



## **PICO 175 High Speed Precision Saw**



### **High Speed Precise Cutting**

- Precise serial cutting
- Highly reproducible
- Easy to use
- Flexible
- Ideal for all materials
- User friendly

### **Benefits - PICO 175**

- Simple to use
- Microprocessor controlled
- Automated feed with adjustable feed rate
- Heavy duty aluminum frame
- Motorized x-direction with 2 micron (0.0001 inch) accuracy
- X-axis range of 2.066 inches (52.5 mm) -3.208-in (81.5 mm)
- y-direction range
- Rotating sample option
- Accepts wafering blade diameters up to 8-in (203 mm), cutting capacity of 2.4-inches (60 mm)
- Variable wheel speeds from 50-5000 rpm
- Touch pad control panel
- Grinding cup wheel (optional)

**[www.metallographic.com](http://www.metallographic.com)**



# **PICO 175 High Speed Precision Saw**

The PICO 175 is a variable high speed (50-5000 rpm) precision wafering saw for sectioning materials with 0.1 mm micrometer accuracy. With easily programmable settings for feed rate (0.01 to 3 mm/sec), cutting load (60 N-m) and a built-in recirculating tank, it is very useful for sectioning metals, ceramics, electronics and other engineered materials.

## ***Programmable Controls***

- Wheel speed (50-5000 rpm)
- Feed rate (0.01 to 3 mm/sec)
- Overload protection
- X & Y sample positioning
- Automated end of cut positioning
- Rotatable specimen holder
- Multiple parallel cutting sections
- Pulse or continues cutting
- Metric or Imperial units

## ***Integrated Cooling***

- Dual Coolant tubes
- High volume pump
- Large volume tank reservoir



## ***User Friendly Workspace***

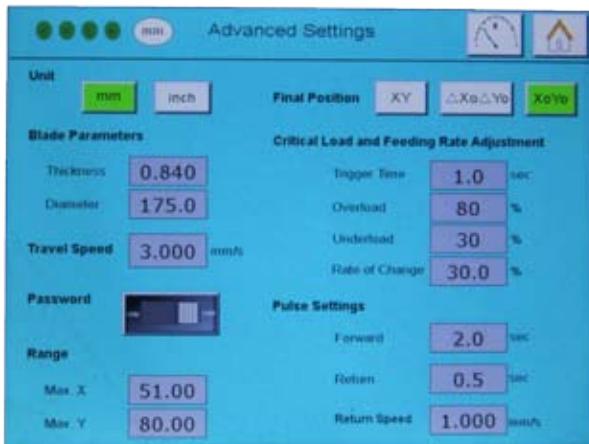
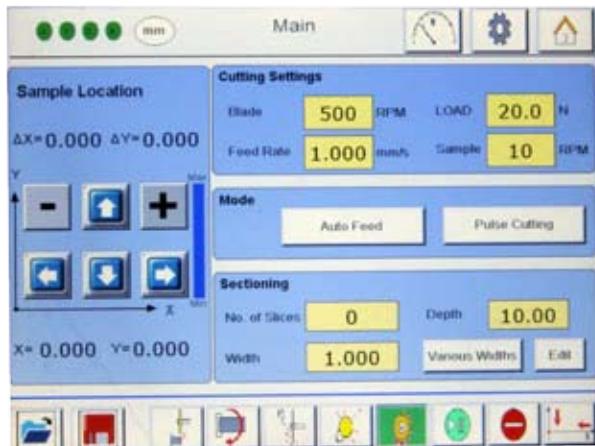
- LED light illumination
- Specimen catch screen
- Protective acrylic clear safety hood
- Emergency stop button

## ***Flexible Operation***

- Large selection of cutting fixtures
- Accommodates 3-inch up to 8-inch wafering blades
- Cup grinding wheel is available for producing thin sections

# PICO 175 Programmable Controls

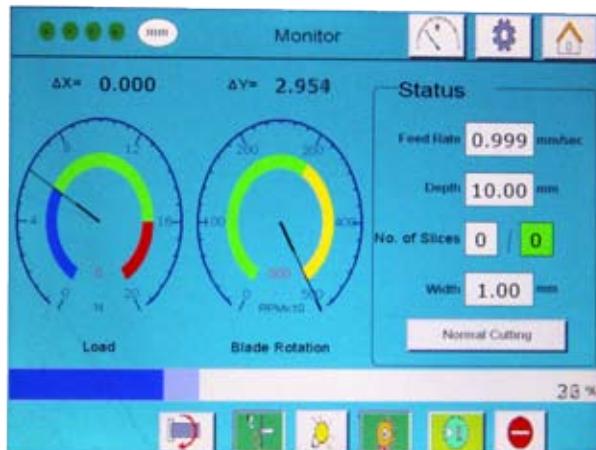
The PICO 175 is a versatile precision wafering saw featuring gentle sectioning at slow speeds and low feed rates up to high speeds with high feed rates. The PICO 175 can operate in a continuous feed or pulsed cutting mode. In addition, multiple parallel sectioning can be easily accomplished.



The PICO 175 has a graphic display to show how the saw is operating in order to optimize cutting efficiency. The load on the motor is monitored and can be programmed to optimize cutting. If the load is lower than programmed, the feed rate increases. If the load is too high, the feed rate is decreased. The speed of the blade is also shown in the tacometer display.

Additionally, the feed rate, depth of cut, number of cuts or slices are monitored. A status bar also shows how far along the cut has progressed.

The PICO 175 is a linear feed precision saw. An extremely important feature for linear feed cutting is the ability of the saw to section the part at the correct feed rate. If the material cannot cut at the rate required it is important not to overload the motor and the PICO 175 can automatically control the feed rate whether it is too high or too low.



## Specimen Vises

Universal single saddle chuck	P150-702
Double sided saddle chuck	P150-703
Irregular shaped specimen vise	P150-706
Small round <1.25-inch mounted specimen holder	P150-707
Large round <1.5-inch mounted specimen holder	P150-708
Vise for adhering specimens	P150-709
Specimen teardrop holder for 0.6-1.6-in (18-40 mm) diameter	P150-710
Fastener vise for longitudinal sectioning	P150-711
Large lip single saddle chuck	P150-702b
50 mm diameter flanges	P150-306
75 mm diameter flanges	P150-712



Universal single saddle chuck



Double sided saddle chuck



Irregular shaped specimen vise



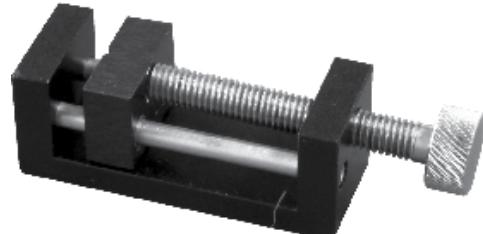
Vise for adhering specimens



Large lip single saddle chuck



Teardrop holder



Fastener vise for longitudinal sectioning



Round mounted specimen holder  
<1.25-inch)



Round mounted specimen holder  
<1.5-inch)



50 mm diameter flanges



75 mm diameter flanges

The PICO 175 is very useful for sectioning metals, ceramics, electronics and other engineered materials. It is especially versatile for cutting extremely hard engineered materials such as boron carbide, zirconia, silicon nitride and partially stabilized zirconia which require high speeds and higher cutting forces. The PICO 175 provides a recommendation template for cutting a wide range of materials.

PACE TECHNOLOGIES		PICO 175 PRECISION CUTTER		
Material	Properties	Speed (rpm)	Feed Rate (mm/sec)	Blade (grit/conc)
Silicon Substrate	Soft/Brittle	500	0.5	Fine/Low
Gallium Arsenide	Soft/Brittle	500	0.5	Fine/Low
Boron Composites	Very Brittle	1500	1	Fine/Low
Ceramic Fiber	Very Brittle	2500	1	Fine/Low
Glasses	Brittle	2500	1	Fine/Low
Minerals	Friable/Brittle	3000	2	Fine/Low
Alumina Ceramic	Hard/Tough	3000	2	Medium/Low
Zirconia (PSZ)	Hard/Tough	5000	3	Medium/Low
Silicon Nitride	Hard/Tough	5000	3	Medium/Low
Metal Matrix Composites	Variable	5000	3	Medium/High

### Wafering Blades (1/2-inch arbor)

Description	3-inch	4-inch	5-inch	6-inch	7-inch	8-inch
Fine grit / low conc.	WB-0030LC	WB-0040LC	WB-0050LC	WB-0060LC	WB-0070LC	WB-0080LC
Medium grit / low conc.	WB-0035LC	WB-0045LC	WB-0055LC	WB-0065LC	WB-0075LC	WB-0085LC
Medium grit / high conc.	WB-0035HC	WB-0045HC	WB-0055HC	WB-0065HC	WB-0075HC	WB-0085HC
CBN	n.a.	WCBN-0045	WCBN-0055	WCBN-0065	WCBN-0075	WCBN-0085
Electroplated Diamond	n.a.	EPD-0040	EPD-0050	EPD-0060	EPD-0070	EPD-0080



### Cutting Fluids

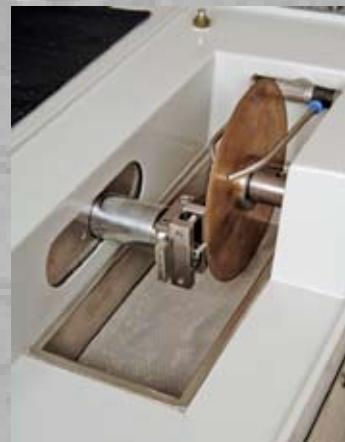
Description	Catalog Number
DIACUT Dressing Sticks (1/2" x 1/2" x 4 1/2")	DRESS-0010
DIACUT water-based cutting fluid (16 oz)	WL-3000-16
DIACUT water-based cutting fluid (32 oz)	WL-3000-32
Water-based wafer cutting fluid with anti-corrosion additive (16 oz)	WL2-3000-16
Water-based wafer cutting fluid with anti-corrosion additive (32 oz)	WL2-3000-32
Oil-based wafer cutting fluid (16 oz)	OL-3000-16
Oil-based wafer cutting fluid (16 oz)	OL-3000-32

## Technical Specifications:

Cutting capacity	2.4-inches (60 mm) 4-inches (100 mm) with rotation
Positioning range	X-direction: 2.4 inches (60 mm) Y-direction: 3.9 inches (100 mm)
Feed rate	0.024 - 7.1 inches/minute (0.01 - 3 mm/second)
Cutting load	5-20 N-m
Voltage	110 volts or 220V
Motor	1.0 hp (750W)
Recirculating tank	1.2 gallons
Wheel size	Max. 8-inch (0.5-inch arbor)
Micrometer adjustment	0.0 - 1.0 inches (0-25 mm)
Positioning accuracy in X-direction	2 microns



Precise cutting alignment



**PACE  
TECHNOLOGIES**

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## Applications:

- Metals
- Ceramics
- Polymers
- Composites
- Aerospace
- Electronics
- Biomaterials
- Geological
- Thin Sections