

# AbrasiMatic® 300

Abrasive Cutter



**BUEHLER**

Excellent Results. Easily Repeatable.™

# Sections Difficult Samples Quickly and Easily



## AbrasiMatic® 300

The AbrasiMatic® 300 Abrasive Cutter is a bench-top cutter featuring manual cutting action in 3 directions or automated cutting in 1 direction. This gives the user the maximum versatility to section a wide variety of sample materials, sizes and geometries. It is engineered with innovative capabilities to be used in both production support and laboratory environments. The AbrasiMatic® 300 now includes an accompanying digital display to track X-axis travel improving precision, consistency and repeatability in serial sectioning applications.

## Features and Benefits

The large cutting chamber and wheel capacity will accommodate a variety of sample sizes. Features include a 12" (305mm) cut-off wheel capacity, which can section up to a 4.375" (110mm) diameter sample. Superior cutting torque is provided by the 3.7 kW motor which can easily power through

large and hardened materials. The cutter incorporates a brake to stop the cutting wheels rotation almost instantly and maximize user efficiency by allowing quick access to the sample after it has been sectioned. A large viewing window allows easy observation of the sample and cutting process. Two flexible gooseneck LED lights have been incorporated and can be positioned to direct illumination anywhere in the cutting chamber. The sliding hood folds up to reduce the incidence of coolant dripping on the user. A side door also slides open as the hood is raised to allow ample space for easy sample placement. A side port accommodates long sample sizes. An innovative basket catches all parts after they have been sectioned for quick retrieval. A fume extractor knockout is incorporated, allowing ventilation of any cutting fumes and vapors. A wash down hose with shut off valve allows for quick cleaning of the cutting area and T-slot vise tables.



Side ports accommodate extra-long samples.



Parts tray catches small samples for easy retrieval.

### Construction

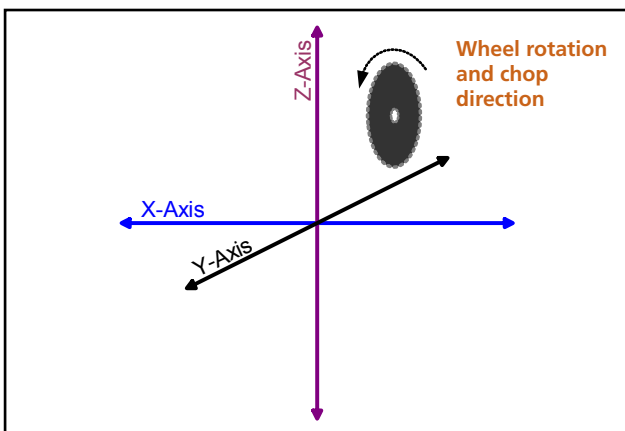
The durable cast aluminum base has a stain and chip resistant finish for easy cleaning and long lasting, "like new" appearance. The cutting area is separated from the electrical area for total isolation. Two corrosion resistant stainless steel T-slot vise table beds accept any standard vises (*order separately*) with 12mm T-nuts. The metal construction hood is secured in a raised position with two gas springs which maintain an open position during non-motor operation. Two large drain outlets with screen allow the choice of discharge plumbing either in the back or below the machine. Two coolant nozzles are mounted in the wheel guard to ensure a consistent burn-free cut. Six rubber feet reduce any vibration transfer to the bench-top.

### Sectioning Options

There are 4 options a user can choose from to section a sample. These options allow the choice of:

- 1) Manual "chop" style cutting in the Z-axis using the manual cutting lever.
- 2) Manual longitudinal cutting in the Y-axis using the Y-axis handle wheel.
- 3) Automated longitudinal cutting in the Y-axis using the Y-axis motor feed and touch-screen options.
- 4) Manual consecutive serial sections in the Y-axis with the optional movable X-bed.

Manual chop action sectioning in the Z-axis provides quick and simple cutting action using the manual arm control lever. This allows the user to "feel" the cut and control the feed rate.



Triple X-Y-Z axis sectioning options:

- 1) Z-axis manual chop action
- 2) Y-axis manual or motor driven feed for longitudinal cuts
- 3) Optional X-axis manual drive for serial sectioning



AbrasiMatic® 300 standard machine without X-axis direction sectioning.

Manual Y-axis permits sectioning of long and irregularly shaped samples. This method uses a rotating handle to control the cutting action.

Automatic Y-axis sectioning allows the user to increase productivity. All parameters are set on the user friendly touch-screen control panel. The user sets the cutting length and feed rate and the machine does the rest of the work. In this automatic mode, Buehler's unique SMARTCUT system automatically reduced feed rate if necessary to produce burn-free, consistent cuts. Pulse cutting action can also be chosen in this mode to help power through difficult to cut materials.

The optional X-axis sectioning mode provides a method for parallel cutting without having to remove and re-secure a sample. This method also uses a rotating manual handle to move the sample.

### Safety First

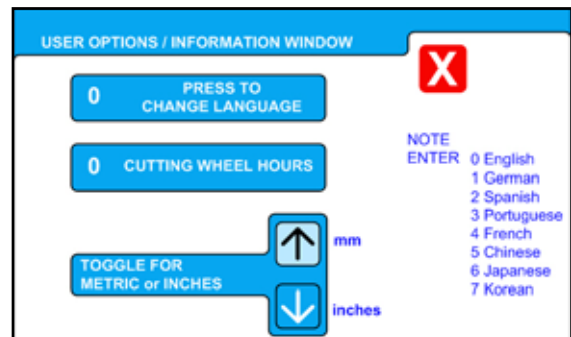
Designed with safety as a top priority, the AbrasiMatic® 300 Abrasive Cutter is constructed of a protective metal hood and clear protective window. A protective metal wheel guard covers the rotating abrasive cut-off wheel at all times. The large emergency-stop button, which can be quickly accessed and pressed in case of any emergency, will immediately deactivate power to the cutting wheel and recirculating system, but the cutting bay lighting will remain on. A safety switch prevents power to the motor and cutting wheel while the hood is in an open position. For increased safety, a hood lock safety switch prevents the hood from opening while the cutting wheel is rotating. An easily accessible master disconnect switch removes power to the entire machine. Overload protection deactivates the motor in an overload condition and can be easily reset with the flip of a switch. Low voltage (24-volt) controls ensure operator safety. CE marked and RoHs compliant.

### Control Panel

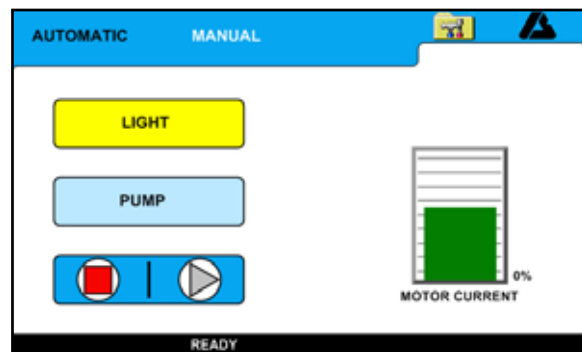
The Abrasimatic® 300 utilizes state-of-the-art color touch-screen controls. The HMI (Human Machine Interface) provides information exchange and communication between the user and the machine's electromechanical system. This allows the user to input commands through touchable images on a user-friendly window. There is a separate screen for manual and automated operation. All screen text has been translated into eight languages (English, German, Spanish, Portuguese, French, Chinese, Japanese and Korean) and all units of measure are viewable in either metric or imperial.



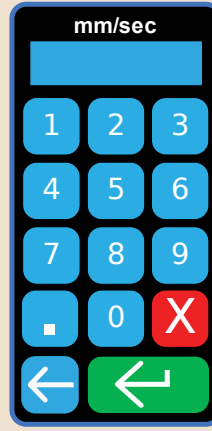
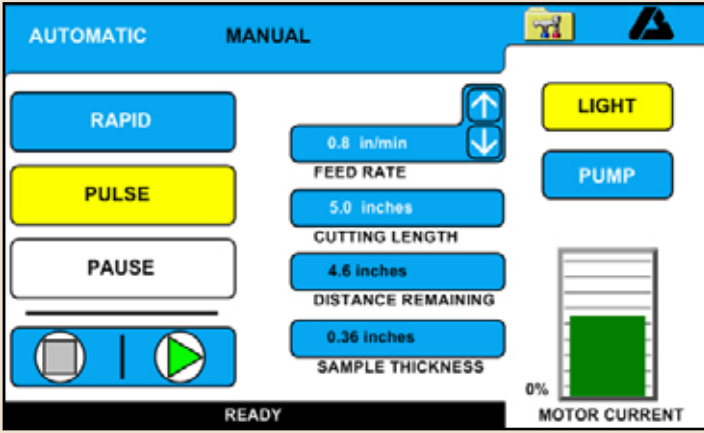
*Touch-Screen splash screen initializes at start up.*



*Set-up screen allows choice of 8 language options and metric or imperial units.*

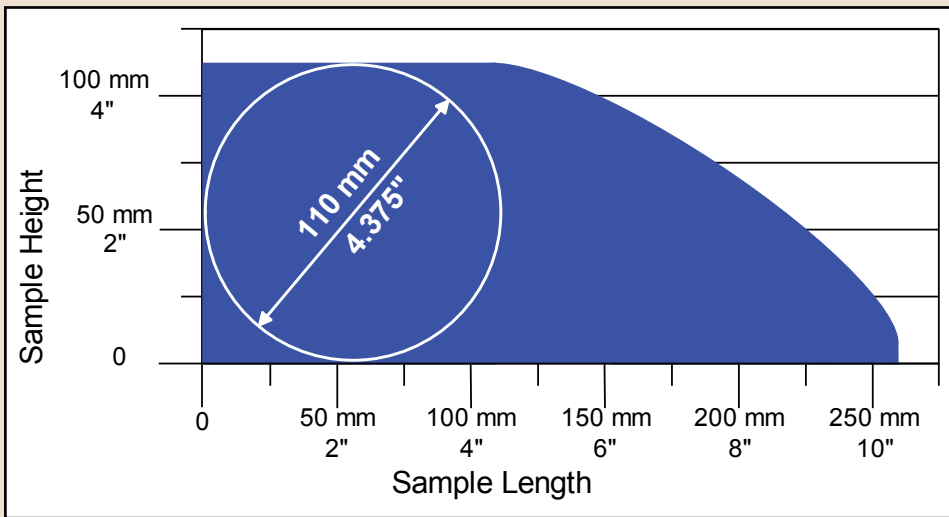


*Operation screen for manual mode.*

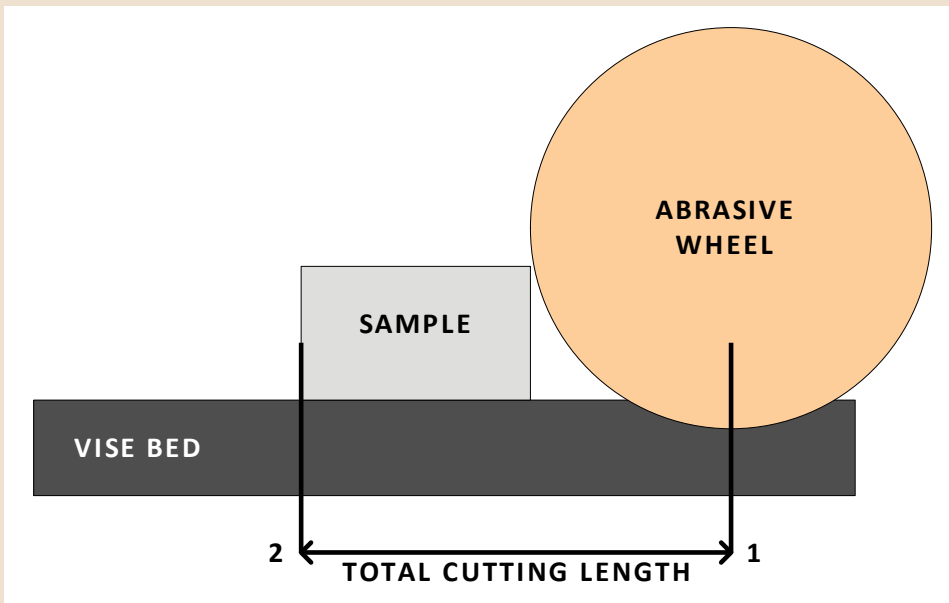


Number keypads make it easy to program cutting length and feedrate.

Operation screen for automatic mode.



AbrasiMatic® 300 cutting envelope (with new 12" (305mm) blade) is one of the largest in its class with up to 10.25" (260mm) longitudinal cutting capacity.



Determine cutting length by measuring the distance where (1) the abrasive wheel meets the vise table when first making contact with the sample plus the (2) length of the sample.

## Accessories

### **Recirculating Coolant System and Cart**

Effective sample cooling is a key factor in producing high quality burn-free cuts. Wet cutting is critical in producing a quality cut face and prevents excessive surface damage caused by overheating and improper wheel breakdown. The AbrasiMatic® 300 coolant system is automatically activated when the cutting wheel starts or can be manually activated for use of the clean-out hose. A triple baffle tank design isolates the sludge from the liquid coolant. The AbrasiMatic® 300 Recirculating Coolant System

(sold separately) includes a centrifugal pump and a 22-gallon (83 liter) tank with a flow control and drain hose. The roller-cart makes moving and cleaning the tank quick and easy.

### **Vises**

Buehler offers a full range of clamping options to fit virtually any application.



*Recirculating system with baffles.*



*Speed vise and riser blocks provide vertical clamping forces for large and irregularly shaped samples.*



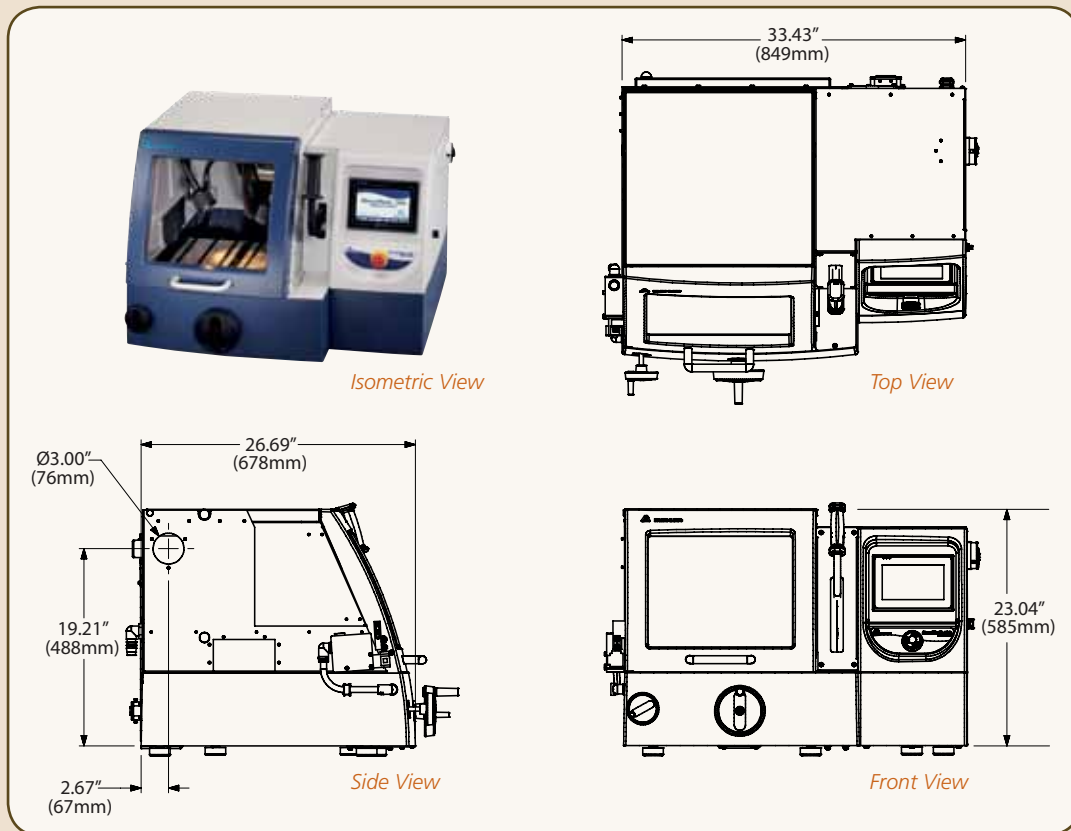
*Sliding vises provide versatile, quick clamping/release for routine applications.*



*Fastener vise for longitudinal sectioning of small parts (must be used in conjunction with sliding vises).*

# Specifications

## Dimensions



### **Voltage/Frequency**

230 VAC, 60Hz  
460 VAC, 60Hz  
220 VAC, 50Hz  
380 VAC, 50Hz

### **Phase**

Three phase

### **Power Consumption**

4.0 kW

### **Current**

15.7 amps @ 220/230 VAC  
7.9 amps @ 460 VAC  
9.1 amps @ 380 VAC

### **Motor Power**

5 Hp (3.7 kW)

### **Cutting Wheel Diameter**

12" (305mm) maximum

### **Cutting Wheel Arbor Size**

1.25" (32mm)

### **Cutting Wheel Speed with 12" (305mm) Wheel**

2600 rpm @ 50/60 Hz  
8200 surface feet/minute  
(2700 surface meters/minute)

### **Cutting Wheel Torque**

121 inch/lbs (14Nm)

### **Maximum Cut Diameter**

4.375" (110mm) Maximum

### **Lighting**

Two LED goosenecks

### **Sound Rating**

78 dBA - no load

### **Fume Extractor Size**

3" (75mm) cut-out diameter

### **Travel Movement**

Z-Axis (Up/Down): 5.75" (150mm)  
Y-Axis (Back/Forth): 10.25" (260mm)  
X-Axis (Left/Right): 2.75" (70mm)

### **Auto Y-Axis Feed Rate**

0.3"/min - 5.0"/min  
(0.1mm/sec - 2.5mm/sec)

### **Coolant Tank Capacity**

22 gallon (83 liters)

### **Hose Fitting Sizes**

Intake: 1" (25mm)  
Discharge: 2" (50mm)

### **Control Panel**

Size: 7" (175mm) diagonal  
Resolution: 320x240  
256 color screen, backlight  
NEMA4 (IP 65) (water-resistant)

### **Machine Dimensions**

34 W x 23 H x 27" D  
(849 W x 585 H x 678mm D)

Note: 41" H (1040mm) with hood open

### **T-Slot Table Dimensions (2 included)**

14.375" W x 10" D (365mm W x 254mm D)

### **T-Slot Table Material (12mm)**

316 Stainless Steel

### **Hood Window Size**

14 W x 12" H (355 W x 300mm H)

### **Machine Weight**

350 lbs (165 kg)

### **Approvals**

CE Marking

## Ordering Information

The AbrasiMatic® 300 standard cutting actions include manual Z-axis chop with manual & auto Y-axis directional cutting. X-axis directional serial sectioning is optional. Includes a 10-pack of super alloy abrasive cut-off wheels, recirculating intake hose, drain elbow, drain fitting, two wrenches, power cord and instruction manual. The recirculating system, coolant, vises, and other abrasive wheels are all sold separately.

**10-2190-260 AbrasiMatic® 200**, 230 VAC, 60 Hz, 3 phase  
**10-2190-460 AbrasiMatic® 300**, 460 VAC, 60 Hz, 3 phase  
**10-2190-250 AbrasiMatic® 300**, 220 VAC, 50 Hz, 3 phase  
**10-2190-400 AbrasiMatic® 300**, 380 VAC, 50 Hz, 3 phase

**10-2193-260 with X-Axis Direction**, 230 VAC, 60 Hz, 3 phase  
**10-2193-460 with X-Axis Direction**, 490 VAC, 60 Hz, 3 phase  
**10-2193-250 with X-Axis Direction**, 220 VAC, 50 Hz, 3 phase  
**10-2193-400 with X-Axis Direction**, 380 VAC, 50 Hz, 3 phase

### Accessories

**10-2332**, Recirculating System on Movable Cart\*  
**10-2170**, Sliding Vise, Left Hand  
**10-2171**, Sliding Vise, Right Hand  
**10-3531**, Speed Vise Kit, for Irregular Shaped Specimens  
**10-3532**, Riser Block Kit, for Speed Vises

**95-C1702**, Fastener Vise, for sliding Vises  
**10-2195**, X-Bed Retrofit Kit†  
**80-10001**, Cabinet table, for Cutter and Recirc System, 36 W x 36 H x 30" D (910 W x 910 H x 760mm D)  
**00-10095**, Touch Screen Protector, 5 pack

\*Specify voltage & frequency to match the cutter: -260= 230 VAC, 60Hz; -460= 460VAC, 60Hz; -250= 220VAC, 50Hz; 400= 380VAC, 50Hz  
 † Must be factory installed or by a Buehler Service Technician

## Abrasive Cut-Off Wheels, 12" (305mm) Diameter, Pack 10

(AbrasiMatic® 300 uses Delta Chop Wheels, AcuThin™ Wheels or SuperAlloy Wheels)

Recommended Use	Thickness	Catalog Number
Tool Steels HRC60 and above, Carburized steels, RR/Al <sub>2</sub> O <sub>3</sub>	0.1" (2.5mm)	12-4110-010
Hard Steels HRC50, RR/Al <sub>2</sub> O <sub>3</sub>	0.1" (2.5mm)	12-4112-010
Medium Hard Steels HRC35-50	0.1" (2.5mm)	12-4116-010
Soft or Annealed Steel HRC15-35, HRB46-90	0.1" (2.5mm)	12-4120-010
Medium Hard Non-Ferrous Materials, Uranium, Titanium, Zirconium	0.063" (1.6mm)	12-4145-010
Soft Non-Ferrous Materials, Aluminum, Brass, etc	0.063" (1.6mm)	12-4150-010
AcuThin™ for hard steels, HRC45 and above	0.032" (0.81mm)	10-4360-010
AcuThin™ for medium/soft steels, HRC45 and below	0.032" (0.81mm)	10-4361-010
‡Super Alloys, R/ Al <sub>2</sub> O <sub>3</sub>	0.055" (1.4mm)	12-4405-010

‡ The Super Alloy wheels are a good general purpose wheel, but may not be the best choice for every application. Contact us for your specific application recommendation.

For additional selections of specimen holders, consumables and other accessories, refer to the Buehler Equipment Buyer's Guide or Consumables Buyer's Guide, or contact your local Buehler Sales Engineer. Buehler continuously makes product improvements; therefore technical specifications are subject to change without notice.



**BUEHLER**



**BUEHLER®**, a division of Illinois Tool Works Inc.  
 – Worldwide Headquarters  
 41 Waukegan Road  
 Lake Bluff, Illinois 60044-1699 USA  
 Tel: (847) 295-6500 • Fax: (847) 295-7979  
 Sales: 1-800-BUEHLER (1-800-283-4537)  
 www.buehler.com  
 Email: info@buehler.com

**BUEHLER GmbH - European and MESA Headquarters**  
 In der Steele 2 • 40599 Düsseldorf  
 Telefon: (49) 211 974100 • Telefax: (49) 211 9741079  
 www.buehler-met.de  
 Email: info@buehler-met.de

**BUEHLER FRANCE**  
 Téléphone: 0800 89 73 71  
 Télécopie: 0800 88 05 27  
 www.buehler.fr  
 Email: info@buehler.fr

**BUEHLER UNITED KINGDOM**  
 Telephone: 0800 707 6273  
 Fax: 0800 707 6274  
 www.buehler.co.uk  
 Email: sales@buehler.co.uk

**BUEHLER CANADA**  
 10 Carlow Court, Unit #2  
 Whitby, Ontario L1N 9T7  
 Telephone: (905) 430-4684  
 Fax: (905) 430-4647  
 Sales Telephone: 1-800-268-3593  
 Email: info@buehler.ca

**BUEHLER, ASIA-PACIFIC**  
 5/F Vogue Centre  
 696 Castle Peak Road  
 Lai Chi Kok, Kowloon  
 Hong Kong, SAR, China  
 Telephone: (852) 2307 0909  
 Fax: (852) 2307 0233