

Rugged Automatic Cutter with  
Orbital Cutting Action

Orbital Action Produces Perfect  
Cuts Quickly and Consistently

Models and Options Allow Cutter  
to be Customized to Application

SMARTCUT System Prevents  
Sample and Machine Damage

Up to 6" (150mm) Diameter  
Cutting Capacity

Uses 14"-16" (350-400mm)  
Abrasive Blades

AUTOMATIC  
ORBITAL CUTTER

™

**DELTA**

®  
BUEHLER



# *Rugged Orbital Cutter with Models & Options Flexibility*



## Rugged Automatic Cutter with Orbital Cutting Action

- Automatic abrasive cutter that increases productivity and sample consistency with Orbital cutting action, SMARTCUT, and programmability
- Orbital cutting action minimizes the area of contact to produce perfect cuts quickly and consistently even with large and difficult-to-cut materials
- SMARTCUT system automatically adjusts the feed rate to eliminate sample and machine damage; resulting in excellent cuts for multiple materials and operators
- Easy-to-use programmable system allows the same cutting method to be quickly saved and recalled
- Large cutting capacity, up to 6" (150mm) diameter

- Durable, industrial push button controls for the most commonly used cutting operations
- If a push button is damaged it can be locally sourced and quickly replaced to prevent work stoppage
- Liquid crystal display (LCD) with touch pad controls for programmable functions
- Heavy-duty aluminum cast base, steel floor cabinet, hood, and large viewing window

## Models & Options Flexibility

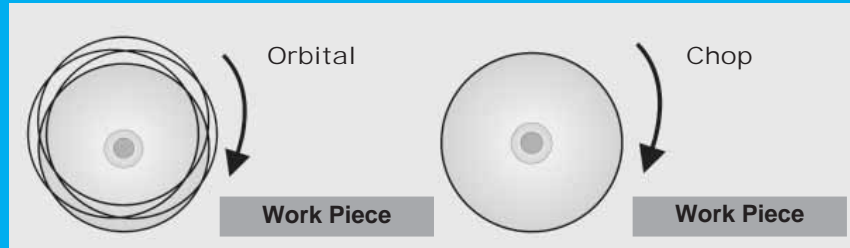
- A series of Models and Options allow you to customize your cutter to your specific application
- Select: motor size, voltage, brake, fume extractor, serial cutting table, recirculating system, filter conveyor,

T-slot beds, and vises

- Field upgradeable options allow the DELTA's capabilities to expand with your future needs
- The optional Filter Conveyor Swarf Removal System is environmentally friendly and is ideal for higher volume usage because it increases productivity by keeping the coolant clean longer and reducing maintenance
- The DELTA's 14"-16" (350-400mm) Orbital Cut-off Wheels are specially formulated for burn free and deformation free cuts and to have longer life than most standard abrasive wheels

# The Science Behind Orbital Cutting Action

Orbital action, as compared to a traditional chop action, reduces the area of contact between the blade and the sample. Minimum area of contact cutting (MACC) gives a constant, high unit force resulting in the most efficient cutting. This enables fast, deformation free cutting even with difficult-to-cut materials and large samples. The orbital action also allows coolant flow into the interior of the cut, increasing cooling and preventing sample burn.



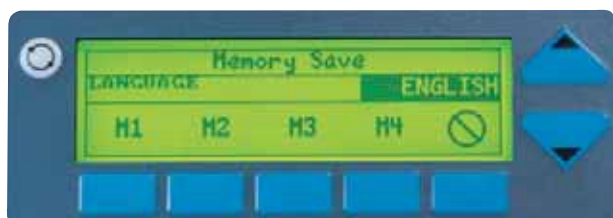
The DELTA has industrial push button controls for the most commonly used operations: Emergency Stop, Start, Stop, Pause, and Rapid Advance. The Liquid Crystal Display (LCD) with touch pad controls is used for setting the cutting parameters.



Designed for easy operation, the default screen sets the most commonly used functions: Feed Rate, Blade Diameter, Cutting Length, Motor ON/OFF, Coolant ON/OFF and Linear Feed ON/OFF. The operator can change the feed rate at any time during the cut.



The second LCD screen controls less frequently used functions including the Units of Measure, Language, Soft Start/Stop, and Saves/Recalls cutting methods. Soft Start/Stop automatically reduces the feed rate at the beginning and end of cut for delicate or irregularly shaped samples.



The operator can save and recall up to four cutting methods. The ability to change the cutting parameters from all three programming screens, plus the user-friendly page icon maximizes convenience.



The DELTA features a spacious cutting chamber to accommodate large and irregular shaped parts. Four 10-2326 T-Slot Beds fit into the DELTA and provide dual direction sample positioning. Since adequate coolant is necessary for good cutting the DELTA has a full 6 gallons (22 liters) per minute flow rate. Four jets optimize the presentation of the coolant to the wheel and sample. No repositioning is necessary for long parts or with wheel wear. The cleaning system features a clean out hose and interior waterfall for easy end-of-day cleanup.

## Applications

### Steels

- Soft to Hard Steels
- Stainless Steels
- Tool Steels

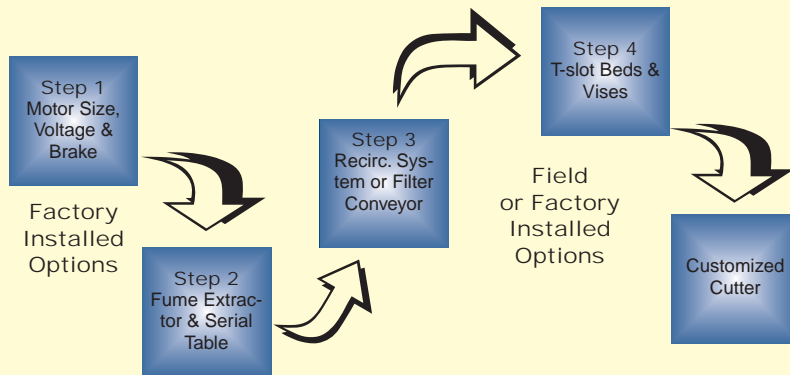
### Nonferrous Materials

- Aluminum
- Copper
- Magnesium
- Nickel Base Superalloys
- Titanium

### Other Applications

- Composites
- Petrography
- Difficult-to-Cut Materials
- Large Samples
- Refractory Metals
- Serial Cutting

## 4 Easy Steps to a Customized Cutter!



A versatile series of Models and Options are available allowing the DELTA Cutter to be customized to meet every material application. Select "Factory Installed Options" at time of machine purchase. "Field or Factory Installed Options" can be selected at time of purchase or can be used to upgrade the DELTA after sale. This versatility is particularly useful if the material applications or cutting volumes change.

Motor Size Suggestion	General Application Guide
7.5HP (5.5KW)	Smaller samples 3" (75mm) or less. Normal laboratory usage or smaller production volumes. Steels, nonferrous or smaller difficult-to-cut materials
10 HP (7.5KW)	Samples 3" (75mm) or larger. Heavy laboratory usage or higher production volumes. Multiple shift operations steels, nonferrous, titanium, metal matrix composites, larger difficult-to-cut materials

Choose your motor size based upon your material application and sample volume. The 10-2335 Electronic Brake can be selected in place of the standard hood lock.



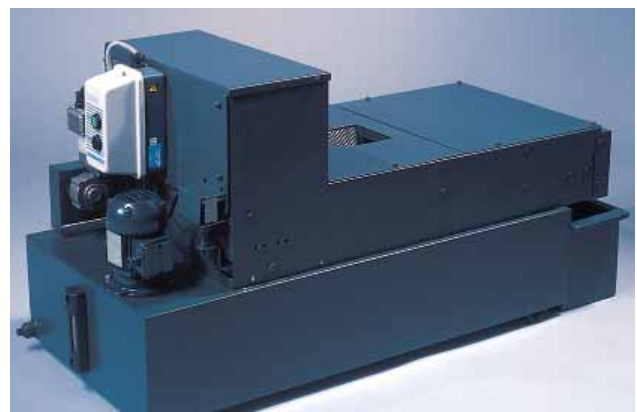
The 10-2341 Serial Cutting Table is an option for those applications requiring multiple cuts. The software sets all cutting parameters such as number of cuts and cut thickness.



The 10-2342 Fume Extractor filters and reduces emissions.



The 10-2332 quick-disconnect Recirculating System has a large 20 gallon (90 liter) capacity for generous flow rate and heat dissipation.



The 10-2333 Filter Conveyor Swarf Removal System is an alternative to the 10-2332 Recirculating System. The conveyor filters the coolant and then deposits the swarf in a separate container for easy disposal.

## Technical Data

### Operation:

Automatic Orbital cutting with user selected feed rate

### Motor Power:

7.5 HP (5.5KW) or 10 HP (7.5KW)

### Feed Rate:

0.001 - 0.196 inch/sec.

0.003 - 0.004 inch/sec. increments

(0.05 - 5.0mm/sec. 0.1mm/sec. increments)

### Blade Size and Speeds:

14" and 16" Blades (350mm-400mm) 1900 rpm

### Electronics:

Microprocessor Controlled

LCD Display: 64 x 240 Pixels

### Controls:

Touch Pad Controls for Programmable Functions

Ind. Push Button Controls: Start, Stop, Pause, Rapid Advance

Programming: 4 user definable methods

### Programmable Stroke Travel with Automatic Shut-off:

0.03 - 6.25", 0.04" increments (1-159mm, 1mm increments)

### Languages:

English, French, German, Spanish, Portuguese,

(Chinese, Japanese, Korean available Autumn 1999)

### Units:

Imperial and Metric

### Coolant Systems Selections:

*Large Capacity Recirculating System*

Capacity: 21 gal. (80l)

Flow Rate: 6 gal./min (22l/min)

*Swarf Conveyor System*

Capacity: 24 gal. (90l)

Flow Rate: 6 gal./min (22l/min)

### Additional Options:

Fume Extractor

Brake

2 types of T-slot Beds with standard 14mm wide T-slots

Automatic serial cutting table (Autumn 1999)

### Main Power:

200-220V/60Hz/3 phase

200-220V/50Hz/3 phase

400V/50Hz/3 phase

460V/60Hz/3 phase

### Safety Features:

Mushroom Style Emergency Stop

Electro-Mechanical Safety Interlock on Hood

Isolated Electronics

CE Marked

### Other Features:

Cleaning System: Clean-out hose and interior waterfall

Heavy duty interior light (18 watts)

Extra large viewing window

### Normal Shipping Weight:

880 lb. (400kg)

### Cutting Envelope:

Maximum diameter of sample 6" (150mm) with

16" (400mm) blade, 5" (125mm) with 14" (350mm) blade

### Dimensions:

38" W x 64" H x 42¼" D

(965mm x 1620mm x 1020mm)

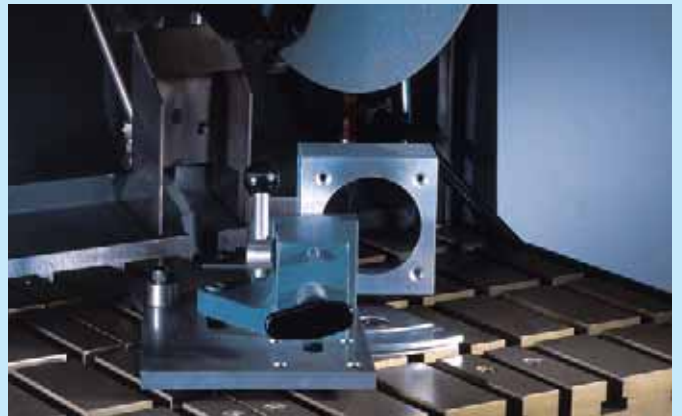
## T-SLOT BEDS & VISING



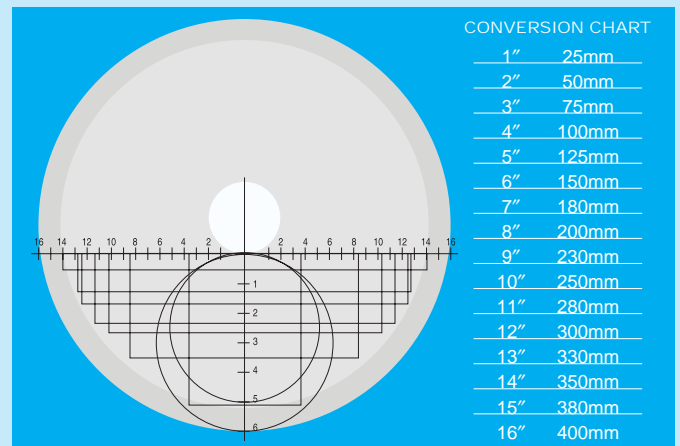
10-2245 and 10-2246 MET-KLAMP VII Left Hand and Right Hand Vises are general-purpose vises for most applications.



10-3523 Speed Vise Kit, for quick setup and for cutting irregular shaped specimens. A variety of clamping shoes are available.



10-3515 Angle Cutting Attachment for sectioning components at angles up to 45 degrees in 5 degree increments.



Cutting Envelope Diagram 14" - 16" (350-400mm) Blades

## Specifications and Factory Installed Options:

DELTA Automatic Orbital Abrasive Cutter with 10 HP (7.5KW) Motor for 200-220V/60Hz/3 phase .....	10-2318-260
DELTA Automatic Orbital Abrasive Cutter with 10 HP (7.5KW) Motor for 200-220V/50Hz/3 phase .....	10-2318-250
DELTA Automatic Orbital Abrasive Cutter with 10 HP (7.5KW) Motor for 400V/50Hz/3 phase .....	10-2318-400
DELTA Automatic Orbital Abrasive Cutter with 10 HP (7.5KW) Motor for 460V/60Hz/3 phase .....	10-2318-460
DELTA Automatic Orbital Abrasive Cutter with 7.5HP (5.5KW) Motor for 200-220V/50Hz/3 phase .....	10-2317-250
DELTA Automatic Orbital Abrasive Cutter with 7.5HP (5.5KW) Motor for 200-220V/60Hz/3 phase .....	10-2317-260
DELTA Automatic Orbital Abrasive Cutter with 7.5HP (5.5KW) Motor for 400V/50Hz/3 phase .....	10-2317-400
DELTA Automatic Orbital Abrasive Cutter with 7.5HP (5.5KW) Motor for 460V/60Hz/3 phase .....	10-2317-460
Electronic Brake (Available from Autumn 1999) .....	10-2335

**All selected cutters come with sample of cut-off wheels and operations manual. Select all other accessories to meet your customized application.**

### Field or Factory Installed Options

Large Recirculating System on Wheels for 200-220V/60Hz/3 phase* .....	10-2332-260
Large Recirculating System on Wheels for 200-220V/50Hz/3 phase* .....	10-2332-250
Large Recirculating System on Wheels for 400V/50Hz/3 phase* .....	10-2332-400
Large Recirculating System on Wheels for 460V/60Hz/3 phase* .....	10-2332-460
Filter Conveyor, Swarf Removal System on Wheels for 200-220V/60Hz/3 phase .....	10-2333-260
Filter Conveyor, Swarf Removal System on Wheels for 200-220V/50Hz/3 phase .....	10-2333-250
Filter Conveyor, Swarf Removal System on Wheels for 400V/50Hz/3 phase .....	10-2333-400
Filter Conveyor, Swarf Removal System on Wheels for 460V/60Hz/3 phase .....	10-2333-460
Serial Cutting Table for 200-220V/60Hz/3 phase (Available on units built from Autumn 1999) .....	10-2341-260
Serial Cutting Table for 200-220V/50Hz/3 phase (Available on units built from Autumn 1999) .....	10-2341-250
Serial Cutting Table for 400V/50Hz/3 phase (Available on units built from Autumn 1999) .....	10-2341-400
Serial Cutting Table for 460V/60Hz/3 phase (Available on units built from Autumn 1999) .....	10-2341-460
Fume Extractor for 200-220V/60Hz/3 phase .....	10-2342-260
Fume Extractor for 200-220V/50Hz/3 phase .....	10-2342-250
Fume Extractor for 400V/50Hz/3 phase .....	10-2342-400
Fume Extractor for 460V/60Hz/3 phase .....	10-2342-460

**Select either a Recirculating System or Filter Conveyor for the Orbital Cutter in the appropriate voltage configuration.**

**The Fume Extractor and the Serial Cutting Table are options that can be added.**

**\* Recommended selection for most applications.**

### T-Slot Beds & Vises:

T-Slot Bed with 3 T-slots, standard bed with X-axis vise positioning .....	10-2325
T-Slot Bed with X & Y Cross-slots for most versatile dual direction positioning of vises* .....	10-2326
MET-KLAMP VII for DELTA Cutter, Left Hand Vise* .....	10-2245
MET-KLAMP VII for DELTA Cutter, Right Hand Vise* .....	10-2246
Angle Cutting Attachment, cuts up to 45° angle in 5° increments .....	10-3515
Speed Vise Kit, for cutting irregular shaped specimens .....	10-3523

**Three 10-2326 T-slot Beds come with the Orbital Cutter, a fourth bed can be added as an accessory.**

**Select vises to come with Delta Cutter. \* Recommended selection for most applications.**

DELTA Orbital Cut-off Wheels are specially formulated for perfect, burn free and deformation free cuts on the DELTA Orbital Cutter. Created using peripheral wheel speed technology, the DELTA blades are engineered to provide long life when used with the DELTA orbital cutting action.

### Catalog No. Diameter x Thickness x Arbor. 16" x 0.125" x 1 1/4" (400mm x 3mm x 32mm) Blades, Ten Blades/Package

12-5610-010	DELTA Orbital Cut-off Wheels for Tool Steels Rc60 and above, carburized steels, RR/Al203
12-5612-010	DELTA Orbital Cut-off Wheels for Hard Steels Rc50, RR/Al203
12-5616-010	DELTA Orbital Cut-off Wheels for Medium Hard Steels Rc35-50, RR/Al203
12-5620-010	DELTA Orbital Cut-off Wheels for Soft or Annealed Steel Rc15-35, Rb46-90, RR/Al203
12-5645-010	DELTA Orbital Cut-off Wheels for Medium Hard Nonferrous Materials, Uranium, Titanium, Zirconium, R/SiC
12-5650-010	DELTA Orbital Cut-off Wheels for Soft Nonferrous Materials Aluminum, Brass, etc., R/SiC



### Catalog No. 14" x 0.105" x 1 1/4" (350mm x 2.7mm x 32mm) Blades, Ten Blades/Package

12-4310-010	DELTA Orbital Cut-off Wheels for Tool Steels Rc60 and above, Carburized steels, RR/Al203
12-4312-010	DELTA Orbital Cut-off Wheels for Hard Steels Rc50, RR/Al203
12-4316-010	DELTA Orbital Cut-off Wheels for Medium Hard Steels Rc35-50, RR/Al203
12-4320-010	DELTA Orbital Cut-off Wheels for Soft or Annealed Steel Rc15-35, Rb46-90, RR/Al203
12-4345-010	DELTA Orbital Cut-off Wheels for Medium Hard Nonferrous Materials, Uranium, Titanium, Zirconium, R/SiC
12-4350-010	DELTA Orbital Cut-off Wheels for Soft Nonferrous Materials Aluminum, Brass, etc., R/SiC

**For a complete listing of Buehler consumable supplies for use with the DELTA Abrasive Cutter, please refer to Buehler's Consumables Buyer's Guide. Buehler continuously makes product improvements; therefore, technical specifications subject to change without notice.**

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**BUEHLER ANALYST®**  
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