



# ABRASIVE CUTTING SERVOCUT 602

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



# MULTI-TARGET

## AUTOMATIC ABRASIVE CUTTING MACHINE

## 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

Parallel serial sectioning in the x-axis with cutting wheel movement.

Two Hand Control For Safety Operation



Automatic Wheel Measurement



## 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



Extra large cutting chamber with easy access and handling.

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 or 200Hx550D with optional Combined Cut feature.

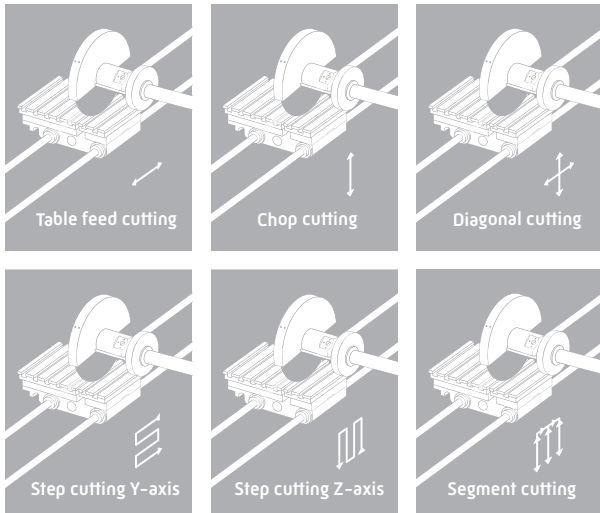
The front sliding door and side cover can be completely opened for easy access and handling to all sides. Side access ports make it possible to make transverse sections on long specimens.

## 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.



# 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.

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

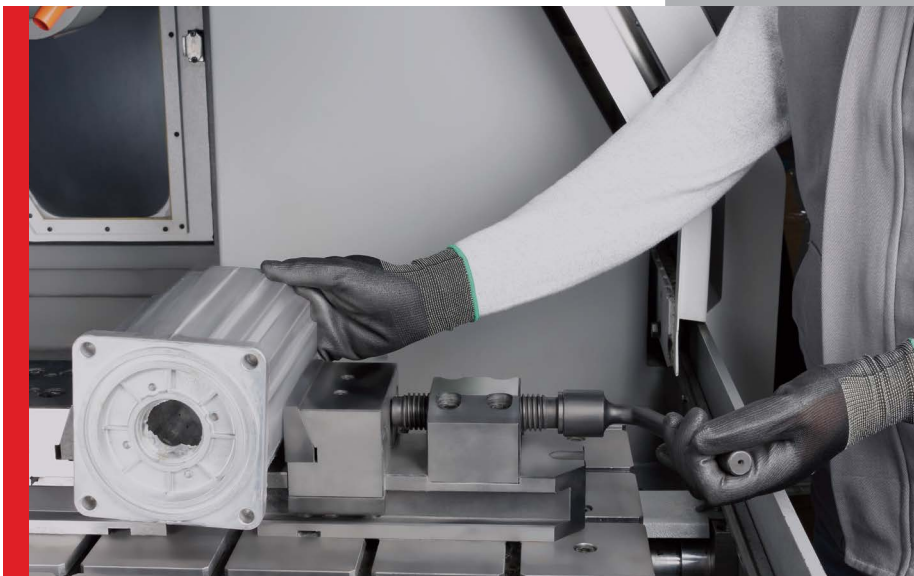
SERVOCUT 602 Automatic cutting machine has advanced techniques and software with programmable HMI touch screen controls increasing the productivity, sample consistency and minimize operator intervention. Control of X/Y/Z Axis can also be performed with the ergonomic proportional Joystick control offers smooth and precise positioning.

## Cutting Methods

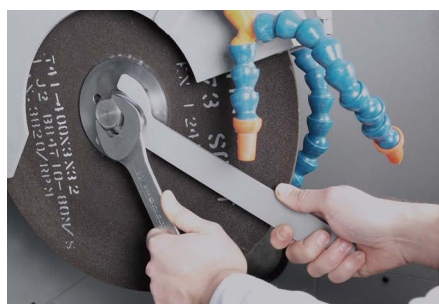
Chop cutting [Z-axis] and Table feed cutting [Y-axis] combined with pulse cutting is standard. New cutting methods ensures easy cutting of large and complex specimens.

## 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]



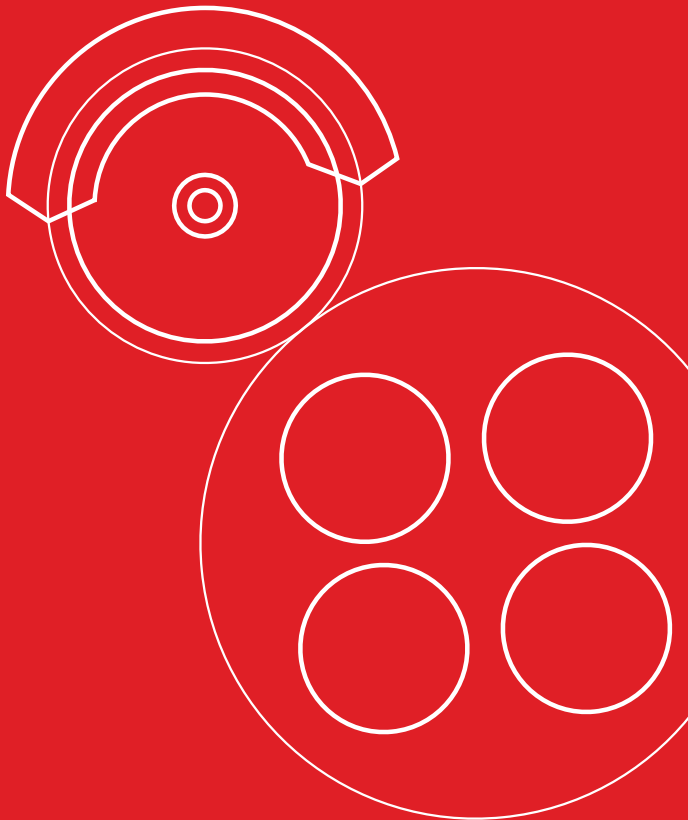
Ergonomic Joystick Control



Easy Exchange of Cut Off Wheel



Fumefilter



### 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:

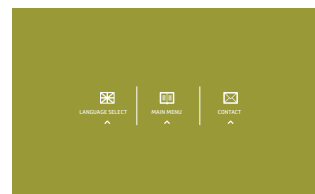
Stops when it has returned to its starting point.

#### Back to reference point:

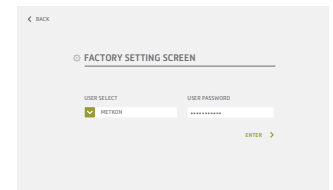
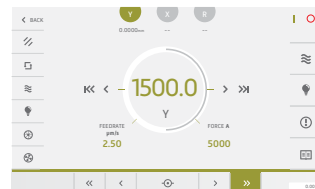
Stops when the ultimate reset point in all axes has been reached.



Auto Clean Function



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



## DATABASE

A library of 70 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

## **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.

## **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. SERVO CUT 602 has standard feature to keep peripheral speed consistent no matter what the wheel diameter is.

## **Central Lubrication System**

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



Laser Alignment Unit



## **SERVOCUT 602-AX-R**

### **4-AXIS MULTI-TARGET CUTTING MACHINE**

SERVOCUT 602-AX-R is designed for cutting complex shaped specimens in any angle without re-clamping.

- Equipped with 360° rotary table with servo motor drive
- Ability to cut specimens up to 20 different cutting lines in different angles
- Program memory for cutting lines and parameters for Multi-Target Cutting.

## **DESIGN & BENEFITS**

SERVOCUT 602-AX-R combines the most advanced cutting techniques in the same machine. Equipped with the large automated rotary table that eliminates re-clamping, saves time and provides maximum automation. Servo motor driven rotary table allows very precise angle positioning. Save setup time by storing up to 20 cutting lines with different angles which can be recalled at any time for quick and easy loading. Different parameters and cutting techniques can be set for each cutting line, ensuring maximum accuracy with better cutting results.

## **ROTARY TABLE**

### **DO EVEN MORE!**

Very large rotary table with a diameter of Ø710 mm. allows to fix, position and cut very large samples easily and efficiently. 4-axis cutting is the fastest way to reduce setups, boost throughput, and increase accuracy on complex parts.

## **CLAMP-LESS OPERATION**









### **REDUCE SETUPS AND INCREASE ACCURACY**

SERVOCUT 602-AX-R enables 20 simultaneous cuts without having to unclamp, rotate and re-clamp the specimen for the next cuts. Metkon 4-Axis rotary table makes cutting easier than ever, allowing you to totally eliminate multiple re-clamping and cutting is handled easily in different angles for the area of interest.





# CLAMPING DEVICES

|  |  |   |  |
|--|--|---|--|
| <b>Mechanical Clamping Device</b><br><br><b>GR 0610</b> | <b>Serial Clamping Device for clamping multiple specimens from 1 to 4</b><br><br><b>GR 0611</b> | <b>Angular Precision Clamping Device in 3-Axis Direction</b><br><br><b>GR 0613</b> | <b>Vertical Clamping Device with clamping shoe</b><br><br><b>15 06</b>                |
| <b>Height Block</b><br><br><b>15 07</b>                 | <b>Chain spanner set with anchor block</b><br><br><b>GR 0033</b>                                | <b>V-Block for holding parts above table slots</b><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.



Fast cutting with efficient cooling

## 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

The cutting surface is cooled by spray nozzles whose water jets hit both the cutting wheel and the specimen.

### Fumefilter

It is an advanced fume and mist removing unit that optionally available for SERVOCUT 602.

### Coolant Level Sensor

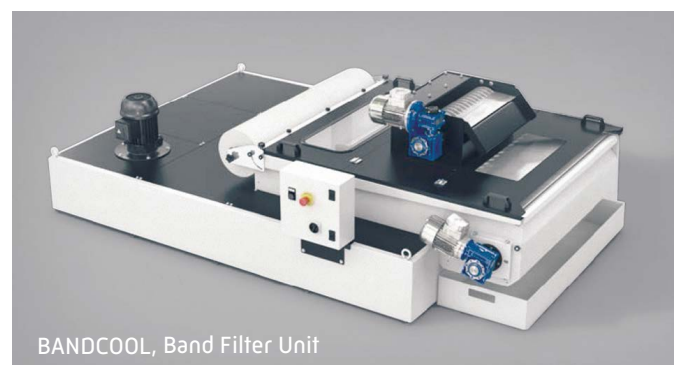
Informs operator when coolant level is insufficient.

### Magnetic Collector Rods

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

### Bandcool

It is optionally available for cutting materials which generate a lot of swarf or for higher volume usage.



BANDCOOL, Band Filter Unit



# SPECIFICATIONS

## 14 87-AX - SERVOCUT 602-AX-R

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 (cutting capacity can be increased up to 200Hx550D mm with optional Combined Cut feature), 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

"Multi-Target Cutting, Serial Parallel Cutting, 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 recirculation 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.

## 1487-AX-R - SERVOCUT 602-AX-R

### 4-Axis Multi-Target Automatic Cutting Machine

as above (14 87) and including 360° automated rotary table with servo motor drive. Possibility to cut complex shaped specimens in any angle.

### 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.

### Cooling Systems for SERVOCUT 602

**GR 1530** - Recirculation cooling tank with pump system, 200 lt tank capacity

**YM 8816** - Fine filter sheets for recirculation cooling tank (GR 1530), 10 pcs

**GR 1559** - Coolant level sensor for recirculation cooling tank, Informs operator when coolant level is insufficient.

**GR 1540** - Magnetic collector rod for recirculation cooling tank

**GR 0591** - 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

**YM 8877** - Filter roll for BANDCOOL, 50 m, SRC 602

### Clamping Devices for SERVOCUT 602

**GR 0610** - Mechanical Clamping Device

**GR 0611** - Serial Clamping Device for clamping multiple specimens from 1 to 4

**GR 0613** - Angular Precision Clamping Device in 3-Axis Direction

**15 06** - MBU 1031 Vertical Clamping Device with clamping shoe, clamping height upto 115 mm.

**15 07** - MK 10 22 Height Block, 70 mm

**GR 0037** - Chain spanner set with anchor block

**15 00** - V-Block for holding parts above table slots

**GR 0615** - Adjustable V-Support, Small  
(Height Range: 57-67 mm)

**GR 0616** - Adjustable V-Support, Medium  
(Height Range: 65-85 mm)

**GR 0617** - Adjustable V-Support, Large  
(Height Range: 85-115 mm)

**GR 0618** - Adjustable V-Support, Extra Large  
(Height Range: 115-155 mm)

### Accessories for SERVOCUT 602

**GR 0134** - FUMEFILTER Centrifugal Separator for SRC 602

Removes coolant mist for better illumination and viewing  
(To be ordered simultaneously together with the machine order)

**YM 8836** - Spare Filter Kit for FUMEFILTER (GR 0134)

Laser Alignment Unit Laser Alignment Unit for SERVOCUT 602  
(To be ordered simultaneously together with the machine order)

**GR 0135** - Laser Alignment Unit Laser Alignment Unit for SERVOCUT 602 (To be ordered simultaneously together with the machine order)

**GR 0136** - Central Lubricating System with programmable maintenance cycle (To be ordered simultaneously together with the machine order)

**GR 0137** - AUTOCLEAN Automatic Cleaning System for cutting chamber (To be ordered simultaneously together with the machine order)

**GR 0140** - 3-lights warning beacon with audible signal  
(To be ordered simultaneously together with the machine order)

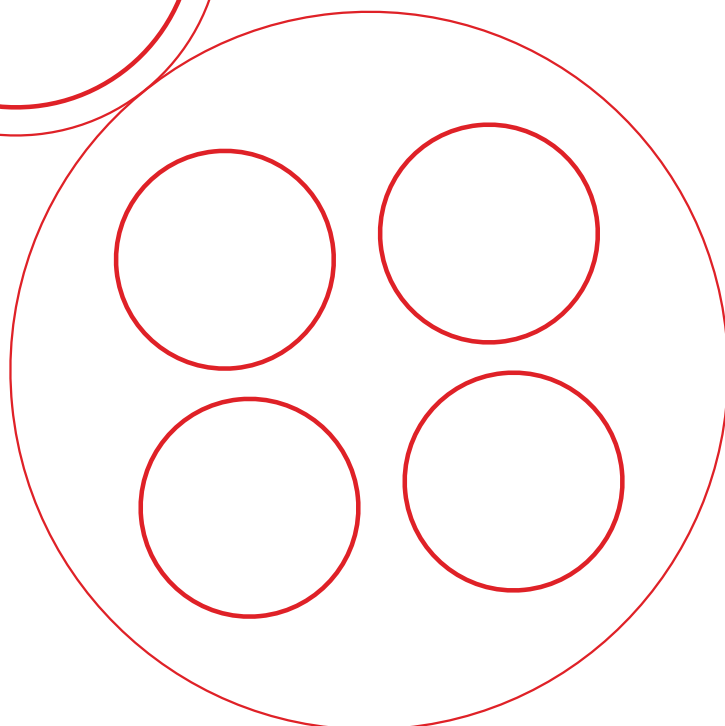
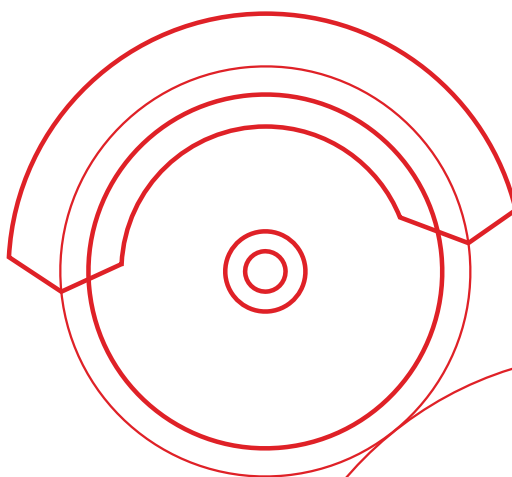
### Spare Part Kit for SERVOCUT 602

**GR 1966** - Recommended Set of Spare Parts, SERVOCUT 602

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

# SPECIFICATIONS

| ORDER NO   | 14 87-AX                    | 14 87-AX-R                  |
|--|-----------------------------|-----------------------------|
| MODEL NO   | SERVOCUT 602-AX             | SERVOCUT 602-AX-R           |
| Max. Cut-off Wheel Diameter  | Ø600 mm                     | Ø600 mm                     |
| Max. Cutting Capacity for Round Rections, Ø                                | Ø225 mm                     | Ø225 mm                     |
| Max. Cutting Capacity for Rectangular Sections, HxD                        | 100x500 mm                  | 100x500 mm                  |
| Max. Cutting Capacity for Rectangular Sections, HxD<br>[With Combined Cut] | 200x550 mm                  | 200x550 mm                  |
| Z-Axis Travel, [mm]  | 270 mm                      | 270 mm                      |
| Y-Axis Travel, [mm]  | 560 mm                      | 560 mm                      |
| X-AxisTravel, [mm]   | 530 mm [+/-10 mm]           | 530 mm [+/-10 mm]           |
| T-Table Dimension, [mm]  | 772x710 mm                  | Ø710 mm Rotary Table        |
| Rotary Table Positioning Angle   | Not Available               | 360° with 0.1° Accuracy     |
| T-Slot dimension, [mm]   | 18 mm                       | 18 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  | 9.7 inch                    | 9.7 inch                    |
| Chop Cutting in Z- Axis  | Auto                        | Auto                        |
| Table Feed Cutting in Y-Axis   | Auto                        | Auto                        |
| Angle Cutting  | Not Available               | Standard                    |
| Parallel Cutting in X-axis   | Standard                    | Standard                    |
| Multi Target Cutting   | Standard                    | Standard                    |
| Table Oscillating Cutting  | Standard                    | Standard                    |
| Rapid Pulse Cutting  | Standard                    | Standard                    |
| Smart Feed Control   | Standard                    | Standard                    |
| Step Cut; Segment Cut; Diagonal Cut  | Optional                    | Optional                    |
| Combined Cut   | Optional                    | Optional                    |
| Automatic Cleaning System  | Optional                    | Optional                    |
| Central Lubricating System   | Optional                    | Optional                    |
| Size WxDxH   | 184x173x200 cm              | 184x173x200 cm              |
| Weight   | 1600 kgs                    | 1600 kgs                    |
| Recirculation Cooling Unit   | 200 lt                      | 200 lt                      |
| Mains  | 3-phase, 400V, 50/60 Hz. AC | 3-phase, 400V, 50/60 Hz. AC |







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