

# PRODUCT CATALOG

FULL LAB  
SOLUTIONS

2022

Sectioning | Mounting | Grinding & Polishing | Imaging & Analysis | Hardness Testing



[www.buehler.com](http://www.buehler.com)

# About BUEHLER

Buehler is a division of Illinois Tool Works (ITW) and is based in Lake Bluff, Illinois. ITW is a global, Fortune 200 company and global industrial manufacturer of value added consumables and specialty equipment with related service businesses. Buehler is a premier manufacturer of scientific equipment and supplies for use in materials analysis with offices in nine countries, sales distribution in over 40 countries, and over 45 Expert Solutions Centers.

Buehler was founded in 1936 by Swiss immigrant, Adolph I. Buehler, who saw a need for metallographic sample preparation equipment and optical inspection instruments for the steel and automotive industries in the Midwest USA. Buehler is well established as the world's leading supplier of materials preparation and analysis instruments, equipment, consumable supplies and application solutions.



## ***Dear Valued Customer and Partner,***

For over 80 years Buehler has been a trusted partner with material analysis labs worldwide. Our focus is to provide high quality products and, most importantly, provide premium level support.

Whether you are prepping and testing for time sensitive quality control or conducting advanced research and development requiring the best sample finish, we have the products and the people to help you optimize your process and achieve your lab's goals.

Buehler's unparalleled support comes from working with customers across all industries to develop the best and most reliable sample analysis solutions. Our products are trusted by some of the most quality critical labs in the world. We are proud to collaborate with over 40,000 customers in 93 countries around the globe.

**Eugenio Calderon**  
Vice President &  
General Manager  
Buehler Global

I am pleased to introduce the 2022 Buehler product catalog. Inside you will find innovative, market leading products, and we are continuously releasing additional new technologies. I encourage you to reach out to our experts to get the right products and methods for your lab.

Thank you for considering Buehler and please let us know how we can further support your material preparation and analysis needs.

Stay well,  
Eugenio Calderon  
Vice President & General Manager - Buehler Worldwide

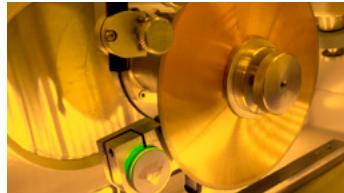


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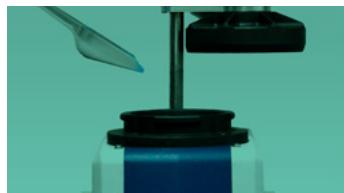
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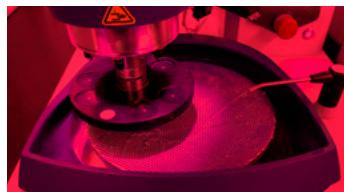
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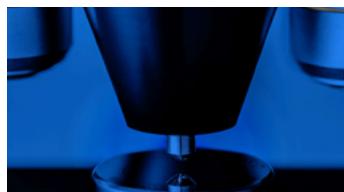
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Wilson® Hardness Testers including Rockwell®, Knoop/Vickers, Brinell and Universal machines. DiaMet® Software, Hardness Blocks and Accessories.

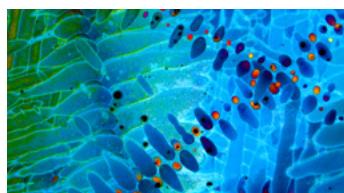
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## ADDITIONAL INFORMATION

Customer Care, Expert Lab Solutions, Service, Consumable Shelf Life, 2022 Calendar Submissions.

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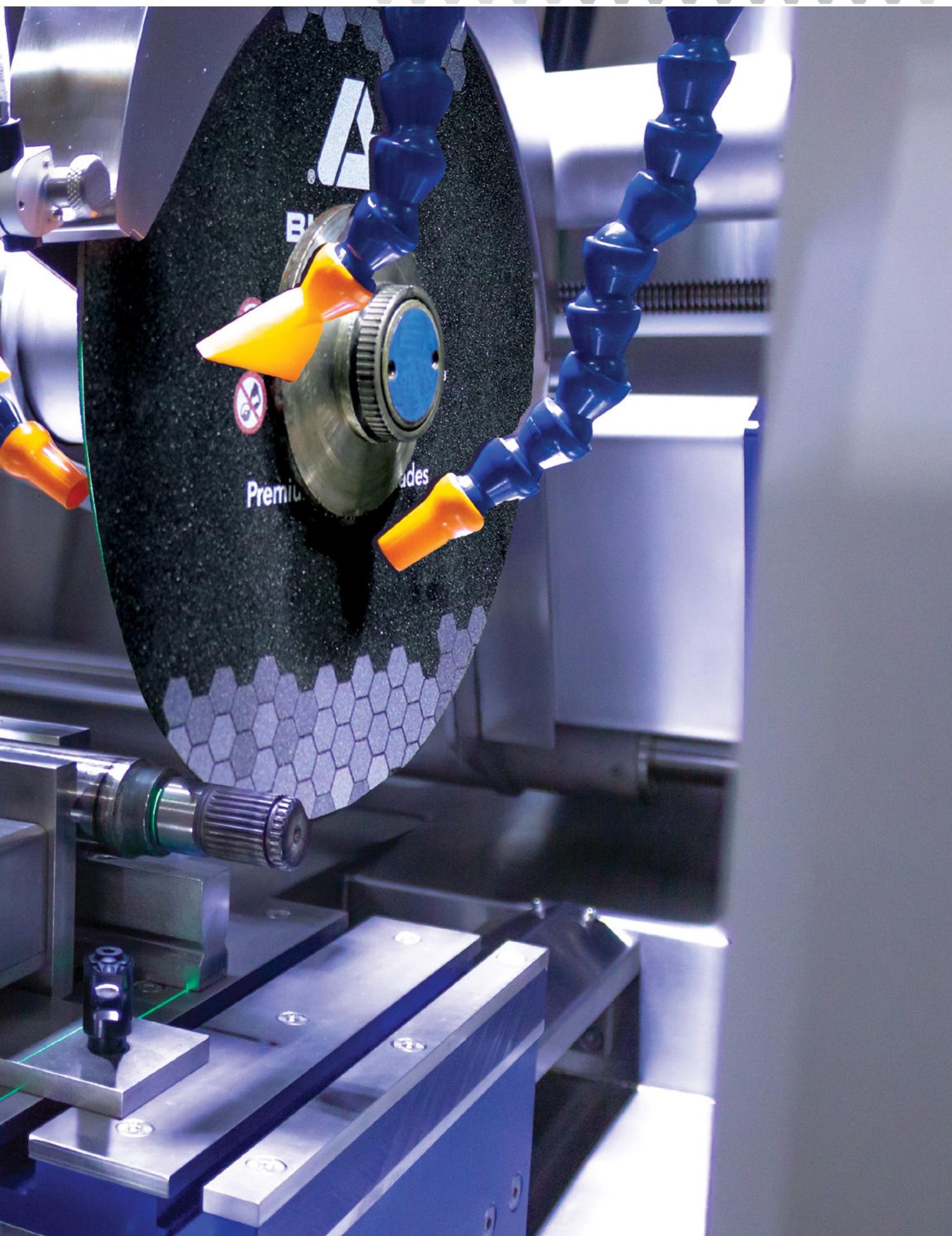


# SECTIONING

A full range of abrasive and precision saws, blades, and vises for cutting any material

Specimen preparation for microstructural examination starts with a quality cut. The proper equipment with firm and stable vising minimizes the depth of deformation on the sample surface. The abrasive and precision saws save time by limiting the number of steps needed to analyze samples after sectioning.





# Product Comparison

## Abrasive Cutters

	AbrasiMet® M	AbrasiMatic® 300	AbrasiMet® XL Pro
Wheel Diameter	10in [254mm] 12in [305mm]	12in [305mm]	14in [356mm] 16in [406mm] 18in [457mm]
Motor Power	5.5Hp [4kW]	5.5Hp [4kW]	13.4Hp [10kW]
Cut Types	Chop	Chop, Y-Feed, Pulsing	Chop, Y-feed, Planar, Pulsing
Manual Movement	Z-axis	X-axis*, Y-axis, Z-axis	X-axis, Y-axis, Z-axis
Automated Movement		Y-axis	X-axis, Y-axis, Z-axis
Vising Table Size	12 x 9.8in [305 x 250mm]	14.4 x 10in [365 x 254mm]	19.9 x 11.8in [505 x 300mm]
Maximum Part Size in Chamber	25 x 13 x 4.3in [636 x 330 x 109mm]	16 x 6 x 3.75in [406 x 152 x 95mm]	49 x 24 x 7in [1245 x 610 x 178mm]
Cutting Capacity**	4.3in [109mm]	3.75in [95mm]	7in [178mm]

\*Optional Items \*\*Maximum cutting capacity assumes largest size blade with smallest flange.

## Precision Cutters

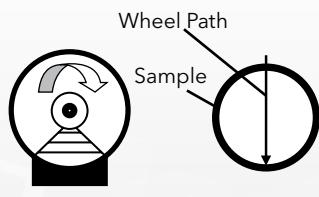
	IsoMet® Low Speed	IsoMet® 1000	IsoMet® High Speed	IsoMet® High Speed Pro	PetroThin® Thin Sectioning System
Maximum Wheel Diameter	5in [127mm]	7in [178mm]	8in [203mm]	8in [203mm]	8in [203mm]
Cut Style	Gravity Fed	Gravity Fed	Y-Feed	Y-Feed	Manual
Sample Movement	X-axis, Z-axis	X-axis, Z-axis			X-axis, Z-axis
Wheel Movement			X-axis, Y-axis	X-axis, Y-axis and Z-axis	
Maximum Cutting Capacity**	1.77in [45mm]	2.5in [64mm]	2.8in [71mm]; 2 x 6.5 x 1in [51 x 165 x 25mm]	2.8in [71mm]; 2 x 6.5 x 1in [51 x 165 x 25mm]	Petrographic Glass Slides: 1.06 x 1.81in [27x46mm] or 3 x 1in [76.2 x 25.4mm]

\*\*Maximum cutting capacity assumes largest size blade with smallest flange.

## Cutting Style and Wheel Path

### Chop Cutting

The traditional form of machine operation. Wheel contact arc is governed by sample depth. Can sometimes have limited ability with large/difficult parts.



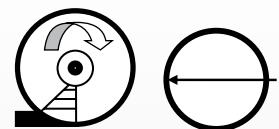
### Chop Cutting with Pulsing

Wheel contact still governed by sample depth. The pulsing action pauses the feed rate in short intervals enabling coolant to wash away swarf and dissipate heat, resulting in a better surface quality.



### Y-Feed Cut

The abrasive wheel is stationary and the cutting table moves forward completing a one time cut into the sample. Wheel contact arc is governed by sample height.



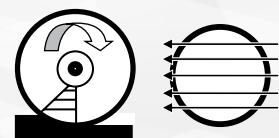
### Y-Feed Cut with Pulsing

Wheel Contact arc is still governed by sample height. The pulsing action pauses the feed rate in short intervals enabling coolant to wash away swarf and dissipate heat, resulting in a better surface quality.



### Planar Cut

In Planar mode, a Y-feed cut is completed in successive vertical steps. Wheel contact arc is governed by the height of each step rather than the height of the sample.



# AbrasivCutters

## Simple Setup for Efficient Cuts

The AbrasiMet M is an easy to use, manual, tabletop cutter that provides excellent cutting results.

### AbrasiMet® M

The AbrasiMet M is a benchtop manual cutting machine for 10in [254mm] and 12in [305mm] blades that provides consistent sectioning results.

#### Easy to Cut and Maintain

- No tools required to change blades
- Adjustable cutting arm to maximize ergonomics
- Recirculation tank with filter minimizes the frequency and time required to clean

#### Durable Machine with Versatile Performance

- Powerful motor cuts through materials with ease
- Dual blade feature performs two cuts in a single cycle

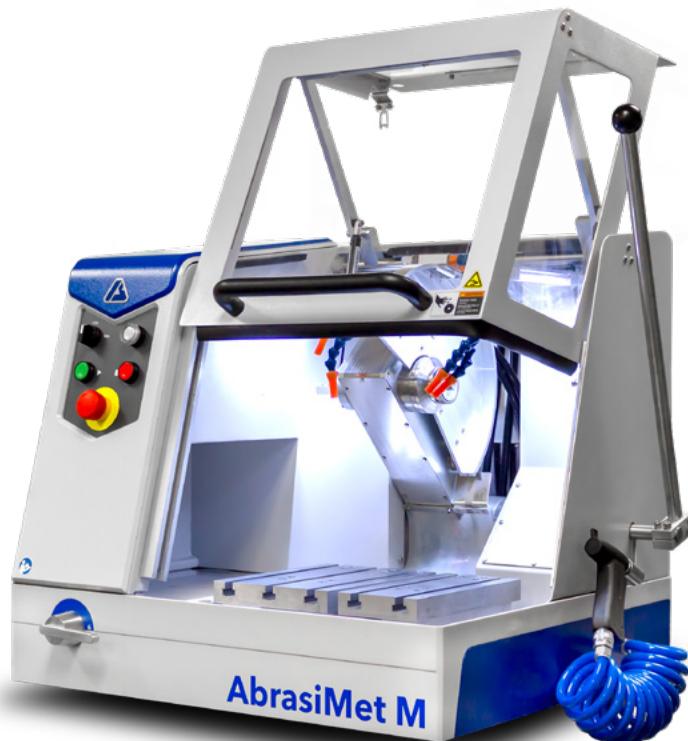
Part Number	Voltage/Frequency
10-10107-200	200 - 240VAC, 50-60Hz
10-10107-400	380 - 460VAC, 50-60Hz
10-10107-200C	CSA 200-240VAC, 50-60Hz

#### Recirculation Tank (Required)

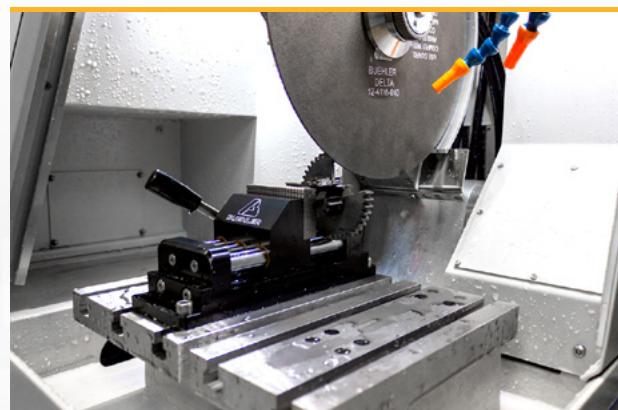
The Advanced Recirculation tank features a dual tank design that makes regular debris removal fast and simple, extending the time in between emptying the 19gal [70L] reservoir. See also on page 10.

10-2167-200 Advanced Recirculation Tank 200-240VAC, 50/60Hz

10-2167-400 Advanced Recirculation Tank 380-460VAC, 50/60Hz



**Dimensions:** 31.1in [791mm] W x 27.3in [694mm] Dx 36.2in [979mm] H open  
**Weight:** 309 lb [140 kg] 25.7in [653mm] H closed



# Abrasive Cutters



## Highly Reproducible Results

Our line of abrasive cutters are built for high volume environments. Our cutters combine speed and advanced features without compromising cut quality.



### AbrasiMatic® 300

The AbrasiMatic 300 is a benchtop cutting machine for 12in [305mm] blades that provides both manual and automatic cutting capabilities. These capabilities provide versatility in sectioning to suit a wide variety of needs. All configurations come with movement in the Y and Z directions, but X movement is an additional option.

#### Y and Z axis cutting only

Part Number	Voltage
10-2190-260	200-240VAC, 60Hz
10-2190-460	440-480VAC, 60Hz
10-2190-250	200-240VAC, 50Hz
10-2190-400	380-400VAC, 50Hz

#### Additional X Axis cutting

Part Number	Voltage
10-2193-260	200-240VAC, 60Hz
10-2193-460	440-480VAC, 60Hz
10-2193-250	200-240VAC, 50Hz
10-2193-400	380-400VAC, 50Hz



**Dimensions:** 34in [864mm] x 27in [686mm] x 41in [1041mm] open  
**Weight:** 350lb [165kg]



# Abrasives Cutters

## Robust Machine with Intuitive Features

The durable design and intuitive features of the AbrasiMet XL Pro make it the ideal machine for high volume environments that require the highest levels of cut quality, flexibility and consistency.



### AbrasiMet® XL Pro

The AbrasiMet® XL Pro is a floor standing automatic abrasive cutting machine for 14in [356mm] to 18in [457mm] blades that provides consistent and repeatable cut quality for large samples.

#### Intuitive and Quick to Operate

- Quickly set up for a cut by positioning the blade and table with the joystick and laser alignment
- Save cutting methods to ensure repeatability and consistency
- Filtration recirculation tank with vibration motor continuously filters and compacts the coolant to minimize cleaning frequency and time.

#### Powerful Machine for Demanding Environments

- Ideal for heavy duty, repetitive use in the toughest environments
- Efficiently and quickly cut through hard and difficult materials with the powerful 13.4hp [10kW] motor
- Choose between multiple cutting modes like Chop, Y-feed, Planar, and Manual to section parts
- Use Buehler's exclusive feature Variable SmartCut to maximize speed and cut quality



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Part Number	Voltage/Frequency
10-2320-400	380-480VAC, 50/60Hz

See page 8 for vise with 12mm T-nuts

Advanced Recirculation System included

**Dimensions:** 54in [1372mm] W x 50.7in [1288mm] D x 75in [1905mm] H

**Weight:** 1750 lb [800 kg]

#### Accessories

##### Mist Extractor

It is highly recommended to use the mist extractor listed below or connect the machine to a facility exhaust system

10-2343-400 Mist Extractor



# Abrasive Cutter Vises Accessories

## Single Piece Sliding Vises

### Speed Clamping Vise



**Size:** Medium

**Part Numbers:** Left: 10-3544  
Right: 10-3545

**Max Opening:** 2.75" [70mm]

**Clamping Plate:** 3.2" x 1.4"  
[80 x 35mm]

**T-Nuts:** 12mm or 14mm

**Size:** Large

**Part Numbers:** Left: 10-3546  
Right: 10-3547

**Max Opening:** 7.3" [185mm]

**Clamping Plate:** 3.1" x 3.5"  
[78 x 89mm]

**T-Nuts:** 12mm or 14mm



### MetKlamp VIII S

Ideal for AbrasiMet M



**Part Numbers:** Left: 95-C1821S

Right: 95-C1822S

**Max Opening:** 2.08" [53mm]

**Clamping Plate:** 1.75" x 2.25"  
[45 x 58mm]

**T-Nuts:** 12mm

### MetKlamp VIII



**Part Numbers:** Left: 95-C1821

Right: 95-C1822

**Max Opening:** 3.125" [80mm]

**Clamping Plate:** 1.75" x 2.25"  
[45 x 58mm]

**T-Nuts:** 12mm

## Two Piece Sliding Vises

### Sliding Vise Kit



**Size:** Medium

**Part Numbers:** Left: 10-3540  
Right: 10-3541

**Clamping Plate:** 2.36" x 3"  
[60x76 mm]

**T-Nuts:** 12mm\*

**Size:** Large

**Part Numbers:** Left: 10-3542  
Right: 10-3543

**Clamping Plate:** 2.95" x 4.23"  
[74 x 107mm]

**T-Nuts:** 12mm\*

\*14mm conversion kits are available

Medium: 10-3548

Large: 10-3549

## Vertical Clamping Vises

### Vertical Clamping Kit



**Size:** Small

**Part Numbers:** 10-3531

**Clamping Height:** 2.3" [58mm]

**Reach:** 2.1" [54mm]

**T-Nuts:** 12mm

**Size:** Large

**Part Numbers:** 10-3523

**Clamping Height:** 4" [102mm]

**Reach:** 2.4" [61mm] + 3.5" [90mm]  
with extension (included)

**T-Nuts:** 12mm and 14mm

## Specialty Vises

### Chain Clamping Kit



**Application:** For clamping very large or irregularly shaped samples

**Part Number:** 46-0030

### Fastener Vise



**Application:** For longitudinal sectioning of fasteners. Must be held with either Single Piece (recommended) or Two Piece Left Hand Sliding Vice.

**Max Opening:** 1.6" [40.6mm]

**Part Number:** 95-C1702

### Riser Blocks

#### Vertical Clamping Kit

### Riser Blocks

Small: 10-3532; 2.4" [60mm]

Large: 10-3528; 2.9" [74mm]



### Horizontal Clamp

**T-Nuts:** 12mm and 14mm

**Part Number:** 10-3526



### Vee Block Clamp Kit

#### Vertical Clamping Kit

### Vee Block Clamp Kit

**T-Nuts:** 12mm and 14mm

**Part Number:** 10-3527



### Adjustable Vee Blocks

**T-Nuts:** 12mm and 14mm

**Part Number:** 10-3525



# AbrasivCutter Accessories

## Recirculating Systems for Abrasive Sectioning

For AbrasiMet® M



### Advanced Recirculating System 19 gal [70L]

24.5 W x 16.5 D x 24.5in H  
620 W x 420 D x 620mm H  
10-2167-200 [200-240VAC, 50/60Hz]  
10-2167-400 [380-460VAC, 50/60Hz]

For AbrasiMatic® 300



### Recirculating System 22 gal [85L]

26.5 W x 18.25 D x 26.5in H  
674 W x 464 D x 674mm H  
(22.5in [572mm]H w/o wheels)  
10-2332-260 [200-240VAC, 60Hz]  
10-2332-460 [440-480VAC, 60Hz]  
10-2332-250 [200-240VAC, 50Hz]  
10-2332-400 [380-400VAC, 50Hz]

#### Part Numbers

10-2431-400

#### Description

42 gal [160L] with sloped filter  
for AbrasiMatic 300 and Delta  
30 W x 25.5 D x 24in H  
762 W x 648 D x 610mm H

## Additional Abrasive Accessories



### Cool 3 Fluid

Water miscible fluid concentrate  
recommended for abrasive cutting.  
Dilute coolant to 1:25 to 2:25, with  
water.

10-6001 33.8oz [1L]  
10-6004 1gal [4L]  
10-6010 2.6gal [10L]

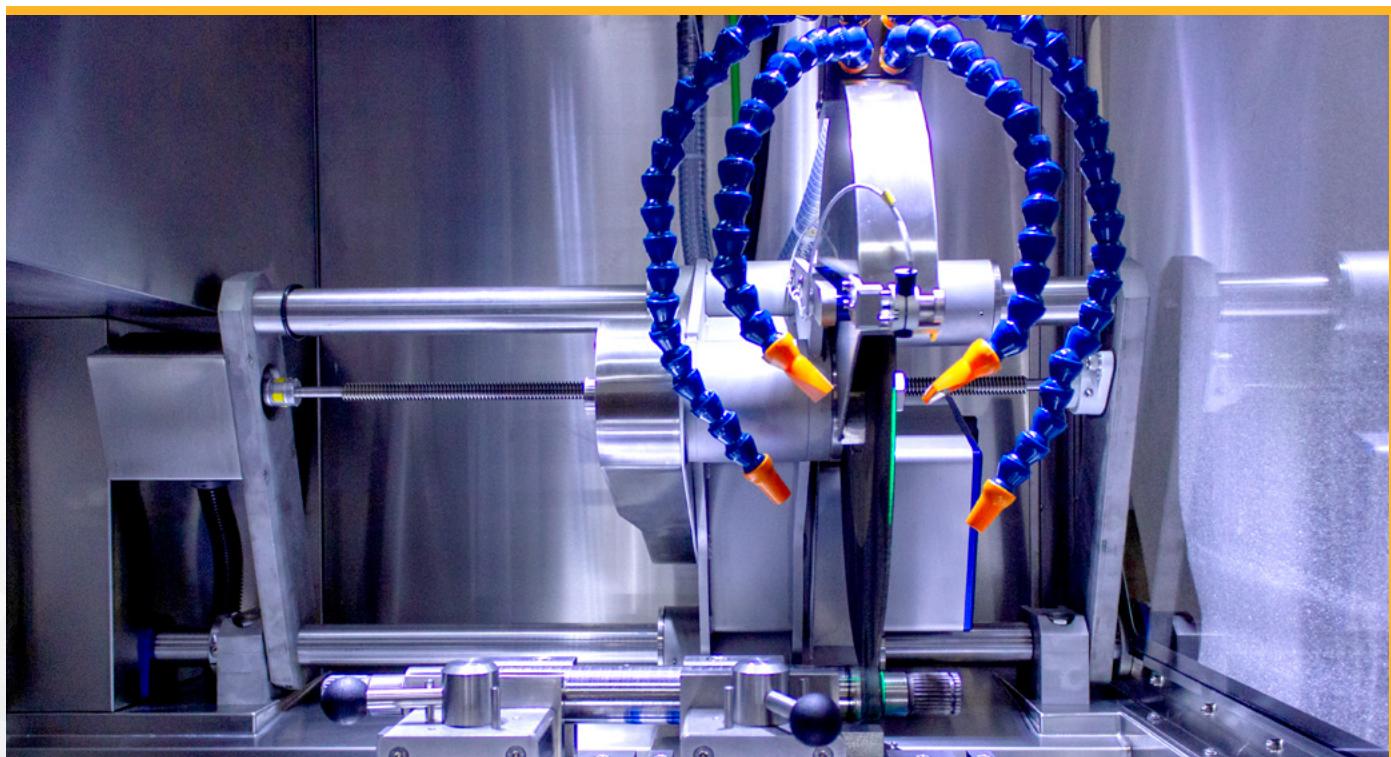


### Base Cabinet

For AbrasiMet M and AbrasiMatic 300  
36 W x 30 D x 36in H  
[910 W x 760 D x 910mm H]

80-10001

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# Abrasives Cutter Blades



## Abrasives Blades

Buehler's Abrasives Blades are designed to provide high quality sectioning results with no burning and minimal surface deformation. This can reduce the amount of grinding & polishing required later in the preparation process.

### Efficient Cutting with Extended Life

An abrasive blade wears down during cutting to expose new abrasive particles and maintain efficient cutting. However, too fast of a wear rate leads to shortened blade life. Buehler's blades have been designed to balance this wear rate to maintain efficient cutting while extending blade life.

### Resin Bond vs Rubber Bond

Buehler's line of abrasive blades includes both rubber bonded and resin bonded blades. While both provide high quality cutting, there are some differences between them. Rubber bonded blades may be thinner for some applications, but emit a burnt rubber odor while cutting. Resin bonded blades offer similar performance with a reduced odor.

### Abrasives Blades Selection, 1.25in [32mm] Arbor (Qty 10)

[Blade Thickness is listed under Part Number] **Rubber Bond =** **Resin Bond =**   
**SiC Cutting Particle =** **Al<sub>2</sub>O<sub>3</sub> Cutting Particle =**

Recommended Use	10in [254mm] Chop/Linear	12in [305mm] Chop/Linear	14in [356mm] Chop/Linear	16in [406mm] Chop/Linear
Superalloys, General Steel, Non-Ferrous	12-4205-010 0.051in [1.3mm]	12-4405-010 0.055in [1.4mm] 10-31205-010 0.08in [2mm]	12-4305-010 0.063in [1.6mm] 10-31405-010 0.10in [2.5mm]	10-31605-010 0.125in [3mm]
Ferrous materials >HRC60	10-4210-010 0.083in [2.1mm] 102509P 0.06in [1.5mm]	12-4110-010 0.09in [2.3mm] 103009P 0.08in [2mm] 10-31218-010 0.08in [2mm]	10-4310-010 0.075in [1.9mm] 103509P 0.098in [2.5mm]	10-31610-010 0.125in [3mm]
Ferrous materials HRC50-60	10-4212-010 0.083in [2.1mm] 10-31014-010 0.06in [1.5mm]	10-4412-010 0.105in [2.7mm] 10-31212-010 0.08in [2mm]	10-4312-010 0.09in [2.3mm] 103509P 0.098in [2.5mm] 10-31412-010 0.10in [2.5mm]	10-31612-010 0.125in [3mm]
Ferrous materials HRC35-50	10-4216-010 0.083in [2.1mm] 102510P 0.06in [1.5mm] 10-31014-010 0.06in [1.5mm]	12-4116-010 0.105in [2.7mm] 103010P 0.083in [2.1mm]] 10-31218-010 0.08in [2mm]	12-4305-010 0.063in [1.6mm] 103510P 0.098in [2.5mm] 10-31416-010 0.10in [2.5mm]	10-31616-010 0.125in [3mm]
Ferrous materials HRC15-35	10-4220-010 0.067in [1.7mm] 102511P 0.06in [1.5mm]	12-4120-010 0.105in [2.7mm] 103011P 0.079in [2mm]	12-4305-010 0.063in [1.6mm]	
High Speed Steel, Stainless Steel, Carburized Steel	102508P 0.063in [1.6mm]	103008P 0.079in [2mm]	103508P 0.102in [2.6mm]	
Delicate Cutting	10-4227-010 0.032in [0.8mm]			
Titanium Alloys, Zirconium Alloys, Ductile Materials	10-4245-010 0.063in [1.6mm] 102507P 0.06in [1.5mm]	12-4145-010 0.087in [2.2mm] 103007P 0.079in [2mm]	10-4345-010 0.063in [1.6mm] 103507P 0.098in [2.5mm]	
Non-Ferrous Materials (Aluminum, Copper, Brass), Very Soft Ferrous Materials	10-4250-010 0.063 in [1.6mm] 102512P 0.06in [1.5mm]	103012P 0.079in [2mm]	10-4350-010 0.087in [2.2mm]	10-31650-010 0.125in [3mm]

# Abrasives Cutter Blades

## AcuThin™ Blades (Qty 10)



For certain applications, it is important to minimize the amount of damage done to the sample during sectioning. The AcuThin series offers thin blades that have been developed to minimize the area of cutting thus reducing the amount of damage to the sample. These blades utilize a rubber bond and allow for precise, delicate abrasive sectioning with minimal surface damage. [Blade Thickness is listed under Part Number]

Recommended Use	9in [230mm]	10in [254mm]	12in [305mm] Chop	14in [356mm] Chop
General Use <HRC45	102301 0.032in [0.8mm]	102501 0.04in [1mm]	10-4360-010 0.032in [0.8mm]	10-3501 0.063in [1.6mm]
Ferrous Materials >HRC45	10-4161-010 0.025in [0.635mm]	10-4261-010 0.025in [0.635mm]	10-4361-010 0.025in [0.635mm]	103502 0.105in [2.7mm]

## Abrasive Blades Selection, 1.25in [32mm] Arbor (Qty 10)

[Blade Thickness is listed under Part Number] Rubber Bond = Resin Bond =

SiC Cutting Particle = Al<sub>2</sub>O<sub>3</sub> Cutting Particle =

Recommended Use	12in [305mm] Orbital	14in [356mm] Orbital	16in [406mm] Orbital	18in [457mm] Orbital
Superalloys, General Steel, Non-Ferrous	12-4405-010 0.055in [1.4mm]	12-4305-010 0.063in [1.6mm]	12-5605-010 0.075in [1.9mm]	12-5805-010 0.1in [2.5mm]
Ferrous materials >HRC60	12-4410-010 0.105in [2.7mm]	12-4310-010 0.105in [2.7mm]	12-5610-010 0.125in [3mm]	12-5810-010 0.153in [3.8mm]
Ferrous materials HRC50-60	12-4410-010 0.105in [2.7mm]	12-4310-010 0.105in [2.7mm]	12-5612-010 0.125in [3mm]	12-5812-010 0.153in [3.8mm]
Ferrous materials HRC35-50	12-4416-010 0.105in [2.7mm]	12-4316-010 0.105in [2.7mm]	12-5616-010 0.125in [3mm]	12-5816-010 0.153in [3.8mm]
Ferrous materials HRC15-35	12-4420-010 0.105in [2.7mm]	12-4320-010 0.087in [2.2mm]	12-5616-010 0.125in [3mm]	12-5816-010 0.153in [3.8mm]
Titanium Alloys, Zirconium Alloys, Ductile Materials			12-5645-010 0.075in [1.9mm]	

## Diamond & CBN Blades for Abrasive Cutters

[Blade Thickness is listed under Part Number] 1.25in [32mm] Arbor (Qty 1)



Recommended Use	Blade Type	10in [250mm]	12in [300mm]	14in [350mm]
General Use	Diamond	114610E 0.051in [1.3mm]		
Hard Materials	Diamond	114810E 0.047in [1.2mm]	103056 0.055in [1.4mm]	114814E 0.059in [1.5mm]
Ceramic and Petrographic samples	Diamond	114710E 0.047in [1.2mm]	103053 0.087in [2.2mm]	114714E 0.059in [1.5mm]
Plastics and Polymers	Diamond	102557 0.049in [1.25mm]		
General use, hardened steel, HRC55 and Up	CBN			103551 0.079in [2mm]

# Precision Cutters

## Excellent Cut Quality for Delicate Samples

Sectioning tools capable of cutting virtually any material including metals, composites, cements, laminates, plastics, electronic devices and biomaterials.



### IsoMet® High Speed

The IsoMet High Speed and IsoMet High Speed Pro are benchtop precision cutters. These machines enable variety in sample preparation to best fit each sample process with automatic cutting capabilities. Quick sample placement or adjustments are achieved in seconds with the rapid rail and tool-less vising system. Sample capacity is 2.8in [71mm] diameter with blade speeds of 200-5000 RPM.

#### Automatic Dressing System

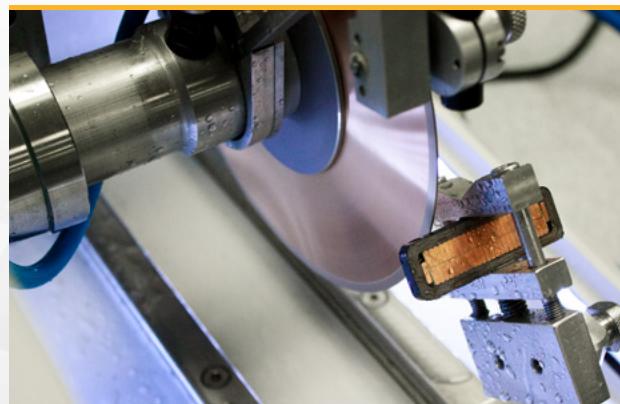
- Maintain consistent cut quality between and during cutting with the automatic dressing system.

#### Rapid Alignment Laser

- Minimize setup time by rapid visual alignment with the IsoMet High Speed Laser.

#### Precise Cut Alignment [Z-Axis]

- Align precise cuts quickly by using the 3 axis variable movement of the blade.



**Dimensions:** 24in [609.6mm]W x 30in [762mm]D x 36in [914.4mm]H open  
**Weight:** 157lbs [71kg] 19in [482.6mm]H closed

Model	Part Number	Voltage/Frequency
IsoMet® High Speed Pro	11-2700	100 - 240VAC, 50-60Hz
IsoMet® High Speed	11-2600	100 - 240VAC, 50-60Hz

#### Accessories

##### Table Attachment

Add a 12mm T-slot table to use Buehler's abrasive sectioning solutions on this machine  
11-2707 12mm T-slot table

##### Abrasive Vising

The MetKlamp VIII S (95C1821S/22S) and Medium sliding Vises (103540/41) are compatible with the IsoMet High Speed equipped with 12mm T-slot table (112707)



# Precision Cutter Accessories

## IsoMet® High Speed Cutter Accessories

Single Saddle Chuck	Double Saddle Chuck	Mount Chuck	Fastener Chuck
			
Large Single Saddle Chuck holds specimens up to 1.5in [38mm] from 2 point	Securely holds specimens up to 1.5in [38mm] from 2 points	Stainless steel chuck holds mounted samples	Holds specimens from 0.04in [1mm] to 2in [50mm] for longitudinal sectioning
11-2661	11-2662	11-2666 1.25in [30mm] 11-2667 1.5in [40mm]	11-2687
Large Bone Chuck	T-Slot Bed	Sliding Vise	Rapid Rail Post
			
Ideal for clamping bone, plastics, or other semi-rigid specimens up to 2in [50mm] in diameter	Additional T-slot for positioning vises	6in [152mm] maximum opening, use requires flange to be 2in [50mm] or less, requires T-slot bed	Use with Rapid Rail
11-2494	11-2707	11-2669	11-2660
Small Vertical Clamp	Irregular Specimen Chuck	Recirculating System 7gal [27L]	
			14
Clamps specimens up to 58mm in height	Adjusts to hold irregular shaped specimens up to 1in [25mm] in diameter	Increases cutting fluid capacity to 7gal [27L] at 1.25gal/min [4.7L/min] 16in [406mm]W x 20in [508mm]D x 15in [381mm]H	
460022	11-1185	11-2640	

## IsoMet® Precision Cutter Flanges

Aluminum Flange Set		Stainless Steel Flange Set	
11-1192	1.38in [35mm]	11-2688*	3in [76mm]
11-1191	1.75in [44mm]	11-2689*	4in [102mm]
11-2679	2.5in [64mm]	*Recommended for the IsoMet High Speed	
11-2282	3in [76mm]		
11-2283	4in [102mm]		
11-2284	5in [127mm]		

# Precision Cutters

## Precision with Flexibility

The gravity-fed machines in the IsoMet family provide great versatility in holding all types of sample shapes and configurations.



### IsoMet® 1000

The IsoMet 1000 is a precision sectioning saw designed for cutting various types of materials with minimal deformation. Targeted for delicate parts by only using gravity fed force.

\*Includes 6in 15LC diamond blade, 3in aluminum flanges and the following chucks: Single Saddle, Bar & Tube, Wafer and Irregular Specimen

Part Number	Voltage
11-2180	85-264VAC, 50/60Hz

#### Accessories

##### Table Saw Attachment

Transform the machine into a manual table saw, ideal for electronics and other planar cutting applications

11-2182 Table Saw Attachment



**Dimensions:** 15.5in [394mm]W x 20.25in [514mm]D x 24.5in [622mm]H open  
12in [305mm]H closed

**Weight:** 56lbs [25kg]

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### IsoMet® Low Speed

The IsoMet Low Speed is a precision sectioning saw designed for cutting various types of materials with minimal deformation. Targeted for delicate parts by only using gravity fed force.

Includes 4in IsoMet Blade, assorted weights, dressing stick, flanges and the following chucks: single saddle, irregular specimen and wafer

Part Number	Voltage	Units
11-1280-160	115VAC, 50/60Hz	Inches
11-1280-170	115VAC, 50/60Hz	Millimeters
11-1280-250	230VAC, 50/60Hz	Millimeters



**Dimensions:** 10.5in [267mm]W x 12in [305mm]D x 13in [330mm]H  
**Weight:** 25lbs [11.3kg]

#### Tips, Tricks & Techniques



For the best performance from your Precision Cutter System:

- Always tightly clamp your sample
- Use double saddle chucks for long parts such as rods
- Do not hand dress blades
- Mount spheres, unusual shapes and friable materials
- Use the largest flange for your blade and specimen
- Soft, gummy materials can build up on the blade during the cut and may require dressing while sectioning these materials.

# Precision Cutter Accessories

## IsoMet® Low Speed Cutter Accessories



Positions specimen along  
3 axis

[11-2381](#)



Enables blade dressing without  
removing the sample fixture

[11-1196](#)



Prevents lubricant from splashing  
out of saw

[11-1199](#)

## IsoMet® Low Speed Cutter & 1000 Accessories



Swivels to position specimen  
cutting surface perpendicular  
to blade (replaces support arm  
provided with cutter)

[11-1181](#)



Securely holds end of a bar tube  
up to 2in [50mm] long and 0.5in  
[13mm] in diameter

[11-1184](#)



Use mounting wax, 40-8150 or  
40-8145 to glue specimens to  
wafer chuck  
1.125 x 2in [29 x 51mm]

[11-1186](#)



Holds specimens mounted to  
glass slides to chuck with vacuum  
force

[11-1188](#)

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Ideal for clamping bone, plastics,  
or other semi-rigid solids up to  
1.5in [32mm] in diameter

[11-1194](#)



Small Double Saddle Chuck that  
securely holds specimen up to  
0.875in [22mm] from 2 points

[11-1183](#)



Adjusts to hold irregular shaped  
specimens up to 1in [25mm] in  
diameter

[11-1185](#)



Holds specimens up to 0.75in  
[19mm] in diameter

[11-1187](#)



Aluminum chuck holds mounted  
samples  
1-1.25in [25-32mm]

[11-1189](#)

# Precision Cutter Accessories

## IsoMet® 1000 Accessories

### Table Saw Splash Guard



Catches splashing lubricant when used in conjunction with the Table Saw Attachment (11-2182)

11-2186

### Table Saw Attachment



Transforms gravity fed IsoMet 1000 into convenient table saw

11-2182

### 800 gram Weight Set



Additional weights for gravity fed saws

11-2183

### Swivel Arm Accessory



Swivels to position specimen cutting surface perpendicular to blade (replaces provided support arm)

11-2184

### Mount Chuck



Holds mounted samples 1.5in [40mm]

11-2489

### Fastener Chuck



Holds specimen from 0.96in [24.5mm] to 2in [50mm] for longitudinal sectioning

11-2482

### Single Saddle Chuck



Medium Single Saddle Chuck holds up to 1in [25mm] specimen

11-2487

### Double Saddle Chuck



Large Double Saddle Chuck that securely holds specimen up to 1.5in [38mm] from 2 points

11-2483

### Small Glass Slide Chuck



Holds 27 x 46mm, 1 x 2in, or 1 x 3in glass slides

11-2484

### Large Glass Slide Chuck



Holds 2 x 3in glass slides

11-2488

### Wafer Chuck



Use mounting wax (40-8150) to glue specimens to wafer chuck  
1.75 x 2.5in [44 x 64mm]

11-2486

# Precision Cutter Consumables



## Precision Sectioning Blades for IsoMet® Cutters, 0.5in [12.7mm] Arbor (Qty 1)

[Blade Thickness is listed under Part Number]

Recommended Use	3in [76mm]	4in [102mm]	5in [127mm]	6in [152mm]
Use with Saws	All	All	All	1000 IsoMet High Speed
<b>IsoMet 30HC</b> - Polymers Rubber, Soft Gummy Materials			11-4239 0.030in [0.76mm]	
<b>IsoMet 20HC</b> - Aggressive general sectioning of ferrous and non-ferrous materials			11-4215 0.020in [0.5mm]	
<b>IsoMet 15HC</b> - Blades for routine use, metal matrix composites, PC boards, bone, titanium, thermal spray coatings	11-4243 0.006in [0.15mm]	11-4244 0.012in [0.3mm]	11-4245 0.015in [0.4mm]	11-4246 0.02in [0.5mm]
<b>IsoMet 20LC</b> - Hard tough materials, structural ceramics, boron nitride, silicon nitride			11-4225 0.02in [0.5mm]	
<b>IsoMet 15LC</b> - Hard and brittle materials, structural ceramics, glass, electronic substrates, alumina, zirconia, concrete	11-4253 0.006in [0.15mm]	11-4254 0.012in [0.3mm]	11-4255 0.015in [0.4mm]	11-4276 0.02in [0.5mm]
<b>IsoMet 10LC</b> - Medium to Soft Ceramics, Glass Fiber Reinforced Composites	11-4283 0.006in [0.15mm]		11-4285 0.015in [0.4mm]	
<b>IsoMet 5LC</b> - Soft, Friable Ceramics, Composites with Fine Reinforcing, CaF <sub>2</sub> , MgF <sub>2</sub> , Carbon Composites	11-4293 0.006in [0.15mm]		11-4295 0.015in [0.4mm]	
<b>IsoCut CBN</b> - Ferrous materials, nickel, cobalt, lead-based alloys and super alloys	11-4263 0.006in [0.15mm]	11-5264 0.012in [0.3mm]	11-5265 0.015in [0.4mm]	11-5266 0.02in [0.5mm]
Cup Grinder for Ceramic & Geological Materials			11-2740	

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Recommended Use	7in [178mm]	8in [203mm]	Dressing Stick*
Use with Saws	1000 IsoMet High Speed	IsoMet High Speed Pro only	
<b>IsoMet 30HC*</b> - Polymers Rubber, Soft Gummy Materials	11-4241 0.03in [0.76mm]	11-4242 0.035in [0.9mm],	Blade should not be dressed
<b>IsoMet 20HC</b> - Aggressive general sectioning of ferrous and non-ferrous materials	11-4237 0.025in [0.6mm]	11-4238 0.035in [0.9mm]	11-1190 11-2490
<b>IsoMet 15HC</b> - Blades for routine use, metal matrix composites, PC boards, bone, titanium, thermal spray coatings	11-4247 0.025in [0.6mm]	11-4248 0.035in [0.9mm]	11-1190 11-2490
<b>IsoMet 20LC</b> - Hard tough materials, structural ceramics, boron nitride, silicon nitride	11-4227 0.025in [0.6mm]	11-4228 0.035in [0.9mm]	11-1190 11-2490
<b>IsoMet 15LC</b> - Hard Brittle Materials, Glass, Al <sub>2</sub> O <sub>3</sub> , ZrO <sub>3</sub> , Concrete	11-4277 0.025in [0.6mm]	11-4279 0.045in [1.1mm]	11-1190 11-2490
<b>IsoMet 10LC</b> - Medium to Soft Ceramics, Glass Fiber Reinforced Composites	11-4287 0.02in [0.5mm]	11-4288 0.045in [1.1mm]	11-1290
<b>IsoMet 5LC</b> - Soft, Friable Ceramics, Composites with Fine Reinforcing, CaF <sub>2</sub> , MgF <sub>2</sub> , Carbon Composites			11-1290
<b>IsoCut CBN</b> - Ferrous materials, nickel, cobalt, lead-based alloys and super alloys	11-5267 0.025in [0.6mm]	11-5268 0.035in [0.9mm]	11-1190 11-2490

All Blades (Except 30HC) come with a Dressing Stick included. The Part Numbers shown in the table can be used for re-ordering the Dressing Sticks.

\* Use an IsoMet 30HC blade for cutting a PWB when using Table Saw Attachment

# Precision Cutter Consumables



## AcuThin™ Abrasive Blades for IsoMet® Precision Cutters, 0.5in [12.7mm] Arbor (Qty 10)

[Blade Thickness is listed under Part Number]

Recommended Use	5in [127mm]	7in [178mm]	150mm	200mm
Tool Steel, hard steel, HRC45 & Up	10-4060-010 0.019in [0.48mm]			
Medium hard, soft steel, HRC45 & Below	10-4061-010 0.019in [0.48mm]			
Steel, Stainless Steel		11-4207-010 0.030in [0.76mm]		
Hard, soft non-ferrous materials		11-4217-010 0.030in [0.76mm]		
Tough materials and general use			1015998E 1mm	1020998E* 1.5mm

\*IsoMet High Speed Pro Only

## Additional Precision Cutting Consumables



Oil based coolant only for use with the IsoMet Low Speed Saw or any saw with a maximum speed of 500rpm

11-1193-032 1qt [0.95L]  
11-1193-128 1gal [3.8L]



Clear paste for keeping cutter windows clear

109003 2oz [60mL]



Cleaner for recirculation systems

109004 1.25gal [4.75L]



### Cool 3 Fluid

Water miscible fluid concentrate. Dilute coolant to 1:25 to 2:25, with water.

10-6001 33.8oz [1L]  
10-6004 1gal [4L]  
10-6010 2.6gal [10L]



### Dressing Wheel

For IsoMet High Speed and High Speed Pro

11-2655 20 HC, 15HC, 20LC, 15LC, CBN HC, and CBN LC blades

11-2656 10 LC and 5LC blades



### Dressing Sticks

11-1190 3 x 0.5 x 0.5in [76 x 13 x 13mm] for 20HC, 15HC, 20LC, 15LC, CBN LC and CBN HC precision blades

11-2490 3 x 1 x 1in [76 x 25 x 25mm] for 20HC, 15HC, 20LC, 15LC, CBN LC and CBN HC precision blades

11-1290 3 x 0.5 x 0.5in [76 x 13 x 13mm] for 10LC and 5LC precision blades

# Petrography

## Excellent cut quality for delicate samples

Buehler offers a complete solution for preparation of thin sections, bulk mounts, or as a powder such as mineral tailings. Each preparation method is dependent on the type of material and the examination method, and starts with proper sample sectioning and mounting.

### PetroThin®

The PetroThin Thin Sectioning System is a precise, easy-to-use instrument for re-sectioning and thinning a wide variety of samples, such as rocks and minerals, ceramics, concrete, bone, and teeth for performing materials characterization.

#### Precise Cut Location Control

- Two precision micrometers are used for controlling re-sectioning and thinning
- Precision of resections and grinds material within  $\pm 5\mu\text{m}$

#### Increase Accuracy and Parallelism of Samples

- Single spindle design ensures parallelism of sample by eliminating the need to remove the glass slide between diamond cutting blade and diamond grinding cup steps

\*8in diamond blade and an 8in diamond grinding cup included



Dimensions: 23.5in [597mm] x 19in [483mm] x 16in [406mm]

Weight: 94lbs [43kg]

Part Number	Voltage/Frequency
38-1450-160	115VAC, 60Hz
38-1450-250	220VAC, 50Hz

## Petrography Accessories



### PetroBond™

Thin section bonding fixture assists in bonding specimens to glass slides, accurately controlling the thickness of the bonding media. Applies continuous pressure until sample has completely cured. Controls adhesive thickness by evenly distributing adhesive. Can hold up to 12 slides.

38-1490



### PetroVue™

Thin Section Viewer  
Polarized light allows monitoring of thickness & uniformity of the specimen.

30-8050-220 220VAC, 50/60Hz

## PetroThin Consumables



Part Number	Description
11-4278	Continuous Rim Diamond Blade, 8 x 0.045 x 1in [203 x 1 x 25mm]
40-4508	Diamond Cup Grinding Wheel, 8 x 0.25 x 1in [203 x 6 x 25mm]
40-4510	Dressing Stick, 0.5 x 0.5 x 4in [13 x 13 x 102mm]

# MOUNTING

Automated compression mounting presses,  
vacuum systems and over 20 types of  
mounting media

Mounting your specimens is important for ease of handling and preservation of the sample edge. When deciding on which mounting technique to use, consider the size and geometry of your part, the part's susceptibility to heat and pressure, and the desired throughput.





# Epoxy Mounting Systems

## High Performance Choices

Buehler epoxies are formulated to excel in a wide variety of applications. Whether the priority is speed, pore penetration, or low curing temperature, there is a Buehler epoxy suited for every sample type.

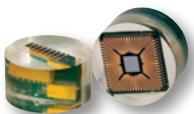
### EpoKwick® FC



#### Spend less time preparing and more time analyzing.

- Combines very low viscosity and extremely low shrinkage with good hardness and a fast cure.
- Obtain the best sample prep quality even with highly porous samples.
- Recommended for aerospace coatings and other porous samples insensitive to heat.

### EpoxiCure® 2



#### General purpose epoxy system optimized for routine application

- A balanced formula providing good hardness and low shrinkage
- Can be used with larger mounting cups

### EpoThin™ 2



#### Protect samples with this gentle low cure temperature epoxy

- Combines low viscosity and low cure temperature
- Provides strong adherence and good pore penetration.
- Recommended for electronic boards and heat sensitive materials

### EpoHeat® CLR



#### Save time with long pot life

- Can remain mixed at room temperature for 3 hours and cures in 60 minutes in the oven.
- Water-like viscosity when heated
- Recommended for samples requiring maximum pore penetration.

### Product Specifications

Material	Cure Time	Viscosity*	Shrinkage*	Shore D Hardness	Peak Exotherm*
EpoKwick® FC	2hrs @ room temperature	Best	Best	~82	250°F [121°C]
EpoThin™ 2	9hrs @ room temperature	Better	Better	~78	149°F [65°C]
EpoxiCure® 2	6hrs @ room temperatures	Good	Better	~80	104°F [40°C]
EpoHeat® CLR	1hr @ 149° F(65°C)	Best	Good	~82	324°F [162°C]

\*values compared with other epoxies

\*Peak exotherm is for 20g cured at 70° F

### Ordering Information

#### Small Resin & Hardener

#### Large Resin & Hardener

Material	Resin	Hardener <sup>†</sup>	Resin	Hardener <sup>†</sup>
EpoKwick® FC mix ratio 4:1 by volume			20-3453-128 128oz [3.8L]	20-3453-032 32oz [0.95L]
EpoThin™ 2 mix ratio 2:1 by volume	20-3440-032 32oz [0.95L]	20-3442-016 16oz [0.48L]	20-3440-128 128oz [3.8L]	20-3442-064 64oz [1.9L]
EpoxiCure® 2 mix ratio 4:1 by volume	20-3430-064 64oz [1.9L]	20-3432-016 16oz [0.48L]	20-3430-128 128oz [3.8L]	20-3432-032 32oz [0.95L]
EpoHeat® CLR mix ratio 4:1 by volume	20-3423-064 64oz [1.9L]	20-3424-016 16oz [0.48L]		

<sup>†</sup> Restricted article, requires special packaging

# Acrylic Mounting Systems

## Increased Mounting Throughput

With cure times as low as 5 minutes, our line of acrylics is designed to increase throughput in your mounting process while providing consistent results.

### SampIKwick®



SampIKwick offers quick cure times and excellent wetting characteristics making it ideal for electronics and PWB applications.

### VariKleer™



VariKleer produces a crystal clear mount when cured under pressure making it ideal for applications where clarity is required.

### VariDur™ 10



VariDur 10 is a general purpose acrylic system offering a semi-transparent mount with a reduced odor while curing.

### VariDur™ 200



VariDur 200 is a quick curing acrylic with good edge retention that is ideal for mounting hard materials.

### VariDur™ 3003



VariDur 3003 is a three-part acrylic with minimal shrinkage and high hardness making it ideal for edge retention applications.

### Product Specifications

Material	Cure Time	Viscosity*	Shrinkage*	Shore D Hardness	Peak Exotherm*
SampIKwick®	5-8min @ room temperature	Better	Good	~85	~179°F [81°C]
VariKleer™	5-15min @ room temperature	Better	Good	~84	~212°F [100°C]
VariDur™ 10	8min @ room temperature	Good	Good	~80	~212°F [100°C]
VariDur™ 200	5-8min @ room temperature	Good	Better	~85	~212°F [100°C]
VariDur™ 3003	15-30min @ room temperature	Good	Best	~90	~252°F [122°C]

\*values compared with other acrylics

\*Peak exotherm is for 20g cured at 70° F

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### Ordering Information

#### Powder                              Liquid<sup>†</sup>

Material	Part Number	Size	Part Number	Size
SampIKwick®	20-3562 20-3566 20-3562-025 20-3562-100	1 lb [0.45kg] 5 lbs [2.3kg] 25 lbs [11.3kg] 100 lb [45kg]	20-3564 20-3568 20-3564-320 20-3564-640	12oz [0.36L] 64oz [1.9L] 2.5gal [9.5L] 5gal [19L]
VariKleer™	20-3591 20-3591-002 20-3591-010	2.2 lbs [1kg] 4.4 lbs [2kg] 22 lbs [10kg]	20-3592 20-3592-001 20-3592-005	16.9oz [500mL] 33.8oz [1L] 1.3gal [5L]
VariDur™ 10	11-1027 11-1031	2.2 lbs [1kg] 22 lbs [10kg]	11-1029 11-1033	16.9oz [500mL] 1.3gal [5L]
VariDur™ 200	11-1030 11-1034	2.2 lbs [1kg] 22 lbs [10kg]	11-1029 11-1033	16.9oz [500mL] 1.3gal [5L]
VariDur™ 3003 3-part system	20-3531 20-3534	3.3 lbs [1.5kg] 16.5 lbs [7.5kg]	20-3535 20-3536 20-3532	.65gal [2.5L] Liquid 1 1.3gal [5L] Liquid 2 Kit Contains: 16.9oz [500mL] Liquid 1 33.8oz [1L] Liquid 2

<sup>†</sup> Restricted article, requires special packaging

# Vacuum Systems, Consumables & Accessories



## SimpliVac™

Our new vacuum system with unique multi-cycle capabilities, offers excellent pore impregnation in a compact format. Using your compressed air source, this system quickly and efficiently pulls a vacuum to evacuate trapped air from any porous samples, resulting in optimized edge retention and additional support for processing delicate samples.

### High efficiency

- Large chamber diameter allows for a high volume of samples to be processed, while the sample tray also provides ample room for larger samples to fit easily in the chamber.

### Simple Dispensing

- Use dispensing tubes and the built-in rotating turn table to dispense epoxy while under vacuum.

### Programmability

- Set the number of cycles, vacuum level and time under vacuum
- Allows for multiple cycles to run without user interference, creating consistency while reducing active user time to process samples



#### Vacuum Chamber

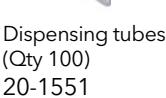
Dimensions: 12.8in (325 mm) H X 19.2in (488 mm) D X 18.6in (472 mm) W  
Weight: 51lb (23 kg)

### Accessories



Part Number	Voltage/Frequency
20-1500	100-240 VAC/ 50-60 HZ, Single Phase

Includes vacuum bowl liner and tray liner, no dispensing tubes included



#### Accessories



Dispensing tubes  
(Qty 100)  
20-1551



Vacuum Bowl Liner  
(Qty 5)  
20-1553

Vacuum Tray Liner  
(Qty 100)  
20-1555

## Ring Forms & Castable Molds



### Disposable Mounting Cups

Best for mounting low exotherm castable systems like EpoxiCure® 2 and EpoThin® 2. Also great for specimen storage (Qty 50)

20-8280 1in x 1in H  
20-8281 1.25in x 1in H  
20-8282 1.5in x 1in H



### Plastic Ring Forms

Provides a stronger fit of the castable mount to the sample holder for polishing in central force mode. (Qty 100)

20-8151-100 1in  
20-8152-100 1.25in  
20-8153-100 1.5in  
20-8154-100 2in



### SamplKup™

Reusable with best dimensional stability and suitable for use with all Buehler castable systems. (Qty 12) \*not for use in ovens

20-9178 1in x 1in H 20-9177 25mm x 1in H  
20-8180 1.25in x 1in H 20-9179 30mm x 1in H  
20-9181 1.5in x 1in H 20-9182 40mm x 1in H  
20-9184 2in x 1in H 20-9183 50mm x 1in H



### EPDM Round & Rectangular Molds

Suitable for use with all Buehler castable systems. Best choice for large, rectangular mounts and for curing mounts in ovens

#### EPDM Round Molds (Qty 5)

20-8181 1in dia x 5/8in H  
20-8182 1.25in dia x 5/8in H  
20-8183 1.5in dia x 5/8in H  
20-8184 2in dia x 1in H

20-7183 40mm dia x 31mm H

20-7184 50mm dia x 31mm H

#### EPDM Rectangular Molds (Qty 1)

20-7185 2.2 x 1.2 x 0.9in [55 x 30 x 22mm]  
20-6185 2.5 x 1.4 x 1.8in [63 x 25 x 46mm]  
20-7186 2.8 x 1.6 x 0.9in [70 x 40 x 22mm]  
20-6186 6 x 4 x 2in [150 x 100 x 50mm]  
20-6187 6 x 3 x 1in [150 x 76 x 25mm]

# Consumables & Accessories

## Mounting Consumables & Accessories



Use with castable resins for color coding or creating contrast

20-8505 Black, 1.5oz [45mL]  
20-8506 Red, 1.5oz [45mL]  
20-8507 Blue, 1.5oz [45mL]



Liquid release agent for easier removal of mounts from castable molds or compression mounting presses

20-8186-004<sup>†</sup> 4oz [120mL]  
20-8186-032<sup>†</sup> 32oz [950mL]



Less hazardous spray release agent for use on castable mounting molds

20-3050-008 8oz [0.24L]



Powder release agent for use on mounting presses

20-3048 2oz [45g]



Stainless Steel support clip for use with all mounting systems.\*

0.25 H x 0.550 W x 0.350in L  
[6 x 14 x 9mm] 0.575g  
20-4000-100 (Qty 100)



Plastic support clip best for castable mounting systems.\*

0.25 H x 0.475 W x 0.3in L  
[~6 x 12 x 8mm] 0.230g  
20-4100-100 (Qty 100)  
0.25 H x 0.425 W x 0.25in L  
[~6 x 11 x 6mm] 0.230g  
20-4100-100S (Qty 100)



Plastic support clip best for castable mount systems.\*

0.25 H x 0.290 W x 0.375in L  
[6 x 7 x 9.5mm] 0.145g  
20-4001-1000 (Qty 1000)



Plastic support clip for use with all mounting systems.

0.4 H x 0.360 W x 0.500in L  
[10 x 9 x 13mm] 0.290g  
20-5100-100 Clear (Qty 100)  
113043 Black (Qty 100)



Graduated Plastic Mixing cup for mixing castable mounting systems. 8.5oz [250mL] (Qty 100)  
20-8176-100



Non Graduated Paper Mixing cup for mixing castable mounting systems. 8oz [236mL] (Qty 100)  
20-8178-100



For stirring castable mounting systems. (Qty 1000)

20-8175



Nickel-based filler makes castable mounting systems conductive  
20-8500 2 lb [0.9kg]



Ceramic Powder enhances edge retention in castable mounting systems by increasing hardness of mount  
20-8196 1 lb [0.45kg]



For adhering samples to glass slides or other specialty holders  
40-8100 Use at 266° F [130°C] (Qty 12)



For adhering samples to glass slides or other specialty holders  
40-8150 Use at 257°F [125°C]  
20-8145 Use at 127°F [53°C]

\* Compatible with specimens up to 0.200in [5mm] thick

<sup>†</sup> Restricted article, requires special packaging

• Compatible with specimens between 0.0035 – 0.090in [0.9 – 2.3mm]

# Compression Mounting

## Protect the integrity of your samples

Compression Mounting is the preferred method for optimal edge preservation and highest throughput. Buehler carries compression mounting systems and mounting compounds designed to fit the varying needs of different labs.



### SimpliMet® 4000

The fastest mounting press designed for 24/7 use. Eliminate bottlenecks at the mounting stage, rapidly transforming your cut samples to specimens ready for grinding and polishing.

#### High reliability in 24/7 use environments

The SimpliMet 4000 was tested in extreme conditions and simulated the duty cycle of the busiest labs in the world. This machine provides high reliability in continuous use environments.

#### Optimize productivity in your space

The SimpliMet 4000 packs fast mounting cycles into limited bench space, optimizing productivity. Fast duplex mounting allows two mounts to be made during the same cycle with minimal increase in cycle time.

#### Ease of use saves time and protects sample quality

The simple user interface makes the machine easy to use and helps the user protect the quality of sample prep. Everything the user needs is right on the front panel. Use the Simplimet 4000 out of the box without the wait.

#### Comfortable to use

The single handed closure mechanism engages quickly, moving you right into your next task



**Dimensions:** 12.25in [311mm]W x 26in [662mm]D x 20.62in [524mm] open  
12.25in [311mm]W x 26in [662mm]D x 19.62in [498mm] closed

**Voltage/Frequency:** 85-264VAC, 50/60Hz

**Weight:** 120lb [54kg]



#### Chamfer Ram

Increase your grinding and polishing efficiency with a Chamfer Ram. Chamfer rams eliminate sharp edges by creating a beveled edge around the working face of the sample. This saves time and consumable costs during your grinding step.

Part Number	Description
2011122	1.25in Chamfer ram and spacer
2011123	30mm Chamfer ram and spacer
2011124	1.5in Chamfer ram and spacer
2011125	40mm Chamfer ram and spacer
2011127	50mm Chamfer ram and spacer

# Compression Mounting Compounds

Compression mounting compounds utilize heat and pressure to encapsulate a specimen. Buehler's compounds minimize shrinkage while protecting and preserving sample edges during the preparation process.

## Wide Portfolio for Every Application

The choice of a mounting compound depends on the goals of the lab and requirements of final analysis. See below for the many different compounds that are available to meet the needs of a lab.

## Excellent Edge Retention

EpoMet offers excellent edge retention making it ideal for processing harder materials. The fine particle size of EpoMet F is great for intricate structures and penetration while the granular size of EpoMet G optimizes ease of use.

## Quick Cycle Set-Up with No Mess

Save time and maximize cleanliness by eliminating the measuring and pouring of powder. Simply place a PhenoCure premold into the mounting chamber and the cycle is ready to begin.

Material	Recommended Use	Color	Hardness (Shore D)	Edge Retention
PhenoCure®	General purpose metallography	Black, Red, Green	~88	Good
PhenoCure® LP	General purpose metallography lower hazard level	Black	~88	Good
Diallyl Phthalate - Mineral Filled	Moderately hard material	Blue	~91	Better
Diallyl Phthalate - Glass Filled	Moderately hard material for etching	Blue	~91	Better
EpoMet® G (Granular)	Very hard material	Black	~94	Best
EpoMet® F (Fine)	Very hard material with complex geometries	Black	~94	Best
TransOptic™	When transparency of the mount is useful	Clear	~80	Good
ProbeMet®	Great for Electropolishing and electroetching. Can be used for SEM when copper is not of interest	Copper	~94	Better
KonductoMet®	SEM analysis when ProbeMet is not suitable	Black	~88	Good

## General Purpose Compounds

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The Phenocure and Phenocure LP powders are wood-flour thermoset resins that provide good edge retention and moderate shrinkage. While the Phenocure LP also provides a lower hazard level at the same performance.

### PhenoCure

Size	Black	Red	Green
5 lbs [2.3kg]	20-3100-080	20-3200-080	20-3300-080
25 lbs [11.3kg]	20-3100-400	20-3200-400	20-3300-400
40 lbs [18.1kg]	20-3100-500	20-3200-500	20-3300-500

### PhenoCure LP

Size	Black
5 lbs [2.3kg]	20-6100-080
25 lbs [11.3kg]	20-6100-400
40 lbs [18.1kg]	20-6100-500



Premolds reduce mess and save time. Simply place the premold over the specimen in the mold cylinder. Premolds are sold 500/pack.

Size	Black	Red	Green
1in [25mm]	20-3111-501		
1.25in [32mm]	20-3112-501	20-3212-501	20-3312-501
1.5in [38mm]	20-3113-501	20-3213-501	20-3313-501
1.75in [45mm]	20-10090		

# Compression Mounting Compounds

## General Purpose Compounds

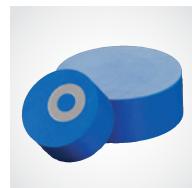


### EpoMet® G (Granular)

A mineral filled epoxy thermoset with excellent edge retention for mounting hard materials.

20-3380-064	4 lbs [1.8kg]
20-3380-160	10 lbs [4.5kg]
20-3380-400	25 lbs [11.3kg]
20-3380-500	40 lbs [18.1kg]

Black ●



### Diallyl Phthalate

A filled thermoset resin recommended for mounting moderately hard materials. Choose glass filled for etching or mineral filled for better abrasion resistance.

20-3330-080	Mineral Filled, 5 lbs [2.3kg]
20-3340-080	Glass Filled, 5 lbs [2.3kg]

## Specialty Compounds



### EpoMet® F (Fine)

A mineral filled epoxy thermoset with fine particles and excellent edge retention for mounting hard materials with complex geometries.

20-3381-070	4 lbs [1.8kg]
20-3381-160	10 lbs [4.5kg]
20-3381-400	25 lbs [11.3kg]

Black ●



### TransOptic

A transparent thermoplastic acrylic that allows the user to easily extract the specimen from the mount with reheating. Requires a special cooling cycle available on the SimpliMet® 4000.

Clear ○

20-3400-080	5 lbs [2.3kg]
-------------	---------------



### ProbeMet®

A copper and mineral filled phenolic thermoset recommended for SEM analysis of specimens when copper is not the object of analysis. Note: Can cause a Cu-Al galvanic corrosion on aluminum specimen.

Copper ●

20-3385-064	4 lbs [1.8kg]
-------------	---------------



### KonductoMet®

A graphite and mineral filled phenolic thermoset recommended for SEM analysis of specimens when ProbeMet is not suitable.

20-3375-016	1 lbs [0.45kg]
20-3375-400	25 lbs [11.3kg]

## Compression Mounting Tips



You can minimize shrinkage and improve edge retention by cooling the mount to room temperature under pressure before removing it from the mounting press.



Uncured mounts can be caused by excess moisture in the mounting compound. Make sure to properly close the container between uses.



Radial splitting of mounts is often caused by sharp edges on the sample, by samples that are too large for the mold or samples that are too close to the mold wall. Round off sharp corners and move the specimen farther from the edge of the mount.



Bulging or soft mounts are a result of insufficient cure times. Increase the cure time.



Unfused or frosted mounting compound is often a sign of insufficient molding temperatures or pressures. Ensure the temperature and pressure settings on the mounting press match the recommendations for the compression compound being used.

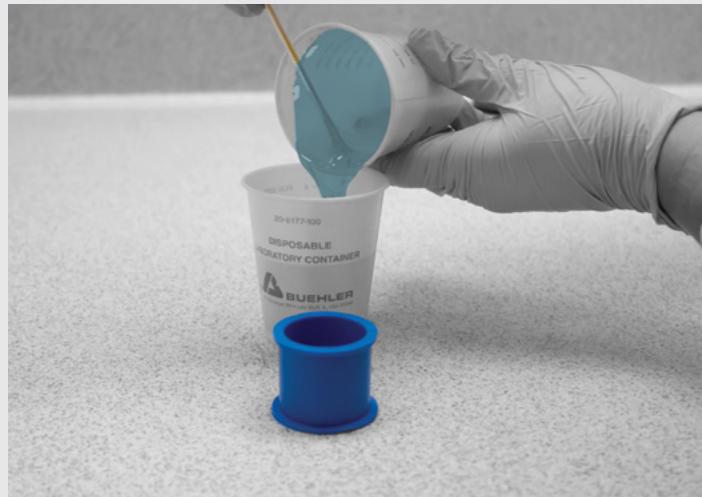
# Mounting Tips

## Castable Mounting Tips



### Epoxy Tips

- Some epoxies can be cured more quickly by gently heating, typically at 30-40° C. Use caution as higher cure temperatures can cause excessive heating during curing.
- When mixing, tilt the cup containing the resin and hardener slightly and gently work the resin and hardener together using a lift and stir motion.
- To get the best results, use a vacuum system to evacuate air trapped in epoxy systems and samples. This reduces or fills pores in the specimen with epoxy and enhances the end result.
- Epoxies are sensitive to the ratio of resin and hardener. Be sure to follow the recommended mass ratio for each product.



### Acrylic Tips

- Acrylics cure quickly so it is highly recommended to pour the mixture into the mold immediately after mixing to prevent "gelling".
- Acrylic systems are not for use with Vacuum Systems because the vapor released can eliminate the vacuum nor are they for use with Disposable Mounting Cups because the heat of the reaction will degrade the plastic cup and produce a bad mount edge.
- To improve edge retention for acrylic systems, coat the sample in the liquid hardener before pouring in mixed compound.

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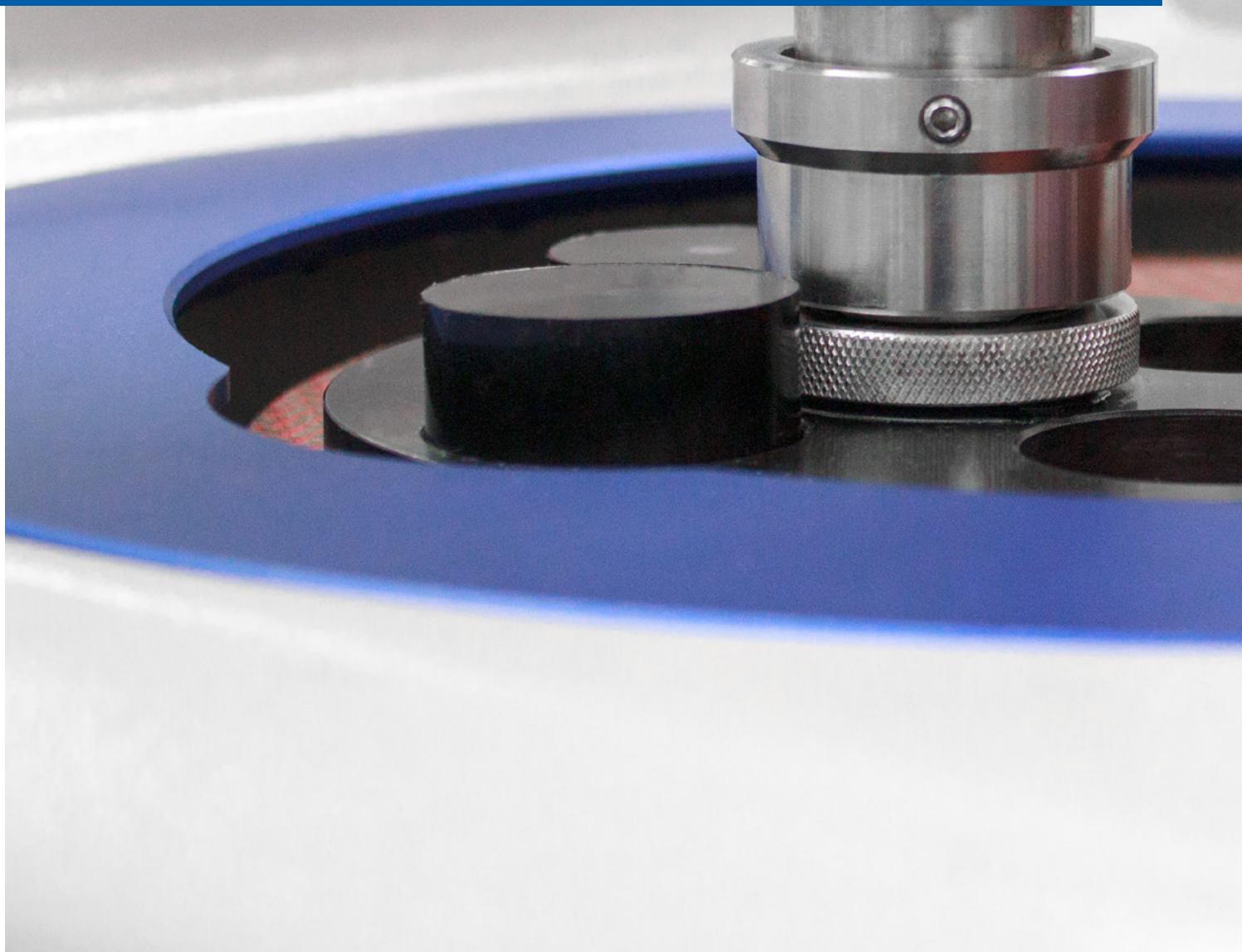


See Mounting Guide for More Information

# GRINDING & POLISHING

Automated and manual grinders and polishers with a broad range of consumables for any lab

The goal of the grinding and polishing steps is to prepare a final polished specimen that is free of deformation and suitable for analysis. This can be achieved in multiple ways depending on the overall goals of the lab. Whether a lab is looking for the quickest overall process, the best surface finish or versatility to prepare many different materials, Buehler has a solution for the grinding and polishing process.





# Product Comparison

## A Grinder-Polisher Solution for Any Lab

Buehler offers a full line of easy-to-use machines. Choose between the EcoMet 30 and AutoMet grinder polishers to provide the perfect solution for your lab.

### EcoMet® 30 Manual



EcoMet 30 Manual is a cost effective grinder-polisher with the essential functions. It has quick clean features to save time and effort, and is made from a durable metal casting for robustness and stability. It has an ergonomic splash ring for comfortable manual use. Available with single or twin platens

### AutoMet® 250



AutoMet 250 is an advanced grinder-polisher with more power to accommodate a greater capacity for high volume environments. The easy to use controls remove complexity from the grinding and polishing process.

### AutoMet® 300 Pro



AutoMet 300 Pro is similar to the AutoMet 250 Pro, with an enhanced motor and larger platen size to accommodate larger samples. It's also compatible with accessories such as PC-Met and PWB Met for PCB grinding and polishing.

### EcoMet® 30 Semi-Auto



EcoMet 30 Semi-Auto is an entry level grinder-polisher with an emphasis on simplicity. All functions are quickly accessible on the easy to use touch screen interface. The EcoMet 30 is compatible with a dispensing system to go hands-free during the polishing process and improve repeatability.

### AutoMet® 250 Pro



AutoMet 250 Pro has additional premium features. The enhanced programmability is highly intuitive with easy method storage. Improve repeatability with the automated dispensing system. The machine has Z axis removal capabilities for grinding and polishing by depth.



If you need further assistance in selecting the best Grinder-Polisher for your application, please reach out to your local Buehler Sales Engineer or visit [www.buehler.com](http://www.buehler.com)

	EcoMet 30 Manual	EcoMet 30 Semi-Auto	AutoMet 250	AutoMet 250 Pro	AutoMet 300 Pro
Style	Manual	Semi-Auto	Semi-Auto	Semi-Auto	Semi-Auto
Platen Count	Single or Twin	Single or Twin	Single	Single	Single
Platen Sizes	8", 10", or 12"	8", 10", or 12"	8" or 10"	8" or 10"	10" or 12"
Controls	Knobs	Touch screen	Membrane	Touch screen	Touch screen
Dispensing Capability	Dispensing (3 max)		Dispensing (5 Max)		Dispensing (5 max)
Storage	Steps		Methods		Methods
Removal by Depth				Z axis removal	Z axis removal
Rinse & Spin	X		X		X
Single Force Max Capacity	4		6	6	6
Central Force Max Capacity	12		12	12	12
Specimen Max Size	40mm		40mm	40mm	50mm

# AutoMet® Grinder - Polisher

## Designed for Demanding Production Lab Environments

Easily accommodate many applications with this versatile line of Grinder-Polishers. All products have durable construction for reliability in high use environments, unique quick cleaning features, and plenty of enhancements for user friendly operation.



### AutoMet®

The AutoMet grinder-polisher is a high performance machine, designed for reliability, flexibility, and ease of use. Upgrade to a Pro model for intelligent programming with easy to use advanced features that create highly reproducible results.

#### AutoMet Features

- Built tough for high volume use.
- Save time with quick clean features including a retractable water hose, disposable bowl liner and integrated 360 degree bowl rinse.
- AutoMet 300 12" platen size provides a larger working area for faster grinding or to accommodate large samples.
- AutoMet 250 8" and 10" platen size choice optimizes the cost of paper and diamond when a larger unit isn't required.

#### AutoMet Pro Features

- Color touch screen controls add functionality needed for advanced methods, such as method creation/storage and Z-axis material removal by depth.
- Improve productivity and consistency by integrating with a Burst Dispensing System (see page 36).

Model	Part Number	Voltage/Frequency
AutoMet 250	49-7257	100 - 240VAC, 50-60Hz
AutoMet 250 Pro	49-7258	100 - 240VAC, 50-60Hz
AutoMet 300 Pro	49-7268	170-240VAC, 50-60Hz



#### AutoMet 250 & 250 Pro:

Dimensions: 27.5in H x 24.4" D x 20in W [699mm H x 620mm D x 508mm W]  
Weight: 170lbs [77kg]

#### AutoMet 300 Pro:

Dimensions: 28.5in H x 28.6in D x 23in W [724mm H x 726mm D x 584mm W]  
Weight: 219lbs [99kg]

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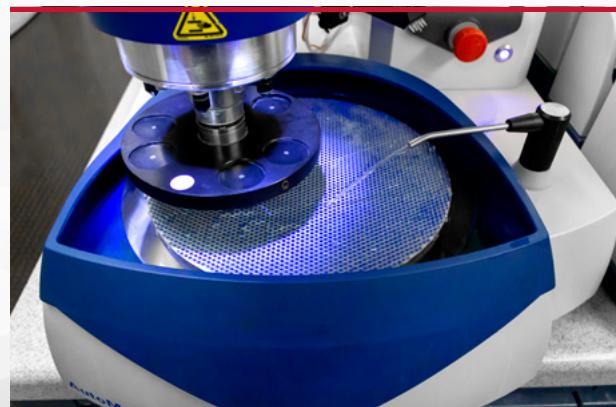
#### Accessories

##### AutoMet 250 & 250 Pro

- |         |                                  |
|---------|----------------------------------|
| 40-4061 | 8in [203mm] Aluminum Platen      |
| 40-0500 | 10in [254mm] Aluminum Platen     |
| 60-9080 | Disposable Bowl Liner (Qty 5)    |
| 49-1250 | Lid for AutoMet 250              |
| 49-2250 | Splash Guard Kit for AutoMet 250 |

##### AutoMet 300

- |          |                                |
|----------|--------------------------------|
| 40-0500  | 10in [254mm] Aluminum Platen   |
| 49-1777  | 12in [305mm] Aluminum Platen   |
| 60-9081  | Disposable Bowl Liners (Qty 5) |
| 4961-300 | Splash guard for AutoMet 300   |
| 49-1300  | Lid for AutoMet 300            |



# EcoMet® 30 Grinder - Polisher

## Grinding & Polishing Made Simple

The EcoMet 30 is an entry level grinder-polisher and an excellent choice for any lab that values simplicity. Best suited for low variety environments or those with a dedicated machine for each grinding-polishing step.



## EcoMet® 30 Semi-Automatic

The EcoMet 30 Semi-Automatic provides simple operation for routine grinding and polishing. The user-friendly touchscreen interface puts all regularly used functions on the front screen with no complicated menus that can add time to the process. Ideal for users who have a dedicated machine for each step in their process, the EcoMet 30 also helps to save time with advanced cleaning features. Durability tested over 2500 hours and compatible with 8in [203mm], 10in [254mm] and 12in [305mm] platens.

### Routine Grinding and Polishing Made Easy

- Intuitive touchscreen interface
- No complicated menus
- Focus on everyday use features
- Stored steps for quick setting recall

### Easy to Clean

- User selectable rinse and spin function
- Easy to remove platens
- Large straight path draining system

### Burst Dispensing

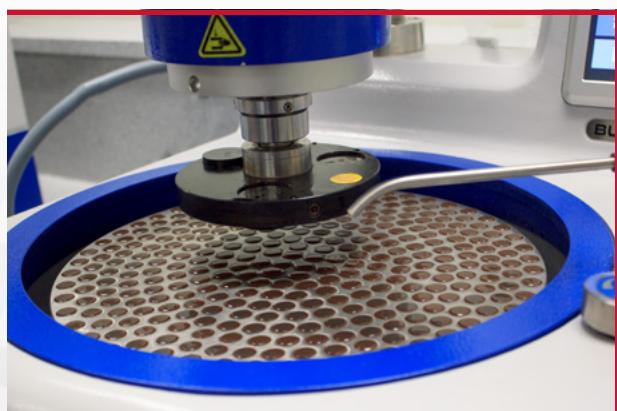
- The EcoMet 30 Semi-Automatic units can be connected to the Burst Dispensing System for increased throughput in the lab
- The Burst will automatically dispense during the cycle allowing a user to operate other machines during the polishing process

### Thoughtful Design Elements

- Touchscreen location and angle is easy to see and easy to reach for users of various heights
- All cast aluminum design adds stability and durability

Model	Part Number	Voltage/Frequency
Single	49-10075	85-264VAC, 50/60Hz
Twin	49-10076	85-264VAC, 50/60Hz

\* Platen Kit not included

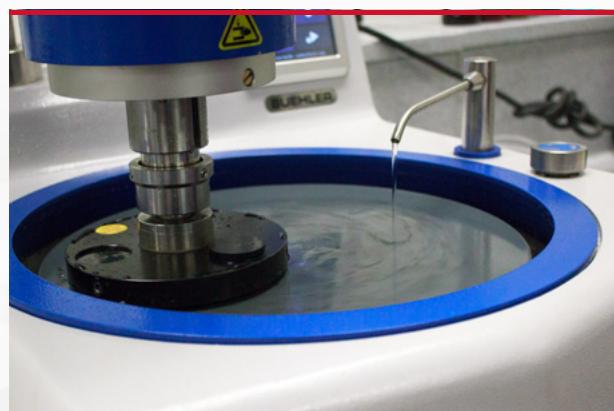


#### EcoMet 30 Semi Automatic Single

Dimensions: 19.7" L x 25.6" D x 25.6" H [500 mm L x 650 mm D x 650 mm H]  
Weight: 165lbs [75kg]

#### EcoMet 30 Semi Automatic Twin

Dimensions: 37.4" L x 26" D x 25.6" H [950 mm L x 660 mm D x 650 mm H]  
Weight: 232lbs [105kg]



# EcoMet® 30 Grinder - Polisher



## Grinding & Polishing Made Simple

The EcoMet 30 is an entry level grinder-polisher and an excellent choice for any lab that values simplicity. Best suited for low variety environments or those with a dedicated machine for each grinding-polishing step.



## EcoMet® 30 Manual

The EcoMet 30 provides simple operation for manual grinding and polishing. The comfortable splash guard design allows for excellent control while holding a part. Easy to use and easy to clean. Durability tested over 2500 hours and compatible with 8in [203mm], 10in [254mm] and 12in [305mm] platens.

### Ergonomic Manual Polish

- Large flat work space and ergonomic bowl height provides better control and more comfort
- Additional control improves sample quality and reduces grinding time

### Easy to Clean

- Easy to remove platens allows for fast deep cleaning
- Large straight path draining system

Model	Part Number	Voltage/Frequency
Single	49-10070	85-264VAC, 50/60Hz
Twin	49-10072	85-264VAC, 50/60Hz

### Accessories

#### Platen Kit (Required)

Each Kit includes a platen, splash ring and cover

49-1008 8in [203mm] Aluminum Platen

49-1010 10in [254mm] Aluminum Platen

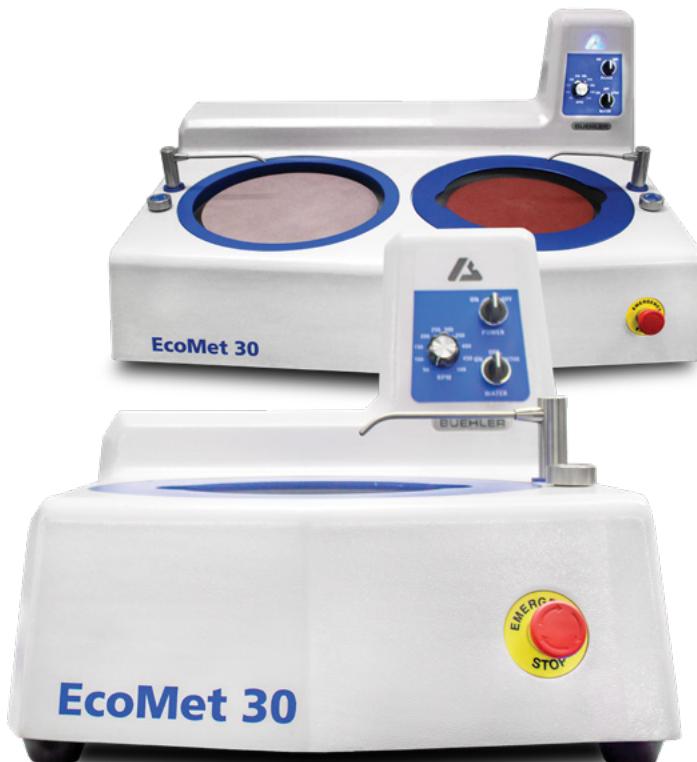
49-1012 12in [305mm] Auminum Platen

#### Replacement Bowl Liners

All EcoMet 30's include one bowl liner per bowl.

Remove and wash the liner for quick bowl cleaning.

49-1005 Qty 5



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#### EcoMet 30 Single:

**Dimensions:** 19.7in [500mm] L x 25.6in [650mm] D x 17.7in [450mm] H  
**Weight:** 102lbs [46kg]

#### EcoMet 30 Twin:

**Dimensions:** 37.4in [950mm] L x 26in [660mm] D x 17.7in [450mm] H

**Weight:** 154lbs [70kg]



# Grinder Polisher Accessories

## Burst Dispensing System

The Burst Dispensing System is a flexible, easy to operate dispensing system for all diamond and final polishing suspensions. This product improves both productivity and consistency by dispensing suspensions at fixed intervals and configurable rates.

### Choose from two different Burst Configurations

#### Fully Integrated

The Grinder-Polisher controls the start/stop function and the volume rate.

(AutoMet 250 Pro shown with 5 burst modules and a stadium seating module.)



Compatible with EcoMet 30, AutoMet 250 Pro, AutoMet 300 Pro

#### How to configure the fully integrated Burst system for AutoMet 250 and AutoMet 250 Pro:

Choose up to 5 Burst modules (Part Number 40-10005)

- Add stadium seating module (Part Number 40-10004)
- Add dispensing arm (Part Number 40-10006)
- Add additional stir bar (Part Number 00-10100)

#### How to configure the fully integrated burst system with EcoMet 30:

Choose up to 3 Burst modules (Part Number 40-10005)

- Add cable to control start/stop function (Part Number 40-2704)
- Add additional stir bar (Part Number 00-10100)

#### Accessories

##### 40-10004 **Stadium Seating Module**

A compact and efficient method to hold up to 5 burst modules

##### 40-10006 **Dispensing Arm for AutoMet® 250/300**

The dispensing arm attaches the AutoMet Pro Grinder-Polisher to the burst dispensing system. Outlet tubing from the burst system is secured neatly into the arm. Outlet nozzles dispense suspension on to the platen.

##### 00-10100 **Stir Bar**

Magnetically driven stir bars prevent settling of suspension. Use one for each module.

#### Independent

The Burst Module Control Panel is used to control dispensing stop/start and volume rate.



Compatible with all Grinder-Polishers

#### How to configure independent Burst modules:

Choose Burst module (Part Number 40-10005)

- Up to 5 modules can be connected to one electrical power source; requires cable for connecting module to module (Part Number 40-2832)
- Add additional stir bar (Part Number 00-10100)
- Add optional hand switch (Part Number 40-2823)

#### Accessories

##### 40-2832

##### **Cable for connecting module to module**

For connecting more than 1 burst module in the independent configuration. Up to 5 modules can be connected together. Requires one cable for each module added to the first module.

##### 40-2823

##### **Hand Switch**

Used to control the start/stop function.

##### 00-10100

##### **Stir Bar**

Magnetically driven stir bars prevent settling of suspension. Use one for each module.

##### 40-2704

##### **Cable to Control Start/Stop Function**

For controlling start/stop function of Burst from the AutoMet 250/300 & EcoMet 30



# Grinder Polisher Accessories

Sample holders are designed for use with Buehler's grinder-polishers to facilitate process automation and optimization. Many options for different sample sizes and shapes are available depending on the shapes, sizes, and capacities required.

## Single Force Specimen Holders



### EcoMet® 30 Power Head | For use with 60-9005 Drive Adapter

Part Number	Style	Size	Capacity	Additional Accessories
60-10060	<input type="radio"/>	1in	4	63-1022 Retaining Rings (Qty 6pk)
60-10061	<input type="radio"/>	1.25in	4	63-1023 Retaining Rings (Qty 6pk)
60-10062	<input type="radio"/>	1.5in	4	63-1024 Retaining Rings (Qty 3pk)
60-10063	<input type="radio"/>	25mm	4	63-1022 Retaining Rings (Qty 6pk)
60-10064	<input type="radio"/>	30mm	4	63-1023 Retaining Rings (Qty 6pk)
60-10065	<input type="radio"/>	40mm	4	63-1024 Retaining Rings (Qty 3pk)



### AutoMet® 250 Power Head | For use with 60-9005 Drive Adapter.

Part Number	Style	Size	Capacity	Additional Accessories
60-9010	<input type="checkbox"/> Slides	1in	6	63-1022 Retaining Rings (Qty 6pk) 60-9120 1 x 3in Glass Slide Holder 60-9130 2 x 3in Glass Slide Holder 60-9100 27 x 46mm Glass Slide Holder 60-9140 28 x 48mm Glass Slide Holder
60-9011	<input type="radio"/>	1.25in	6	63-1023 Retaining Rings (Qty 6pk)
60-9012	<input type="radio"/>	1.5in	6	63-1024 Retaining Rings (Qty 3pk)
60-9020	<input type="radio"/>	25mm	6	63-1022 Retaining Rings (Qty 6pk)
60-9021	<input type="radio"/>	30mm	6	63-1023 Retaining Rings (Qty 6pk)
60-9022	<input type="radio"/>	40mm	6	63-1024 Retaining Rings (Qty 3pk)

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### AutoMet® 300 Power Head | For use with 60-9005 Drive Adapter.

Part Number	Style	Size	Capacity	Additional Accessories
60-9060	<input type="checkbox"/> Slides	1in	6	63-1022 Retaining Rings (Qty 6pk) 60-9120 1 x 3in Glass Slide Holder 60-9130 2 x 3in Glass Slide Holder 60-9100 27 x 46mm Glass Slide Holder 60-9140 28 x 48mm Glass Slide Holder
60-9061	<input type="radio"/>	1.25in	6	63-1023 Retaining Rings (Qty 6pk)
60-9062	<input type="radio"/>	1.5in	6	63-1024 Retaining Rings (Qty 3pk)
60-9063	<input type="radio"/>	2in	6	
60-9070	<input type="radio"/>	25mm	6	63-1022 Retaining Rings
60-9071	<input type="radio"/>	30mm	6	63-1023 Retaining Rings
60-9072	<input type="radio"/>	40mm	6	63-1024 Retaining Rings
60-9073	<input type="radio"/>	50mm	6	

# Grinder Polisher Accessories

## Central Force Specimen Holders

Round/Barrel

Rectangle

Teardrop

### AutoMet 300 Power Head

For use with 60-9000 Drive Adapter.

Uses Loading Plates 60-2412 or 60-2413

181mm diameter for 12" platens

Part Number	Style	Size	Capacity
60-5281	<input type="radio"/>	1in	10
60-5282	<input type="radio"/>	1.25in	10
60-5252	<input type="radio"/>	1.25in or 30mm	9
60-5287	<input type="radio"/>	30mm	10
60-5283	<input type="radio"/>	1.5in	6
60-5253	<input type="radio"/>	1.5in or 40mm	6
60-5288	<input type="radio"/>	40mm	6
60-5299	<input type="radio"/>	2in	5
60-5296	<input type="radio"/>	2in or 50mm	5
60-5297	<input type="checkbox"/>	55 x 30mm	5
60-5298	<input type="checkbox"/>	70 x 40mm	3

### AutoMet 250 and EcoMet 30 Power Heads

For use with 60-9000 Drive Adapters

Uses Loading Plates 60-2411 or 60-2413

130mm diameter for 8", 10" or 12" platens

Part Number	Style	Size	Capacity
60-2482	<input type="radio"/>	1in	6
60-2483	<input type="radio"/>	1.25in	6
60-2422	<input type="radio"/>	1.25in [32mm]	6
60-2485	<input type="radio"/>	1.5in	3
60-2486	<input type="radio"/>	30mm	6
60-2487	<input type="radio"/>	40mm	3
60-2409	<input type="checkbox"/>	1 x 1.25in [25.4 x 31.75mm]	4
Uses loading plates 60-2411 or 60-2412 157mm diameter for 10" or 12" platens			
60-8240	<input type="radio"/>	18 - 51mm	5
60-8210	<input type="radio"/>	12 - 40mm	6
60-8262	<input type="radio"/>	10 - 25mm	12
60-8254	<input type="checkbox"/>	55 x 30mm	5
60-8255	<input type="checkbox"/>	70 x 40mm	3

## Accessories for Specimen Holders

### Loading Fixtures and Plates



Used for loading Central Force Specimen Holders to ensure planar samples.

Part Number	Description
60-2410	Loading Fixture
60-2411	Loading Plate for 5.1in [130mm] and 6.1in [157mm]
60-2412	Loading Plate for 6.1in [157mm] and 7.1in [181mm]
60-2413	Loading Plate for 5.1in [130mm] and 7.1in [181mm]

### Drive Adapters



Pairs specimen holders to the chuck of the automatic head

Part Number	Compatible With
60-9000 Central Force	AutoMet 250/300 PlanarMet 300, EcoMet 30
60-9005 Single Force	AutoMet 250/300, EcoMet 30

### Target Holders



Designed for precise material removal to specified depths. Includes one ceramic and one steel stop ring.

Part Number	Description
60-8100	For 28 x 48mm glass slide (histologic holder)
60-8101	For 1in [25mm] mounted specimens
60-8102	For 1.25in [32mm] mounted specimens
60-8113	For 40mm mounted specimens

# Grinder Polisher Accessories



## Blank Specimen Holders

For use with 60-9000 Drive Adapter.

Part Number	Diameter	Power Head
60-2408	5.12in [130mm] for 8", 10" or 12" platens	AutoMet® 250 AutoMet® 300 EcoMet® 30
60-5254	7.12in [181mm] for 12" platens only	AutoMet 300 EcoMet® 30



## Slide Holders & Glass Slides

Glass Slide Size	Slide Holder	Single Force Specimen Holder	Glass Slides
1 x 3in	60-9120 (max 3 per specimen holder)	60-9010 for AutoMet 250 60-9060 for AutoMet 300	
2 x 3in	60-9130 (max 2 per specimen holder)	60-9060 for AutoMet 300	
27 x 46mm	60-9100 (max 3 per specimen holder)	60-9010 for AutoMet 250 60-9060 for AutoMet 300	40-8000-001 (Qty 144) 40-8000-010 (Qty 1440)
27 x 46mm	30-8005 hand-held holder		40-8000-001 (Qty 144) 40-8000-010 (Qty 1440)
28 x 48mm	60-9140 (max 3 per specimen holder)	60-9010 for AutoMet 250 60-9060 for AutoMet 300	

## PC-Met™ Precision High Volume Printed Wiring Board Accessory

- High volume printed wiring board preparation system
- Prepares up to 36 coupons simultaneously
- Prepares reproducible cross-sections of through-holes down to 0.008in
- For use with AutoMet 300

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## Part Number

## Contents

60-5090	Indexing pins, carbide and diamond stops, pin loader, dial indicator, gauge blocks and wooden case
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## Accessories

60-5053	Coupon Pins 1.0625in [27mm] long (Qty 1000)	60-5055	Dial Indicator
60-5067	Cup, Extended Upper Mold Plate, 0.8in (Qty 6)	60-5095	Holder with diamond and carbide
60-9000	Central Force Drive Adapter for AutoMet® 250/300	60-5091	Carbide stops (Qty 3)
60-5061	Upper cup	60-5092	Diamond stops (Qty 3)
60-5062	Lower cup		

## PWB Met™ Small Hole Accessory

- High volume printed wiring board preparation system
- Prepares up to 18 coupons simultaneously
- Prepares reproducible cross-sections of through-holes down to 0.004in
- For use with EcoMet 30 and AutoMet 300

## Part Number

## Contents

60-5175	Indexing pins, polycrystalline diamond stops, Pin loader, dial indicator calibration gauge, silicone mold release spray, gauge blocks, sample extractor and wooden case
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## Accessories

60-5186	PWB Met Short Pin Loader 0.375in [10mm] long
60-5084	PWB Met Pins 0.375in [10mm] long (Qty 3000)
60-5091	Long stop assembly
60-5094	Short stop assembly with polycrystalline diamond
60-5097	Holder with polycrystalline stops

# Grinder Polisher Specialty & Support Equipment



## MiniMet® 1000

A low volume, single specimen machine capable of preparing a wide variety of materials. Space saving design employs geometric action, increasing specimen consistency.

### Easy to use

- Simple operations ideal for low volume applications

### Save space and lower costs

- Designed to use 2.875in [73mm] abrasive paper and polishing cloths

Part Number	Voltage/Frequency
69-1100	85-264VAC, 50/60Hz



**Dimensions:** 7in [180mm]W x 16in [400mm]D x 8in [200mm]H  
**Weight:** 25 lbs [11 kg]

### Accessories

69-1111	Caged Specimen Holder, for 1in [25mm] or 1.25in [32mm] Mounted Specimens	69-1581	Thin Section Bowls, 4.75in [121mm] (1 each Black, White, Blue)
69-1112	Caged Specimen Holder, for 1.5in [38mm] Mounted Specimens	69-1582	Thin Section Glass Platens, 4in [100mm] (Qty 3) (replacement)
69-1500	Polishing Bowls, 4in [100mm] Diameter (1 each Black, White, Blue)	69-1583	MiniMet Thin Section Slide Holder, 46 x 27mm
69-1562	Glass Circular Slides, 0.5in [13mm] Diameter (Qty 50)	69-1590	MiniMet Wafer Polishing Attachment
69-1566	MiniMet 1000 Precision Thinning Attachment	69-1502	Storage Caddie for MiniMet Bowls (Qty 3)
69-1567	Glass Disc, 2.145in [55mm] Diameter (Qty 5)	69-1510	Glass Platen (Qty of 3)
69-1580	MiniMet Thin Section Attachment (includes 3 bowls, glass and section holder)	69-1550	MiniMet Alignment Fixture with 3 Drill Bits
		69-1552	Set of 3 Drill Bits (replacement)

## Grinding & Polishing Consumables for MiniMet 1000

### Silicon Carbide Paper, PSA Backed, 2.875in [73mm] (Qty 100)

#### CarbiMet®

Grit Size - ANSI [FEPA]	Micron	Part Number
120 [P120]	127	36-02-0120
180 [P180]	78	36-02-0180
240 [P280]	52	36-02-0240
320 [P400]	35	36-02-0320
400 [P800]	22	36-02-0400
600 [P1200]	15	36-02-0600

#### MicroCut®

Grit Size - ANSI [FEPA]	Micron	Part Number
800 [P1500]	13	36-02-0800
1200 [P2500]	8	36-02-1200



### Premium Polishing Cloths, PSA Backed, 2.875in [73mm] (Qty 20)

Cloth	Stage	Part Number
UltraPol™	Coarse	40-7442
Nylon	Intermediate	40-7052
TexMet® C	Intermediate	40-1102
TriDent™	Intermediate	40-7502

Cloth	Stage	Part Number
MicroCloth®	Fine	40-7212
MasterTex®	Fine	40-7702
ChemoMet®	Fine	40-7902



# Grinder Polisher Specialty & Support Equipment

## VibroMet® 2

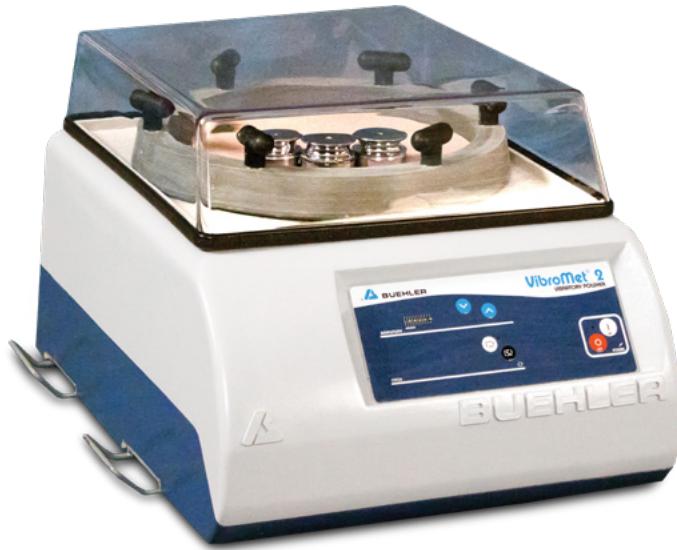
VibroMet 2 Vibratory Polisher is designed to prepare high quality polished surfaces on a wide variety of materials, including EBSD applications. The 7200 cycles per minute horizontal motion produces a very effective polishing action, providing superior results, exceptional flatness and less deformation.

### Safe and Effective Results

- Vibratory polisher removes minor deformation remaining after mechanical preparation, revealing the stress-free surface without need for the hazardous electrolytes required by electro-polishers.

### High Quality Surface Finish

- Combine the VibroMet 2 with MasterMet® Colloidal Silica to chemomechanically polish a specimen to a surface finish suitable for electron-backscatter diffraction (EBSD).



Part Number	Voltage/Frequency
67-1635-160	115VAC, 60Hz
67-1635-250	220VAC, 50Hz

Dimensions: 21.5in [546mm]W x 23in [584mm]D x 14.5in [368mm]H  
Weight: 175lbs [80kg]

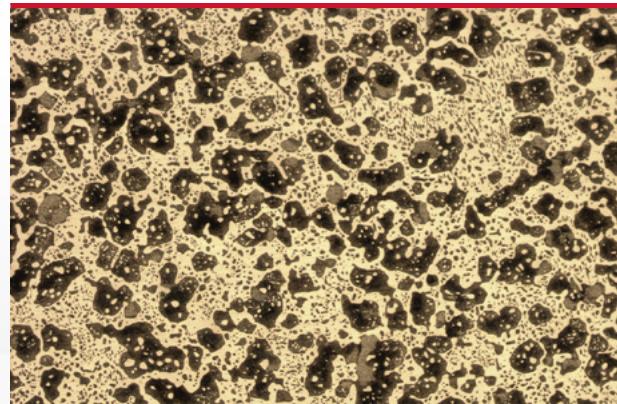
### Accessories



67-1525  
67-1526  
67-1527  
67-1528  
67-1529  
67-1530  
67-1541  
67-1540

Specimen Holder, 2in [50mm] (Qty 3)  
Specimen Holder, 1in [25mm] (Qty 3)  
Specimen Holder, 1.25in [32mm] (Qty 3)  
Specimen Holder, 1.5in [38mm] (Qty 3)  
Specimen Weights (Qty 9)  
Polishing Bowl Accessory  
Loading Fixture, 2in and 50mm  
Loading Fixture, 1in [25mm],  
1.25in [32mm], 1.5in [38mm]

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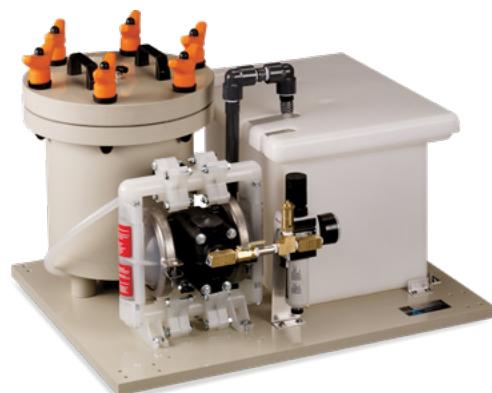


# Grinder Polisher Specialty & Support Equipment

## EnvironMet® System

Ideal for laboratories concerned with water regulation and conservation requirements and/or environmental issues. Designed for use with manual and semi-automatic grinder-polishers, the EnvironMet® Filter System uses fresh water for each step in preparation. The filtration rate allows up to two grinder-polishers to operate off of one system. The 49-2500 EnvironMet® System is designed to filter up to 1µm and then recirculate the water. The 49-2501 EnvironMet® System is designed to filter water up to 100µm and uses fresh water. Both EnvironMet® Systems are powered by compressed air and require no electrical connections.

\*Requires compressed air



### Part Number

49-2500 Recirculating Filter System (1µm Filter)

49-2501 Filter System (100µm Filter)

Dimensions: 25.5in [648mm]W x 20.5in [521mm]D x 16.8in [425mm]H

### Accessories

49-2510	Replacement 1µm Filter Paper (Qty 100)
49-2520	Replacement 100 µm Swarf Bag
49-2530	Castor Kit

## Electropolishing & Etching Systems

The ElectroMet 4 and PoliMat 2 systems provide both electropolishing and etching capabilities to enable efficient sample preparation.

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## ElectroMet® 4

ElectroMet 4 includes ElectroMet 4 Power Source, Polishing Cell and Etching Cell. *Products not available in Europe*

Part Number	Voltage/Frequency
70-1830-115	115VAC, 60Hz
70-1830-220	220-240VAC, 50Hz

### Accessories

70-1832	ElectroMet 4 Polishing Cell
70-2015	Masks (Qty 5)
70-2100	Stainless Steel Cathodes
70-2105	Copper Cathode
70-3100	Etching Cell



Dimensions: 13.125in [333mm]W x 18.5in [470mm]D x 9in [229mm]H

## PoliMat® 2

Includes controller, complete polishing cell and 4 masks  
*Product only available in Europe*

Part Number	Voltage/Frequency
511000	230VAC, 50/60Hz

### Accessories

510010	Complete polishing cell
510100	Set of masks (1cm², 2cm², 10cm², and without hole)



Dimensions: 19.7in [500mm]W x 11.8in [300mm]D x 9.8in [250mm]H

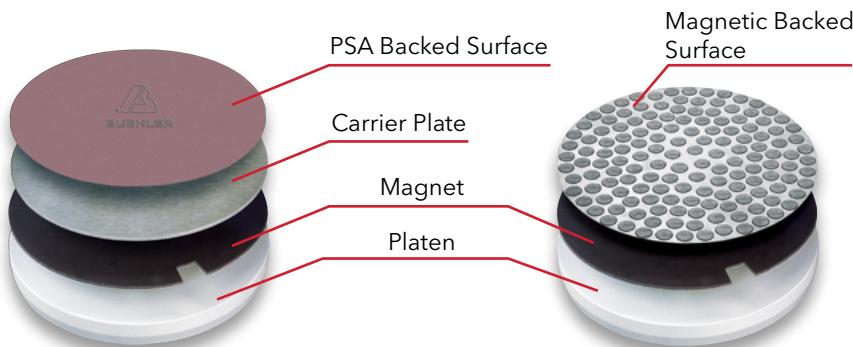
# Grinding & Polishing Consumables

## Platen Systems

The choice of platen system depends on the goals of the lab and the products being used in the preparation process. The Magnetic system can be adapted for use with nearly all products while the Apex S system provides the fastest solution for changing between grinding papers.

### Magnetic System

- Versatile system that allows easy removal and storage of grinding and polishing consumables
- First, adhere a PSA backed magnet to the aluminum platen.
- Directly apply magnetic backed surfaces or utilize a carrier plate for PSA backed surfaces.



**Magnet Selection** - to convert a standard platen to a magnetic platen

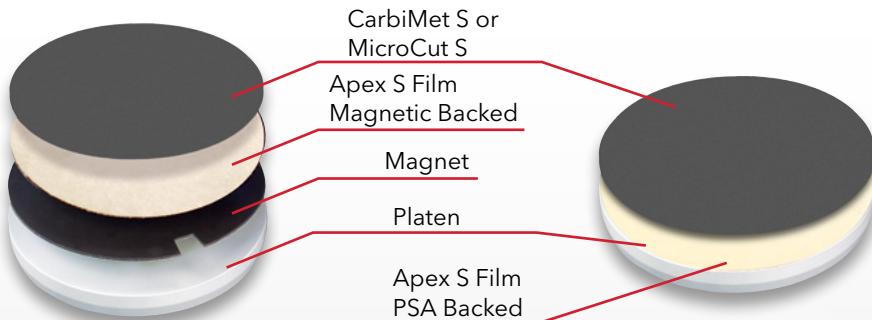
Type	Description	8in [203mm]	10in [254mm]	12in [305mm]
Apex® M Magnet PSA Backed (Qty 1)	Contains tabs for easier plate removal	41-2739-608-001	41-2739-610-001	41-2739-612-001
MagnoFix Magnet PSA Backed (Qty 1)	Standard magnet	16-2070	16-2570	16-3070

### Carrier Plate Selection

Type	Description	8in [203mm]	10in [254mm]	12in [305mm]
MagnoPad Teflon Coated Carrier Plate (Qty 5)	For easier removal of PSA surfaces, ideal for polishing cloths	16-2073	16-2573	16-3073
MagnoMet Carrier Plate (Qty 5)	Standard stainless steel carrier plate, ideal for SiC paper	16-2072	16-2572	16-3072
Apex B Carrier Plate (Qty 1)	Bimetallic disc for cloth or SiC paper. Prevents adherence of magnetic particles via bimetallic plate	41-2739-208-001	41-2739-210-001	41-2739-212-001

### Apex® S System

- High friction backing system that is the ideal choice to reduce changeover times between grinding paper steps
- Choose the PSA backed film for use directly on aluminum platen or the magnetic backed film for use with a magnetic system.



Type	Description	8in [203mm]	10in [254mm]	12in [305mm]
Apex S Film PSA backed (Qty 2)	For application directly to platen	16-2075	16-2575	16-3075
Apex S Film Magnetic backed (Qty 2)	For use with magnetic system	16-2074	16-2574	16-3074

# Grinding & Polishing Consumables

## CarbiMet® & MicroCut® Silicon Carbide Grinding Papers

CarbiMet & MicroCut Silicon Carbide Grinding Papers are the premier line of grinding papers, offering efficient material removal and minimal surface damage. They are available in 3 different backing systems depending on the needs of a lab.

### High Material Removal with Superior Surface Finish

CarbiMet offers quick grinding times with minimal surface damage during the grinding process. Since there is less damage to remove, the amount of subsequent processing may be reduced, saving valuable time in the preparation process.

### Quick Change-Overs

Apex S backing allows for fast changeovers between CarbiMet steps. Simply remove the previous paper and apply the next stage without needing to remove any backings or liners.

### Delicate Preparation

MicroCut papers provide gentle material removal with superior surface finish, which is ideal for processing delicate or sensitive materials.

## Apex® S Backed

High friction backing allows for easy & fast changeovers between grinding steps. Use with Apex S carrier film.Qty 100

	Grit Size ANSI [FEPA]	Approx. Micron Size	8in [203mm]	10in [254mm]	12in [305mm]
CarbiMet	60 [P60]	260	16-08-0060*	16-10-0060*	16-12-0060*
	80 [P80]	188	16-08-0080	16-10-0080	16-12-0080
	120 [P120]	127	16-08-0120	16-10-0120	16-12-0120
	180 [P180]	78	16-08-0180	16-10-0180	16-12-0180
	220 [P240]	58	16-08-0220	16-10-0220	16-12-0220
	240 [P280]	52	16-08-0240	16-10-0240	16-12-0240
	280 [P320]	46	16-08-0280	16-10-0280	16-12-0280
	320 [P400]	35	16-08-0320	16-10-0320	16-12-0320
	360 [P600]	26	16-08-0360	16-10-0360	16-12-0360
	400 [P800]	22	16-08-0400	16-10-0400	16-12-0400
MicroCut	500 [P1000]	18	16-08-0500	16-10-0500	16-12-0500
	600 [P1200]	15	16-08-0600	16-10-0600	16-12-0600
	1000 [P2500]	8.4	16-08-1000	16-10-1000	16-12-1000
	800 [P1500]	13	16-08-0800	16-10-0800	16-12-0800
	1200 [P2500]	8	16-08-1200	16-10-1200	16-12-1200
	P4000	5	16-08-4000	16-10-4000	16-12-4000

\*Contains 50 pcs



### CarbiMet and MicroCut Accessories

- Apex S film is applied to a platen for use with CarbiMet S or MicroCut S
- MetGrip liners are used with plain backed CarbiMet or MicroCut when holding bands are not used

Description	8in [203mm]	10in [254mm]	12in [305mm]
Apex S Carrier Film magnetic backed (Qty 2)	16-2074	16-2574	16-3074
Apex S Carrier Film PSA backed (Qty 2)	16-2075	16-2575	16-3075
MetGrip® Liners (Qty 10)	30-8508	30-8510	30-8512
Paper Holding Bands	30-2008	95-2825	46-2013

# Grinding & Polishing Consumables

## PSA Backed

Pressure sensitive adhesive (PSA) backing for easy application directly to platen. Qty 100

	Grit Size - ANSI [FEPA]	Approx. Micron Size	8in [203mm]	10in [254mm]	12in [305mm]
CarbiMet	60 [P60]	260	36-08-0060*	36-10-0060*	36-12-0060*
	80 [P80]	188	36-08-0080	36-10-0080	36-12-0080
	120 [P120]	127	36-08-0120	36-10-0120	36-12-0120
	180 [P180]	78	36-08-0180	36-10-0180	36-12-0180
	220 [P240]	58	36-08-0220	36-10-0220	36-12-0220
	240 [P280]	52	36-08-0240	36-10-0240	36-12-0240
	280 [P320]	46	36-08-0280	36-10-0280	36-12-0280
	320 [P400]	35	36-08-0320	36-10-0320	36-12-0320
	360 [P600]	26	36-08-0360	36-10-0360	36-12-0360
	400 [P800]	22	36-08-0400	36-10-0400	36-12-0400
	500 [P1000]	18	36-08-0500	36-10-0500	36-12-0500
	600 [P1200]	15	36-08-0600	36-10-0600	36-12-0600
MicroCut	1000 [P2500]	8.4	36-08-1000	36-10-1000	36-12-1000
	800 [P1500]	13	36-08-0800	36-10-0800	36-12-0800
	1200 [P2500]	8	36-08-1200	36-10-1200	36-12-1200
	P4000	5	36-08-4000	36-10-4000	36-12-4000

\*Contains 50 pcs

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## Plain Backed

Plain backing requires the use of an adhesive liner or holding band. Qty 100

	Grit Size - ANSI [FEPA]	Approx. Micron Size	8in [200mm]	10in [250mm]	12in [300mm]
CarbiMet	60 [P60]	260	30-08-0060*	30-10-0060*	30-12-0060*
	80 [P80]	188	30-08-0080	30-10-0080	30-12-0080
	120 [P120]	127	30-08-0120	30-10-0120	30-12-0120
	180 [P180]	78	30-08-0180	30-10-0180	30-12-0180
	220 [P240]	58	30-08-0220	30-10-0220	30-12-0220
	240 [P280]	52	30-08-0240	30-10-0240	30-12-0240
	280 [P320]	46	30-08-0280	30-10-0280	30-12-0280
	320 [P400]	35	30-08-0320	30-10-0320	30-12-0320
	360 [P600]	26	30-08-0360	30-10-0360	30-12-0360
	400 [P800]	22	30-08-0400	30-10-0400	30-12-0400
	500 [P1000]	18	30-08-0500	30-10-0500	30-12-0500
	600 [P1200]	15	30-08-0600	30-10-0600	30-12-0600
MicroCut	1000 [P2500]	8.4	30-08-1000	30-10-1000	30-12-1000
	800 [P1500]	13	30-08-0800	30-10-0800	30-12-0800
	1200 [P2500]	8	30-08-1200	30-10-1200	30-12-1200
	P4000	5	30-08-4000	30-10-4000	30-12-4000

\*Contains 50 pcs

# Grinding & Polishing Consumables

## Diamond Grinding Discs

Diamond Grinding Discs are ideally used as a substitute for SiC paper or other grinding media. Long-life, fixed abrasive provides high removal rates with superb edge retention and flatness. This versatile system works on a wide range of materials such as hard materials, ferrous materials, aluminum, ceramics, glass, thermal spray coatings and more. The surface is durable enough for unmounted specimens. Like your Silicon Carbide papers, just use water for the preparation process (dressing is required with some materials).

### Long Life with Consistent Results

Fixed diamond particles provide consistent removal rates and extended lifetime with only an occasional dressing to maintain the surface.

### Ideal Solution for Automation

Diamond Grinding Discs offer superb edge retention and excellent flatness making them the perfect choice for controlled material removal on automated systems.

### Process a Variety of Materials

Grinding hard materials requires a different type of surface than grinding softer materials. Buehler's Diamond Grinding Discs offer customized solutions for different material types to ensure efficient and consistent grinding.

## DGD Color

Our most versatile diamond grinding disc, the unique characteristics of the resin bond used provides long life and high removal rates on most materials, including softer materials such as brass and copper. Just add water and use

- Utilize a specially formulated resin bond for consistent material removal
- Ideal for most engineering metals
- Available with PSA or Magnetic backing

Color	8in [203mm]		10in [254mm]		12in [305mm]		
	Micron	PSA	Magnetic	PSA	Magnetic	PSA	Magnetic
Green	240µm	41-3308	414308D	41-3310	414310D	41-3312	414312D
Black	125µm	41-3408	414408D	41-3410	414410D	41-3412	414412D
Red	75µm	41-3508	414508D	41-3510	414510D	41-3512	414512D
Purple	55µm	41-3608	414608D	41-3610	414610D	41-3612	414612D
Yellow	35µm	41-3708	414708D	41-3710	414710D	41-3712	414712D
White	15µm	41-3808	414808D	41-3810	414810D	41-3812	414812D
Blue	8µm	41-3908	414908D	41-3910	414910D	41-3912	414912D



## DGD Terra

Resin-bonded, fixed abrasive surfaces, excellent for hard materials, ceramic, glass, TSC. These discs provide superb edge retention and flatness. Just add water and use.

- Provides consistent material removal with excellent flatness
- Ideal for brittle and hard materials such as ceramics and glass
- Available with PSA or Magnetic backing

Micron	8in [203mm]		10in [254mm]		12in [305mm]	
	PSA	Magnetic	PSA	Magnetic	PSA	Magnetic
165µm	41-5008	416008D	41-5010	416010D	41-5012	416012D
125µm	41-5108	416108D	41-5110	416110D	41-5112	416112D
70µm	41-5208	416208D	41-5210	416210D	41-5212	416212D
45µm	41-5308	416308D	41-5310	416310D	41-5312	416312D
30µm	41-5408	416408D	41-5410	416410D	41-5412	416412D
15µm	41-5508	416508D	41-5510	416510D	41-5512	416512D
9µm	41-5608	416608D	41-5610	416610D	41-5612	416612D
6µm	41-5708	416708D	41-5710	416710D	41-5712	416712D
3µm	41-5808	416808D	41-5810	416810D	41-5812	416812D
0.5µm	41-5908	416908D	41-5910	416910D	41-5912	416912D



# Grinding & Polishing Consumables

## DGD Ultra

- Designed for initial grinding steps of mixed hardness materials
- Available with PSA backing

Color	Micron	8in [203mm]	10in [254mm]	12in [305mm]
● Black	125µm	15-6199	14-2581	15-6299
● Red	70µm	15-6170	14-2582	15-6270
● Yellow	45µm	15-6145	14-2583	15-6245
○ White	15µm	15-6115	14-2585	15-6215
● Blue	9µm	15-6109		15-6209
● Purple	6µm	15-6106		15-6206



## DGD Mosaic®

- Combines high material removal rate with good recovery to reduce prep time
- Optimized for fastest material removal on ferrous materials
- Magnetic backing for fast & easy set up on machine

Grit Size ANSI [FEPA]	Approx. Micron Size	8in [203mm]	10in [254mm]	12in [305mm]
120 [P120]	125µm	41-708-0120	41-710-0120	41-712-0120
220 [P240]	60µm	41-708-0220	41-710-0220	41-712-0220
320 [P400]	40µm	41-708-0320	41-710-0320	41-712-0320
400 [P800]	30µm	41-708-0400	41-710-0400	41-712-0400
1000 [P2500]	10µm	41-708-1000	41-710-1000	41-712-1000

\*All DGD Mosaic discs include dressing stick 11-1190 (Requires dressing before intial use)



## Accessories



Dressing Stick for Diamond Grinding Discs  
1 x 1 x 6in  
15-6190



Dressing Stick for Diamond Grinding Discs  
0.5 x 0.5 x 3 in  
11-1190

# Grinding Consumables

## Premium Polishing Cloths

Buehler's premium performance cloths are for all material applications and are engineered for long life & superior surface finish.

### Easy to Use Magnetic Backing

Utilize the magnetic backing for an efficient and easy-to-use solution. The durable magnetic backed cloth provides consistent polishing results while reducing the change-over time between cloths.

### A Cloth for Every Application

The type of cloth used depends heavily on the material being processed and the requirements for the final analysis. With a variety of fabrics, weaves and naps, there is a cloth to fit every application.

### Reliable Preparation Results

Buehler's cloths are thoroughly tested and developed with MetaDi Diamond to provide a complete solution that delivers reliable results for each sample processed.

### Polishing Cloth Selection Guide

	Cloth	Backing	Quantity	8in [203mm]	10in [254mm]	12in [305mm]	Description
COARSE	UltraPad®	PSA	10	40-7118	40-7120	40-7122	Hard woven, no nap
		Magnetic	5	42-3008	42-3010	42-3012	
	UltraPol®	PSA	10	40-7448	40-7450	40-7452	Hard woven, non-aggressive silk
	TexMet® P	PSA	5	40-7638	40-7640	40-7642	Hard non-woven, perforated
INTERMEDIATE	Nylon	PSA	10	40-7068	40-7070	40-7072	Medium hard woven, oil resistant, no nap
		Magnetic	5	42-3108	42-3110	42-3112	
	TexMet® C	PSA	10	40-1108	40-1110	40-1112	Non-woven, pressed
		Magnetic	5	42-3208	42-3210	42-3212	
FINE	TriDent®	PSA	10	40-7518	40-7520	40-7522	Soft woven synthetic, no nap
		Magnetic	5	42-3308	42-3310	42-3312	
	VerduTex®	PSA	10	40-8018	40-8020	40-8022	Medium hard, synthetic silk
		Magnetic	5	42-3408	42-3410	42-3412	
	VelTex®	PSA	10	40-8218	40-8220	40-8222	Short nap, synthetic velvet
		Magnetic	5	42-3508	42-3510	42-3512	
	WhiteFelt™	PSA	5	16-2002	16-2502	16-3002	Soft, durable, matted wool
		PSA	10	40-8418	40-8420	40-8422	
	PoliCloth™	Magnetic	5	42-3608	42-3610	42-3612	Medium hard, woven wool
		PSA	10	40-7218	40-7220	40-7222	
	MicroCloth®	Magnetic	5	42-3708	42-3710	42-3712	Soft synthetic rayon, long nap
		PSA	10	40-8318	40-8320	40-8322	
	MicroFloc™	Magnetic	5	42-3808	42-3810	42-3812	Soft, long nap
		PSA	10	40-7738	40-7740	40-7742	
	MasterTex®	Magnetic	5	42-3908	42-3910	42-3912	Soft synthetic velvet, low nap
		PSA	10	40-7918	40-7920	40-7922	
	ChemoMet®	Magnetic	5	42-4008	42-4010	42-4012	Soft synthetic, porous, chemically resistant
		PSA	10	40-7918	40-7920	40-7922	



UltraPad™



TexMet® P



TriDent™



VerduTex®



UltraPol™



Nylon



TexMet® C



# Grinding Consumables

## Apex® Hercules

- Magnetic backed resin surface that provides excellent flatness and edge retention
- Use with MetaDi® Diamond Suspension

Type	8in [203mm]	10in [254mm]	12in [305mm]
<b>Apex Hercules H</b>			
Fine grinding disc for hard ferrous and non-ferrous material (> HRC 20/HV 236)	41-2740-308-001	41-2740-310-001	41-2740-312-001
<b>Apex Hercules S</b>			
Fine Grinding Disc for soft ferrous and non-ferrous material (<HRC 20/HV 236)	41-2740-408-001	41-2740-410-001	41-2740-412-001



Recommended Micron Size	Abrasive Type	Applications
6µm & Up	Diamond	Ferrous materials and thermal spray coatings
6µm & Up	Diamond	Minerals, coals, ceramics, inclusion retention in steels, and refractory metals
6µm & Up	Diamond	Electronics, ceramics, carbides, petrographic, hard metals, glass, and metal matrix composites
6µm & Up	Diamond	Ferrous materials, sintered carbides and cast irons
15 - 0.02µm	Diamond, Al <sub>2</sub> O <sub>3</sub> , SiO <sub>2</sub>	Ferrous and nonferrous metals, ceramics, electronics, PCB's, thermal spray coatings, cast irons, cermets, minerals, composites, plastics
15- 0.02µm	Diamond, Al <sub>2</sub> O <sub>3</sub>	Ferrous and nonferrous metals, microelectronics, polymer matrix composites, coatings
9 - 1µm	Diamond	Ferrous and nonferrous metals, microelectronics, coatings
9 - 1µm	Diamond	Soft metals
6 - 0.02µm	Diamond, Al <sub>2</sub> O <sub>3</sub> , SiO <sub>2</sub>	Ferrous and nonferrous metals
6 - 1µm	Diamond	Cast iron, copper and aluminum alloys
5- 0.02µm	Diamond, Al <sub>2</sub> O <sub>3</sub> , SiO <sub>2</sub>	Ferrous and nonferrous metals, ceramics, composites, PCBs, cast irons, cermets, plastics, electronics
3 - 0.02µm	Diamond, Al <sub>2</sub> O <sub>3</sub> , SiO <sub>2</sub>	Ferrous and nonferrous materials
1 - 0.05µm	Al <sub>2</sub> O <sub>3</sub> , SiO <sub>2</sub>	Soft nonferrous and microelectronics
1 - 0.02µm	Al <sub>2</sub> O <sub>3</sub> , SiO <sub>2</sub>	Titanium, stainless steel, lead/tin, solders, electronics, soft nonferrous metals, plastics



VelTex™



WhiteFelt™



PoliCloth™



MicroCloth™



MicroFloc®



MasterTex®



ChemoMet®

# Grinding & Polishing Consumables

## Diamond Polishing Suspensions & Pastes

MetaDi Diamond Suspensions and Pastes are high-quality diamond polishing products that provide repeatable performance and deliver exceptional surface quality.

### Repeatable Polishing Results

Buehler's MetaDi Diamond products are tightly controlled to prevent any deviations in particle size or concentrations. This ensures repeatable polishing results and a high quality surface finish for every sample processed.

### Fast Preparation Time

MetaDi Supreme Suspension offers a high material removal rate and minimal deformation making it the product of choice for most materials. The high concentration of polycrystalline diamonds offers numerous sharp cutting faces to efficiently remove material and polish the surface.

### Processing Unique Materials

Some materials are not compatible with water-based suspensions due to water-sensitivity or diamond embedding. The Oil-Based MetaDi Monocrystalline Suspension as well as MetaDi pastes offer multiple options when working with water-sensitive materials.

## MetaDi® Diamond Suspensions

### MetaDi Supreme Polycrystalline Suspension

Water-based, free of solvents, high diamond concentration, tight distribution of diamond grain size. Very high removal rate.

Color	Diamond Size	8oz [0.24L]*	32oz [0.95L]	1gal [3.8L]
Charcoal	0.05µm	40-6627		
Grey	0.25µm	40-6629		40-6629-128
Blue	1µm	40-6630	40-6630-032	40-6630-128
Blue	1µm Fine	40-6630F	40-6630F-032	40-6630F-128
Green	3µm	40-6631	40-6631-032	40-6631-128
Green	3µm Fine	40-6631F	40-6631F-032	40-6631F-128
Yellow	6µm	40-6632	40-6632-032	40-6632-128
Deep Red	9µm	40-6633	40-6633-032	40-6633-128
Brown	15µm	40-6634	40-6634-032	40-6634-128
Orange	30µm	40-6635	40-6635-032	40-6635-128
Purple	45µm	40-6636		



### MetaDi Monocrystalline Suspension

Monocrystalline suspension provides good material removal for most materials.

Color	Diamond Size	16oz [0.47L]*	32oz [0.95L]	1gal [3.8L]
Blue	1µm	40-6530	40-6530-032	40-6530-128
Green	3µm	40-6531	40-6531-032	40-6531-128
Yellow	6µm	40-6532	40-6532-032	40-6532-128
Deep Red	9µm	40-6533	40-6533-032	40-6533-128
Brown	15µm	40-6534	40-6534-032	40-6534-128



### Dye-Free MetaDi Supreme Polycrystalline Suspension

Ideal for materials that may absorb dye and affect image analysis.

Diamond Size	8oz [0.24L]*
1µm	40-6730
3µm	40-6731
6µm	40-6732
9µm	40-6733

### MetaDi Monocrystalline Suspension Oil Based

Ideal for processing materials that are water-sensitive.

Color	Diamond Size	16oz* [0.47L]
Blue	1µm	40-6540
Green	3µm	40-6541
Yellow	6µm	40-6542
Deep Red	9µm	40-6543
Brown	15µm	40-6544

### MetaDi Combo, Suspension & Extender

Combination of monocrystalline suspension and extender fluid to maintain consistency when using automated dosing systems.

Color	Diamond Size	32oz [0.95L]
Blue	1µm	40-5530-032
Green	3µm	40-5531-032
Yellow	6µm	40-5532-032
Deep Red	9µm	40-5534-032

\*8oz and 16oz are supplied with spray nozzle.

# Grinding & Polishing Consumables

## MetaDi® Diamond Pastes

For water free preparation. Polycrystalline for ductile materials, monocrystalline for hard, brittle materials and petrographic applications

### MetaDi Ultra Polycrystalline Paste

Polycrystalline paste provides efficient material removal for soft materials that may be prone to diamond embedding. Use with MetaDi Fluid or AutoMet Oil.

Color	Diamond Size	20g
Blue	1µm	40-1-6301
Green	3µm	40-1-6303
Yellow	6µm	40-1-6305
Deep Red	9µm	40-1-6307
Brown	15µm	40-1-6309

This product is grey in color with color coded packaging



### MetaDi Monocrystalline Paste

Natural monocrystalline diamond paste for materials that are prone to diamond embedding. Use with MetaDi Fluid or AutoMet Oil.

Color	Diamond Size	5g	20g
Grey	0.25µm	40-6112	40-6102
Blue	1µm	40-6138	40-6128
Green	3µm	40-6152	40-6142
Yellow	6µm	40-6172	40-6162
Deep Red	9µm	40-6192	40-6182
Brown	15µm	40-6212	40-6202

### MetaDi II Monocrystalline Paste

Synthetic monocrystalline diamond paste for materials that are very prone to diamond embedding. Use with MetaDi Fluid or AutoMet Oil.

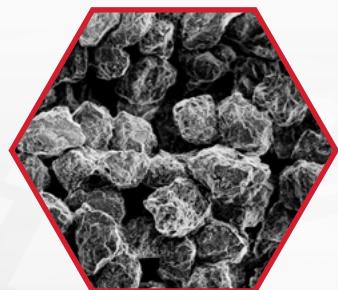
Color	Diamond Size	5g	20g
Grey	0.25µm	40-6241	40-6240
Blue	1µm	40-6244	40-6243
Green	3µm	40-6247	40-6246
Yellow	6µm	40-6250	40-6249
Deep Red	9µm	40-6253	40-6252
Brown	15µm	40-6256	40-6255

### Polishing Lubricants

MetaDi Fluid is a water soluble lubricant for use with pastes and suspensions. AutoMet Oil is recommended for use with water sensitive materials.

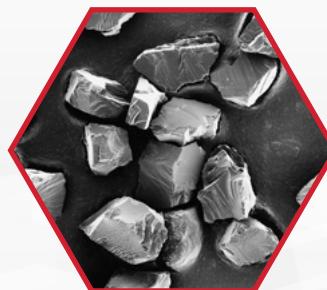
Part Number	Description
40-6016	MetaDi Fluid, 16oz [0.47L]
40-6032	MetaDi Fluid, 32oz [0.95L]
40-6064-085	MetaDi Fluid, 85oz [2.5L]
60-3250-006	AutoMet® Oil, 6oz [0.18L]
60-3250-128	AutoMet Oil, 1gal [3.8L]

### Differences between Polycrystalline and Monocrystalline Diamonds



Angular, polycrystalline diamonds provide numerous cutting facets on the particle surface, resulting in less deformation

45micron diamond in SEM  
(450X)



45micron diamond in SEM  
(450X)

Sharp edges of monocrystalline diamonds ensure clean and efficient cutting action

# Grinding & Polishing Consumables

## Final Polishing Suspensions

Final polishing suspensions are designed to remove the final layer of surface deformation and prepare a sample for analysis. A variety of products are offered to meet many different application needs.

### Excellent Surface Finish

While the final layer of deformation is often invisible to the naked eye, it must be removed for some analysis techniques.

### Application Specific Solutions

Alumina suspensions and powders along with colloidal silica suspensions offer a solution for the wide variety of materials being processed in today's world.

#### MasterPrep® Alumina



Sol-gel alumina suspension ( $0.05\mu\text{m}$ , ~8.5pH) is excellent for minerals, ferrous metals, carbides, precious metals, PWB's electronics and polymers.

63-6377-006	6oz [0.18L]
40-6377-032	32oz [0.95L]
40-6377-064	64oz [1.9L]

#### MasterMet® Colloidal Silica



Amorphous colloidal silica suspension ( $0.06\mu\text{m}$ , ~10pH) that provides chemo-mechanical polishing and is excellent for refractory metals, minerals and ceramics.

40-6370-006	6oz [0.18L]
40-6370-064	64oz [1.9L]

#### MasterMet® 2 Colloidal Silica



Non-crystallizing amorphous colloidal silica suspension ( $0.02\mu\text{m}$ , ~10.5pH) that provides chemo-mechanical polishing action and is excellent for refractory metals, minerals, and ceramics.

40-6380-006	6oz [0.18L]
40-6380-064	64oz [1.9L]

#### MasterPolish® Final Polish



Blend of high purity alumina and colloidal silica ( $0.05\mu\text{m}$ , ~9pH) that contains minimal water and is optimal for water sensitive materials.

40-10084	32oz [0.95L]
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#### MasterPolish® 2 Final Polish



Iron oxide suspension ( $0.06\mu\text{m}$ , ~10pH) that provides chemo-mechanical polishing and is excellent for sapphire, glass, alumina, silicon nitride and metal/ceramic composites.

40-6376-032	32oz [0.95L]
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#### MicroPolish® Alumina Suspension



Agglomerated alumina suspensions offering high removal rates and suitable for use on pure and alloyed lead and magnesium.

40-10083	0.05μm 6oz [0.18L]
40-10082	0.3μm 6oz [0.18L]
40-10081	1μm 6oz [0.18L]

#### MicroPolish® Alumina Powder



Agglomerated alumina powders offering high removal rates and suitable for use on pure and alloyed lead and magnesium.

40-10075	0.05μm 1lb [0.45kg]
40-10076	0.05μm 5lb [2.3kg]
40-10077	0.3μm 1lb [0.45kg]
40-10078	0.3μm 5lb [2.3kg]
40-10079	1μm 1lb [0.45kg]
40-10080	1μm 5lb [2.3kg]

#### MicroPolish® II Alumina Powder



High quality deagglomerated alumina powders offering good surface finish and suitable for most minerals and metals.

40-6322-016	1μm 1lb [0.45kg]
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#### MiroMet Polish®



MiroMet is a  $1\mu\text{m}$  cerium oxide water based suspension. It is mainly used as a universal polishing compound for glass, but is also suitable for a soft materials with very low melting points. Concentrate - dilute with distilled water before use.

406355006	1 μm 6oz [180 mL]
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# Grinding & Polishing Consumables

## FibrMet™ Abrasive Discs

FibrMet® Abrasive Disc are PSA (polyester backed) films, approx. 0.1 mm thick, coated with an aluminum oxide abrasive. These discs can be used wet or dry and are most suitable for fine grinding and polishing application, such as optical fiber and microelectronics where resultant surface flatness is essential. Qty 50

Micron	4in [102mm]	8in [203mm]	12in [305mm]
0.3µm	69-3104	69-3174	69-3124
1µm	69-3103	69-3173	69-3123
3µm	69-3102	69-3172	69-3122
9µm	69-3101	69-3171	69-3121
12µm	69-3100	69-3170	

## UltraPrep™ Diamond Lapping Films

UltraPrep Diamond Lapping Films are designed for various material applications including microelectronic devices, wafers, ceramics, optical fibers, petrographic, and other metallographic materials. Ideal for preparation applications where surface flatness and minimal deformation are critical. Qty 5

Micron	8in [203mm] PSA Backed	8in [203mm] Plain Backed
0.1µm	15-6791	15-6792
0.5µm	15-6795	15-6796
1µm	15-6801	15-6802
3µm	15-6803	15-6804
6µm	15-6806	15-6807
9µm	15-6809	15-6810
15µm	15-6815	15-6816
30µm	15-6830	15-6831

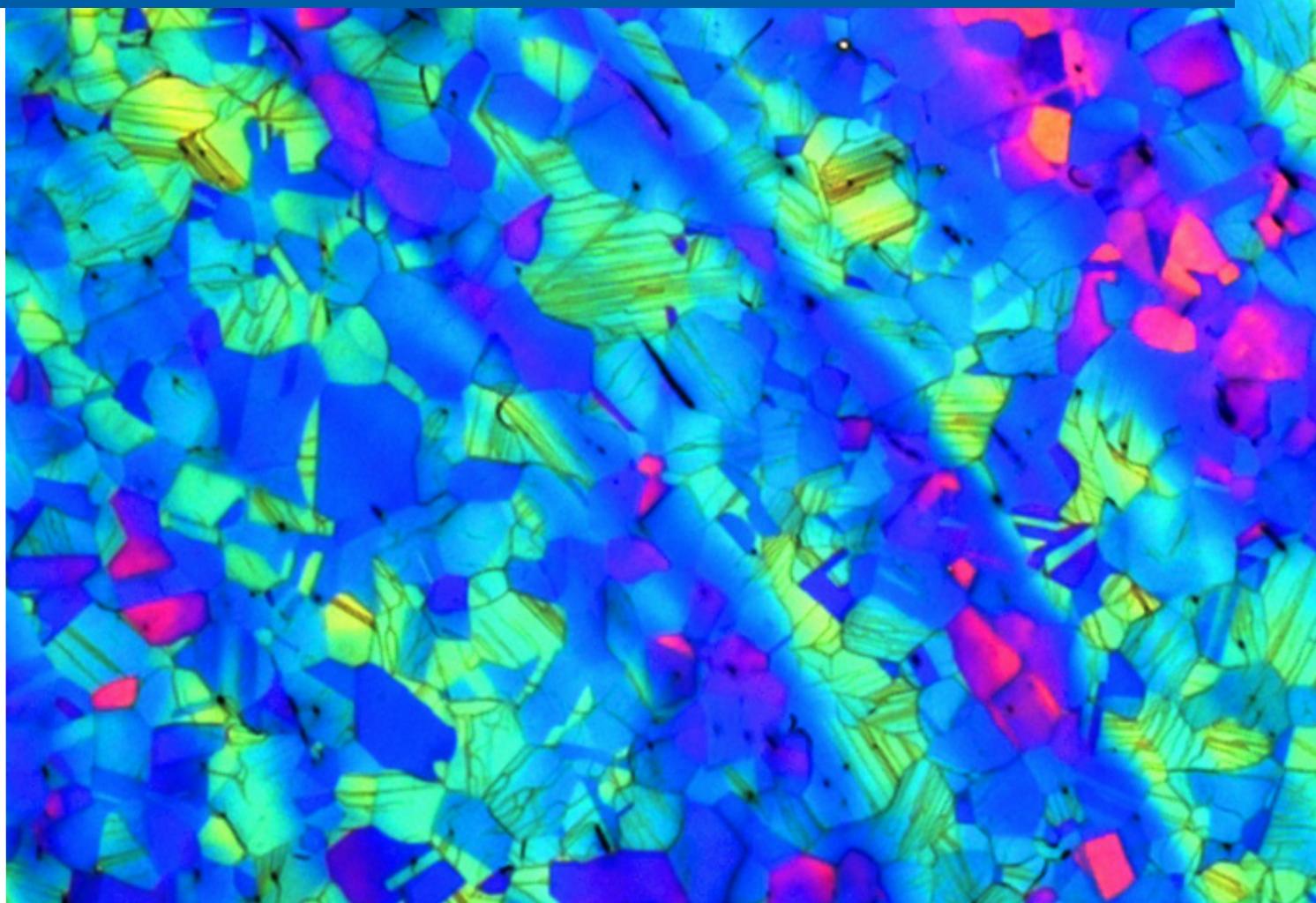


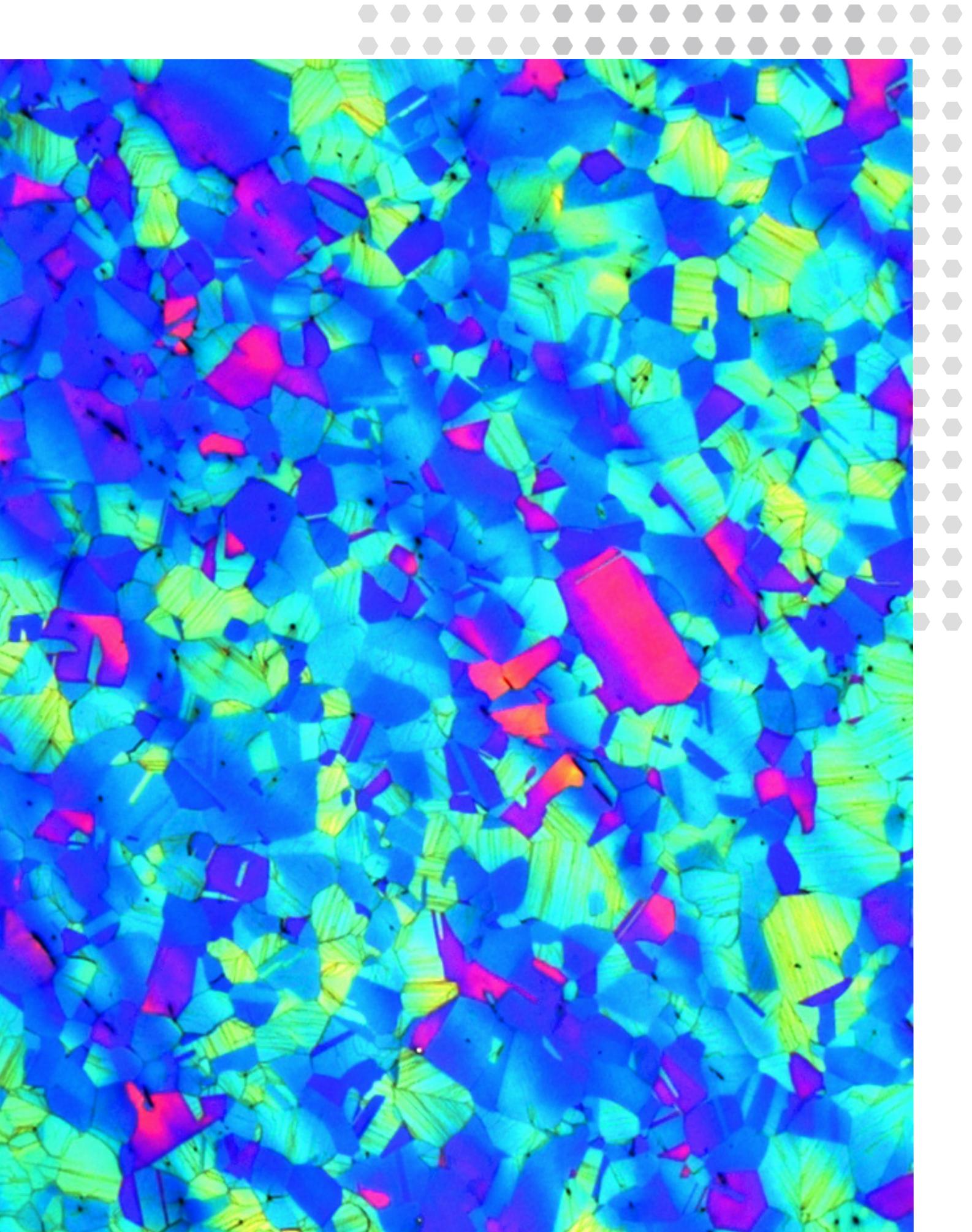
# IMAGING & ANALYSIS

OmniMet® delivers powerful image analysis possibilities combined with flexible database functionality.

OmniMet® delivers powerful image analysis possibilities combined with flexible database functionality. Customize OmniMet with intuitive user friendly point-and-click measurement possibilities, pre-programmed analysis routines, or with capabilities for running user programmable analysis scripts. The database utilizes a multi-tiered approach to logically organize numerous users and image data with unprecedented ease.

The OmniMet system offers seamless point-and-click integration of microscopes, cameras, and image analysis software via an intuitive Microsoft® Windows® interface. Images can be viewed and analyzed directly from a compatible microscope camera, or imported into Omnimet as images files in any standard format. OmniMet software is offered at different levels of flexibility, functionality, and analytical power to meet the needs of every laboratory requiring image data archiving and quantitative image analysis.





# OmniMet® Modular Digital Imaging System

Designed for Demanding Production Lab Environments

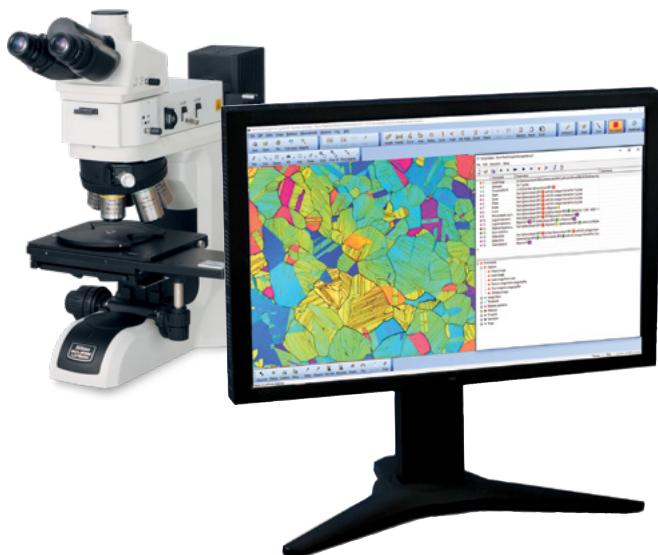


## Flexible

- Flexible platform with preconfigured software or hardware packages and optional accessories. Optional Capture and Measurement Modules available to customize software solution.

## Powerful

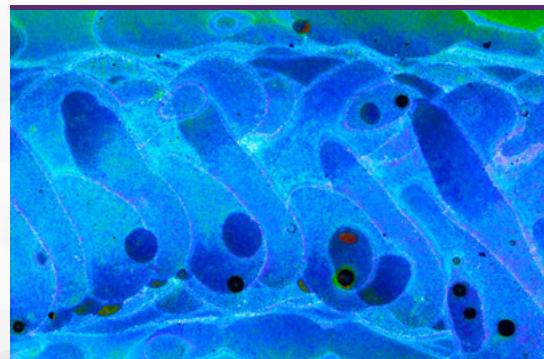
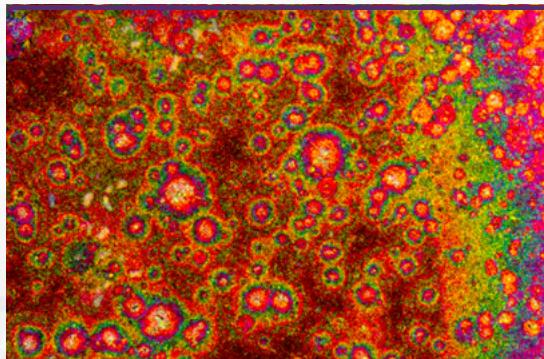
- Any standard format image may be viewed directly from a microscope or be imported into OmniMet for analysis.
- Local Area Network (LAN) support offered by OmniMet Viewer Module.



Systems*	Software**	Editions
86-1-1001	86-1-1000	OmniMet Viewer allows networked users to view and modify images and information in an Omnimet database on the same network
	86-1-1010	OmniMet Capture N' Measure (CnM) enables image capture with basic measurement functions and scale bar (without database functions). Measuring tools include length, parallel lines, curved line, area, perimeter, radius, angle and count. Images can be saved in common formats. Results can be burnt into the image but cannot be stored or exported to Excel®.
86-1-1003	86-1-1002	OmniMet Basic includes everything in Capture 'N Measure, and also adds databasing functionality for archiving as well as MS Office report templates for presenting results. Optional Capture Modules may be added for specific applications
86-1-1005	86-1-1004	OmniMet Advanced includes everything in OmniMet Basic, and also adds enhanced measurements capabilities. Measurements can be saved in the database, or interactively to Excel worksheets. Built in statistical analysis streamlines interpretation of results and reporting. Optional Capture Modules and Advanced Measurement Modules may be added for specific applications.
86-1-1007	86-1-1006	OmniMet Express includes everything in OmniMet Advanced, with the added capability of running automated Scripts. Scripts are application specific image analysis packages to provide best efficiency and reproducibility for repeat analysis in high throughput environments. Optional Capture Modules, Advanced Measurement Modules and pre-programmed Application Specific Scripts may be added.
86-1-1009	86-1-1008	OmniMet Enterprise includes everything in OmniMet Express, with the added capability of writing and editing Scripts. Fully customizable Scripts allow the user complete control of analysis solutions. Comes with 8 commonly used Application Specific Scripts. Optional Capture Modules, Advanced Measurement Modules and additional Application Specific Scripts may be added.

\* System Packages include OmniMet software pre-installed on a Windows 10 64-bit workstation. Package includes keyboard and mouse. Monitor not included.

\*\* Software Only package includes software, mousepad and is compatible with Windows 10 computer, (64-bit).



# OmniMet® Modular Digital Imaging System

## OmniMet® Software Modules & Features

Software Description	Viewer	CnM	Basic	Advanced	Express	Enterprise
<b>Capture</b>						
Load and Save	•	•	•	•	•	•
Brightness, Auto-White Balance, Color Correction	•	•	•	•	•	•
Digital Zoom, Rotate, Calibration & Annotation	•	•	•	•	•	•
Camera Interface (USB, IEEE 1394, Capture Cards, DirectShow, Twain, etc.)	•	•	•	•	•	•
Motorized Stage Controller		•	•	•	•	•
Capture Modules (optional)		◊	◊	◊	◊	◊
<b>Measure</b>						
Standard Measurements: Length, Area, Radius, Count, Parallel Lines	•	•	•	•	•	•
Advanced Measurements: 3-point Circle, Adj. Angle, Polygon			•	•	•	•
Advanced Measurement Modules (optional)			◊	◊	◊	◊
Color Threshold (size, intensity), 16 Bitplanes					•	•
Automation Capable: Read & Run Scripts					•	•
ScriptEditor: Write, and Edit Scripts						•
Application Specific Scripts (optional)					◊	◊*
<b>Report</b>						
Report Data, Report Generator (requires Microsoft® Office)			•	•	•	•
Results Window with measurements log			•	•	•	•
<b>Organize</b>						
Database Interface	•		•	•	•	•
Database Creation & Administration		•	•	•	•	•

## Optional Modules

### Capture Modules

Can be added to any package

- 86-4130 **OmniMet Multi-Focal Images** - Used to create focused images from multiple images of the same specimen when the viewing surface exists in different focal planes. Beneficial for removing edge rounding or viewing rougher surfaces when sharply focused images are required for analysis.
- 86-4140 **OmniMet Mosaic Multiple Image Stitching** - Used to stitch multiple images together to create one large, calibrated stitched image. Measurements are possible on the stitched image. Useful for documenting features larger than one field of view. A motorized stage is not required.

### Advanced Measurement Modules

Can be added to any Advanced, Express or Enterprise package

- 86-4110 **OmniMet Object Analysis** - 'Single phase' image analysis for measurements of image features and field characteristics: Area Fraction, Area Position, Number of Objects, Perimeter, Compactness, Length, Feret Diameter, Center of Gravity, Inclusion and Exclusion of Objects by Size.
- 86-4115 **OmniMet Weld** - Measurement Tools for determining weld characteristics. Use a circle radius to determine effective weld depth, angular A-measurements, or full weld outline characterization to determine effective depth, penetration and area.
- 86-4120 **OmniMet Hardness** - Measure Vickers and Knoop indentations interactively, quickly, and easily. Allows load force in gf or kgf and delivers accurate HV/HK values along with the diagonal indent dimensions.
- 86-4125 **OmniMet Grain Size** - Measure grain size interactively using ASTM-E112 methodology with linear intercept or circle intercept methods.

# OmniMet® Modular Digital Imaging System

## Application Specific Scripts (*optional*)

86-3050*	<b>Manual Interactive</b> - Thickness Measurements of line lengths with statistics for length and thickness measurements.	86-3150	<b>Intercept Grain Size</b> - Automated grain size determination delivering average grain size per field using straight line and circular intercept methods in accordance with ASTM E112.
86-3100*	<b>Grain Size</b> - Automated grain size measurements in accordance with ASTM E112. Average grain size by intercept methods and grain size distributions using areas are delivered. Additional processing identifies ALA grain size and duplex populations in accordance to ASTM E930 and ASTM E1181 where appropriate. ISO 643 compliant.	86-3310	<b>Surface Roughness</b> - Surface roughness measurements in accordance with ASME B46.1-02.
86-3300*	<b>Coating Layer</b> - Thickness Measures coating, plating or layer thickness of cross-sectioned samples in compliance with ASTM B487.	86-3350	<b>Decarburization Depth Assessment</b> - Determines depth of total or partial decarburization according to the relative amount of free ferrite present according to ASTM E1077.
86-3400*	<b>Graphite in Cast Iron</b> - Automated analysis of graphite in cast iron in accordance with ASTM A247. Measures size and class count of graphite nodules and area percentages of ferrite graphite and pearlite. For gray iron graphite length is also provided.	86-3525	<b>Cleanliness Assessment</b> - Provides cleanliness assessment of particles on filter paper meeting the requirements of ISO 4406.
86-3500*	<b>Particle Sizing</b> - Detects and measures particles in a field of view providing statistics on quantity and size distribution. Suitable for non-agglomerated particulates, precipitates, and powders.	86-3600	<b>Indentation Hardness</b> - Provides the capability to measure and analyze Knoop and Vickers indents in accordance with ASTM E384. Reports can be exported in HK, HV, HRC, and HRB scales with graphical displays of the hardness profile.
86-3550*	<b>Porosity Assessment</b> - Provides automated measurements of fine holes or pores in a material.	86-3700	<b>Banding Assessment</b> - Determines the degree of microstructural banding in conformance with ASTM E1268. Delivers quantitative information on the degree of orientation, anisotropy index, and mean feature spacing.
86-3750*	<b>Dendritic Arm Spacing</b> - Delivers measurements of lengths between dendrite arms in cast aluminum alloys.	86-3850	<b>Inclusion Rating</b> - Determines area percentage, mean free path distances, and average numbers of intercepts for oxide and sulfide stringers in ferrous metals in accordance with ASTM E1245.
86-3200*	<b>Phase Area Percent</b> - Determines phase area and percentage area of multiple phases in accordance with ASTM 562.		

\* Included with OmniMet® Enterprise

## Upgrades and Updates

Existing customers may update their OmniMet software to the latest versions. Additionally lower level OmniMet software packages may be upgraded to higher level packages for increased functionality.

Upgrades to a higher functional level include an update to the latest software release. When ordering Upgrades or Updates, the customer license number and site ID must be included with purchase order.

Update OmniMet to the latest software release:

- |         |                           |
|---------|---------------------------|
| 86-4202 | Update Basic              |
| 86-4204 | Update Advanced           |
| 86-4205 | Update Viewer             |
| 86-4206 | Update Capture N' Measure |
| 86-4201 | Update Express            |
| 86-4203 | Update Enterprise         |

Upgrade From / To	Basic	Advanced	Express	Enterprise
Capture N' Measure	86-5006	86-4006	86-3006	86-1006
Capture Basic	x	86-4002	86-3002	86-1002
Capture Advanced	x	x	86-3004	86-1004
Express	x	x	x	86-1003

# Microscopy

Microscopes offered by Buehler generally fall into the categories of stereo microscopes, upright microscopes, or inverted microscopes. Inverted microscopes are commonly referred to as metallurgical microscopes. Microscopes may offer episcopic (reflected light) observation, diascopic (transmitted light) observation, or both possibilities. Illumination may be delivered in bright field mode (BF) or dark field mode (DF), and several techniques such as differential interference contrast (DIC) and polarized light microscopy make use of the nature of light to reveal specific pieces of information when studying materials.

**Large Field of View Needed**

- Large Samples
- 3D Parts
- Macro imaging
- Multi-focal imaging

## STEREO

**SMZ800N**



- BF/Reflected Only
- 8:1 Zoom Ratio
- LED Illumination

**SMZ18**



- BF/Reflected Only
- 18:1 Zoom Ratio
- LED Illumination

**High Magnification Needed**

- Require DF, DIC, or POL
- Mounted / Flat Samples
- May need transmitted light
- More sample variety

## COMPOUND

**YES**

Primarily View Mounted/Flat Samples with Reflected Light?

**NO**

**Inverted**



- Reflected Only
- BF/POL Only
- LED



- Reflected Only
- BF/DF/DIC/POL
- Halogen Only

**Upright**



- Reflected Only
- BF/DF/DIC/POL
- Halogen/LED

# Zoom Stereo Microscopes

## Nikon SMZ800N

Zoom Stereo Microscopes from Nikon with high resolution and macro magnification of parts. Perfect for large sample analysis and multi-focal imaging.

- High resolution and magnification stereoscope ideal for weld analysis and macro imaging
- 1-8X zoom range (with 1/2/3/4/6/8x click stops)
- 5x - 160x magnification range with 10x eyepieces (dependent upon objective and camera adapter selection)
- LED fiber illumination available with epi coaxial, ringlight and flexible light pipe options for a variety of applications.
- Double nosepiece accessory enables on-axis viewing, extended depth of focus, and quick rotation between multiple objectives.
- Trinocular body tubes enables built-in access for camera adapter, camera, and OmniMet® integration



Part Number	Configuration
8741-01	Nikon SMZ800N with 1x Objective - on plain stand with 50/50 trinocular body tube with camera port (requires camera adapter), 10x eyepieces, 1x objective, LED illuminator, flexible light pipes, 1/4 Lambda plate, and dust cover.
8741-02	Nikon SMZ800N with 0.5x Objective - on plain stand with 50/50 trinocular body tube with camera port (requires camera adapter), 10x eyepieces, 0.5x objective, LED illuminator, flexible light pipes, 1/4 Lambda plate, and dust cover.

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## Nikon SMZ800N Objectives and Accessories



NIMNH54050 - 0.5x    NIMNH54075 - 0.75x  
NIMNH54100 - 1x    NIMNH54150\* - 1.5x  
                          NIMNH54200† - 2x

\*Cannot use with 1/4 Lambda Plate

†Cannot use with ringlight,  
Coax illuminators or 1/4 Lambda Plate



Rotatable nosepiece for 2 objectives. Also provides on-axis viewing, necessary for using multi-focus module 86-4130 with the stereo microscope  
(Choose a 2nd objective for this option)

8741-61



Camera Adapter, C-Mount, 1x, LV-TV

8749-13



Camera Adapter, C-Mount, 0.55x, LV-TV

8749-11



Camera Adapter, C-Mount, 0.7x, LV-TV

8749-12

# Zoom Stereo Microscopes

## Nikon SMZ18

Zoom Stereo Microscopes from Nikon with high resolution and macro magnification of parts. Perfect for large sample analysis and multi-focal imaging.

- Ease of creating higher resolution, contrast, and zoom ratio images for electronics and other 3D parts
- High zoom range (0.75 - 13.5x with 0.75/1/2/3/4/5/6/8/10/12/13.5x click stops)
- 3.75 - 270x magnification range with 10x eyepieces (dependent upon objective and camera adapter selection)
- Double nosepiece accessory enables on-axis viewing, extended depth of focus, and quick rotation between multiple objectives.
- Trinocular body tubes enables built-in access for camera adapter, camera, and OmniMet® integration



Part Number	Configuration
8742-01	Nikon SMZ18 with 1x Objective - on plain base with 105mm of Z travel, 50/50 trinocular body tube with camera port (requires camera adapter), 10x eyepieces, 1x objective, LED illuminator, fiber optic ringlight, 1/4 Lambda plate, and dust cover

## Nikon SMZ18 Objectives and Accessories

62



NIMNH55050 - 0.5x    NIMNH55160\* - 1.5x  
NIMNH55100 - 1x    NIMNH55200\* - 2x

\*Cannot use with Coax or ringlight



Camera Adapter, C-Mount, 0.55x, LV-TV



Camera Adapter, C-Mount, 0.7x, LV-TV

8749-11

8749-12



Camera Adapter, C-Mount, 1x, LV-TV

8749-13

# Inverted Industrial Microscopes

## Nikon Eclipse MA100N

Inverted Microscopes are compact, durable and used for high magnification needs. They are ideal for mount sample analysis with flat sample surfaces and are equipped to use multiple light sources for analysis variation.

- The MA100N is a compact inverted microscope designated for bright field and simple polarizing observations.
- This model offers cost-effective solution to manufacturing and QA QC situations in industries, such as automotive/electronics and industrial machinery/tools.
- This simple but durable microscope enables high contrast image observation and capture.



Part Number	Configuration
8743-03	Nikon MA100N inverted LED Microscope - with ISO camera port (0.63x camera adapter incl.), LED illuminator, 10x eyepieces, manual XY stage (50x50mm), 5 position turret, includes 5x, 10x, 20x, 50x TU Epi Plan objectives, dust cover.

## Nikon Eclipse MA100N Objectives and Accessories



NIMUE12010\* - 1x      NIMUD00200 - 20x  
NIMUE12030\* - 2.5x      NIMUD00500 - 50x  
NIMUD00050 - 5x      NIMUD00900 - 100x  
NIMUD00100 - 10x

\*Polarizer Required



Polarizer/Analyzer set for MA100N

874365



Includes 1in, 1.125in, 1.5in stage inserts  
8743-63

Includes 25mm, 30mm, 40mm stage inserts  
8743-64



Camera Adapter, C-Mount, 0.7x, ISO

8749-14



Camera Adapter, C-Mount, 1x, ISO

8749-15



For eyepiece

8743-62



# Inverted Industrial Microscopes

## Nikon Eclipse MA200

Inverted Microscopes are compact, durable and used for high magnification needs. They are ideal for mount sample analysis with flat sample surfaces and are equipped to use multiple light sources from BF, DF, DIC & POL for analysis variation.

- Compact, durable, inverted microscope ideal for mounted, flat samples.
- Available in BF, DF, DIC, & POL with Halogen illumination (50W).
- Ergonomic design with all controls easily accessible from the front.
- DIC configuration includes intelligent nose-piece which displays objective position on front.
- Slider slots available for Grain Size and Dial Size reticle which show up on camera as well as through the eyepiece.



Part Number	Configuration
8744-01	Nikon MA200 BF Inverted Microscope - with stationary trinocular body tube, 10x eyepieces, LV-TV camera ports on body and trinocular head (requires camera adapter), halogen lamphouse with 50W bulb, manual XY stage with insert (50 x 50mm travel), 6-position nosepiece with 5x, 10x, 20x, and 50x Epi Plan Fluor BF objectives, and dust cover.
8744-02	Nikon MA200 BD/DF Inverted Microscope - with stationary trinocular body tube, 10x eyepieces, LV-TV camera ports on body and trinocular head (requires camera adapter), halogen lamphouse with 50W bulb, manual XY stage with insert (50 x 50mm travel), 5-position nosepiece with 5x, 10x, 20x, and 50x Epi Plan Fluor BF objectives, and dust cover.
8744-03	Nikon MA200 BF/DF/DIC Inverted Microscope - with stationary trinocular body tube, 10x eyepieces, LV-TV camera ports on body and trinocular head (requires camera adapter), halogen lamphouse with 50W bulb, manual XY stage with insert (50 x 50mm travel), polarizer and analyzer set, DIC slider, 5-position nosepiece with 5x, 10x, 20x, 50x Epi Plan Fluor BD objectives and dust cover.

## Nikon Eclipse MA200 Accessories and Objectives

<b>Polarizer/Analyzer</b>  Included with DIC Package 8744-61	<b>Grain Size Reticle Slider</b>  Slider for grain size analysis and NMI analysis 8744-62	<b>Scale Dial Slider</b>  5x, 10x, 20x, 50x, 100x 8744-63	<b>Stage Insert</b>  Includes 1in, 1.125in, 1.5in stage inserts 8744-64
<b>Stage Insert</b>  Includes 25mm, 30mm, 40mm stage inserts 8744-65	<b>Camera Adapter</b>  Camera Adapter, C-Mount, 0.55x, LV-TV, for 1/2" chip size cameras 8749-11	<b>Camera Adapter</b>  Camera Adapter, C-Mount, .7x, LV-TV, for 2/3" chip size cameras 8749-12	<b>Camera Adapter</b>  Camera Adapter, C-Mount, 1x, LV-TV, for 1" chip size cameras 8749-13

Nikon Eclipse MA200 Objectives


### Brightfield Objectives

- NIMUE12010\* - 1x  
NIMUE12030\* - 2.5x  
NIMUE12050 - 5x  
\*Polarizer Required

### Darkfield/DIC Objectives

- NIMUE42050 - 5x  
NIMUE42100 - 10x

- NIMUE12100 - 10x  
NIMUE12200 - 20x  
NIMUE00400 - 40x

- NIMUE12500 - 50x  
NIMUE12900 - 100x

- NIMUE42200 - 20x  
NIMUE42500 - 50x

- NIMUE42900 - 100x

# Inverted Industrial Microscopes

## Nikon Eclipse LV150N

Upright Industrial Microscopes are versatile upright microscopes suitable for reflected and/or transmitted light applications. Perfect for high magnification needs with samples that are not flat or mounted.

- Versatile upright microscope suitable for reflected light applications
- Available with LED illumination for BF applications
- Available with Halogen (50W) illumination for BF, DF, DIC, & POL
- Epi Plan Fluor objectives provide superior chromatic aberration performance, high numerical apertures, and long working distance at all magnifications



Part Number	Configuration
8745-01	Nikon LV150NL BF Upright LED Microscope - with stationary trinocular body tube, 10x eyepieces, LV-TV camera port (requires camera adapter), LED illumination, manual 3 x 2in [76 x 51mm] mechanical stage, 6-position nosepiece with 5x, 10x, 20x and 50x Epi Plan Fluor BF objectives, and dust cover.
8745-02	Nikon LV150N BF/DF/DIC Upright Halogen Microscope - with stationary trinocular body tube, 10x eyepieces, LV-TV camera port (requires camera adapter), Halogen illumination with 50W bulb, NCB11 and ND4 filters, 3 x 2in [76 x 51mm] mechanical stage, 5-position nosepiece with 5x, 10x, 20x and 50x Epi Plan Fluor BF objectives, rotating polarizer/analyizer, DIC slider, and dust cover.

65

## Nikon LV150N Objectives & Accessories



For LV150N Halogen

8745-61



For LV150NL LED

8745-62



Camera Adapter, C-Mount, 1x, LV-TV

8749-13



Camera Adapter, C-Mount, 0.55x, LV-TV

8749-11



Camera Adapter, C-Mount, .7x, LV-TV

8749-12



### Nikon LV150N Objectives

- NIMUE12010\* - 1x
- NIMUE12030\* - 2.5x
- NIMUE12050 - 5x

\*Polarizer Required

### Darkfield/DIC Objectives

- NIMUE42050 - 5x
- NIMUE42100 - 10x

- NIMUE12100 - 10x
- NIMUE12200 - 20x
- NIMUE00400 - 40x

- NIMUE12500 - 50x
- NIMUE12900 - 100x

- NIMUE42200 - 20x
- NIMUE42500 - 50x

- NIMUE42900 - 100x

# Upright Industrial Microscopes

## Digital Cameras

Part Number	Model	Mega pixels	Chip Size	Resolution (w x h)	Frame Rate (fps)	Image Sensor	Interface
86-0337	uEye 3370CP	4	1in	2048 x 2048	80	CMOS	USB3.0
86-0388	uEye 3880LE	6.4	0.5in	3088 x 2076	58	CMOS	USB3.0
86-0359	uEye 3590CP	18.1	0.5in	4912 x 3684	21	CMOS	USB3.0



## Stage Micrometer

Part Number	Description
8749-21	Stage Micrometer, mm-Inch NIST Certified
8749-22	Stage Micrometer, Metal, 1mm/0.01mm
8749-23	Stage Micrometer, Metal, 1mm/0.01mm with UKAS certificate

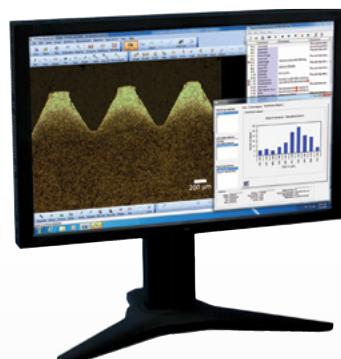


66

## Computers & Monitors

Part Number	Description
85-0135	24in Touch Monitor, LCD with 1920 x 1200 display capability
86-10007	Windows 10 workstation, complete. XE3 I7-8700, 512GB SSD, 16GB RAM, Intel chipset video with shared memory. Includes keyboard, mouse, and 24-in LCD Monitor (1920 x 1200)

NOTE: Computer and monitor specifications subject to change based on availability



## Leveling Accessories for Upright Microscopes

Part Number	Description
8749-31	Leveling Press
8749-34	Metal Slides, Set of 5, 75mm x 25 mm
8749-35	Metal Slides, Set of 2, 1in x 3in



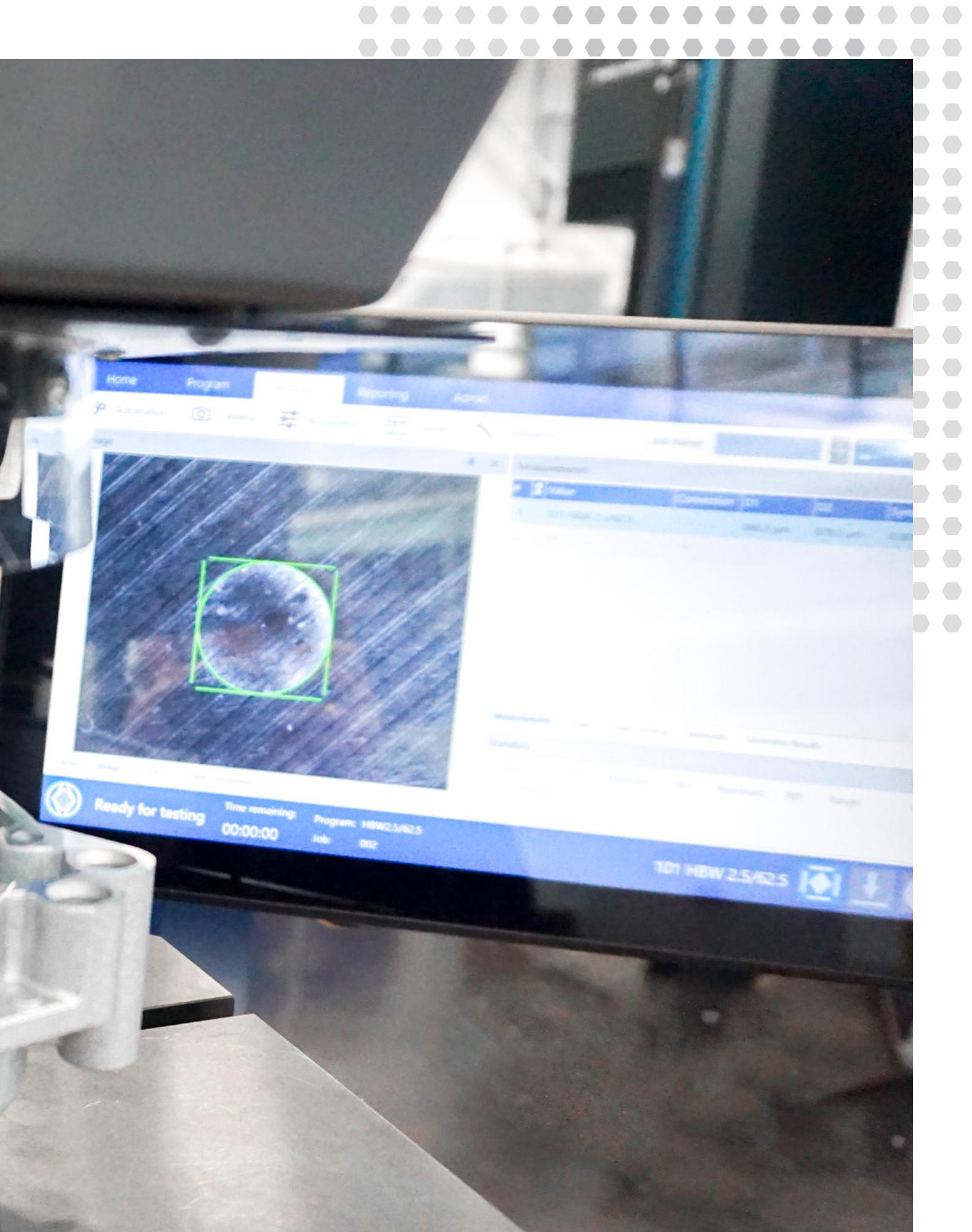
# HARDNESS TESTING

Wilson® hardness testers include a comprehensive range of hardness testers from Rockwell®, Knoop, Vickers, and Brinell

Wilson® hardness testers include a comprehensive range of hardness testers from Rockwell®, Vickers-Knoop, and Brinell to fully automatic production systems. Our testers are complemented by a range of test blocks, accessories, and fixtures. Our calibration laboratory is recognized as the global leader in the production of premium test blocks and indenters.

Buehler Service Support is dedicated to ensure the highest quality calibration, verification, and service throughout the world and our Application Support combines years of experience with unparalleled expertise.



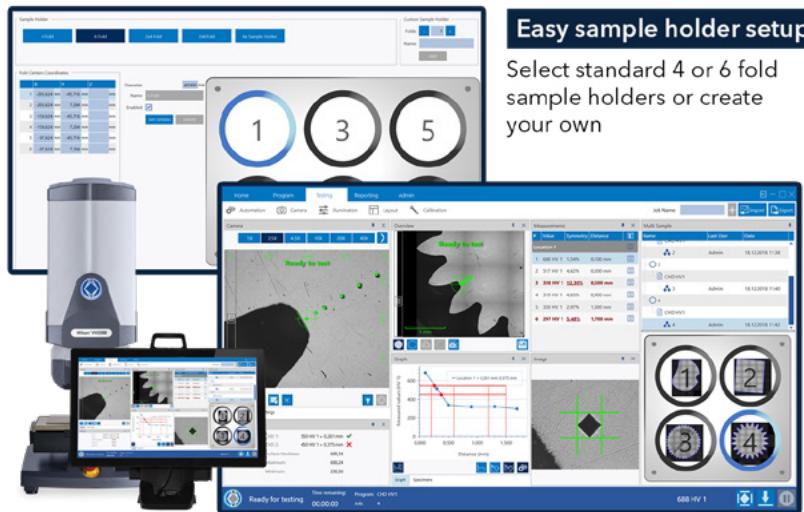


# DiaMet™ Hardness Software

## DiaMet - Hardness Testing Made Easy

Navigation within the DiaMet™ Software is made easy by its clean design and is supported by simple and intuitive gestures. Virtual tabs on top of the screen let you navigate between Home, Program, Testing and Reporting. Comprehensive feedback is shown on the status bar, which makes interactions clear and efficient. Being designed for touch panel use, with an entirely new look and feel, DiaMet is simple, useful, and smart to work with! Easy To Operate by touch, mouse or keyboard. DiaMet Enterprise options let you Scan, Stitch and edge detect your sample to find exact locations where you can drop in pre-configured testing templates to speed up your operation.

## Wilson® DiaMet™ Multisample



### Easy sample holder setup

Select standard 4 or 6 fold sample holders or create your own

### Define start coordinates

For each sample, the center or any needed X, Y or Z coordinate can be programmed and used for navigation or pattern placement

### Perfect overview

When scanning the contour or the whole sample, it is displayed on the holder

### Simple Stage Navigation

Click on the sample of the holder and move to the defined sample coordinates

### Easy testing workflow

Clear your tested sample holder and start with the next batch of samples right away

## DiaMet - Automation Packages

Automated Microindentation system available with different levels of automation. All control of the hardness instrument can be handled through comprehensive software. Automatically test and measure indentations, as well as set up and run automatic testing sequences and generate reports through export of data with minimal operator interaction. All parameters of the test, such as load monitoring, dwell times, and focusing are controlled through the software providing a very user friendly system. Hardness conversion into other scales is supported.

### DiaMet Features

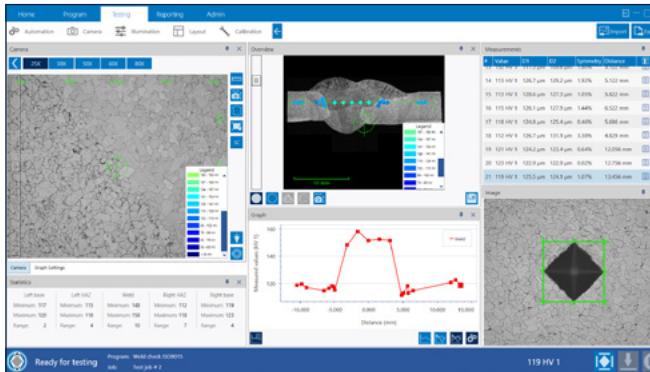
	Manual (Cam Only)	Basic	Semi-Automatic	Full-Automatic	Enterprise
Manual Indent Measure	◆	◆	◆	◆	◆
Auto Indent Measure	◆	◆	◆	◆	◆
Barcode Scanner Interface	◆	◆	◆	◆	◆
Statistics, Reporting & Export tools	◆	◆	◆	◆	◆
K1c Testing	◆	◆	◆	◆	◆
Weld Testing	◆	◆	◆	◆	◆
Auto-illumination		◆	◆	◆	◆
Digital zoom		◆	◆	◆	◆
Motorized XY-stage control			◆	◆	◆
Multi Sample Testing				◆	◆
Auto-focus				◆	◆
Edge detection				◆	◆
Contour, Scanning & stitching					◆
Hardness mapping					◆
Specimen templates					◆

# DiaMet™ Hardness Software

## DiaMet - Hardness Testing Functions

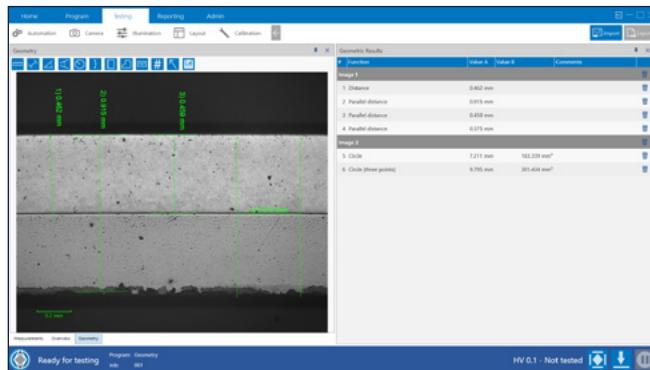
### Weld Testing

Weld testing has never been easier. Use the intuitive weld pattern generator in the program section and align your pattern on each weld section within seconds.



### Geometric Functions

Basic measurements support you across the board of hardness testing. Make simple length or angle measurements, circle or area calculations with our geometry tool.



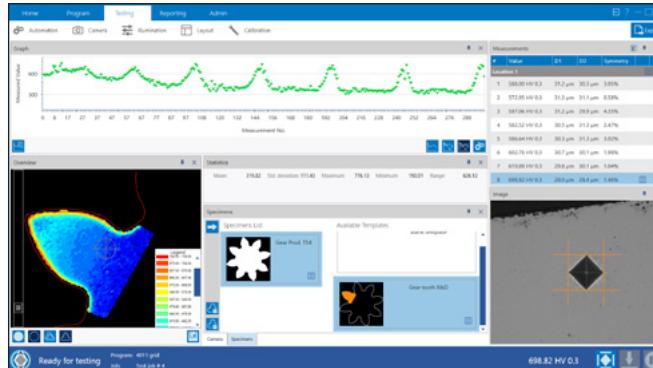
### Shared Database Networking

Multiple testers can share programs and jobs to maximize throughput of hardness testing. Access data from all testers remotely to generate reports without downtime.

Program Name	Calibration	Last User	Creation Date	Last Access	Job Name	Location Name	Measurement No.	Hardness Value	Comment
Program legend error	Shatnawat,Cal	Admin	29.04.2020	29.04.2020	Test job # 1	Location 1	1	103.5	
Program legend error	Shatnawat,Cal	Admin	29.04.2020	29.04.2020	Test job # 1	Location 1 - Copy	1	20.57	
Program legend error	Shatnawat,Cal	Admin	29.04.2020	29.04.2020	Test job # 1	Location 1 - Copy 2	1	20.57	
Program legend error	Shatnawat,Cal	Admin	29.04.2020	05.05.2020	Test job # 1	Location 2	1	0	
Confidence Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	11.08.2020	001	Location 1	1	228.54	
Confidence Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	11.08.2020	001	Location 1	1	0	
Sample Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	23.08.2020	001	Location 1	1	0	
Sample Test HVT	Shatnawat,Cal	Admin	29.04.2020	29.04.2020	Test job # 2	Location 1	1	21.84	
Program legend error	Shatnawat,Cal	Admin	29.04.2020	29.04.2020	Test job # 2	Location 1 - Copy	1	10.49	
Program legend error	Shatnawat,Cal	Admin	29.04.2020	29.04.2020	Test job # 2	Location 1 - Copy 2	1	1.72	
CHD relative	Shatnawat,Cal	Admin	05.05.2020	05.05.2020	Test job # 1	Location 2	1	428.94	
CHD relative	Shatnawat,Cal	Admin	05.05.2020	05.05.2020	Test job # 1	Location 2	2	419.41	
Confidence Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	11.08.2020	001	Location 1	3	172958472	
Confidence Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	11.08.2020	001	Location 1	4	880234680	
Confidence Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	11.08.2020	001	Location 1	5	27607402	
Confidence Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	11.08.2020	001	Location 1	6	88023468	
Sample Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	23.08.2020	Test job # 1	Location 1	1	0.43	
Sample Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	23.08.2020	Test job # 1	Location 1	2	0.37	
Sample Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	23.08.2020	Test job # 1	Location 1	3	0	
Sample Test HVT	Shatnawat,Cal	Supervisor	15.04.2019	23.08.2020	Test job # 1	Location 1	4	0.47	

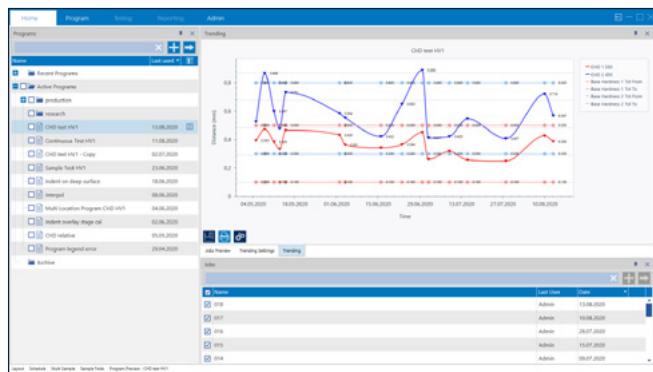
### Color & 3D Mapping

Mapping gives an indication of the hardness distribution across a region of interest. Especially helpful for surface treated materials.



### Results Trending

Trending of selection of testjobs of a specific program enables to track the process performance of customer samples/test programs



70



# Vickers Hardness Testers

## Wilson® All-in-One VH3100

The best pre-configured full automatic Vickers hardness tester on the market. The All-in-One Wilson VH3100 has all you need for your production control hardness testing requirements. This setup is configured to easily perform hardness tests with advanced software solutions - DiaMet Enterprise.



Wilson All-in-One VH3100 - 125mm Vertical Capacity

**Part Number** - VH3100

### Description

Hardness scales	ISO and ASTM certified Vickers indenter
Loads	0.05 - 10kgf (0.49 - 98.07N)
Objectives	10x and 50x long working distance objective for measurements and navigation
Stage	Motorized 180x180mm stage (travel 110x140mm)
Overview camera	Bright field overview camera with 13x13mm FOV, for navigation, scanning or stitching
DiaMet Enterprise	All software features you need - including mapping, edge detection, scanning, stitching of overview image, CHD calculations, statistics, weld testing, exporting and barcode scanner interface
DiaMet workstation and monitor	High performance PC with 24" FullHD touchmonitor



Please select the correct sample holder by sample diameter or a clamping device.

# Vickers-Knoop Hardness Accessories

## Sample Holders and Accessories

A good sample holder keeps your specimen stationary and provides support during testing. Buehler sample holders also level tapered samples to ensure that the test surface is perfectly perpendicular to the indenter. This ensures an accurate and problem free execution of your test job.

### Leveling Vise



Self leveling vise for one round mounted sample up to 40mm (requires additional insert), incl. magnets

886164

Self leveling vise for a single 50mm round mounted sample, no inserts applicable. Incl. magnets.

886167

### 4 Fold Leveling Vise



Self leveling vise for four round mounted samples up to 40mm (requires additional inserts). Incl. magnets.

886169

Self leveling vise for four 50mm round mounted sample, no inserts applicable. Incl. magnets.

886175

### 6 Fold Leveling Vise



Self leveling vise for six round mounted samples up to 40mm (requires additional inserts). Incl. magnets.

886178

### Universal Leveling Vise



Universal clamping & leveling vise. Can be used to hold tapered pieces, wires and mounted samples.

900086323

### EZ Clamp



Single mount canister

9100575 Canister (requires cap selection)

9100570 Mount Cap for 1in mounts

9100571 Mount Cap for 1.25in mounts

9100572 Mount Cap for 1.5in mounts

9100576 Mount Cap for 2in mounts

9100574 Magnetic Stop and Stage Mount

\*Mount Cap requires the Canister

### Sample Holder Insert



Sample holders 886164, 886169 and 886178 require one insert ring per slot.

886170 Ø 1in [25mm] insert

886171 Ø 30mm insert

886172 Ø 40mm insert

886173 Ø 1.25in insert

886174 Ø 1.5in insert

### Precision Vise



Opening max 45mm

9100258

### Anti-Vibration Table



Active anti-vibration table 600 x 600mm [24 x 24in]

9100906

### Passive Platform



Passive Vibration Isolation Platform 18 x 24in [460 x 610mm]

9100904 for VH3300 and Rockwell Testers

9100905 for VH3100 and VH1000 series

For more sample holders and supports please contact our technical sales team.

# Vickers-Knoop Hardness Testers

## Wilson® VH3100-3300

The Wilson Fully Automated Hardness Testing System provides a fully integrated platform for your complete Vickers and Knoop hardness testing needs. From leading edge modular frame, stage, and optic designs to a fully featured User Interface, our VH3100 and VH3300 Testers can be built to meet your Application needs today, tomorrow, and into the future.

### Ease of use

- Focus on a fast and simple operation to satisfy the needs of novice operators, while maintaining the flexibility and complexity of features required by expert users with DiaMet operation software.

### Flexibility

- With a 6 position vertical turret (Buehler patent), the VH3300 offers the flexibility to configure the tester for the complete 0.01 - 50kgf (0.098 - 490.33N) load range or just a section of this.
- The zero-offset overview optics housed in the turret and is both illuminated and calibrated.
- Designed for Vickers testing to conform to international standards ASTM E384 & E92; ISO 6507, 9385, 4546.

### Increase Up-time & Reduce Service Costs

- Collision Resistant System - prevents indenter or objective damage.
- All components and software are completely designed, manufactured and integrated by Buehler.



**Dimensions** 13.39in [340mm]W x 23.62in [600mm]D

**Vertical Test Capacity** - VH3100 choose:

4.92in [125mm], 6.69in [170mm] or

8.46in [215mm] VH3300 choose:

4.1in [105mm] or 6.1in [155mm]

**Horizontal Test Capacity** - 9.23in [235mm]

**Weight** VH3100: 82.7 lbs [37.5kg]

VH3300: 144 lbs [65kg]

### System Configurations

Start by selecting either the VH3100 or VH3300 and continue on to create a customized Vickers-Knoop Hardness tester

#### Main Unit



#### Wilson VH3100

- 3+1 position virtual turret
- 0.050 - 10kgf load range
- Includes DiaMet workstation and 24" monitor

W3111



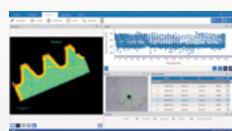
#### Wilson VH3300

- 3+3 position motorized turret
- 0.010 - 50kgf load range\*
- Includes DiaMet workstation and 24" monitor

\*depending on configuration

W3210

#### Software Options



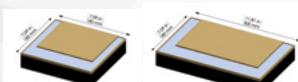
#### DiaMet Full-Automatic software package

W3100A03

#### DiaMet Enterprise software package

W3100A15

#### Motorized Stages



#### Standard size (180 x 180mm)

W3000SS

#### Large size (300 x 180mm)

W3000SL

# Vickers-Knoop Hardness Testers

## System Configurations (Continued)

### Wilson VH3100

#### Vertical Test Capacity



W3100D01 - height 125mm  
W3100D02 - height 170mm  
W3100D03 - height 215mm

#### Load Cell

select one for VH3100,  
select one per indenter for  
VH3300, up to three total

W3100E02 - 100N loadcell

Scales	HK0.01	HK0.025	HK0.05	HK0.1	HK0.2	HK0.3	HK0.5	HK1	HK2	HV0.01	HV0.025	HV0.05	HV0.1	HV0.2	HV0.3	HV0.5	HV1	HV2	HV3	HV5	HV10	HV20	HV30	HV50	

Wilson VH3100

Loadcell W3100E02

Wilson VH3300

W3210E01

W3200E02

W3200E04

#### Overview Camera



- Separate overview camera
- Includes Scan & Stitch function in the DiaMet software

W3110F01

- Turret integrated overview
- Includes Scan & Stitch function in the DiaMet software

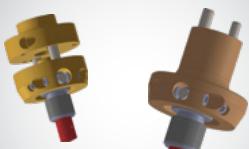
W3200F01

#### Additional Accessories

For Indenters select one Indenter per Load Cell.

For Long Working Distance Objectives select up to two for VH3100, select two or three for VH3300

#### Indenter Holder\*



\*for VH3100 Only

Standard holder

W3100G01

SnapGrip Holder

W3100G02

#### Vickers Indenter



Vickers Indenter, ISO & ASTM Certified

W9100687

#### Knoop Indenter



Knoop Indenter, ISO & ASTM Certified

W9100684

#### Brinell Indenters



\*for VH3300 Only

1mm Brinell ball indenter, ISO & ASTM Certified, Use with W3200E04 load cell

W741237

2.5mm Brinell ball indenter, ISO & ASTM Certified

W741238

Please select your sample holder on page 74

#### Objectives



Part Number	Native Mag.	Max. Field of View
W5XLWDO	5x	3600µm
W10XLWD	10x	1800µm
W20XLWD	20x	900µm

Part Number	Native Mag.	Max. Field of View
W40XLWD	40x	450µm
W50XLWD	50x	360µm
W100XLWD	100x	180µm

# Vickers-Knoop Hardness Testers



## Wilson® VH1102-1202

The VH1102 and VH1202 offer a versatile, affordable, and reliable solution for accurate micro-hardness testing, both for quality control and for metallurgical research applications. The VH1X02-series allows its operator to take measurements using the digital eyepiece in standalone mode or by using an optional integrated high-resolution camera and the powerful DiaMet™ software.

### Best in Class Optics

- This high quality optical system, with proprietary components, provides an unparalleled image.
- The optional digital camera is integrated inside the housing, keeping it safe from dust and dirt as well as preventing it from getting misaligned.

### Automatic Load Selection

- Designed for Vickers and Knoop testing to conform to international standards ISO 6507, ISO 4545, ASTM E92, and ASTM E384
- The wide load range with 9 individual load steps, offer testing capabilities from 0.01 - 2kgf (0.098 - 19.61N)

#### VH1102 Standalone Tester

**Part Number** - W1102D01

##### Description

Hardness scales	HV
Main-load	0.01 - 0.025 - 0.05 - 0.1 - 0.2 - 0.3 - 0.5 - 1 - 2kgf
Objectives	10x and 50x Long Working Distance
Sample Support	Flat anvil (19mm pin) & Analog XY Stage

#### VH1202 Standalone Tester

**Part Number** - W1202D01

##### Description

Hardness scales	HV & HK
Main-load	0.01 - 0.025 - 0.05 - 0.1 - 0.2 - 0.3 - 0.5 - 1 - 2kgf
Objectives	5x, 10x and 50x Long Working Distance
Sample Support	Flat anvil (19mm pin) & Analog XY Stage



##### Dimensions

9.8in [250mm]W x 20.4in [520mm]D x 26.3in [670mm]H

**Vertical Test Capacity** - 5.1in [130mm]

with XY-stage 3.7in [95mm]

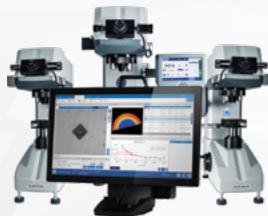
**Horizontal Test Capacity** - 5.1in [130mm]

**Weight** - 110lbs [50kg]



## VH1102-1202 with DiaMet™ Automation Software

DiaMet workstations and 24" monitor included with VH1102-1202 Hardness Tester



Testers	DiaMet Basic Manual (Analog)	DiaMet Basic Manual (Digital)	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
VH1102 Vickers	W1102D31	W1102D33	W1102D35	W1102D37	W1102D45
VH1202 Vickers & Knoop	W1202D31	W1202D33	W1202D35	W1202D37	W1202D45
Automation included	Camera only	Camera, Digital Stage Readout	Camera, Motorized 100x100 mm Stage	Camera, Motorized 100x100 mm Stage, Auto-Focus	Camera, Motorized 100x100 mm Stage, Auto-Focus

# Vickers-Knoop Hardness Testers

## Wilson® VH1150

The Wilson VH1150 is the ultimate evolution of the deadweight Vickers hardness tester with a unique load range, 0.3 - 50kgf (2.94 - 490.33N), combined in one machine. The automatic load selection eliminates the need for a hard to operate manual selector knob, and opens new possibilities in semi-automation applications. Functions like multi-scale conversion, shape correction and USB data export, make hardness testing easier and help you focus on your actual process control.

### Experience the Flexibility of a Segment Leading Wide Load Range

- The manual load selector knob is replaced with a durable motor to change the loads automatically.
- The fast & quiet motorized turret is integrated as part of completely automatic test cycle. One push of the start button is all it takes.

### Versatile

- Designed for Vickers, testing conforms to international standards ISO 6507 and ASTM E92.
- Segment leading load range - 0.3 - 50 kgf load range over ten individual load steps.

### VH1150 Standalone Tester

Part Number - W1151D01

#### Description

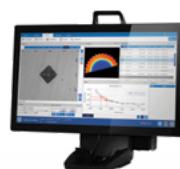
Hardness scales	HV
Main-load	0.3 - 0.5 - 1 - 2 - 3 - 5 - 10 - 20 - 30 - 50kgf
Objectives	10x and 20x Long Working Distance
Sample Support	Flat anvil (19mm pin) & Analog XY Stage

### VH1150 with DiaMet® Automation Software

DiaMet workstation and 24" monitor included with VH1150 Hardness Tester

Testers	DiaMet Basic Manual (Analog)	DiaMet Basic Manual (Digital)	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
VH1150	W1151D31	W1151D33	W1151D35	W1151D37	W1151D45
Automation included	Camera only	Camera, Digital Stage Readout	Camera, Motorized 100x100 mm Stage	Camera, Motorized 100x100 mm Stage, Auto-Focus	Camera, Motorized 100x100 mm Stage, Auto-Focus

Accessories					
<b>Indenters for VH1102-1202-1150</b>			<b>Objectives for VH1102-1202-1150</b>		
W9100687 Vickers indenter, includes ASTM & ISO certificate			W5XLWD 5x Long Working Distance objective		
W9100684 Knoop indenter, includes ASTM & ISO certificate			W10XLWD 10x Long Working Distance objective		
<b>Manual Stages</b>			W20XLWD 20x Long Working Distance objective		
9170506 XY-stage with analog metric micrometers			W40XLWD 40x Long Working Distance objective		
9170507 XY-stage with digital micrometers			W50XLWD 50x Long Working Distance objective		
			W100XLWD 100x Long Working Distance objective		



# Universal Hardness Testers

## Wilson® UH4000 Series

The UH4000 series universal hardness tester is designed for high volume production labs and production floor. It is available in two different configurations, the UH4250 and UH4750. Universal hardness testers are designed to perform several hardness scales with one machine, in most cases for higher loads (>5kgf). The UH4000 series testers contain all standardized and usual hardness testing methods between 0.5 - 250kgf (4,90 - 2451,66 N) and 3 - 750kgf (29,42 - 7354,99N), according to ISO 6506, 6507, 6508 and 4545 and ASTM E18, E10 & E92. Additionally, plastics and carbon testing can be performed according to ISO2039 and DIN51917.

### Ease of Use

- Focus on a fast and simple operation to satisfy the needs of novice operators, while maintaining the flexibility and complexity of features required by expert users with DiaMet operation software.

### Flexibility

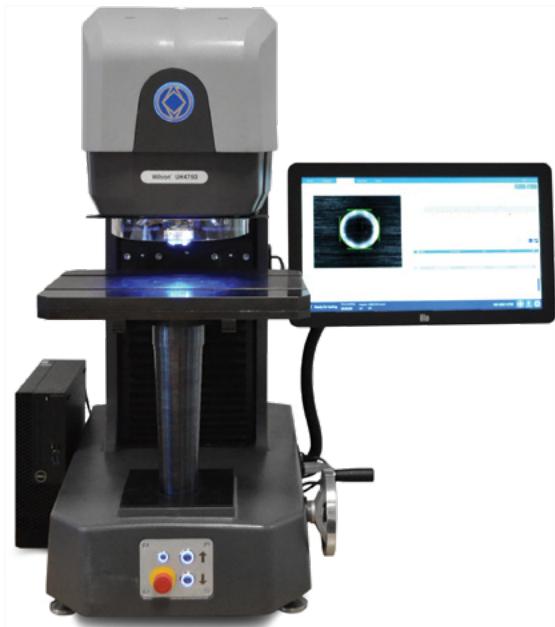
- The optional clamping tool will ensure stability during the test process.
- 8 position turret to have all objectives and indenters you need.
- Laser for easy test location targeting and a ringlight for best Brinell measurement accuracy

### Increase Up-time & Reduce Service Costs

- Steel casting provides full protection for production environments.

### System Configurations

Start by selecting either the UH4250 or UH4750 and continue on to create a customized Universal Hardness tester. The standard models UH4250 and UH4750 will be controlled by DiaMet Basic, including autofocus and automeasurement. The UH4250 Automation will be controlled by DiaMet Enterprise.



#### Dimensions

28in [704mm]W x 21in [534mm]H x 39.2in [995mm]D

**Maximum Specimen Height** - 11.8in [300mm]

**Test Stage Dimensions** - T-slot stage with 12mm slot width, 11.8in [300mm] x 15.7in [400mm]

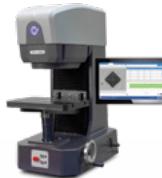
**Weight** - 660 lbs [300kg]

#### Main Unit

##### Wilson UH4250



- Load Range 0.5-250kgf, Standard Monitor 24" W4250
- Load Range 0.5-250kgf, Touchscreen 19.5" W4251



##### Wilson UH4750

- Load Range 3 - 750kgf, Standard Monitor 24" W4750
- Load Range 3 - 750kgf, Touchscreen 19.5" W4751



##### Wilson UH4250 Auto\*

- Load Range 0.5- 250kgf, 24" Standard Monitor, 180 x 180mm motorized stage W4250XY
- Load Range 0.5-250kgf, 19.5" Touchscreen, 180x180mm motorized Stage W4251XY

\* Clamping device W4100CL not applicable

#### Configure Turret

Select up to 8 different items



#### Objectives

- |          |   |
|----------|---|
| W4100X2  | 2.5x Objective, optional with Ringlight |
| W4100X5  | 5x Objective                            |
| W4100X10 | 10x Objective                           |
| W4100X20 | 20x Objective                           |
| W4100X40 | 40x Objective                           |
| W4100X50 | 50x Objective                           |

#### Indenters

- |           |  |
|-----------|--|
| W4100K    | Knoop Indenter with turret adapter         |
| W4100V    | Vickers Indenter with turret adapter       |
| W4100B1   | Brinell Indenter 1mm with turret adapter   |
| W4100B2   | Brinell Indenter 2.5mm with turret adapter |
| W4100B5   | Brinell Indenter 5mm with turret adapter   |
| W4100B10  | Brinell Indenter 10mm with turret adapter  |
| W4100R120 | Rockwell Diamond Cone Indenter             |
| W4100R16  | Rockwell Indenter 1/16" Ball               |
| W4100R8   | Rockwell Indenter 1/8" Ball                |
| W4100R4   | Rockwell Indenter 1/4" Ball                |
| W4100R2   | Rockwell Indenter 1/2" Ball                |



#### Laser

- W4100L Positioning Laser



# Universal Hardness Testers



## Additional Accessories

### Ring Light



Ringlight for 2.5x objective (improves reading of soft Brinell indents)

W4100RL

### Auto Clamping Device



The unique clamping device for the UH4000 series hardness testers ensures that workpieces will be fixed properly during testing. The device is designed to adapt different types of clamping forks.

Clamping width: 35mm [1.37in]

W4100CL

### Workbench



Workbench with Drawers 1000w x 700d x 800h mm [30 x 27 x 31in] with spindle hole

944872

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### Anvils (25mm)

Anvils fit UH4000 series, BH3000, and legacy testers with 25mm pinhole.



V anvil for max. 45mm diameter cylindric workpieces

740096



V anvil for max. 85mm diameter cylindric workpieces

740095



10mm spot anvil for small workpieces

740160



Auto-leveling anvil Planoflex - flat 60mm diameter

740587



Test anvil flat 80mm diameter

740191



Test anvil flat 190mm diameter

740101

# Rockwell® Hardness Testers



## Wilson® Rockwell® RH2150

The Wilson RH2150 hardness tester is designed for high volume production labs and production floor Rockwell testing, as well as supporting worldwide research facilities with its vast amount of testing scales with a maximum loadrange from 1 - 187.5 kgf (9.81 - 1838.7N). The Wilson RH2150 is available in two different sizes, with a vertical capacity of 10 and 14 inch (254 and 356mm respectively). It is fully protected from outside influences with sheet metal casing and a loadcell protection. The intuitive user interface aligns with our DiaMet™ software – making it easy to use. A DiaMet™ package is available to have all advanced features of DiaMet.

### Wilson® RH2150 Series Features

- Auto-stop clamping device holds down the sample and secures it during the testing.
- The adjustable LED workspace illumination highlights the test location to ensure clarity and full visibility.
- Indenter extensions are optionally available in several sizes to enable testing also on hard to reach test locations (only usable with clamping device)
- Standard 0.75 in(19mm) pin anvils are shared with the Wilson RB2000 and R574 testers to simplify accessories in a lab
- The operator panel can be adjusted on the frame or taken off completely to put aside the machine if needed – ensuring full flexibility and an ergonomic test process
- USB connection for easy data output to memory drives
- In conjunction with the clamping device, the external footswitch can be used in multiple ways:
  - clamping and manual start
  - clamping and automatic start
  - manual release after test
  - automatic release after test
- Rockwell Fast Mode, achieving test results in seconds



#### Dimensions

600 mm [28 in] x 350 mm [21 in] x 1260 mm [39.2 in]  
(Size 1) or 1360mm [41.2in] (Size 2)

#### Vertical Test Capacity -

Size 1: 10in [254mm] or Size 2: 14in [356mm]

**Weight** - 275 lbs [125 kg]

#### Description

Available indenters	Rockwell: Rockwell diamond cone 120°, 1/16", 1/8", 1/4", 1/2" carbide ball indenters, Brinell: 1mm, 2.5mm, 5mm and 10mm ball indenters
Rockwell test procedures ISO 6508-1, ASTM E18	A, B, C, D, E, F, G, H, K, L, M, P, R, S, V, 15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y
Plastic testing Ball indentation ISO 2039-1	HB5: 49N, 132N, 358N, 961N
Plastic testing Ball indentation ISO 2039-2	HRR, HRL, HRM, HRE
Rockwell carbon testing Ball indentation DIN 51917	HR2.5: 7, HR5: 7, 20, 40, 60, 100, 150, HR10: 20, 40, 60, 100, 150
Brinell depth testing (non-standardized) HBW-T	HBW-T2.5: 31.25, 62.5, 187.5, HBW-T5: 25, 62.5, 125, HBW-T10: 100



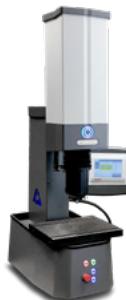
# Rockwell® Hardness Testers



## System Configurations

Select the Main Unit with the needed vertical capacity as well as the scales selection - regular or regular & superficial Rockwell scales.

### Main Unit



Part Number	Description
W2101R	Size 1 - 10in [254mm] - with regular Rockwell scales, 10-187.5 kgf
W2102R	Size 2 - 14in [356mm] - with regular Rockwell scales, 10-187.5 kgf
W2101T	Size 1 - 10in [254mm] - with regular and superficial Rockwell scales, 1-187.5 kgf
W2102T	Size 2 - 14in [356mm] - with regular and superficial Rockwell scales, 1-187.5 kgf
<i>Every tester includes a 63mm flat anvil, as well as a 1/16" ball indenter</i>	

## Additional Accessories

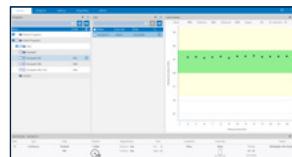
### Auto Clamping Device



Clamping device with auto-stop function, clamping force ca. 60kgf (130lbs)

W2100CL

### Software Options



DiaMet basic software option, start testcycle by software and manage & export test data, program generation, statistics etc., incl. DiaMet workstation and 24" FullHD monitor

W1001R31

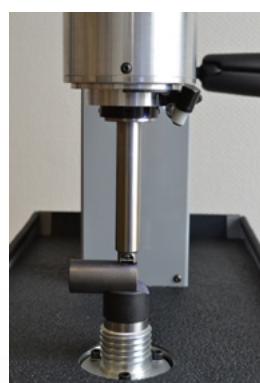
### T-Slot Table



13.3in x 1in [340x280mm] T slot table, 12mm slot width, with bore pattern for spindle adaption

W2100C02

### Indenter Extension



Indenter extension 2" [50mm], only in combination with clamping device W2100CL

W2100E2

Indenter extension 4in [100mm], only in combination with clamping device W2100CL

W2100E4

Indenter extension 6in [150mm], only in combination with clamping device W2100CL

W2100E6

### Foot Switch



Footswitch for external test cycle start, intelligent trigger logic

W2100FS

### Gooseneck Adapter

Gooseneck indenters are used for internal testing on rings and tubes. Gooseneck anvils also available for external testing of springs and coils.



Max. internal reach diameter is 9.5mm

Min inside diameter is 14mm

Max. outsied diameter with Min. inside diameter at Max. internal reach is 45mm

W2100G2

Rockwell indenters for Gooseneck Adapters  
900001459 (A scale)  
900001460 (N scale)



Max. internal reach diameter is 26mm

Min inside diameter is 35mm

Max. outside diameter with Min. inside diameter at Max. internal reach is 130mm

Available Rockwell Diamond indenters are all standard Rockwell indenters (cf. Table)

W2100G5

# Rockwell® Hardness Testers



## Wilson® Rockwell® 574

The 574 Series Rockwell Hardness Testers offer quality, durability, and an industry leading Gauge Repeatability and Reproducibility (GR&R) making this hardness testing instrument best in class. This system is available in Regular, Superficial or Twin Scale models and capable of testing in all of the regular and superficial Rockwell hardness scales in conformance with ASTM E18 and ISO 6508.

### Segment Leading GR&R Performance

- High precision depth measurement system for accurate and repeatable testing.
- Auto preload brake and automated main load test cycle ensure repeatability.

### Ease of Use

- Powerful auto-braking system on preload ensures a seamless operation.
- Built in USB port offers rapid data transfer to Microsoft® Excel® or other applications.

### Robust

- Proven robust design with all stainless steel internal components.
- Standard 0.75 in(19mm) pin anvils are shared with the Wilson RB2000 and RH2150 testers to simplify accessories in a lab

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### 574R Regular - for all Regular test scales

**Part Number** - WH574R

#### Description

Pre-load	10kgf (98.07N)
Main-load	60, 100, 150kgf (588.39, 980.67, 1471N)
Hardness scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV

### 574T Twin - for all Regular and Superficial test scales

**Part Number** - WH574T

#### Description

Pre-load	3, 10kgf (29.42, 98.07N)
Main-load	15, 30, 45, 60, 100, 150kgf (147.1, 294.19, 441.29, 588.39, 980.67, 1471N)
Hardness scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV, 15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 45Y

#### Auto-clamping device

Clamping device with auto-stop function, clamping force ca. 60kgf (130lbs)

Part Number WH-CLFX-475



#### Dimensions

11.53in [292mm]W x 22.3in [566mm]D x 36.83in [934mm]H

**Vertical Test Capacity** - 11.43in [289mm] without accessories

**Horizontal Test Capacity** - 6.12in [155mm] at the bottom; 6.93in [175mm] at the top

**Weight** - 165 lbs [75kg]



# Rockwell® Hardness Testers Accessories

## Rockwell® Indenters

All indenters fit on Wilson legacy testers and R574, RH2150 and RB2000 testers.  
The indenter shaft length is 11,1mm and 6,34mm in diameter.



\* C, D and A scales refer to regular Rockwell scales, N scales refer to superficial Rockwell scales

\*\* WC = tungsten carbide

Part Number	Description
9100401	Rockwell indenter C scale , 120° diamond cone, ASTM certified
9100402	Rockwell indenter C, D, A, N scales, 120° diamond cone, ASTM certified
9100431	Rockwell indenter C, A, D scales, 120° diamond cone, ISO and ASTM certified
9100432	Rockwell indenter N scales, 120° diamond cone, ISO and ASTM certified
9100434	Rockwell indenter C,A,D,N scales, 120° diamond cone, ISO and ASTM certified
900003405	Rockwell indenter A scale for Carbides, 120° diamond cone, ASTM certified
900002015	Rockwell indenter N scale, 120° diamond cone, ASTM certified
9100405	Rockwell indenter 1/16" WC ball with 4 spare balls, ASTM, ISO and JIS certified
9100406	Rockwell indenter 1/8" WC ball with 4 spare balls, ASTM, ISO and JIS certified
9100407	Rockwell indenter 1/4" WC ball with 1 spare ball, ASTM, ISO and JIS certified
9100408	Rockwell indenter 1/2" WC ball with 1 spare ball, ASTM, ISO and JIS certified
9100422	1/16" Diameter WC Balls, 5 pcs, ASTM, ISO and JIS certified
9100423	1/8" Diameter WC Balls, 5 pcs, ASTM, ISO and JIS certified
9100424	1/4" Diameter WC Balls, 3 pcs, ASTM, ISO and JIS certified
9100425	1/2" Diameter WC Ball, 1 pcs, ASTM, ISO and JIS certified
W2100B2	Brinell indenter 2.5mm WC ball, ASTM, ISO and JIS certified
W2100B5	Brinell indenter 5mm WC ball, ASTM, ISO and JIS certified

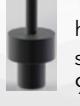
## Rockwell® Verification Kits

The kits contain recommended indenters and blocks for the dedicated scales.

Part Number	Description
A582143	Rockwell Regular Kit - includes Rockwell C Indenter, 25 HRC, 63 HRC and 80 HRB test blocks
A58239	Rockwell Superficial Kit - includes Rockwell N Indenter, 46 HR30N, 80 HR30N and 70 HR30T test blocks
A582144	Rockwell Twin Kit - includes Rockwell C and N Indenters, 25 HRC, 63 HRC, 80 HRB, 80 HR30N and 70 HR30T test blocks

## Rockwell® Anvils

Anvils fit RH2150, R574, R2000, VH1102, VH1202, VH1150, and legacy testers with 19mm pinhole.

<b>Flat anvil</b>  2.5" [63mm] 900001236	<b>Testing Table</b>  8.0" [203mm] 900007730	<b>V Anvil Shallow</b>  0.5" [12.7mm] stem height for cylindrical parts < 0.25" [6,3mm] 900007388	<b>V Anvil Shallow</b>  1" [25mm] stem height for cylindrical parts < 0.25" [6,3mm] 900007195
<b>V Anvil Standard</b>  For cylindrical parts > 0.25" [6,3mm] 900030797	<b>Anvil Cylindron Jr.</b>  For cylindrical parts 0.25-3" [6-76mm] 900007425	<b>Anvil Cylindron</b>  For cylindrical parts 2-8" [50-203mm] 900007147	<b>Anvil for Ball Testing</b>  For cylindrical parts 1/16"-1" [1,6-25mm] 900001371
<b>Eyeball Anvil</b>  For pieces with slight taper (to mount on spindle) 900007088	<b>Pedestal spot Anvil</b>  0.5" [12,7mm] stem height, 0.27" [7mm] spot diameter 900007387	<b>Pedestal spot Anvil</b>  1" [25mm] stem height, 0.27" [7mm] spot diameter 900007156	<b>Diamond spot anvil</b>  For HR30T scale, 0.39" [10mm] spot diameter 900007400

# Brinell Hardness Testers



## Wilson® BH3000

The BH3000 is a durable, 30 kN (3000 kgf) Brinell Hardness Tester ideal for wide range of Brinell loads from 62.5 kgf - 3000 kgf. Designed with rugged construction to withstand harsh environments, the BH3000 combines high rigidity and closed-loop load cell technology to ensure accurate and safe load applications. The standards are ISO 6506, ASTM E10, JIS.



### Ease of use

- Heavy duty clamping and protection

### Accuracy

- Closed-loop system for quick and highly accurate test results.
- Integrated hardness calculator and conversions.

### Flexibility

- Wide load range 613N - 29.42 KN (62.5 kgf - 3000 kgf).
- Deep reading microscope (order separately).
- Standard 1.0 in (25mm) pin anvils are shared with UH4000 Series and legacy testers to simplify accessories in a lab

### BH3000

Part Number: WH3000BH

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#### Description

Hardness scales

HB

Main-load

62.5 - 3000kgf (612.92 - 29419.95N)

#### Dimensions

10.4in [265mm]W x 23.9in [608mm]D x 39.5in [1000mm]H

Vertical Test Capacity - 11in [280mm]

Horizontal Test Capacity - 5in [130mm]

Weight - 550 lbs [250kg]

#### Accessories

WHSCOPE20X	Brinell microscope 20X with LED light source	9110-122
WHSCOPE40X	Brinell microscope 40X with LED light source	9110-121
WHSCOPE60X	Brinell microscope 60X with LED light source	900000485*
WHKINGSC4	King Scan IV - Computer Based Automatic Brinell Measurement System	900000595*
9110-213	Testing table diameter 235mm	900007350*
9110-123	Indenter 10mm Carbide Ball with certificate	

Indenter 5mm Carbide Ball with certificate

Indenter 2.5mm Carbide Ball with certificate

10mm Carbide Ball with NVLAP certificate (Qty 2)

5mm Carbide Ball with NVLAP certificate (Qty 2)

10mm Ball Retainer, MJ, L, K, KDR, AP, & CLB3

\*Products only available in North America & South America



Item	Magnification	Field of View [mm]	Measuring Range [mm]	Direct reading [ $\mu\text{m}$ ]	Height [mm]
WHSCOPE20X	20x	8	7	50	150
WHSCOPE40X	40x	5	4	20	155
WHSCOPE60X	60x	2,5	2	12,5	155



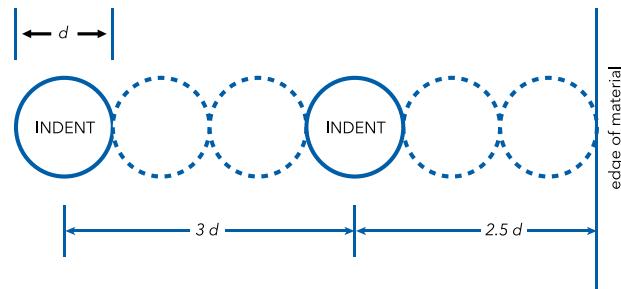
# Proper Indent Spacing

When making indentations on a test block, the hardness of the material immediately surrounding an indentation will usually increase due to the residual stress and work hardening caused by the indentation process. If an indentation is made too close to the edge of a test piece, there may be insufficient material to constrain the deformation around the indentation. Both of these scenarios can lead to inaccurate hardness readings. To prevent incorrect readings, recommended spacing has been defined in the standards for each type of hardness test. To ensure proper spacing is followed, Buehler offers pattern engraving on the surface of test blocks.

## Rockwell & Brinell

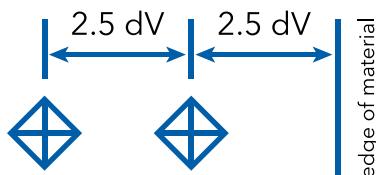
**According to ASTM and ISO Standards:** The distance between the centers of two adjacent indentations shall be at least three times the diameter ( $d$ ) of the indentation.

The distance from the center of any indentation to an edge of the test piece shall be at least two and a half times the diameter of the indentation.



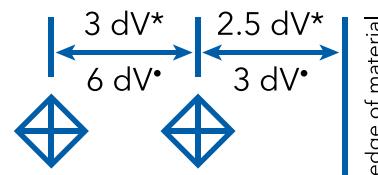
## Vickers

**According to ASTM Standards:** The distance between two indents or an indent and the edge of the test piece shall be at least two and a half times the diagonal ( $d_V$ ) of the indentation.



$d_V$  = Vickers Diagonal

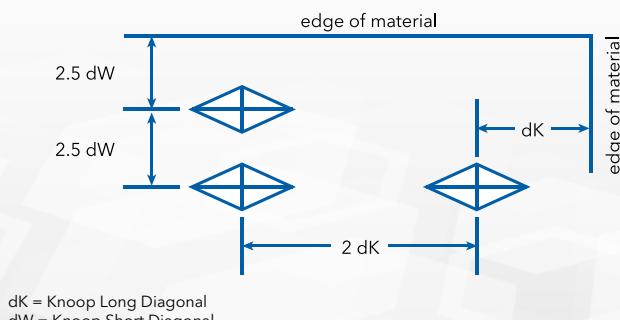
**According to ISO Standards:** The distance between the centers of two indents shall be at least three times the diagonal ( $d_V$ ) of the indent for steel, copper and copper alloys, and at least six times for light metals, lead and tin and their alloys. The distance between the center of an indent and the edge of the test piece shall be at least two and a half times the diagonal ( $d_V$ ) for steel, copper and copper alloys, and at least three times for light metals, lead and tin and their alloys.



\* For steel, copper and copper alloys  
• For light metals, lead, tin and their alloys

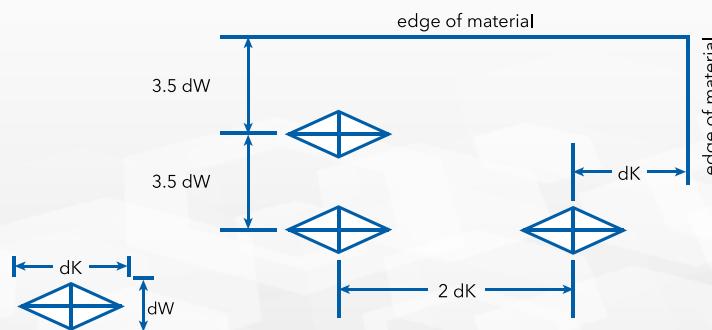
## Knoop

**According to ASTM Standards:** The distance between two indents shall be at least two times the diagonal ( $d_K$ ) of the indentation and two and a half times the width ( $d_W$ ) of the indentation. The distance between the center of an indentation and the edge of a test piece shall be at least one diagonal ( $d_K$ ) or two and a half times the width ( $d_W$ ) of the indentation.



$d_K$  = Knoop Long Diagonal  
 $d_W$  = Knoop Short Diagonal

**According to ISO Standards:** The distance between two indents shall be at least two times the diagonal ( $d_K$ ) of the indentation and three and a half times the width ( $d_W$ ) of the indentation. The distance between the center of an indentation and the edge of a test piece shall be at least one diagonal ( $d_K$ ) or three and a half times the width ( $d_W$ ) of the indentation.



# Wilson® Hardness Test Blocks

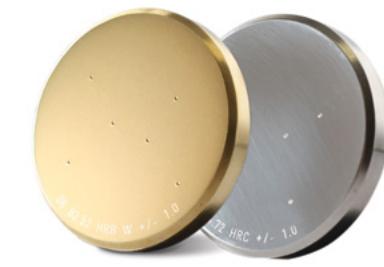
## Wilson® Rockwell® Test Blocks

Wilson Hardness test blocks set the standard for the industry and are made from the highest quality material to insure the most uniform and repeatable blocks available. A comprehensive variety of scales and blocks are available to meet the wide ranges and hardness scales associated with Rockwell®, Brinell, Knoop and Vickers testing. All Wilson test blocks are calibrated in the Wilson Hardness Calibration Laboratory in Binghamton, NY. The Wilson lab is accredited to ISO-IEC 17025 by A2LA and the testers used in the calibration process undergo a stringent monitoring process using NIST traceable devices. For the ultimate accuracy and performance in tester verification, calibration sets are available for most Rockwell scales.

- We work directly with the steel and brass mills to specify the chemical composition
- Our machining processes (grinding, lapping, polishing) are all done in house, at the site of calibration
- 100% inspection to ensure that every single test block meets the physical requirements of ASTM (thickness, flatness, parallelism, surface roughness)
- Available in full range of regular scales HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRL, HRM, HRP, HRR, HRS, HRV and superficial scales HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y.

According to ASTM E18, ISO 6508-3 and JIS B 7730

	Part Number	Nominal Hardness
Rockwell A	9201110	63HRA
	9201150	73HRA
	9201190	83HRA
Rockwell B	9202050W	40HRB
	9202060W	50HRB
	9202070W	60HRB
	9202080W	70HRB
	9202090W	80HRB
	9202100W	95HRB
Rockwell C	9203111	25HRC
	9203121	30HRC
	9203131	35HRC
	9203141	40HRC
	9203151	45HRC
	9203161	50HRC
Rockwell E	9203171	55HRC
	9203181	60HRC
	9203191	63HRC
	9205010W	57HRE
	9205020W	63HRE
	9205050W	81HRE
Rockwell F	9205060W	87HRE
	9205070W	93HRE
	9206020W	63HRF
	9206050W	80HRF
	9206070W	91HRF



Block size: Ø 2.4 in x 0.35 in (Ø 60mm x 9mm)

	Part Number	Nominal Hardness
Superficial Rockwell 15-N	9212110	72HR15N
	9212150	83HR5N
	9212190	91HR15N
	9218020W	64HR15T
Superficial Rockwell 15-T	9218050W	74HR15T
	9218070W	80HR15T
	9218090W	87HR15T
	9213110	46HR30N
Superficial Rockwell 30-N	9213130	55HR30N
	9213150	64HR30N
	9213190	80HR30N
	9219050W	43HR30T
Superficial Rockwell 30-T	9219070W	56HR30T
	9219090W	70HR30T

• Certified using a Tungsten Carbide ball indenter

### Special Order Items (not applicable in EU)

Part Number	Description
9201002	Special value - please provide hardness value and Rockwell scale
9201003	Special value with grid - please provide hardness value and Rockwell scale
9201006	API compliance - special tolerance - please provide hardness value and Rockwell scale



# Wilson® Hardness Test Blocks

## Wilson® Vickers-Knoop Test Blocks

According to ASTM E92, ISO 6507-3 and JIS B 7735

### Vickers Test Blocks



HV0.05	HV0.1	HV0.2	HV0.3	HV0.5	HV1	HV2	HV3	HV5	HV10	HV20	HV30	HV50	Value
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	150
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	200
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	250
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	300
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	350
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	400
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	450
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	500
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	550
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	600
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	700
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	775
930005-	93001-	93002-	93003-	93005-	93010-	93020-	93030-	93050-	93100-	93200-	93300-	93500-	830

Item number example: 93003700 for a 700 HV0.3 test block

The Hardness Values can deviate by +/- 25 HV from nominal value

not ISO 6507 due to <20µm diagonal length

Macro Vickers blocks (2.4in x 0.35in [60mm x 9mm])

Micro Vickers blocks (1.25in x 0.63in [32mm x 16mm])

### Knoop Test Blocks

According to ASTM E92, ISO 4545-3 and JIS B 7734

Available in full range of HK Scales and with special certifications.

Load (kg)	Part Number	Nominal Hardness	Range
HK0.5	94-005-225	225 HK	200-250
	94-005-315	315 HK	290-340
	94-005-440	440 HK	415-465
	94-005-540	540 HK	515-565
	94-005-630	630 HK	605-655
	94-005-730	730 HK	705-755
	94-005-850	850 HK	825-875

### Special Order Items

Not applicable for Europe, please contact Buehler Europe

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Part Number	Description
93-000-001*	Special block - please provide hardness value and Vickers scale
93-000-002*	Special block - please provide hardness value and Vickers scale
94-000-001*	Special block - please provide hardness value and Knoop scale
93-000-012*	Special block - 2 scales certification - please provide hardness value and Vickers/Knoop scale
93-000-013*	Special block - 3 scales certification - please provide hardness value and Vickers/Knoop scale
93-000-014*	Special block - 4 scales certification - please provide hardness value and Vickers/Knoop scale

\*Specify hardness required and load force for calibration

•Specify additional load force for calibration



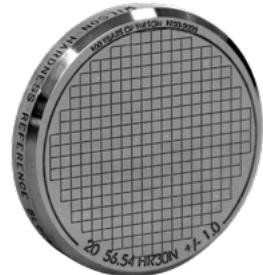
# Wilson® Hardness Test Blocks

## Wilson® Brinell Test Blocks

According to ISO 6507 & ASTM E92 According to ASTM E92, ISO 6507-3 and JIS B 7735

Brinell reference blocks up to 250kgf load Blocksize: Ø 2.4 in x 0.35 in (Ø 60mm x 9mm)

Nominal value	Range	HBW2.5-62.5 scale	HBW2.5-187.5 scale	HBW5-250 scale
140 HBW	115-169	WH-140HBW-625	WH-140HBW-1875	WH-140HBW-250
200 HBW	170-224	WH-200HBW-625	WH-200HBW-1875	WH-200HBW-250
250 HBW	225-274	WH-250HBW-625	WH-250HBW-1875	WH-250HBW-250
300 HBW	275-324	WH-300HBW-625	WH-300HBW-1875	
350 HBW	325-375	WH-350HBW-625	WH-350HBW-1875	
400 HBW	375-449		WH-400HBW-1875	
500 HBW	450-525		WH-500HBW-1875	



Brinell reference blocks up to 3000kgf load Block size: 6" x 4.5" (152 x 114 x 18mm)

Nominal value	Range	HBW5-750 scale	HBW10-3000 scale
140 HBW	115-169	WH-140HBW-750	WH-140HBW-3000
200 HBW	170-224	WH-200HBW-750	WH-200HBW-3000
225 HBW	212-238		WH-225HBW-3000
250 HBW	225-274	WH-250HBW-750	WH-250HBW-3000
275 HBW	262-288		WH-275HBW-3000
300 HBW	275-324	WH-300HBW-750	WH-300HBW-3000
325 HBW	312-338		WH-325HBW-3000
350 HBW	325-375	WH-350HBW-750	WH-350HBW-3000
375 HBW	362-388		WH-375HBW-3000
400 HBW	375-449	WH-400HBW-750	WH-400HBW-3000
500 HBW	450-525	WH-500HBW-750	WH-500HBW-3000



### Other Brinell scales that use 1mm 2.5mm, 5mm or 10mm ball indenters †

not applicable for Europe, please contact Buehler Europe

Part Number	Description	Part Number	Description
WHSMLBRIN*	Special block - please provide hardness value and Brinell scale using 1mm or 2.5mm ball indenter	WHSPECBRIN*	Special block - please provide hardness value and Brinell scale using 5mm or 10mm ball indenter

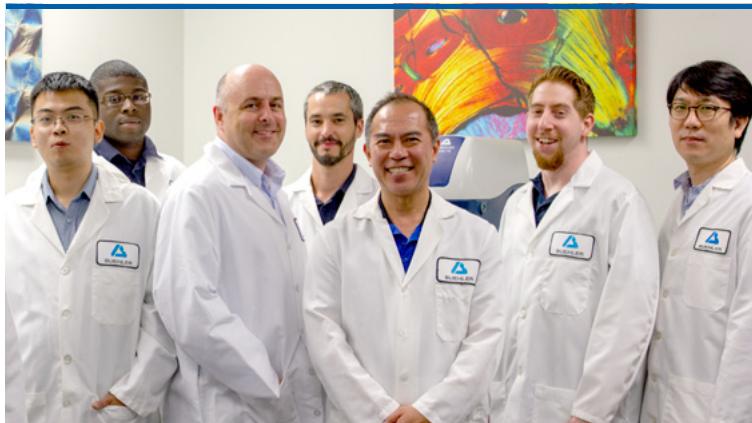
† Specify hardness required, load force, and ball indenter size for certification



See Test Block Guide for More Information



# Buehler Application Solutions



## Partner with Buehler for Your Success

Buehler's Material Scientists are available to provide custom solutions for your application. Buehler experts provide technical assistance on metallographic and metallurgical topics and processes.

Buehler provides many resources to help with your lab questions:

- SumMet® Materials Preparation Guide
- Safety Data Sheets
- Seminars, Webinars and Classes
- One-to-One Consultations



**2021 Etching & Microstructure Webinar Series**

You are invited to Buehler's new Webinar series. This series will cover a range of topics about Etching & Microstructures. Throughout 2021, Buehler will host Webinars featuring industry experts exploring Etching.

**Carbon and Alloy Steels**  
March 31, 2021 | 12pm CT  
Review fundamental principles of preparation of carbon and alloy steels! Tips and tricks for best results, and a live Q&A

**Fundamentals of Etching Host will be:**  
**George Vander Voort**  
Principal of Vander Voort Consulting LLC and consultant to Buehler Co.  
• 29 years' experience in the steel industry  
• Past president of the International Metallographic Society  
• Past chairman of ASTM Committee E-4 on Metallurgy

Webinar and Video Resources with Applications, Instructions and Educational Information. Visit:  
[www.buehler.com/buehler-webinars.php](http://www.buehler.com/buehler-webinars.php)  
[www.buehler.com/videos.php](http://www.buehler.com/videos.php)

## Buehler Solutions Centers

Buehler Solutions Centers are operated by our esteemed scientists. They provide materials preparation and analysis techniques and training to our customers worldwide. We are committed to maintaining the highest standards in quality and service.

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- Lake Bluff, Illinois United States

### EUROPE

- Düsseldorf, Germany
- Esslingen, Germany
- Lyon, France
- Warwick, United Kingdom

### ASIA

- Shanghai, China
- Kuala Lumpur, Malaysia
- Singapore, Singapore
- Tokyo, Japan



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# Customer Care



## Our Team is Here for You!

Buehler is committed to excellent customer care. We are available to support our customers with any questions, concerns or issues. Our team of customer support professionals, application experts, service engineers, technical sales, and in-house design and manufacturing are at your disposal.

- Materials Science PhDs can assist you with material preparation applications
- Industry leading hardness testing experts can assist to train, install or troubleshoot any hardness testers
- Dedicated software support expertise for any software questions
- Support for product returns or questions
- Repair, calibration, installations, and maintenance of equipment

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## Committed to Quality

Buehler employees and operations are committed to delivering quality and environmentally responsible products guided by ISO 9001 Quality Management Principles and ISO 14001 Environmental Management Systems. Buehler innovates solutions and offers expert service and support throughout the materials preparation and analysis market. Buehler adheres to ASTM, NVLAP, A2LA, NADCAP, DIN, ISO, MIL and JIS standards

## Global Associates and Partners Ready to Assist You

No matter where you are located, Buehler has associates or partners ready to handle your inquiry. We have improved our response times through an online submission format.

Visit [www.buehler.com/contact-buehler.php](http://www.buehler.com/contact-buehler.php) for prompt attention to your request for a quotation, lab solutions, service support, customer service or general feedback.

To reach our regional offices for general information contact:

## Contact the Buehler Regional Offices

### North and South America

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Toll Free: 1 800 - BUEHLER  
E: [info@buehler.com](mailto:info@buehler.com)

### Europe, Middle East and Africa

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E: [info.eu@buehler.com](mailto:info.eu@buehler.com)

### Asia

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E: [info.asia@buehler.com](mailto:info.asia@buehler.com)



## Our Global Service Teams are Committed to You

As a valued customer, we appreciate your partnership and are here to support you with repair services and spare parts under warranty and beyond.



### Convenient Repair Services

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#### Maximize Productivity

We are dedicated to maximizing your productivity and providing a world-class service experience. Buying Buehler products gives you access to our expert technicians who can quickly diagnose and repair your equipment using genuine Buehler parts.



### Ensure Consistent Results

#### Experienced Technicians

Technicians have collectively over 100 years of experience with average tenure of 10+ years with Buehler.

#### Compliance

Calibration services for hardness testers & microscopes according to ISO 17025. Accredited for direct or indirect verification.



### Protect Your Investment

#### Genuine Spare Parts

Buehler supplies parts for all equipment, including obsolete machines for a minimum of 5 years after discontinuation.

#### Preventative Maintenance

Ensure consistent performance of equipment, minimize production downtime and reduce the likelihood of costly repairs with Buehler Preventative maintenance services. Learn more about our preventative maintenance plans at [www.buehler.com/preventative-maintenance.php](http://www.buehler.com/preventative-maintenance.php)





# Social Responsibility



It is not enough to achieve our mission to be the premier provider of solutions for our market. We feel strongly that part of our responsibility is to our community and global environmental sustainability. Buehler has adopted the Corporate Social Responsibility vision of our parent company ITW.



## Our Governance & Ethics

- We operate our business with a demonstrated commitment to the highest level of ethical conduct, everywhere in the company and every day.
- We have a commitment to fair, ethical and honest business dealings, robust governance, and compliance with applicable laws, while demonstrating respect for human rights at Buehler and throughout our supply chain.



## Our People

- We strive to create diverse and inclusive workplaces where all of our colleagues can perform to their full potential.
- We strive every day to foster a proactive safety culture through the execution of our Enterprise Safety Strategy, with a shared goal of zero accidents.



## Our Communities

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We encourage and support our colleagues globally in their efforts to make positive contributions to the communities where they work and live.

- As a company we are committed to supporting programs and initiatives to improve access to a high-quality education and workforce/career preparation for youth in under-served communities, both in greater Chicago and around the world.
- Throughout the year we support corporate citizenship programs such as Junior Achievement and United Way Worldwide.



## Our Environment

Buehler is committed to operating our business in a way that demonstrates our dedication to global environmental sustainability.

- We work with suppliers who operate with similar dedication to global environmental sustainability
- We partner with our customers in innovating solutions that address their needs for environmentally responsible products.
- We are involved with the LovetheOceans, a non-profit marine conservation organization that promotes sustainable fishing and protecting endangered species.
- We improve our environmental performance on an ongoing basis. This includes participation in a robust recycling program that prevents nearly 110,000 pounds of waste from entering landfills and conserves electricity, oil and water.

# Shelf Life for Consumable Products

Shelf life is defined as the length of time listed products are considered best suitable for performance. This does not mean that a product will not perform beyond this time period, nor does it mean that the product will be usable continuously for this time frame. The shelf life is independent of the warranty\* period as defined below. The shelf life depends on proper storage - i.e. Abrasive Cut-Off Wheels must be stored lying flat and in a dry location. Stored standing up or in a humid area breaks down the wheel composition.

Product Name	Shelf Life**
Abrasive Cut Off Wheels	2 years
CarbiMet Paper, PSA or S Backed	1 year
CarbiMet Paper, Plain Backed	2 years
Acrylic Systems	1 year
Aluminum Oxide Powder	2 years
Apex® Bimetallic Plate	1 year
Apex CGD and DGD	1 year
Apex Hercules Grinding Disc	1 year
Apex Magnetic Disc	1 year
Apex S Carrier Films	1 year
AutoMet® Lapping Oil	2 years
Cool 3 Fluid	2 years
Diallyl Phthalate Powder	2 years
Epoxy Systems	1 year
EpoMet® F & G Powder	1 year
FibrMet® Discs PSA Backed	2 years
Flat Edge Filler	2 years
IsoCut® Cutting Fluid	1 year
KonductoMet Powder	1 year
MasterMet® 2	3 years
MasterMet	2 years
MasterPolish®	1 year
MasterPrep	2 years
MetGrip® Liners	1 year
MetaDi® Fluid	2 years
MetaDi® Suspensions & Pastes	2 years
MicroPolish Alumina Suspension & Powder	1 year
PhenoCure® Powder & PreMolds	2 years
Pigments for Castable Mounts	1 year
Planar Grinding Stones	2 years
Polishing Cloths with PSA	1 year
Powdered Mold Release	2 years
ProbeMet® Powder	1 year
Release Agent	1 year
Silicon Carbide Powder	2 years
TransOptic Powder	1 year
UltraPrep® Diamond Lapping Film	1 year
Wafering Blades	1 year

\*Warranty depends on Quality Assurance/Lab evaluation on an individual basis

\*\*Shelf life starts when product is shipped

See Terms & Conditions for warranty information



# 2023 Buehler Microstructure Calendar

The Buehler Microstructure Calendar is a recognized forum for excellence in this unique area of technical expertise. Publication in the calendar is open to anyone who has achieved a level of excellence in materials preparation. If you would like to submit an entry for the 2023 edition, please do so according to the following guidelines.

## GUIDELINES

### **SUBJECT OF PHOTO MICROGRAPH:**

- Microstructural details or hardness indents of any metallic, non-metallic, geological or bio-related materials
- Image must be obtained through the use of a light optical microscope (no SEM or TEM)
- Image must not be digitally pseudo colored or enhanced

### **REQUIRED INFORMATION:**

- Completed entry form
- Brief title statement that details the material depicted in the image
- The original magnification used to acquire the image
- The illumination mode used, such as brightfield, darkfield, polarized light, reflected or transmitted, differential interference contrast (DIC), phase contrast, or any other relevant information concerning the illumination and observation methods
- Details of any etchants used to reveal the microstructure, including the chemical formulation where applicable

### **IMAGE REQUIREMENTS** (*Images not meeting the requirements will not be accepted*)

- The entry must be uniformly illuminated and have sharp, crisp, in-focus details.
- The image cannot have a scale-bar.
- Digital files MUST be TIF, JPG or BMP and 120dpi (*printed size will be 13in x 9in*)
- 8in x 10in [200 x 250mm] up to 11in x 14in [275 x 350mm] color photo prints will also be accepted.

### **SEND FILES:**

#### **ONLINE:**

- Send your images through our website at <http://www.buehler.com/2023-buehler-calendar-contest>
- If an alternate method is preferred, please contact us at (847) 295-6500 or [marketing@buehler.com](mailto:marketing@buehler.com) for instructions on FTP login

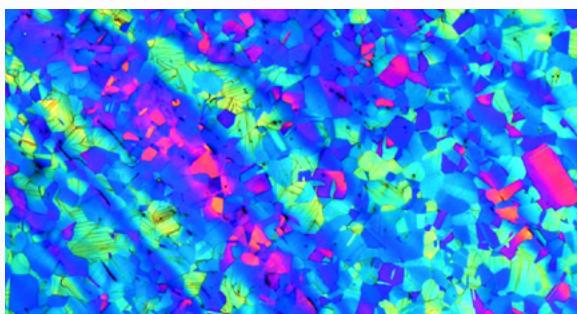
### **DEADLINE FOR SUBMISSIONS:**

August 1st, 2022

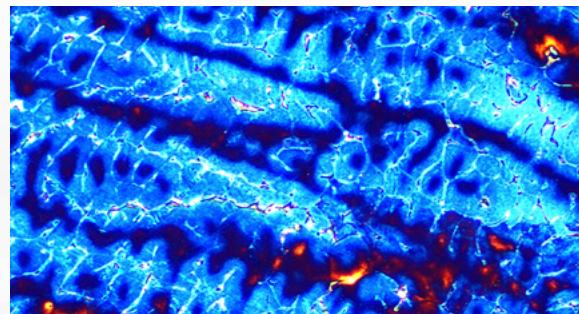
### **WINNERS:**

If your entry is published, you will receive an honorarium of \$200 (USD) per image and the privilege of having your work displayed worldwide. Selected calendar entries become the sole property of Buehler and may be used in other Buehler publications.

If you have further questions, please contact us at: (847) 295-6500 or email: [marketing@buehler.com](mailto:marketing@buehler.com)

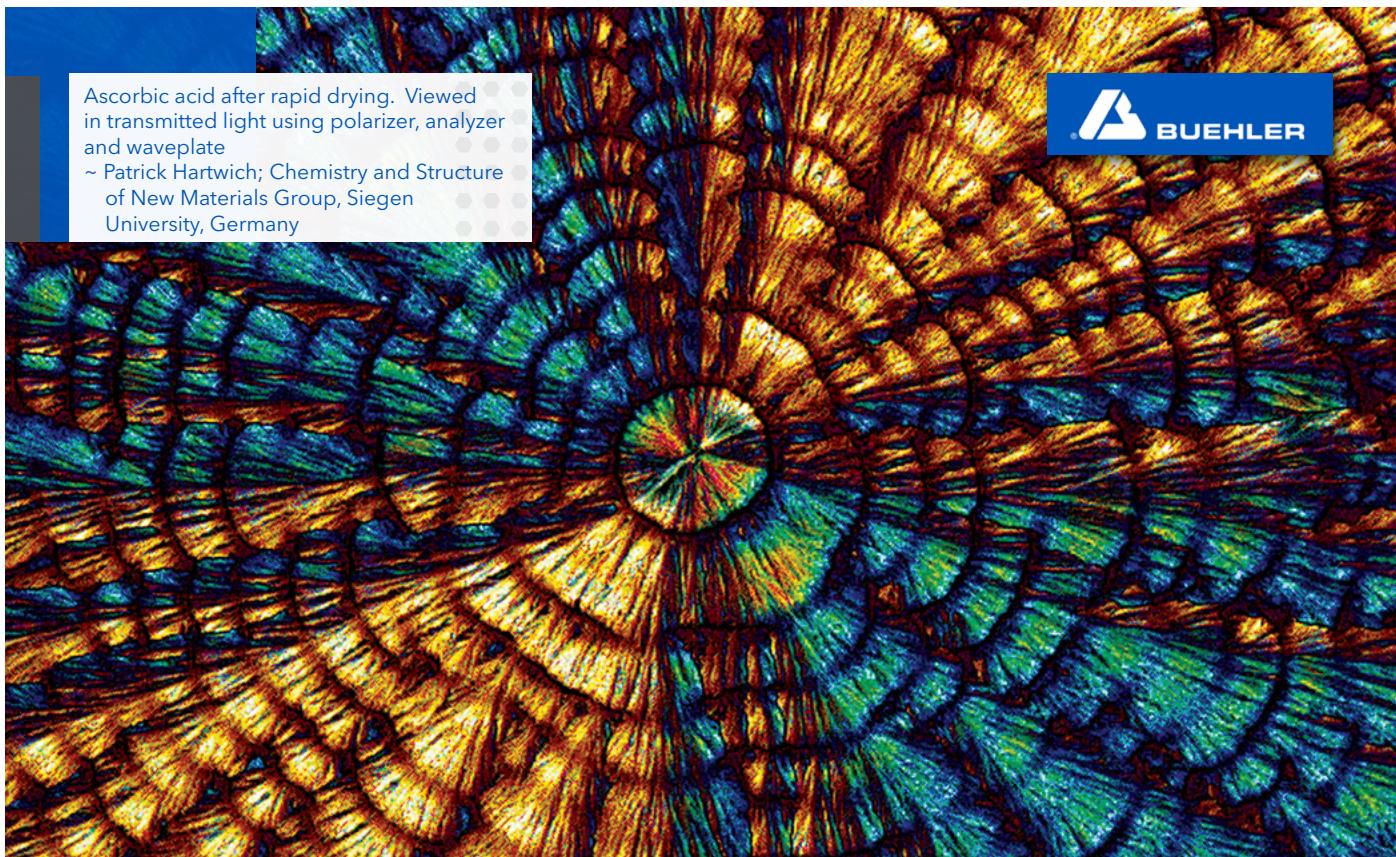


Radius Surface of forged T-316L Stainless Steel etched with Beraha's Sulfamic Acid Etchant #4. Viewed in bright field at 50x mag.  
~ Gabriel Lucas; Scot Forge, Spring Grove, IL 60081, USA

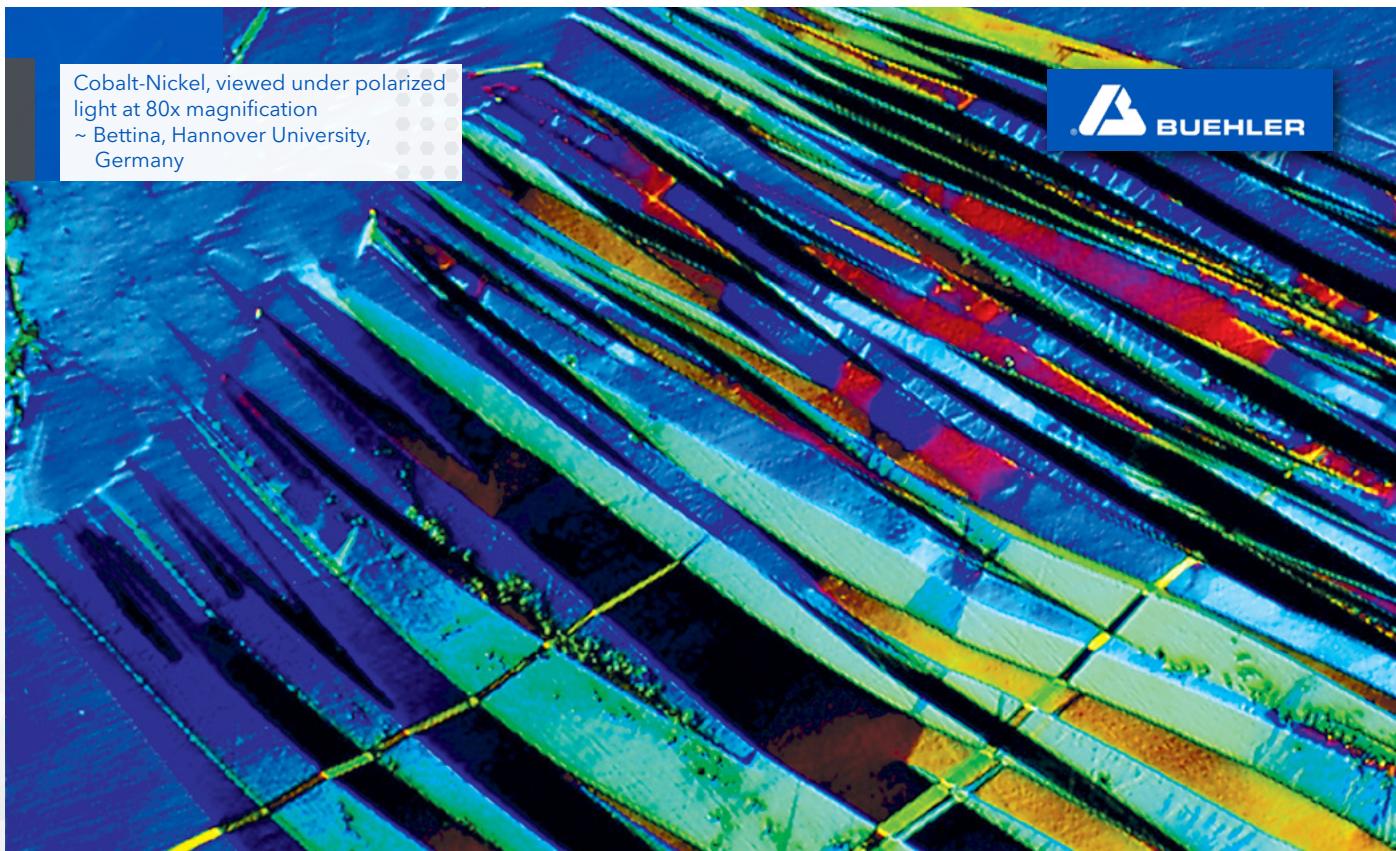


316L Stainless Steel weld metal, etched with Beraha II regent and viewed with polarised light at 500x mag.  
~ Emil Cederberg; AB Sandvik Materials Technology, Sandviken, SE, Sweden  
611 81

# Microstructure Images



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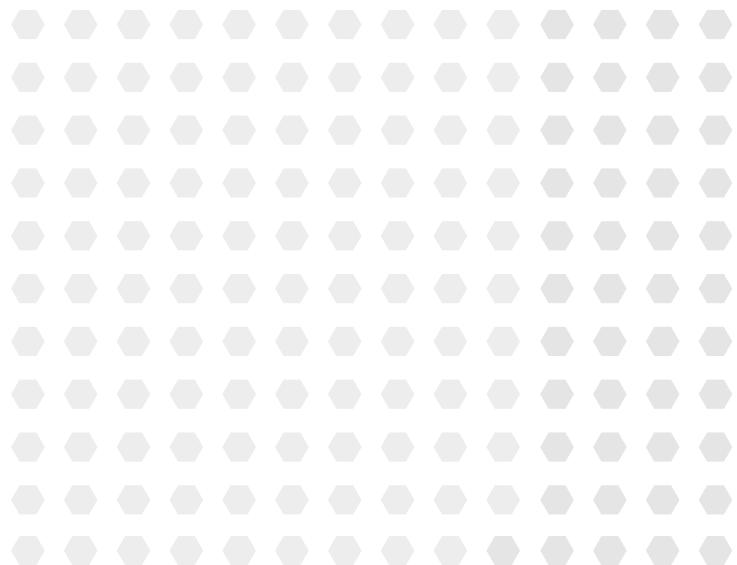


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# Microstructure Images





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**S:** [shop.buehler.com](http://shop.buehler.com)

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#### **ITW Test & Measurement GmbH**

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**S:** [www.metallographie.fr](http://www.metallographie.fr)

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**S:** [www.metallography.biz](http://www.metallography.biz)

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**W:** [www.buehler.cn](http://www.buehler.cn) | **E:** [info.cn@buehler.com](mailto:info.cn@buehler.com)

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**E:** [info.asia@buehler.com](mailto:info.asia@buehler.com)

### **BUEHLER Japan**

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**W:** [www.buehler.jp](http://www.buehler.jp) | **E:** [info.japan@buehler.com](mailto:info.japan@buehler.com)

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