



ABRASIVE CUTTING

# SERVOCUT 602



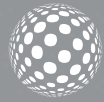


# MULTI-TARGET

AUTOMATIC ABRASIVE CUTTING MACHINE



# SERVOCUT 602



SERVOCUT 602 is an advanced high capacity cutting machine especially designed for cutting extra-large and multiple specimens.

- Modern and sturdy design
- Extra Large Cutting Capacity
- Extraordinary access for easy handling
- Unique belt protection system
- Programmable with colored HMI touch screen controls
- X-Y-Z three axes cutting capability
- Ergonomic Joystick control offers excellent application versatility
- Cut-Off Wheel Diameter Measurement
- Inbuilt Lubrication System

## DESIGN

SERVOCUT 602, an advanced high capacity cutting machine, offers advantage of combining different cutting techniques and methods to obtain superior cut surfaces for a broad range of heavy-duty cutting applications.

SERVOCUT 602 has a robust and reliable design with low noise and emission levels. The modern and sturdy design with powerful 15 kW cutting motor ensures fast and efficient cutting through the hardest and complex materials with precise servo motor driven axis controls.

**SERVOCUT 602 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 cutting wheel movement.

A large, stainless steel 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 servo driven table provides a long travel depth making the SERVOCUT 602 ideal for cutting long or deep samples up to 100Hx500D in a single pass.

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.

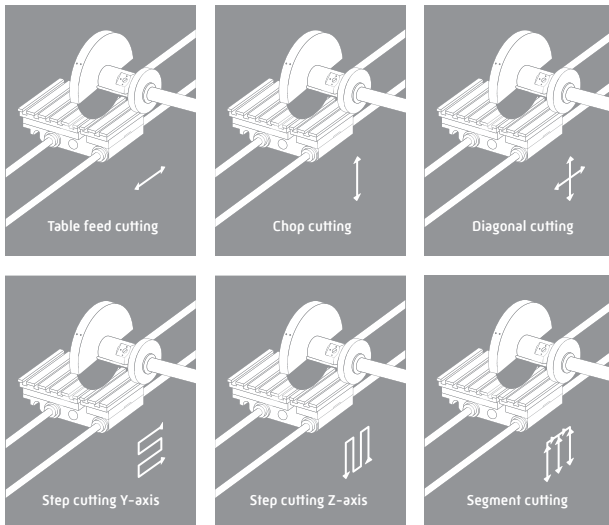


Extra large cutting chamber with easy access and handling.

## Safety

SERVOCUT 602 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. A 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



### Optional Cutting Methods

Optional cutting methods make SERVOCUT 602 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.

### 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 602 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.



Ergonomic Joystick Control



Two Hand Control For Safety Operation



Easy Exchange of Cut Off Wheel



FUMEFILTER

SERVOCUT 602 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 control 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 movable cut off wheel on x-axis allows programmable plane parallel sectioning. Slices of equal thickness with number of slices as well as programming slices of different thickness is possible. SERVOCUT 602 has the largest cutting capacity on x-axis (cross sectioning)



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



### 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.





## NEW CUTTING FEATURES

### Multi Target Cutting

Several clamped specimens can be cut in one step. Same or different cutting parameters can be set for each specimen. Cut off wheel moves to the predefined start position automatically for rapid and fast positioning

### Table Oscillation

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

### Instafeed

Optimizes the feedrate according to the specimen hardness and contact of cutting area.

### Rapid Pulse

Reduces contact time and ensures maximum cooling of specimen.

Multi Target Cutting



Fast cutting with efficient cooling

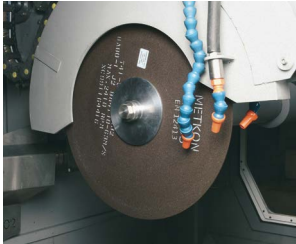
## FEATURES

### Automatic Wheel Measurement

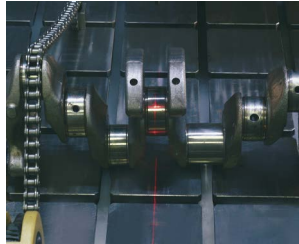
The cut off wheel diameter is measured prior to each cut for exact positioning. Also the peripheral cutting speed is automatically arranged by automatic wheel measurement system.

### 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.



Automatic Wheel Measurement



Laser Alignment Unit

### FIXED PERIPHERAL WHEEL SPEED

Peripheral speed changes as soon as cut-off wheel wears if motor speed is fixed. This may result inconsistent sample surface quality. SERVOCUT 602 has standard feature to keep peripheral speed consistent no matter what the wheel diameter is. Motor speed is automatically adjusted according to wheel diameter thanks to automatic cut-off wheel diameter measurement technology. The peripheral speed can be adjusted from 20 m/s to 60 m/s.

### Central Lubrication System

The Central Lubrication System is optionally available to minimize maintenance and shutdowns. The system optimizes the amount of lubrication to the machine components and supplies lubrication only when it is needed, thus reducing the amount of lube required for the machine, and limiting the chance of excess lube contaminating the coolant.



Central Lubrication System



Auto Clean Function

## CLAMPING DEVICES

|                                                                                                                                            |                                                                                                                                                                                       |                                                                                                                                                                          |                                                                                                                                                              |                                                                                                                            |                                                                                                                                                          |                                                                                                                                                                |                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mechanical Clamping Device</b><br><br><b>GR 0610</b> | <b>Serial Clamping Device</b><br>for clamping multiple specimens from 1 to 4<br><br><b>GR 0611</b> | <b>Angular Precision Clamping Device</b><br>in 3-Axis Direction<br><br><b>GR 0612</b> | <b>Vertical Clamping Device</b><br>with clamping shoe<br><br><b>15 02</b> | <b>Height Block</b><br><br><b>15 04</b> | <b>Chain spanner set</b><br>with anchor block<br><br><b>GR 0033</b> | <b>V-Block for holding parts</b><br>above table slots<br><br><b>15 00</b> | <b>Adjustable V-Support</b><br><br><b>GR 0615<br/>GR 0616<br/>GR 0617<br/>GR 0618</b> |
|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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 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

### Laser Alignment Unit

For rapid and accurate positioning of the cut of 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

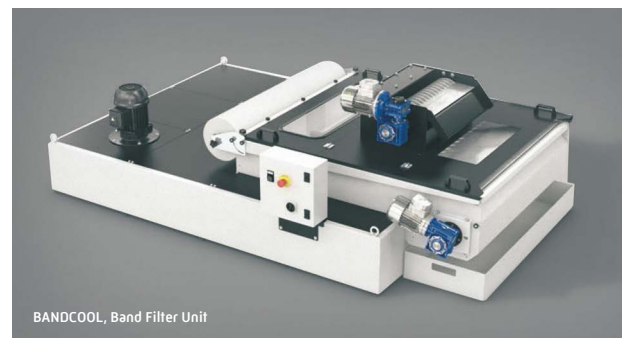
A closed loop recirculating cooling unit is a standard part of the machine. The cutting surface is cooled by spray nozzles whose water jets hit both the cutting wheel and the specimen. This provides an efficient cooling of the sample and prevents the overheating of the surface structure.

### FUMEFILTER

It is an advanced fume and mist removing unit that optionally available for SERVOCUT 602. Removes coolant mist for better illumination and viewing with centrifugal separator.

### Coolant Level Sensor

Informs operator when coolant level is insufficient.



BANDCOOL, Band Filter Unit

### Magnetic Collector Rods

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

### 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 150 lt. for long continuous usage. It is environmentally friendly filtering the coolant and depositing the swarf in a separate container for easy disposal.

# SPECIFICATIONS

| ORDER NO                                            | 14 87          | 14 87-AX       |
|-----------------------------------------------------|----------------|----------------|
|                                                     |                |                |
| MODEL NO                                            | 602            | 602 – AX       |
| Max. Cut-off Wheel Diameter                         | Ø600 mm        | Ø600 mm        |
| Max. Cutting Capacity, Ø                            | Ø225 mm        | Ø225 mm        |
| Max. Cutting Capacity, HxD                          | 100x500 mm     | 100x500 mm     |
| Z-Axis Travel, [mm]                                 | 340 mm         | 340 mm         |
| Y-Axis Travel, [mm]                                 | 560 mm         | 560 mm         |
| X-AxisTravel, [mm]                                  | -              | 540 mm         |
| T-Table Dimension, [mm]                             | 772x710 mm     | 772x710 mm     |
| T-Slot dimension, [mm]                              | 12 mm          | 12 mm          |
| Cutting Motor Power [S1]                            | 15 kW          | 15 kW          |
| Variable Wheel Speed                                | 600-2400 RPM   | 600-2400 RPM   |
| Wheel Diameter Measurement                          | Standard       | Standard       |
| Constant Peripheral Wheel Speed                     | Standard       | Standard       |
| Cutting Feedrate, [µm/s]                            | 20-5000 µm/s   | 20-5000 µm/s   |
| HMI Touch Screen Controller                         | 10 inch        | 10 inch        |
| Chop Cutting in Z- Axis                             | Auto           | Auto           |
| Table Feed Cutting in Y-Axis                        | Auto           | Auto           |
| Parallel Cutting in X-axis                          | -              | Standard       |
| Multi Target Cutting                                | -              | Standard       |
| Table Oscillating Cutting                           | Standard       | Standard       |
| Rapid Pulse Cutting                                 | Standard       | Standard       |
| Smart Feed Control                                  | Standard       | Standard       |
| Step Cut; Segment Cut; Diagonal Cut<br>Combined Cut | Optional       | Optional       |
| Automatic Cleaning System                           | Optional       | Optional       |
| Central Lubricating System                          | Optional       | Optional       |
| Size WxDxH                                          | 184x173x236 cm | 184x173x236 cm |
| Weight                                              | 1600 kgs       | 1600 kgs       |
| Recirculation Cooling Uni                           | 200 lt         | 200 lt         |

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

## 14 87

- SERVOCUT 602**  
Multi-Target Abrasive Cutting Machine For cutting large and multiple specimens, ability to work with cut-off wheels up to Ø600 mm, cutting capacity up to Ø225 mm solid stock 100Hx500D mm for rectangular specimens, powerful 15 kW cutting motor with unique belt protection system, with electronic brake system, with variable cut-off wheel speed 600-2400 RPM, ability to set fixed peripheral speed of cut-off wheel from 20 to 60 m/s. overload display and protection system, accurate Servo motor driven table and wheel movement for precise and fast positioning, joystick with adjustable speed control, stainless steel table (772x710mm) with 560 mm Y-axis movement range, Programmable with 10" HMI touch screen control, Siemens PLC control unit, automatic cut-off wheel diameter measurement and automatic starting position adjustment according to cut-off wheel wear, Positioning System allowing clamping several components simultaneously, with automatic chop cutting and automatic table feed cutting systems, with automatic cutting feedrate control, with extra advanced cutting methods: "Rapid Pulse Cutting, Table Oscillation Cutting, Instafeed Cutting Automatic Chop Cutting, Automatic Table Feed Cutting, Joystick Cutting" Powerful LED illumination, robust construction, Ready for operation. Without clamping devices, without recirculating cooling tank.

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

- An assortment of 10 cut-off wheels with 600 mm dia.
- 5 lt of METCOOL cooling fluid.
- 400 V, 3 phase, 50/60 Hz.

## 14 87 AX

- SERVOCUT 602-AX**  
as above [14 87] and including an automatic X-axis movement kit: Servo motor driven cut-off wheel positioning system on X-axis, precise and fast positioning, 540 mm positioning range, including advanced cutting methods: "Serial Parallel Cutting" for slicing multiple pieces from a specimen automatically in one cycle. "Multi Target Cutting" for cutting up to 10 different clamped specimens on the table to be cut automatically in one cycle.

## GR 0928

- Software package for optional cutting methods;**
  - Diagonal Cut
  - Step Cut
  - Segment Cut
  - Combined Cut

## GR 1226

- Power Supply for SERVOCUT 602**  
Transformer kit for 200-240 VAC, 3 phase, 50/60 Hz mains voltage.

## GR 1530 YM 8816 GR 1559

- Cooling Systems for SERVOCUT 602**
  - Recirculation cooling tank with pump system, 200 lt tank capacity
  - Fine filter sheets for recirculation cooling tank [GR 1530], 10 pcs
  - Coolant level sensor for recirculation cooling tank, Informs operator when coolant level is insufficient.
  - Magnetic collector rod for recirculation cooling tank
  - BANDCOOL Band Filter Unit for SERVOCUT 602
  - Band filter conveyor for the automatic collection and disposal of swarfs, with capacity of 150 lt., with fluid level indicator, complete system on wheels, with connection kit. 400V, 3phase,50Hz
  - Filter roll for BANDCOOL, 50 m, SRC 602

## YM 8877

## GR 0610 GR 0611 GR 0612 15 06

## 15 07

## GR 0037 15 00 GR 0615 GR 0616 GR 0617 GR 0618

## GR 0134

## GR 0135

## GR 0136

## GR 0137

## GR 0140

- Clamping Devices for SERVOCUT 602**
  - Mechanical Clamping Device
  - Serial Clamping Device for clamping multiple specimens from 1 to 4
  - Angular Precision Clamping Device in 3-Axis Direction
  - MBU 1031 Vertical Clamping Device with clamping shoe, clamping height upto 115mm.
  - MK 10 22 Height Block, 70 mm
  - 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]
- Accessories for SERVOCUT 602**
  - FUMEFILTER Centrifugal Separator  
Removes coolant mist for better illumination and viewing [To be ordered simultaneously together with the machine order]
  - Laser Allignment Unit  
[To be ordered simultaneously together with the machine order]
  - Central Lubricating System with programmable maintenance cycle [To be ordered simultaneously together with the machine order]
  - 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]

