an automatically driven X-axis table with 100mm travel for programmable serial plane parallel cutting.

**14 77-V** as above(14 77) and with variable cutting speed 600-2400 rpm.

**14 77-V-AX** as above(14 77) and with variable cutting speed 600-2400 rpm. and including an automatically driven X-axis table with 100mm travel for programmable serial plane parallel cutting.

**GR 0925** Software package for optional cutting methods; DiagonalCut, StepCut, SegmentCut

## Clamping Devices for SERVOCUT- AA 501:

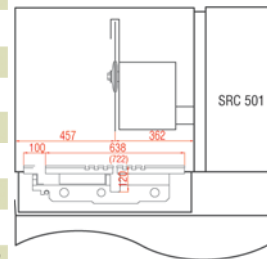
- GR 0121** Quick Acting Clamping Vise Assembly, Right, for SRC 501 (Stainless Steel)
- GR 0122** Quick Acting Clamping Vise Assembly, Left, for SRC 501 (Stainless Steel)
- GR 0031** Prism Jaw Block Set for round specimens (for Metacut 350, Servocut 401 & 501)
- GR 0032** Rubber coated jaw block set for sensitive specimens (for Metacut 350, Servocut 401 & 501)
- 15 02MBU** 1031 Vertical Clamping Device with clamping shoe, clamping height upto 115mm. (for irregular specimens)
- 15 04 MK** 10 22 Height Block, 70 mm
- YM 1058** Longitudinal V-Shoe
- YM 1059** Traverse V-Shoe
- GR 0150** Adjustable Mechanical Stop, to adjust the cutting length of the specimen up to 60 mm for repetitive cuts.
- GR 0033** Chain spanner set with anchor block

## Accessories for SERVOCUT AA501:

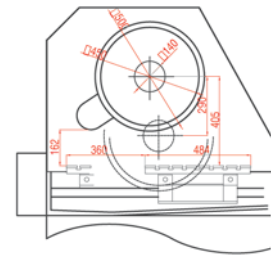
- GR 0124** Fume Condenser
- GR 0531** Band Filter Unit, Band filter conveyor for the automatic collection and disposal of swarf, with capacity of 100 lt., with fluid level indicator, complete system on wheels, suitable for underneath the floor cabinet and with connection kit to SERVOCUT 401 & 501. 220V, 3 phase, 50/60 Hz
- GR 1813** Laser alignment unit (for Servocut AA501,AA401 and A401)

# SERVOCUT 501

Order No	14 77	14 77-AX	14 77-V	14 77-V-AX
Model	501-AA	501-AA-AX	501-AA-V	501-AA-V-AX
Chop cutting Z- axis	Auto.	Auto.	Auto.	Auto.
Table feed cutting Y-axis	Auto.	Auto.	Auto.	Auto.
Parallel Cutting X-axis	-	Auto.	-	Auto.
HMI Touch Screen controller, (inch)	5,7"	5,7"	5,7"	5,7"
StepCut;SegmentCut;DiagonalCut	Optional	Optional	Optional	Optional
Pulse Cutting	Yes	Yes	Yes	Yes
Wheel diameter, (mm)	Ø500-Ø450-Ø432	Ø500-Ø450-Ø432	Ø500-Ø450-Ø432	Ø500-Ø450-Ø432
Cutting Capacity ø Ø500, (mm)	Ø180	Ø180	Ø180	Ø180
Cutting Capacity ø Ø450, (mm)	Ø155	Ø155	Ø155	Ø155
Cutting Capacity, # mm. (Ø500mm)	100x365	100x365	100x365	100x365
Y-axis travel, (mm)	360	360	360	360
X-axis travel, (mm)	-	100	-	100
Z-axis travel, (mm)	290	290	290	290
T-Slot table dimensions, (mm)	722x484	(638+100)x484	722x484	(638+100)x484
T-Slot dimension, (mm)	12	12	12	12
Cutting Power kW (S1)	11	11	11	11
Cutting Power kW (S3)	15,4	15,4	15,4	15,4
Wheel speed, (rpm)	1950	1950	-	-
Variable wheel speed, (rpm)	-	-	600-2400	600-2400
Table Feedrate, (mm/s)	100µ-5000µ	100µ-5000µ	100µ-5000µ	100µ-5000µ
Size WxDxH (cm)	140x120x167	140x120x167	140x120x167	140x120x167
Weight, (kg)	1100	1100	1100	1100
Cooling unit, (lt)	110 lt.	110 lt.	110 lt.	110 lt.



Front View - Cutting Chamber Dimensions



Side View - Cutting Chamber Dimensions

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