

# BUEHLER® AbrasiMatic® 300 Abrasive Cutter

- Versatile Manual & Automatic Cutting Action
- Triple X-Y-Z Axis Cutting Capability
- 12" (305mm) Abrasive Cut-Off Wheel Capacity
- High Torque Motor Powers Through Difficult to Section Materials
- Leader in its Class for Cutting Capacity
- Long Lasting Corrosion Resistant Construction with Stainless Steel T-Slot Vise Beds
- Large Cutting Chamber, Cutting Envelope and Side Port Accommodates a Variety of Sample Sizes
- Easy to Clean Cutting Chamber with Clean Out Spray Hose
- User Friendly Color Touch Screen Controls
- SMARTCUT System Automatically Reduces Feed Rate to Produce Burn Free Cuts



# Sections Difficult Samples Quickly and Easily



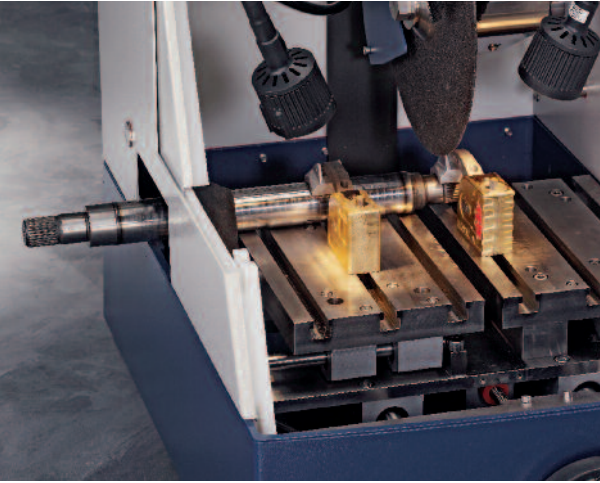
## **AbrasiMatic® 300**

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.

## **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 5 Hp (3.7 kW) motor which can easily power through large and hardened materials. The cutter incorporates a brake to stop the

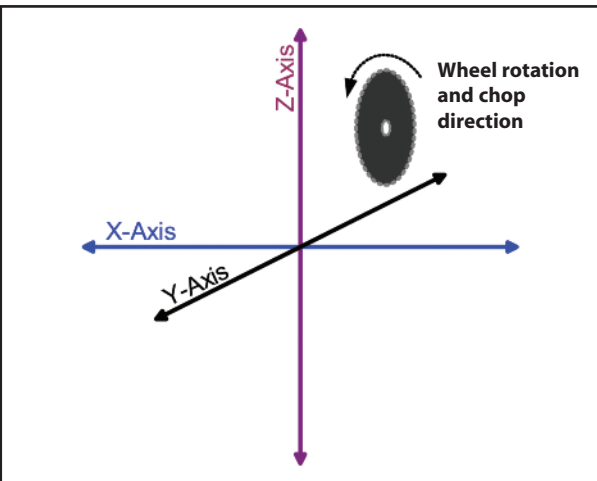
cutting wheels rotation almost instantly and maximize user efficiency by allowing quick access to the sample after it has been sectioned. A large viewing window allows easy observation of the sample and cutting process. Two flexible gooseneck halogen lights have been incorporated and they can be positioned 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 hood 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.

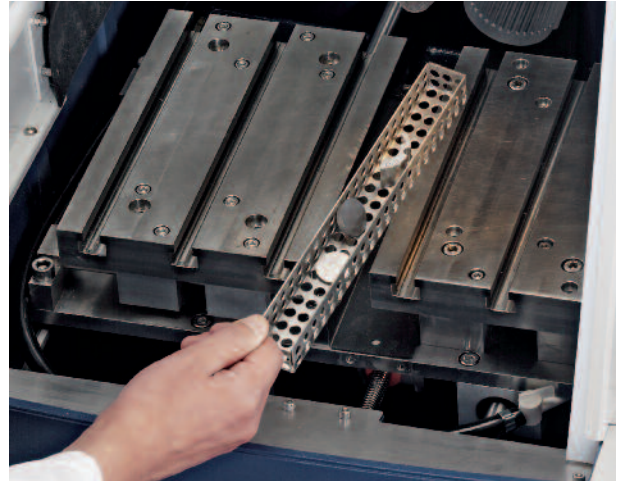
### Construction

The durable cast aluminum base has a stain and chip resistant finish for easy cleaning and a 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 are capable of maintaining 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.



### 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



Parts tray catches small samples for easy retrieval.

### 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 controls.
- 4) Manual consecutive serial sections in the X-axis with the optional movable X-bed.

Manual chop action sectioning in 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. Manual Y-axis permits



AbrasiMatic 300 standard machine without X-axis direction sectioning.

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 controlled using 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 reduces 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

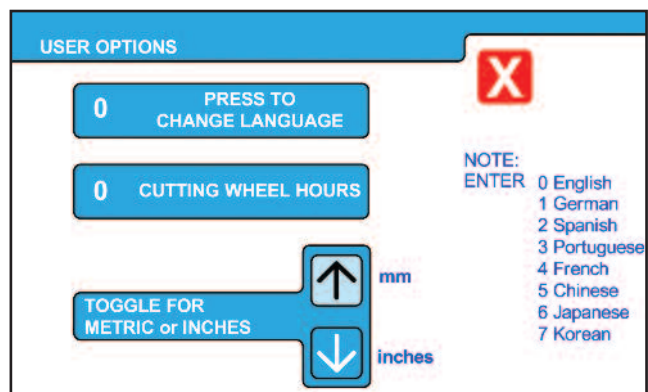
Designed with safety as a top priority, the AbrasiMatic 300 abrasive cutter is constructed of a protective metal hood and clear protective window. A protective metal wheel guard covers the rotating abrasive cut-off wheel at all times. The large emergency-stop button, which can be quickly accessed and 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

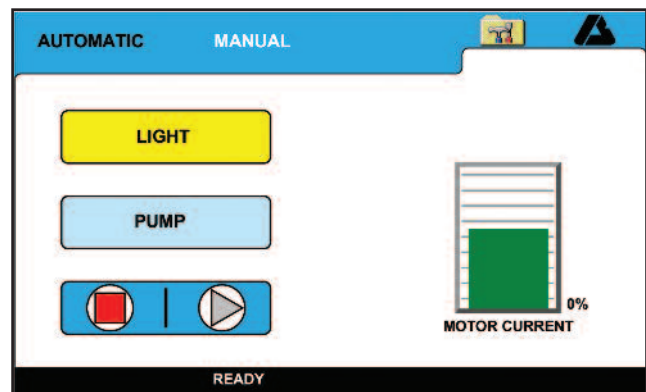
The AbrasiMatic 300 utilizes state-of-the-art color touch-screen controls. The HMI (Human Machine Interface) provides information exchange and communication between the user and the machine's electromechanical system. This allows the user to input commands through touchable images on a user-friendly 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.



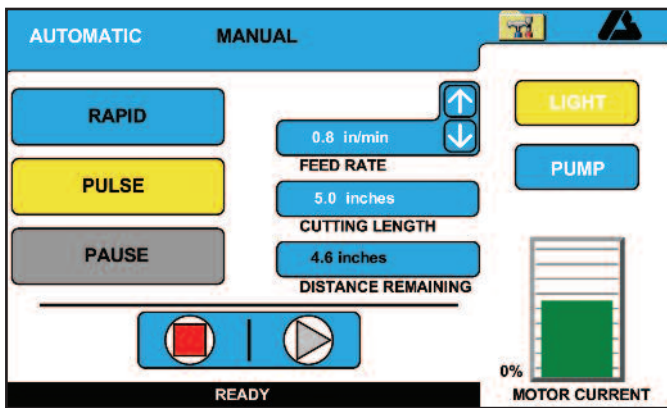
Touch-Screen splash screen initializes at start up.



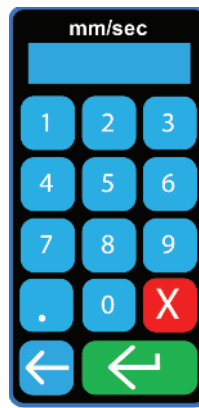
Set-up screen allows choice of 8 language options and metric or imperial units.



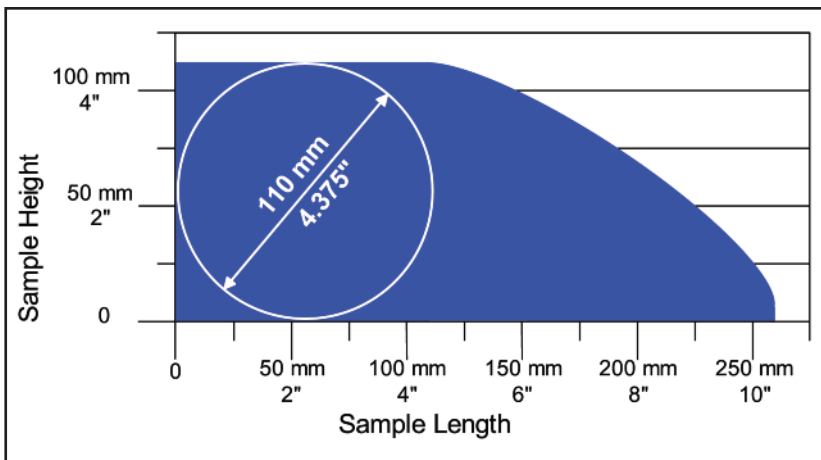
Operation screen for manual mode.



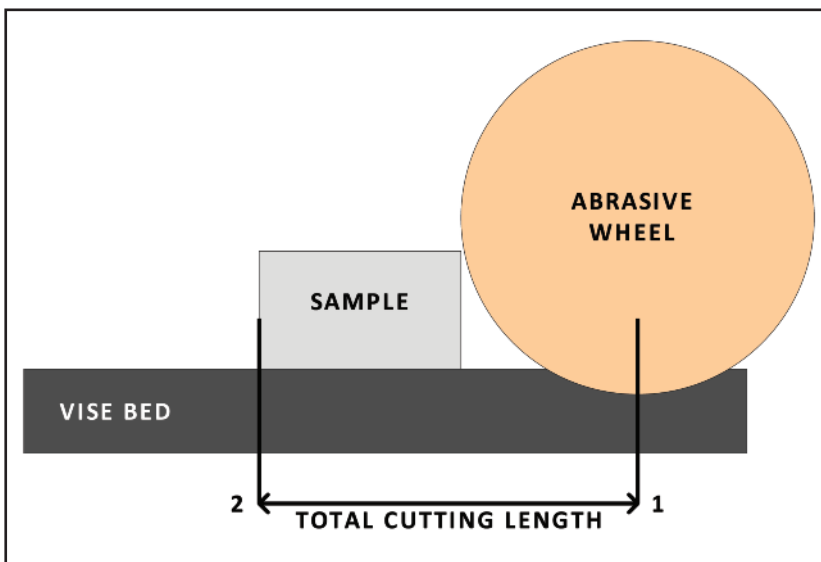
Operation screen for automatic mode.



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



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

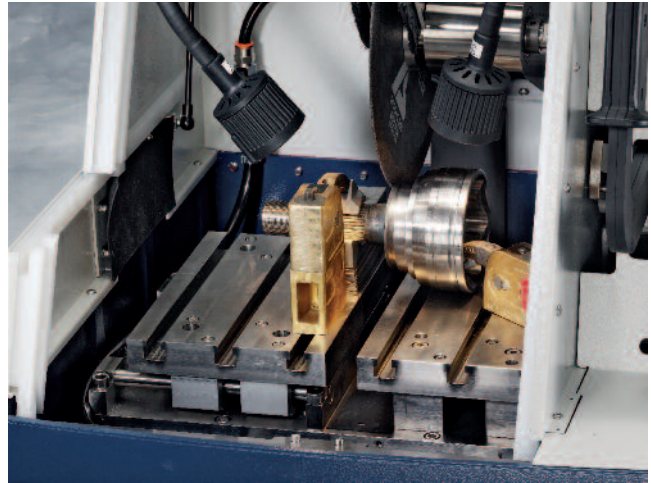
coolant. The AbrasiMatic 300 Recirculating Coolant System (sold separately) includes a centrifugal pump and a 27-gallon (90 liter) tank with a flow control valve and drain hose. The roller-cart makes moving and cleaning the tank quick and easy.

### **Vises**

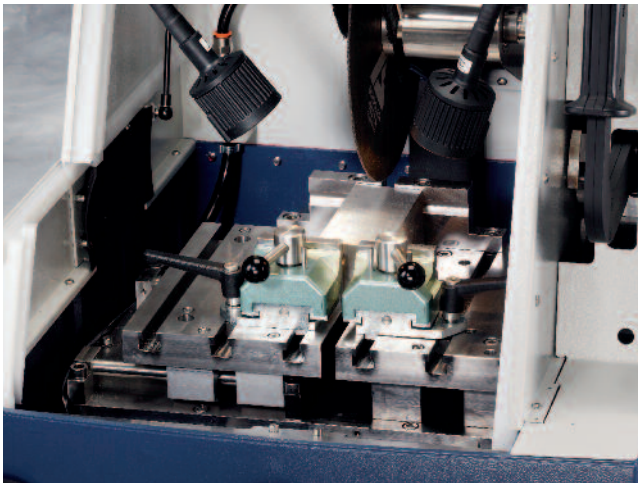
Buehler offers a full range of clamping options to fit virtually any application.



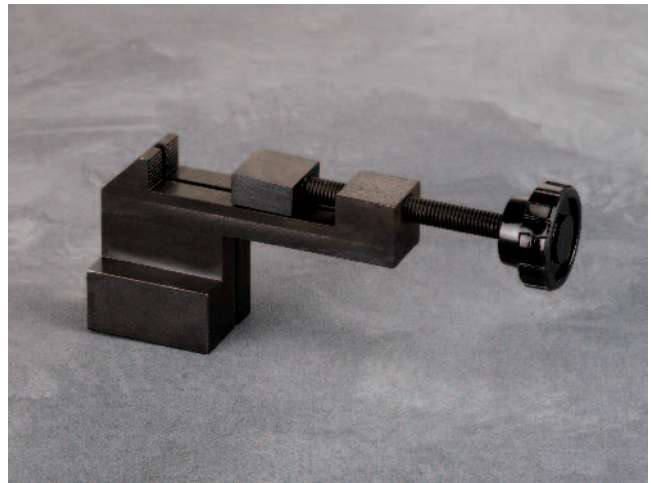
Recirculating system with baffles.



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



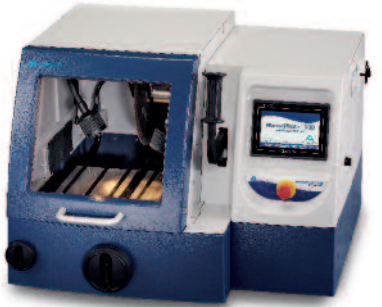
Sliding vises provide versatile, quick clamping/release for routine applications.



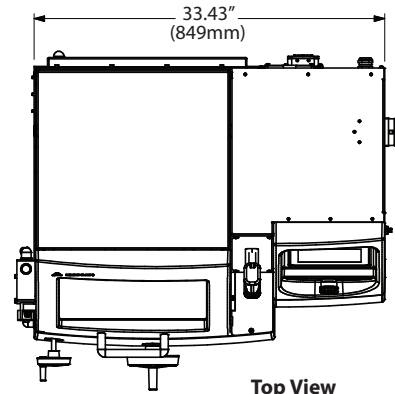
Fastener vise for longitudinal sectioning of small parts.

## Specifications

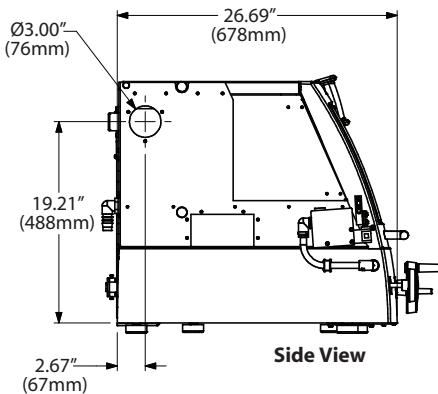
### Dimensions



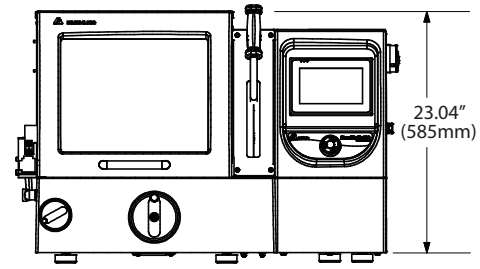
Isometric View



Top View



Side View



Front View

### Voltage

220/230/380/460 VAC (selectable)

### Frequency

50/60 Hz

### 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 (14 Nm)

### Maximum Cut Diameter

4.375" (110mm) Maximum

### Lighting

Dual 20-watt (each) halogen

### Sound Rating

78 dBA

### Fume Extractor Size

3" (75mm) cut-out diameter

### Travel Movement

Z-Axis (Up/Down): 5.75" (150mm)

Y-Axis (Back/Forth): 10.25" (260 mm)

X-Axis (Left /Right): 2.75" (70 mm)

### Auto Y-Axis Feed Rate

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

### Coolant Tank Capacity

29 gallon (110 liter)

### 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  
(849mm W x 585mm 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

316 Stainless Steel

### Hood Window Size

14" W x 12" H  
(355mm 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 300**, 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 AbrasiMatic 300 with X-Axis Direction**,  
230 VAC, 60 Hz, 3 phase

**10-2193-460 AbrasiMatic 300 with X-Axis Direction**,  
460 VAC, 60 Hz, 3 phase

**10-2193-250 AbrasiMatic 300 with X-Axis Direction**,  
220 VAC, 50 Hz, 3 phase

**10-2193-400 AbrasiMatic 300 with X-Axis Direction**,  
380 VAC, 50 Hz, 3 phase

## Accessories

Recirculating System on Movable Cart .....	10-2332*
Sliding Vise, Left Hand .....	10-2170
Sliding Vise, Right Hand .....	10-2171
Speed Vise Kit, for Irregular Shaped Specimens .....	10-3531
Riser Block Kit, for Speed Vises .....	10-3532
Fastener Vise, for Sliding Vises .....	95-C1702
†X-Bed Retrofit Kit .....	10-2195
Cabinet table, for Cutter and Recirc System.....	80-10001

\* Specify voltage & frequency to match the cutter: -260= 230VAC, 60 Hz; -460= 460VAC, 60Hz; -250= 220VAC, 50Hz; 400= 380VAC, 50Hz

† Must be factory installed or by 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/Al203	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 Buyers Guide or Consumables Buyers Guide, or contact your local Buehler Sales Engineer. Buehler continuously makes product improvements; therefore, technical specifications are subject to change without notice.

© 2010 BUEHLER, a division of Illinois Tool Works, Inc.

Printed in U.S.A.

10M0809

FN01333

\*For metallurgical equipment produced by BUEHLER LTD. USA



## BUEHLER

BUEHLER, a division of Illinois Tool Works, Inc.  
– Worldwide Headquarters  
41 Waukegan Road • P.O. Box 1  
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  
info@buehler.com

### BUEHLER GMBH - European and MESA Headquarters

In der Steele 2 • 40599 Düsseldorf  
Postfach 16 03 55 • 40566 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