

CUTTING

# SERVOCUT

301

# SERVOCUT®

301



SERVOCUT 301 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 301 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 301 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 301 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 f u m e 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 301 ideal for cutting long or deep samples in a single pass. Side access port makes it possible to make tranverse sections on long specimens. Stainless small parts tray to catch small specimens is supplied with the cutting table as standard.



Large cutting chamber



Automatic or manual drive systems



Small parts tray to catch tiny parts

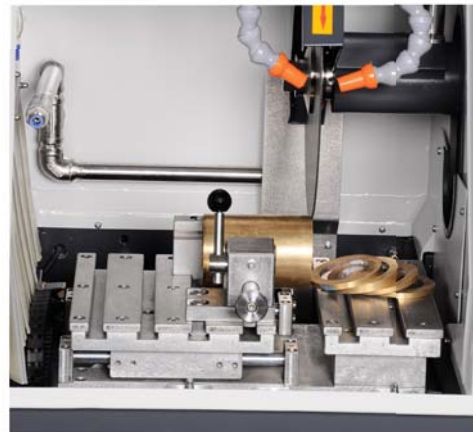
SERVOCUT 301 cutting machine has the highest safety standards. The interlocking safety device does not allow the motor to be started unless the hood is closed. The hood can not be opened before the cutting motor

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.

## Automatic Operation



SERVO CUT 301-AA Automatic chop and table feed cutter



Multi-slice automatic serial cutting of plane parallel sections

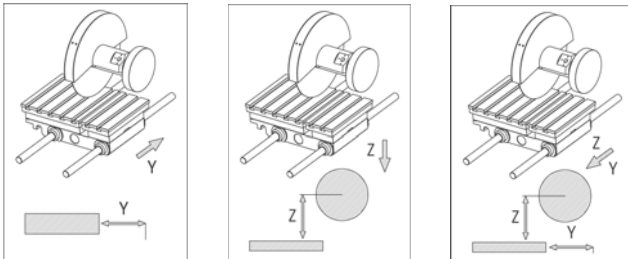
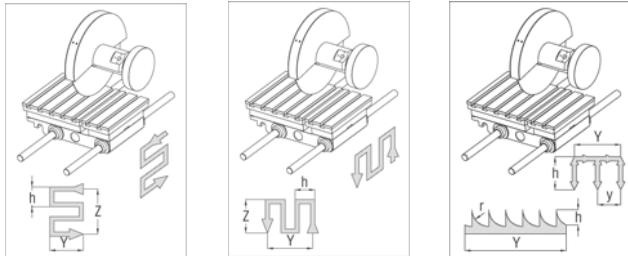


Table feed cutting

Chop cutting

Diagonal cutting



Step cutting Y-axis

Step cutting Z-axis

Segment cutting

### 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 600-4000 rpm.

### Programmable Return Positions

SERVO CUT 301 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.

SERVO CUT 301 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.

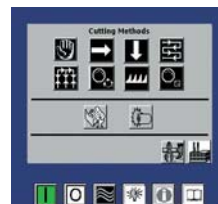
Step Cut - for extra hard materials

Segment Cut - for difficult workpieces

are available which make SERVO CUT 301 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.

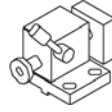


HMI touch screen controls with various cutting methods and database with cutting programs and maintenance monitoring

## Clamping Devices

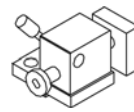
Many sample preparations applications require the sectioning of a specimen from a small or irregularly shaped sample or component part. The small size or irregular sample shape can create positioning and clamping difficulties for the operator. To overcome these difficulties, Servocut offers a number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



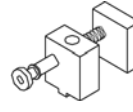
GR 0172

Quick Acting Clamping Vise Assembly, Left



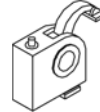
GR 0170

Compact Vise Assembly Spring Loaded



GR 0151

Vertical Clamping Spring loaded



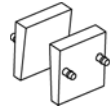
15 01

Adjustable Mechanical Stop



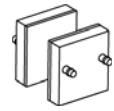
GR 0150

Prism Jaw Block Set for Round Specimens



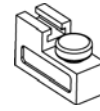
GR 0010

Rubber Coated Jaws for Sensitive Specimens



GR 0011

Height Block



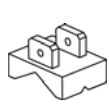
15 03

Longitudinal V-Shoe



YM 1058

Traverse V-Shoe



YM 1059

## 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.

For cutting materials which generate a lot of swarf or for higher volume usage, we recommend "Band filter Unit" which is optionally available.

It is environmentally friendly filtering the coolant and depositing the swarf in a separate container for easy disposal.



SERVO CUT 301-MM Manual chop and table feed cutter



Band filter unit



Efficient cooling to prevent overheating



Recirculating cooling unit



SERVO CUT 301 with floor cabinet



## Specifications

- 14 57 SERVOCUT 301-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, 2800 rpm cutting speed, with electronic brake system, cutting capacity upto 90/110 mm solid stock, with cut-off wheels upto ø250/300mm, twin T-slotted table(Y-direction only) made of stainless steel, bottom part as rugged alloy base casting, 80 lt recirculating cooling unit with connection hoses, ready for operation. Without clamping devices.  
220V, 3 phase, 50/60 Hz.
- 14 57-AX** as above(14 57) and including an automatically driven X-axis table with 70mm travel for programmable serial plane parallel cutting.
- 14 57-V** as above(14 57) and with variable cutting speed 600-4000 rpm.
- 14 57-V-AX** as above(14 57) and with variable cutting speed 600-4000 rpm. and including an automatically driven X-axis table with 70mm travel for programmable serial plane parallel cutting.
- GR 0925** Software package for optional cutting methods; DiagonalCut, StepCut, SegmentCut
- 14 56 SERVOCUT 301-MA**  
Automatic Abrasive Cutting Machine  
Programmable with 5,7" HMI touch screen control, with handwheel driven chop cutting and automatic driven table-feed cutting systems, with various cutting methods, programmable with LCD display of cutting parameters, accurate and motorized positioning of the specimen in X and Y axis (X-axis for plane parallel cutting is optional), manual positioning of the cutting wheel in Z-axis, integrated feed path control, power dependent adjustable feed rate, variable cutting force, pulse cutting mode, bar graph overload display, compact cutting motor, 2800 rpm cutting speed, with electronic brake system, cutting capacity upto 90/110 mm solid stock, with cut-off wheels upto ø250/300mm, twin T-slotted table(Y-direction only) made of stainless steel, bottom part as rugged alloy base casting, 80 lt recirculating cooling unit with connection hoses, ready for operation. Without clamping devices.  
220V, 3 phase, 50/60 Hz.
- 14 56-MX** as above(14 56) and including a manually driven X-axis table with 70mm travel for plane parallel cutting.
- 14 56-AX** as above(14 56) and including an automatically driven X-axis table with 70mm travel for programmable serial plane parallel cutting.
- 14 56-V** as above(14 56) and with variable cutting speed 600-4000 rpm.
- 14 56-V-MX** as above(14 56) and with variable cutting speed 600-4000 rpm. and including a manually driven X-axis table with 70mm travel for plane parallel cutting.
- 14 56-V-AX** as above(14 56) and with variable cutting speed 600-4000 rpm. and including an automatically driven X-axis table with 70mm travel for programmable serial plane parallel cutting.
- 14 55 SERVOCUT 301-MM**  
Abrasive Cutting Machine,  
with handwheel driven chop cutting and table-feed cutting systems, manual positioning of the specimen in X and Y axis (X-axis for plane parallel cutting is optional), manual positioning of the cutting wheel in Z-axis, compact cutting motor, 2800 rpm cutting speed, with electronic brake system, cutting capacity upto 90/110 mm solid stock, with cut-off wheels upto ø250/300mm, twin T-slotted clamping table made of stainless steel, bottom part as rugged alloy base casting, 80 lt recirculating cooling unit with connection hoses, ready for operation. Without clamping devices.  
220V, 3 phase, 50/60 Hz.
- 14 55-MX** as above(14 55) and including a manually driven X-axis table with 70mm travel for plane parallel cutting.
- Clamping Devices for SERVOCUT 301 :**
- GR 0170** Quick Acting Clamping Vise Assembly, Left, for SRC.301 ( Stainless Steel )
- GR 0172** Quick Acting Clamping Vise Assembly, Right, for SRC.301 ( Stainless Steel )
- GR 0010** Prism Jaw Block Set for round specimens
- GR 0011** Rubber coated jaw block set for sensitive specimens
- GR 0151** Compact Vise Assembly, Spring Loaded, for SRC.301 ( Stainless Steel )
- 15 01** MBU 1011 Vertical Clamping Device with clamping shoe, clamping height upto 90 mm.  
(for irregular specimens)
- 15 03** MK 10 21 Height Block, 60 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 0453** Fastener vise for longitudinal sectioning of screws, fasteners tubes, etc. from 12 to 45 mm. in length
- GR 1230** Angular cutting Fixture, for cutting upto 45 degrees angle, complete with its vise and ready for operation.
- Accessories for SERVOCUT 301**
- GR 0760** Cabinet for floor model - SRC.301

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