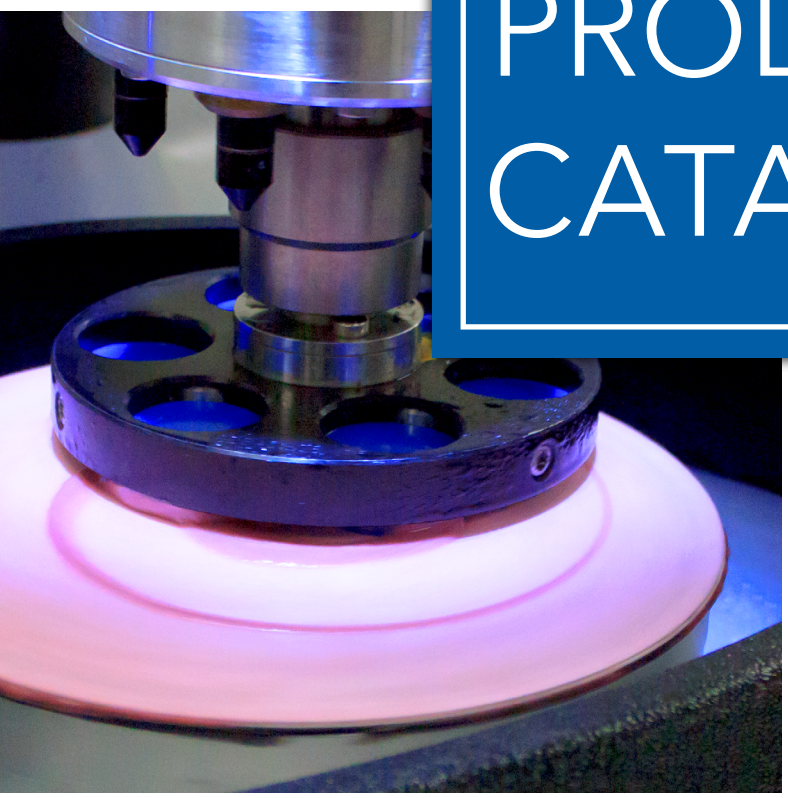
BUEHLER

2019 PRODUCT CATALOG



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

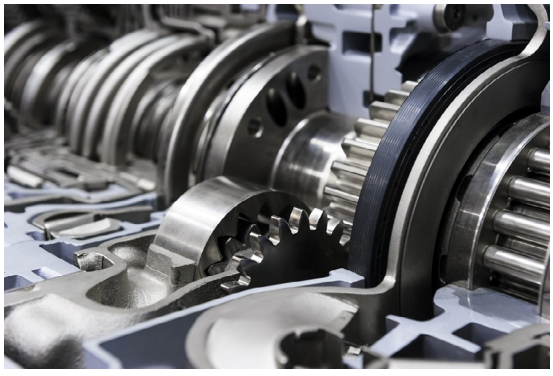
Strong Partner, Reliable Solutions

Buehler Celebrates 20 Years ISO Certification

In 2018 Buehler celebrated its 20-year anniversary with DQS, a global certification company. Buehler successful earned certification for ISO 9001:2015 and ISO 14001:2015. Today all Buehler manufacturing centers in the United States, China and Germany are ISO 9001:2015 certified and Buehler US is also ISO 14001:2015 certified. It is Buehler's priority to deliver world class and environmentally responsible products guided by ISO 9001 Quality Management Principles and ISO 14001 Environmental Management System. Buehler is ISO certified to meet the customer's highest expectations. Buehler, is an A2LA certified organization meeting all standards for calibrations on measurement equipment, to protect customer investments.

Focus on Quality & Customer Satisfaction

Buehler is committed to quality and customer satisfaction through rigorous problem solving and continuous improvement with open and regular communication throughout our organization to guarantee ongoing suitability and success in meeting customer expectations. Buehler develops material applications and product innovations for leading automotive, aerospace, medical and electronics manufacturers. These manufacturers have the highest standards for their materials, they are quality and safety critical so failure is never an option. So for Buehler quality is the keystone that permeates both its internal operations and its customer-centric solutions.



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 100 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.

Buehler maintains its legacy of industry partnership with affiliations such as the ASM International, American Society for Testing and Materials and International Metallographic Society. In 2019 Buehler celebrates 75 years partnership with ASM International. The company also contributes to the study of material science through the endowment of the ASM Francis F. Lucas Metallographic Award since 1946 and the International Metallographic Society's Pierre Jacquet Award.

Buehler remains steadfast in providing the metallographic solutions, applications, service and innovations for industry. When you purchase Buehler products, you also partner with our team of professionals dedicated to understanding your needs and market space.

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

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

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Automated and manual grinders and polishers with the broadest range of consumables for any lab.

56 **IMAGING & ANALYSIS**
OmniMet™ delivers powerful image analysis possibilities combined with flexible database functionality.

70 **HARDNESS TESTING**
Wilson® hardness testers cover all major hardness scales including dedicated Rockwell®, Knoop/Vickers, and Brinell as well as multi-scale Universal machines. We provide ISO and ASTM certified test blocks for all scales.

88 **ADDITIONAL INFORMATION**
Consumables shelf life and Index

Customer Care

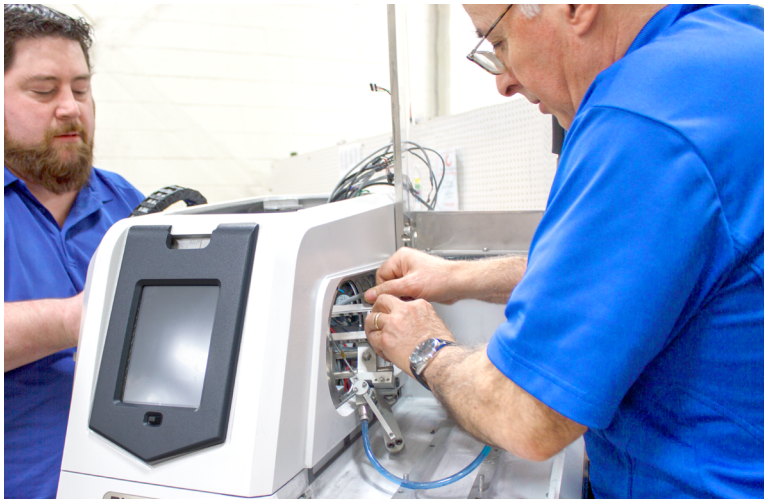
Our Team is Here for You!

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, product design & development, 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

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 Managements 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 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 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:

North and South America
T: +1 847 295 6500
E: info@buehler.com

Europe, Middle East and Africa
T: + 49 0711 4904690-0
E: info.eu@buehler.com

Asia
T: + 86 400 111 8693
E: info.asia@buehler.com

Full Lab Solutions

Partner with Buehler for Your Success

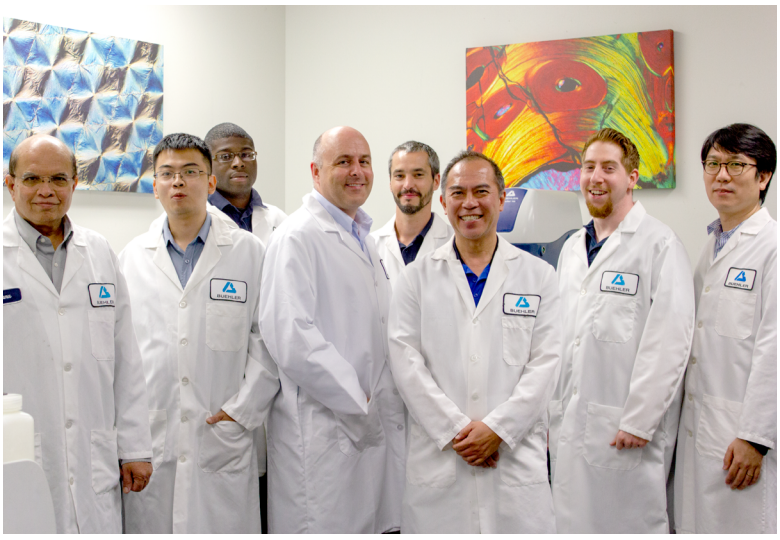
Buehler Laboratory experts are available to provide custom solutions for your application. Buehler experts provide technical assistance on metallographic and metallurgical topics.

Buehler provides many resources to help with your lab solutions:

- SumMet Guide
- TechNotes and SumNotes
- Safety Data Sheets
- Seminars, Webinars and Classes

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. Our mission is to deliver valuable application solutions by applying Buehler products and methodologies. We are committed to maintaining the highest standards in quality and service.



Buehler Solutions Centers

AMERICAS
- Lake Bluff, Illinois United States

(Buehler Partner Centers are also available in Ohio, Massachusetts, Virginia and Canada.)

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

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

SERVICE

Our Global Service Teams are Committed to You

Protect your investment and ensure consistent performance, minimize downtime and reduce the costly repairs with Buehler Preventative Maintenance and Calibration Services. Our service department can assist with NADCAP audit and accreditiation preparation services.

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

Reduce Unplanned Downtime

On-Site Repair Services

Certified technicians will inspect and repair machines on-site or at Buehler's factory

Loaners & Equipment Rental

Loaner machines available for weekly rental (USA only)

Technical Support & Training

Available by phone or email to answer questions

Ensure Consistent Results

Professional Installation

Certified technician will unpack equipment, connect to utilities, set parameters and do basic training

Compliance

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

Refurbished Machines

Machines have been inspected, repaired and tested to ensure 100% performance

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

Customer site or in factory inspection, cleaning, and spare parts exchange

Extended Warranty

Extend your complete warranty by 12 months including 100% coverage of parts and labor

Preventative Maintenance & Extended Warranty Contracts

Protect your investment and ensure consistent performance, minimize downtime and reduce the likelihood of costly repairs with preventative maintenance programs and extended warranty contracts.

Service Plan Options

Identify the best Service Plan based on the lab's needs.

	Preventative Maintenance	Extended Warranty
Visits Per Year	1	2
Wear Parts Kit	✓	✓
Unlimited Phone Support	✓	✓
Replacement Part Discount	10%	25%
Unlimited Labor Repairs		✓
Priority Response		✓

- Preventative Maintenance ensures consistent results
- Visit includes Wear Parts Kit and 20 Point Maintenance Check list
- Extended Warranty must be purchased prior to the expiration of active warranty

Machine	Preventative Maintenance Number	Extended Warranty Number
AbrasiMet™ 250	10101SRV	
AbrasiMatic™ 300	10219SRV	R0355
AbrasiMatic™ 450	10100SRV	R0585
AutoMet™ 250*	49725SRV	R0485
AutoMet™ 300*	49726SRV	R0485
Delta Manual	102213SRV	R0235
Delta Medium	102218SRV	R0245
Delta Large	102318SRV	R0255
EcoMet™ 30 Manual	4910070SRV	
EcoMet™ 30 Semi-Auto	4910075SRV	

** formerly referred to as EcoMet/AutoMet*

Machine	Preventative Maintenance Number	Extended Warranty Number
IsoMet™ Low Speed	11128SRV	
IsoMet™ 1000	11218SRV	R0315
IsoMet™ 4000/5000	11268SRV	R0325
IsoMet™ High Speed	11260SRV	R0335
PlanarMet™ 300	491000SRV	R0575
PetroThin™	38145SRV	R0345
Vanguard™	63200SRV	
MetaServ™ 250	49100SRV	
SimpliMet™ 3000	20143SRV	R0515
SimpliMet™ 4000	20011SRV	R0495

ServiceDesk

eServiceDesk is Buehler Service's case management system. This system, developed specifically for Buehler Service, allows for a unified communication channel between our customers and our service department through the online portal or e-mail. eServiceDesk allows customers to submit service requests, share large pictures and video with our service department while allowing multiple technicians and service coordinators to simultaneously coordinate a repair. This ability to collaborate in real time with eServiceDesk has led to increased customer satisfaction and faster service response times.
Visit service.buehler.com

Buehler Leads the Way in Hardness Testing

Over 80 Years of Industry Leadership

Founded in 1936, with metallographic innovations, Buehler has also become a global hardness tester manufacturer.

Wilson Instruments

From Research to Industrial Use, Buehler Provides Reliable Solutions

In 2011, Wilson Hardness merged with Buehler to provide an even broader product offering. With Reicherter, Wilson and Wolpert, Buehler combines the names of great innovators in the area of hardness testing under one roof. With this knowledge and experience, the company has grown into one of the world's leading suppliers of hardness testing equipment.

Wilson Rockwell, Knoop/Vickers and Brinell hardness testers, along with the associated software, hardness test blocks and a comprehensive range of accessories constitute the core of the company's current product portfolio. Buehler products and processes are used in quality assurance and in the development laboratories of major research facilities in numerous sectors, amongst them the aeronautical and aerospace, automotive, electrical, energy generation and medical equipment industries.

Globally located Buehler Solution Centers provide customers with the opportunity to directly work with the company's specialists. These Solution Centers are located throughout the United States, Asia, United Kingdom, France and Germany. They are equipped with the most up-to-date technology for the preparation of materialographic specimens and with the latest-generation of hardness testers, including the DiaMet™ testing software that is perfectly adapted to hardness testing. Experienced specialists take a hands-on approach to solving our customers' testing challenges on quality assurance and research.

Buehler is a strong, trusted partner relied upon by organizations for reliable solutions and consistent results in material preparation, testing and analysis.

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. It is for this reason that in 2010 we adopted a robust recycling program throughout our operations and front offices. Now in its fifth year, this program prevents nearly 110,000 pounds [50,000 kilograms] of waste from entering landfills annually, in turn conserving other resources such as electricity, oil and water.

Throughout the year, we support numerous other corporate citizenship programs, primarily in education and human welfare. Through presentations, joint activities and fundraisers, we support Junior Achievement and United Way Worldwide.

Junior Achievement of Chicago

United Way

77,504 pounds
35,155 kilograms
Fiber, Metal and Plastic. On average, the following resources are saved annually:

13,436 gallons
50861 liters
Oil

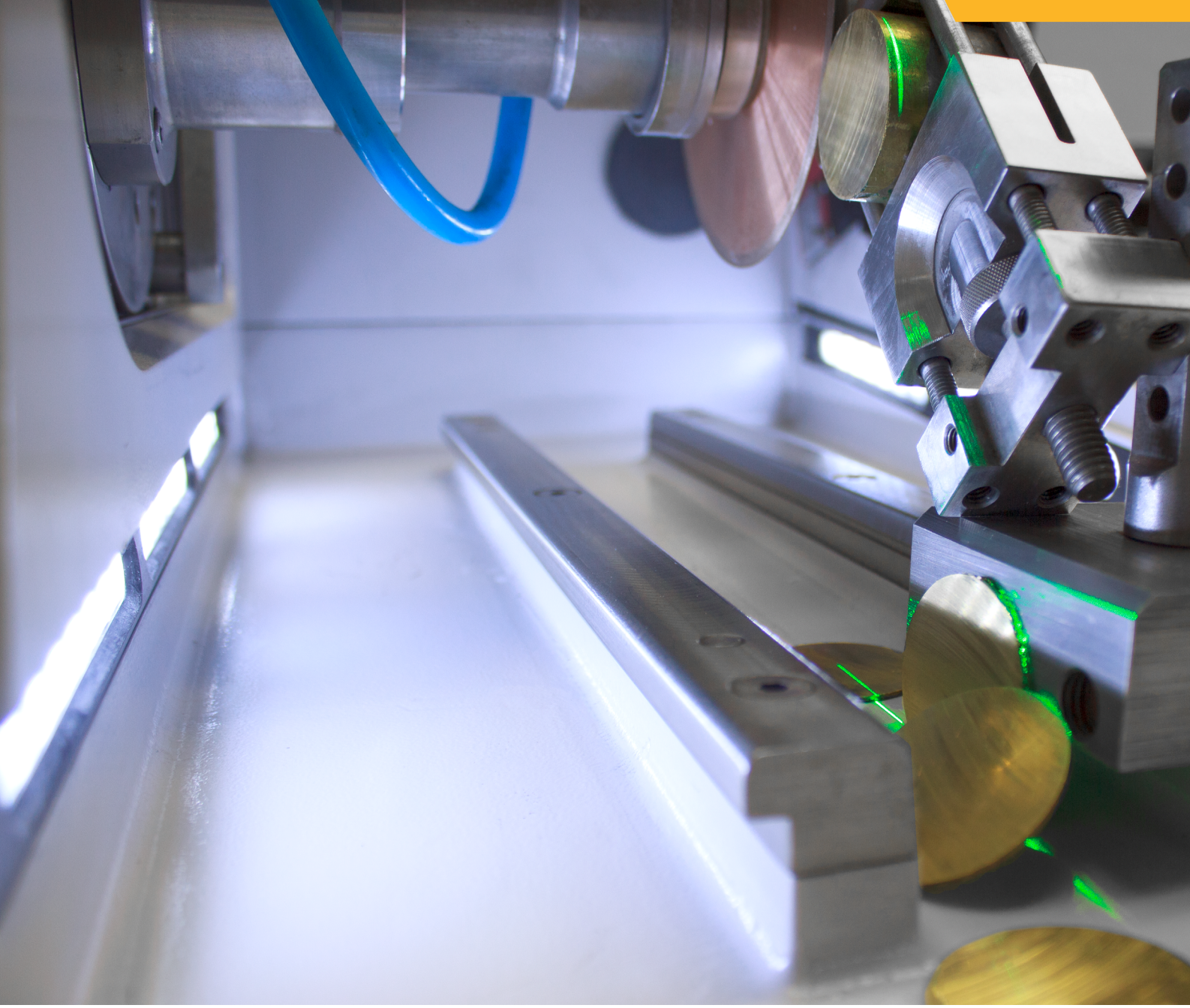
102 cubic yards
78 cubic meters
Landfill Space

203,137 gallons
768,958 liters
Water

118,900 kW hours
Electricity

493
Mature Trees

30%
Decrease Packaging Waste in Europe



BUEHLER
ReciClean
Cleaner for recirculation systems
109004
BUEHLER
Cool 3
Cutting Fluid Koncentrat Lubrifiant
BUEHLER
AddiCool
109006
BUEHLER
IsoCut™ Fluid

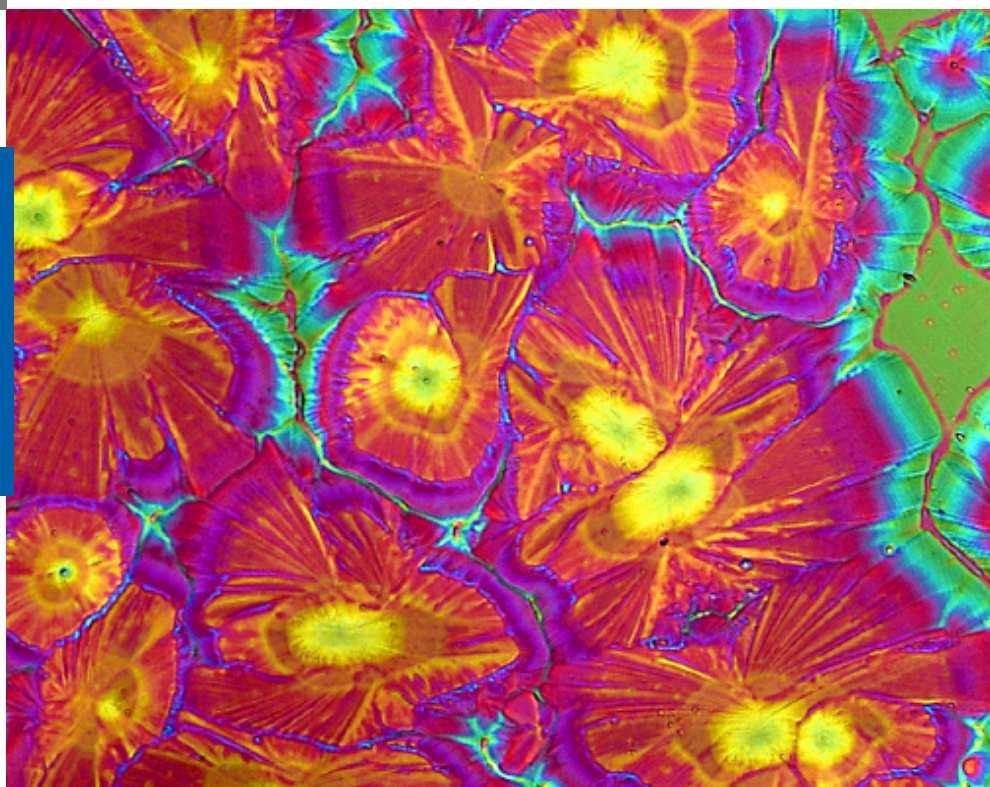
BUEHLER
ACU-THIN

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.

Featured Microstructure:
Surface of a 300nm $BaTiO_3$ thin film deposited by Molecular Beam Epitaxy on Silicon. The Fresnoite ($Ba_2TiSi_2O_8$) formed during deposition was imaged at 200x mag. under cross polarized light.
~ Angelika Bobrowski; Max-Planck Institut für Eisenforschung GmbH; Düsseldorf, Germany



Product Comparison

Abrasive Cutters

	AbrasiMet™ 250	AbrasiMatic™ 300	Delta Manual	Delta (Medium)	Delta (Large)
Wheel Diameter	10in [254mm]	12in [305mm]	14in [350mm]	12in [305mm] 14in [356mm]	16in [400mm] 18in [450mm]
Cut Types	Chop	Chop Y-Feed with Pulsing	Chop	Chop Orbital	Chop
Manual Movement	Z-axis	X-axis*, Y-axis, Z-axis	Z-axis		
Automated Movement		Y-axis		X-axis*, Z-axis	X-axis*, Z-axis
Maxium Part Size in Chamber	9 x 12 x 3.5in [229 x 305 x 89mm]	16 x 6 x 3.75in [406 x 152 x 95mm]	26 x 24 x 5in [660 x 610 x 127mm]	24 x 12 x 5.25in [609 x 305 x 133mm]	35 x 20 x 5.5in [889 x 508 x 140mm]
Cutting Capacity	3.5in** [89mm]	3.75in [95mm]	5.00in** [127mm]	5.25in [133mm]	5.5in [140 mm]

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

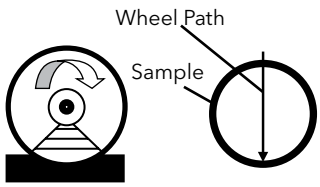
Precision Cutters

	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 [76mm]; 2 x 6.5 x 1in [51 x 165 x 25mm]	2.8in [76mm]; 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]

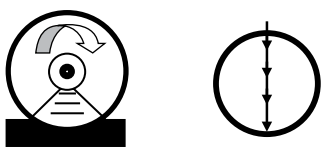
***Maximum cutting capacity assumes largest size blade with smallest flange.*

Cutting Style and Wheel Path

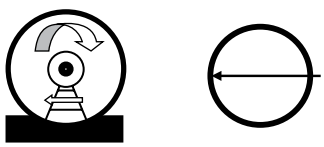
Chop Cutting
The traditional form of machine operation. Wheel contact arc is governed by sample size. Generally a struggle with large/difficult parts.



Chop Cutting with Pulsing
Wheel contact still governed by sample size. The pulsing action pauses the feed rate in short intervals enabling coolant to wash away swarf and dissipate heat.



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 size.



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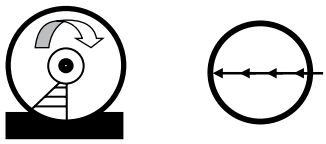
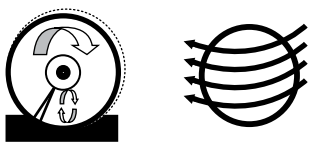


Orbital
A chop cutting action with eliptical blade movement. Simpler and quicker in operation. Part size is irrelevant as the orbital action produces a minimum contact arc area during cutting.



Manual Abrasive Cutters

Controllable Cut Quality with Durable Machine Design

The manual feature provides user control of the cut quality. These durable machines are designed for both laboratory and industrial environments.

AbrasiMet™ 250

The AbrasiMet 250 is a bench top manual abrasive cutter. This cutter's simple design enables rapid sectioning of samples.

Allow for sectioning of parts with a 3.5in [88cm] diameter. (Varies based on part shape)

Part Number	Voltage
10-10106-260	200-240VAC, 60Hz
10-10106-460	440-480VAC, 60Hz
10-10106-250	200-240VAC, 50Hz
10-10106-400	380-400VAC, 50Hz

Dimensions: 28in [711mm]W x 29in [737mm]D x 32in [813mm]H *open* 22.5in [571mm]H *closed*

Weight: 300lb [136kg]

Delta Manual

The Delta Manual is a floor standing manual abrasive cutter. This cutter's large workspace and versatile vising options enable simple, quick and easy positioning of samples for sectioning.

**Recirculation tank included*

Allow for sectioning of parts with a 5.25in [133mm] diameter. (Varies based on part shape)

Part Number	Voltage
10-2213EB-260	200-240VAC, 60Hz
10-2213EB-460	440-480VAC, 60Hz
10-2213EB-400	380-415VAC, 50Hz

Dimensions: 33in [838mm]W x 48in [1212mm]D x 81.5in [2070mm]H *open* 64in [1626mm]H *closed*

Weight: 800lb [365kg]

Accessories for Abrasive Manual Cutters

Delta Manual

10-2327 T-Slot Bed, 12mm, Y-axis Slots

See page 8 for vise with 12mm T-Nuts
See page 9 for compatible recirculating tanks

Visit www.buehler.com for ordering information.

Automatic Abrasive Cutters

Highly Reproducible Results

Our Abrasive Automatic Cutters allow repeatable and consistent cuts with automatic cutting. They are able to cut samples quickly without compromising cut quality with minimal area contact methods.

AbrasiMatic™ 300

The AbrasiMatic 300 is a benchtop abrasive cutter that has both manual and automatic cutting capabilities. These capabilities provide versatility in sectioning to suit a wide variety of needs.

Flexibility for changing lab needs

- Best of both cutting methods with manual and automatic cutting
- Control and "feel" of the cut with the manual cutting in the Y and Z direction
- Allow for sectioning of parts with a 3.75in [95mm] diameter (varies based on part shape).

Simple setup for efficient cuts

- Quick vising and cut alignment with X-axis motion (optional)
- Simple user interface to program automatic cutting and set manual cutting
- Automatic cutting creates more time for critical activities
- Electric brake for user safety and quick part change

Two Axis Cutting

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

Dimensions: 34in [864mm] x 27in [686mm] x 41in [1041mm] *open* 24in [610mm] *closed*

Weight: 350lb [165kg]

Three Axis Cutting

	Part Number	Voltage
X, Y & Z-axis	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* 24in [610mm] *closed*

Weight: 350lb [165kg]

Simple Setup for Efficient Cuts

The Delta Orbital and Chop Cutters use automatic cutting that creates more time for critical activities. The cutter has an electrical brake for user safety and quick part change.

Delta Medium

The Delta Medium is a floor standing automatic chop and orbital cutter. This cutter increases productivity and reduces differences between operators with the selectable feed rate.

Allow for sectioning of parts with a 4.5in [114mm] diameter. (Varies based on part shape)

	Part Number	Voltage
Orbital	10-2219B-260	200-240VAC, 60Hz, 7.5Hp
	10-2219B-460	440-480VAC, 60Hz, 7.5Hp
	10-2219B-400	380-415VAC, 50Hz, 7.5Hp
Chop	10-2216B-260	200-240VAC, 60Hz, 7.5Hp
	10-2216B-460	440-480VAC, 60Hz, 7.5Hp
	10-2216B-400	380-415VAC, 50Hz, 7.5Hp

Dimensions: 29in [736mm]W x 31in [787mm]D x 73in [1854mm]H *open* / 63in [1600mm]H *closed*

Weight: 800Lbs [365kg]

Delta Large

The Delta Large is a floor standing automatic chop and orbital cutter. This cutter reduces variability of sample quality with the programmable cuts.

Allow for sectioning of parts with a 5.25in [133mm] diameter. (Varies based on part shape)

	Part Number	Voltage
16in 10hp	10-2318B-260	200-240VAC, 60Hz
	10-2318B-460	440-480VAC, 60Hz
	10-2318B-400	380-415VAC, 50Hz

Dimensions: 46in [1168mm]W x 40in [1016mm]D x 73in [1854mm]H *open* / 66in [1676mm]H *closed*

Weight: 880Lbs [400kg]

Accessories for Abrasive Automatic Cutters

AbrasiMatic 300

00-10096 Protective Film for Touchscreen

See page 8 for vise with 12mm T-Nuts
See page 9 for compatible recirculating tanks

Delta Medium and Large Cutters

10-2227 T-Slot Bed, 12mm, Y-axis - Medium Only
10-2228 Base Cabinet, 1 door- *Medium Only*
10-2327 T-Slot Bed, 12mm, Y-axis - Large Only

Visit www.buehler.com for ordering information.

Abrasive Cutter Vises Accessories

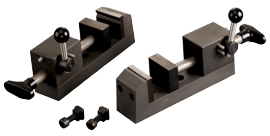
Single Piece Sliding Vises

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



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

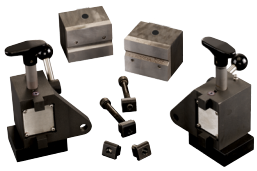
Two Piece Sliding Vises

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)

MetKlamp VII



Part Numbers: Left: 10-2245
Right: 10-2246
Clamping Plate: 2.3" x 3"
[59 x 76mm]
T-Nuts: 14mm**
***only for use on Delta cutters with 14mm T-slot bed*

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

Riser Blocks

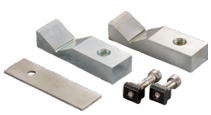
Small: 10-3532; 2.4" [60mm]
Large: 10-3528; 2.9" [74mm]

Horizontal Clamp

T-Nuts: 12mm and 14mm
Part Number: 10-3526

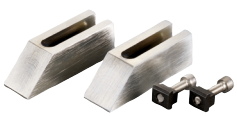
Vee Block Clamp Kit

T-Nuts: 12mm and 14mm
Part Number: 10-3527



Adjustable Vee Blocks

T-Nuts: 12mm and 14mm
Part Number: 10-3525



See Vising Guide for More Information

Specialty Vises

Chain Clamping Kit

Application: For clamping very large or irregularly shaped samples
Part Number: 46-0030

Universal Clamping Kit

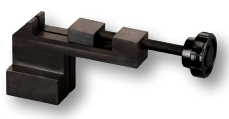
Application: For clamping very intricate samples
T-Nuts: 12mm
Part Number: 10-3570

PetroCut Vise Table & Rock Clamp Kit

Application: Converts the AbrasiMet 250 for petrographic cutting
Part Number: 10-10106-000
Description: PetroCut Vise Table & Rock Clamp Kit

Part Number: 10-10106-001
Description: Rock Clamp Kit

Fastener Vise



Application: For longitudinal sectioning of fasteners. Must be held by left hand sliding vise.
Max Opening: 1.6" [40.6mm]
Part Number: 95-C1702

Recirculating Systems

Recirculating System 7 gal [27L]

For AbrasiMet™ 250
20.25 W x 16.5 D x 16.75in H
515 W X 420 D X 426mm H

10-2165-260 [200-240VAC, 60Hz]
10-2165-460 [440-480VAC, 60Hz]
10-2165-250 [200-240VAC, 50Hz]
10-2165-400 [380-400VAC, 50Hz]

Recirculating System 22 gal [90L]

For AbrasiMatic 300 and Delta Medium & Large cutters
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]

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]

Base Cabinet

For AbrasiMet 250 and AbrasiMatic 300
36 W x 30 D x 36in H
[910 W x 760 D x 910mm H]

80-10001

Recirculating System

Part Numbers	Description
560023	16 gal [60L] with filter for AbrasiMet 250 24 W x 16 D x 22in H 610 W x 407 D x 559mm H (18.5in [470mm]H w/o wheels)
10-2431-400	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

Diamond & CBN Blades for Abrasive Cutters

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

Recommended Use	Blade Type	8in [200mm]	10in [250mm]	12in [300mm]	14in [350mm]	16in [400mm]
General Use	Diamond	114608E 0.047in [1.2mm]	114610E 0.051in [1.3mm]			
Hard Materials	Diamond	114808E 0.047in [1.2mm]	114810E 0.047in [1.2mm]	103056 0.055in [1.4mm]	114814E 0.059in [1.5mm]	104056 0.079in [2mm]
Ceramic and Petrographic samples	Diamond	114709E* 0.047in [1.2mm]	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]	

* 230mm Ø

Visit www.buehler.com for ordering information.

Abrasive Cutter Consumables

Abrasive Blades

Buehler's Abrasive 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.

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

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

Recommended Use	9in [230mm] Chop/Linear	10in [254mm] Chop/Linear	12in [305mm] Chop/Linear	12in [305mm] Orbital
Superalloys, General Steel, Non-Ferrous		12-4205-010• 0.055in [1.4mm]	12-4405-010• 0.055in [1.4mm]	12-4405-010• 0.055in [1.4mm]
Ferrous materials >HRC60	10-4110-010• 0.07in [1.8mm] 102309P* 0.06in [1.5mm]	10-4210-010• 0.07in [1.8mm] 102509P* 0.06in [1.5mm]	12-4110-010• 0.105in [2.7mm] 103009P* 0.079in [2mm]	12-4410-010• 0.105in [2.7mm]
Ferrous materials HRC50-60	10-4112-010• 0.07in [1.8mm] 102310P* 0.06in [1.5mm]	10-4212-010• 0.07in [1.8mm]	10-4412-010• 0.105in [2.7mm] 95B2302* 0.08in [2mm]	12-4410-010• 0.105in [2.7mm]
Ferrous materials HRC35-50	10-4116-010• 0.07in [1.8mm]	10-4216-010• 0.07in [1.8mm] 102510P* 0.06in [1.5mm]	12-4116-010• 0.105in [2.7mm] 103010P* 0.079in [2mm]	12-4416-010• 0.105in [2.7mm]
Ferrous materials HRC15-35	10-4120-010• 0.07in [1.8mm]	10-4220-010• 0.063in [1.6mm] 102511P* 0.06in [1.5mm]	12-4120-010• 0.105in [2.7mm] 103011P* 0.079in [2mm]	12-4420-010• 0.105in [2.7mm]
High Speed Steel, Stainless Steel, Carburized Steel	102308P* 0.06in [1.5mm]	102508P* 0.06in [1.5mm]	103008P* 0.079in [2mm]	
Delicate Cutting	10-4127-010• 0.032in [0.8mm]	10-4227-010• 0.032in [0.8mm]		
Titanium Alloys, Zirconium Alloys, Ductile Materials	10-4145-010• 0.063in [1.6mm] 102307P* 0.06in [1.5mm]	10-4245-010• 0.063in [1.6mm] 102507P* 0.06in [1.5mm]	12-4145-010• 0.055in [1.4mm] 103007P* 0.079in [2mm]	
Non-Ferrous Materials (Aluminum, Copper, Brass), Very Soft Ferrous Materials	10-4150-010• 0.063in [1.6mm]	10-4250-010• 0.063 in [1.6mm] 102512P* 0.06in [1.5mm]	103012P* 0.079in [2mm]	

AcuThin™ Blades

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*** **= ***

Recommended Use	14in [356mm] Chop/Linear	14in [356mm] Orbital	16in [406mm] Orbital	18in [455mm] Orbital
Superalloys, General Steel, Non-Ferrous	12-4305-010• 0.063in [1.6mm]	12-4305-010• 0.063in [1.6mm]	12-5605-010• 0.075in [1.9mm]	12-5805-010• 0.1in [2.5mm]
Ferrous materials >HRC60	10-4310-010• 0.075in [1.9mm] 103509P* 0.098in [2.5mm]	12-4310-010• 0.105in [2.7mm]	12-5610-010• 0.125in [3mm]	12-5810-010• 0.153in [3.8mm]
Ferrous materials HRC50-60	10-4312-010• 0.115in [2.9mm] 103509P* 0.098in [2.5mm]	12-4310-010• 0.105in [2.7mm]	12-5612-010• 0.125in [3mm]	12-5816-010• 0.153in [3.8mm]
Ferrous materials HRC35-50	12-4305-010• 0.063in [1.6mm] 103510P* 0.098in [2.5mm]	12-4316-010• 0.105in [2.7mm]	12-5616-010• 0.125in [3mm]	12-5816-010• 0.153in [3.8mm]
Ferrous materials HRC15-35	12-4305-010• 0.063in [1.6mm] 103511P* 0.098in [2.5mm]	12-4320-010• 0.105in [2.7mm]	12-5616-010• 0.125in [3mm]	12-5816-010• 0.153in [3.8mm]
High Speed Steel, Stainless Steel, Carburized Steel	103508P* 0.098in [2.5mm]			
Delicate Cutting				
Titanium Alloys, Zirconium Alloys, Ductile Materials	10-4345-010• 0.075in [1.9mm] 103507P* 0.098in [2.5mm]		12-5645-010• 0.075in [1.9mm]	12-5845-010• 0.1in [2.5mm]
Non-Ferrous Materials (Aluminum, Copper, Brass), Very Soft Ferrous Materials	10-4350-010• 0.105in [2.7mm] 103512P* 0.098in [2.5mm]			

See Blade Guide for More Information

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.

Additional IsoMet High Speed Pro Features

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.

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

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

Weight: 157lbs [71kg]

Precision with Flexibility

The IsoMet product family is capable of cutting with precision via a gravity fed or automatic movement. The IsoMet family provides great versatility in holding all types of sample shapes and configurations.

IsoMet™ 1000

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

**6in diamond blade, 3in flanges, single saddle chuck and mount chuck included*

RPM ranges from 100-975 to provide cut quality for varied materials

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

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

Weight: 56lbs [25kg]

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, IsoCut fluid, flanges and the following chucks: single saddle, irregular specimen and wafer

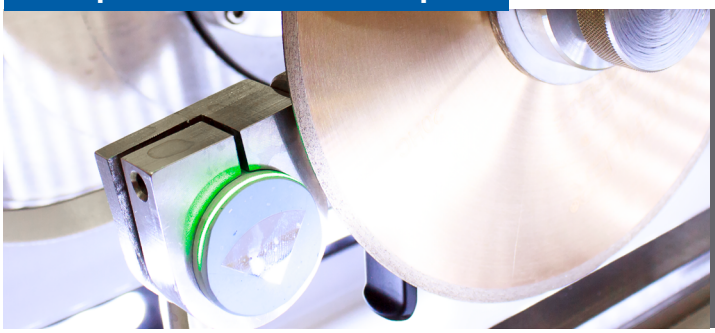
RPM ranges from 0-300 to provide cut quality for varied materials

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 25.5in [571mm]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.

Visit www.buehler.com for ordering information.

Precision Cutter Accessories

IsoMet™ Low Speed Cutter Accessories

Goniometer

Positions specimen along 3 axis

11-2381

Manual Feed Control Dressing Chuck

Enables blade dressing without removing the sample fixture

11-1196

Splash Guard Kit

Prevents lubricant from splashing out of saw

11-1199

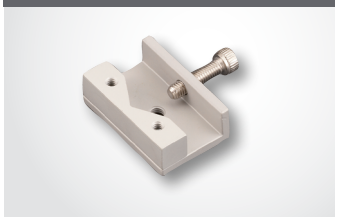
IsoMet™ Low Speed Cutter & 1000 Accessories

Swivel Arm Assembly

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

11-1181

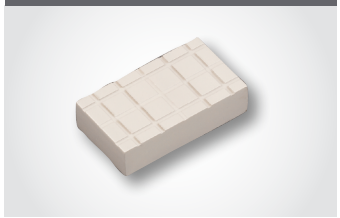
Bar & Tube Chuck



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

11-1184

Wafer Chuck



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

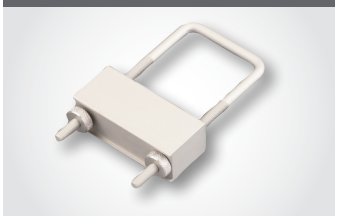
11-1186

Vacuum Chuck

Holds specimens mounted to glass slides to chuck with vacuum force

11-1188

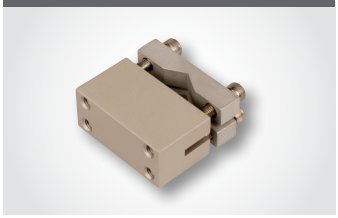
Small Bone Chuck



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

11-1194

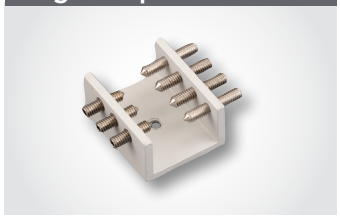
Double Saddle Chuck



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

11-1183

Irregular Specimen Chuck



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

11-1185

Single Saddle Chuck

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

11-1187

Mount Chuck

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

11-1189

IsoMet™ 1000 Accessories

Rotating Chuck Assembly

Rotates specimen chuck to increase the maximum cutting depth of the blade

11-2181

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

Goniometer

Positions specimen along 3 axis

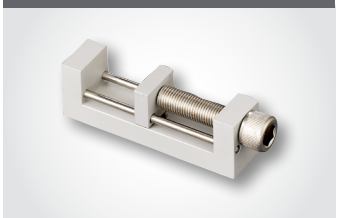
11-2185

Table Saw Splash Guard

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

11-2186

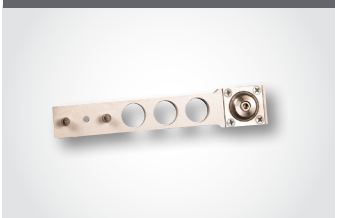
Fastener Chuck



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

11-2482

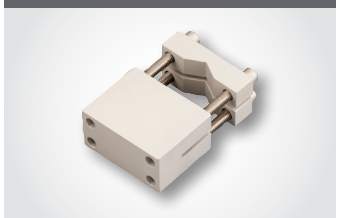
Swivel Arm Accessory



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

11-2184

Double Saddle Chuck



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

11-2483

Glass Slide Chuck

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

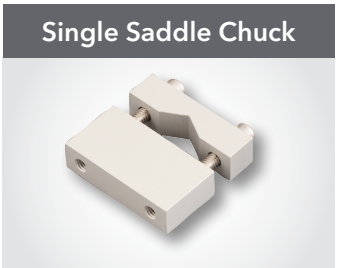
11-2484

Wafer Chuck

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

11-2486

Single Saddle Chuck



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

11-2487

Glass Slide Chuck

Holds 2 x 3in glass slides

11-2488

Mount Chuck

Holds mounted samples 1.5in [40mm]

11-2489

Visit www.buehler.com for ordering information.

Precision Cutter Accessories

IsoMet™ High Speed Cutter Accessories

Single Saddle Chuck

Large Single Saddle Chuck holds specimens up to 1.5in [38mm] from 2 point

11-2661

Double Saddle Chuck

Securely holds specimens up to 1.5in [38mm] from 2 points

11-2662

Mount Chuck

Stainless steel chuck holds mounted samples

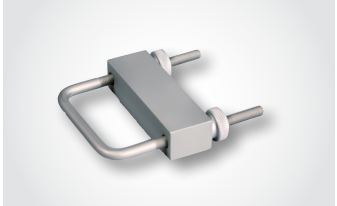
11-2666 1.25in [30mm]
11-2667 1.5in [40mm]

Fastener Chuck

Holds specimens from 0.04in [1mm] to 2in [50mm] for longitudinal sectioning

11-2687

Large Bone Chuck



Ideal for clamping bone, plastics, or other semi-rigid specimens up to 2in [50mm] in diameter

11-2494

T-Slot Bed

Additional T-slot for positioning vises

11-2707

Sliding Vise

6in [152mm] maximum opening, use requires flange to be 2in [50mm] or less, requires T-slot bed

11-2669

Rapid Rail Post

Use with Rapid Rail

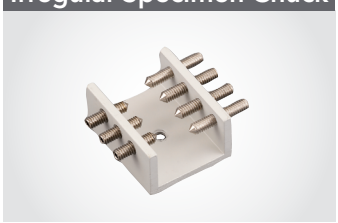
11-2660

Small Vertical Clamp

Clamps specimens up to 58mm in height

460022

Irregular Specimen Chuck



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

11-1185

Recirculating System 7gal [27L]

Increases cutting fluid capacity to 7gal [27L] at 1.25gal/min [4.7L/min]

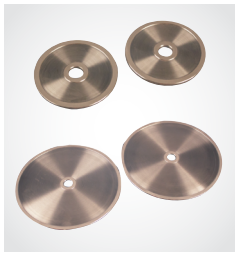
16in [406mm]W x 20in [508mm]D x 15in [381mm]H

11-2640

IsoMet™ Precision Cutter Flanges

Aluminum Flange Set

11-1192 1.38in [35mm]
11-1191 1.75in [44mm]
11-2679 2.5in [64mm]
11-2282 3in [76mm]
11-2283 4in [102mm]
11-2284 5in [127mm]



Stainless Steel Flange Set

11-2688* 3in [76mm]
11-2689* 4in [102mm]

**Recommended for the IsoMet High Speed*

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]	7in [178mm]	8in [203mm]	Dressing Stick*
Use with Saws	All	All	All	1000 IsoMet High Speed	1000 IsoMet High Speed	IsoMet High Speed Pro only	
IsoMet 30HC - Polymers Rubber, Soft Gummy Materials			11-4239 0.030in [0.76mm]		11-4241 0.03in [0.76mm]	11-4242 0.035in [0.9mm],	Blade should not be dressed
IsoMet 20HC - Aggressive Sectioning of Metals			11-4215 0.020in [0.5mm]		11-4237 0.025in [0.6mm]	11-4238 0.035in [0.9mm]	11-1190 11-2490
IsoMet 15HC - Metal Matrix Composite, PCBs, Bone, Ti, TSC	11-4243 0.006in [0.15mm]	11-4244 0.012in [0.3mm]	11-4245 0.015in [0.4mm]	11-4246 0.02in [0.5mm]	11-4247 0.025in [0.6mm]	11-4248 0.035in [0.9mm]	11-1190 11-2490
IsoMet 20LC - Hard tough Materials, Structural Ceramics			11-4225 0.02in [0.5mm]		11-4227 0.025in [0.6mm]	11-4228 0.035in [0.9mm]	11-1190 11-2490
IsoMet 15LC - Hard Brittle Materials, Glass, Al_2O_3, ZrO_3, 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]	11-4277 0.025in [0.6mm]	11-4279 0.045in [1.1mm]	11-1190 11-2490
IsoMet 10LC - Medium to Soft Ceramics, Glass Fiber Reinforced Composites	11-4283 0.006in [0.15mm]		11-4285 0.015in [0.4mm]		11-4287 0.02in [0.5mm]	11-4288 0.045in [1.1mm]	11-1290
IsoMet 5LC - Soft, Friable Ceramics, Composites with Fine Reinforcing, CaF_2, MgF_2, Carbon Composites	11-4293 0.006in [0.15mm]		11-4295 0.015in [0.4mm]				11-1290
IsoCut™ CBN LC - Fe, Co, Ni based alloys and superalloys	11-4263 0.006in [0.15mm]	11-4264 0.012in [0.3mm]	11-4265 0.015in [0.4mm]	11-4266 0.02in [0.5mm]	11-4267 0.025in [0.6mm]	11-4268 0.035in [0.9mm]	11-1190 11-2490
IsoCut CBN HC - Fe, Co, Ni based alloys and superalloys		11-5264 0.012in [0.3mm]	11-5265 0.015in [0.4mm]	11-5266 0.02in [0.5mm]	11-5267 0.025in [0.6mm]	11-5268 0.035in [0.9mm]	11-1190 11-2490
Cup Grinder for Ceramic & Geological Materials (IsoMet 5000 only)			11-2740				

** 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.*

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
Use with Saws	IsoMet High Speed	IsoMet High Speed	IsoMet High Speed	IsoMet High Speed Pro Only
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]		
Soft materials			101520 0.50mm	102020 0.50mm
Tough materials and general use			1015998E 1mm	1020998E 1.5mm

IsoCut™ Fluid

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]

Glossy

Clear paste for keeping cutter windows clear

109003 2oz [60mL]

ReciClean™

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.

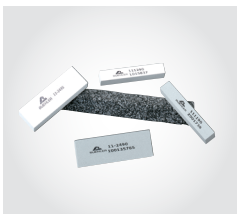
10-6001 33.8oz [1L]
10-6004 1gal [4L]
10-6010 2.6gal [10L]

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.

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

Precise cut location control

- Two precision micrometers are used for controlling re-sectioning and thinning
- Precision of resections and grinds material within ±5µm

Increase accuracy and parallelism of samples

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

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

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

Weight: 94lbs [43kg]

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.

Part Number
38-1490

PetroVue™ Thin Section Viewer

Polarized light allows monitoring of thickness & uniformity of the specimen.

Part Number	Voltage/Frequency
30-8050-220	220VAC, 50/60Hz

PetroThin Consumables

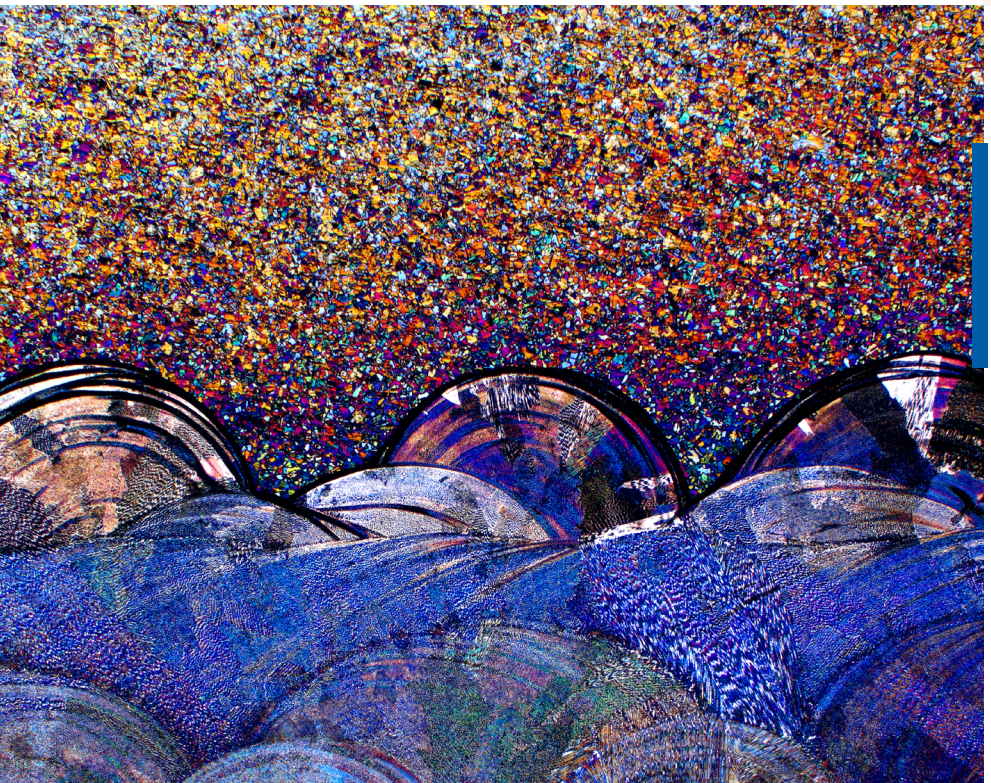
Part Number	Description
11-4278	Continuous Rim Diamond Blade 8 x 0.045 x 1in [203 x 1 x 25mm]
40-4508	Diamond Cup Grinding Wheel 8 x 0.25 x 1in [203 x 6 x 25mm]
40-4510	Dressing Stick 0.5 x 0.5 x 4in [13 x 13 x 102mm]

Visit www.buehler.com for ordering information.

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.



Featured Microstructure:
3D printed maraging steel, color etched, viewed at 50x mag. under polarized light
~ Lukasz Boron; Foundry Research Institute in Kraków; Kraków, Poland

BUEHLER

BUEHLER
EpoKwick™
Epoxy Harden
20-3453-03
BUEHLER
SamplKwick™ Liquid
Fast Cure Acrylic
20-3564
BUEHLER
SamplKwick™ Powder
Fast Cure Acrylic
20-3562

BUEHLER
Release Agent
20-8186-032
BUEHLER
Mold Release
Powder
20-3048
BUEHLER
Flat Edge Filler

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.

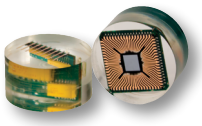
- Combines very low viscosity and extremely low shrinkage with good hardness and a fast cure.
- Obtain the best sample prep quality even with highly porous samples.
- Recommended for aerospace coatings and other applications with porous samples.

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

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

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 and/or easy sample removal from mold.

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*

Ordering Information

	Small Resin & Hardener		Large Resin & Hardener	
Material	Resin	Hardener†	Resin	Hardener†
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]		

† Restricted article, requires special packaging

•Peak exotherm is for 20g cured at 70° F

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.

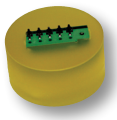
SamplKwick™

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

VariKleer™

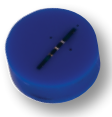
VariKleer produces a crystal clear mount when cured under pressure making it ideal for applications where clarity is required.

VariDur™ 10



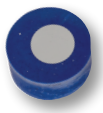
VariDur 10 is a general purpose acrylic system offering a semi-transparent mount with a reduced odor while curing.

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•
SamplKwick™	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*

Ordering Information

	Powder		Liquid†		Kit†	
Material	Part Number	Size	Part Number	Size	Part Number	Size
SamplKwick™	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]	20-3560	Powder 1 lb [0.45kg] Liquid 12oz [0.36L]
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]	20-3590	Powder 2.2 lbs [1kg] Liquid 16.9oz [500mL]
VariDur 10	11-1027 11-1031	2.2 lbs [1kg] 22 lbs [10kg]	11-1029 11-1033	16.9oz [500mL] 1.3gal [5L]	11-1037	Powder 2.2 lbs [1kg] Liquid 500mL
VariDur 200	11-1030 11-1034	2.2 lbs [1kg] 22 lbs [10kg]	11-1029 11-1033	16.9oz [500mL] 1.3gal [5L]	11-1039	Powder 2.2 lbs [1kg] Liquid 33.8oz [1L]
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	20-3530	Powder 1.7 lbs [750g] Liquid 1 8.4oz [250mL] Liquid 2 16.9oz [500mL]

† Restricted article, requires special packaging

•Peak exotherm is for 20g cured at 70° F

Visit www.buehler.com for ordering information.

Vacuum Systems,Consumables & Accessories

Cast N' Vac 1000

This vacuum system offers excellent pore impregnation in a compact format. As a result, edge retention is enhanced and delicate samples are supported during grinding and polishing.

Vacuum Chamber
Dimensions: 13in [330mm] W x 16in [400mm] H x 11in [280mm] D
Weight: 11lb [5kg]

Vacuum Pump
Dimensions: 12in [300mm] W x 8in [200mm] H x 6in [150mm] D
Weight: 28lb [13kg]

High efficiency

- Large vacuum chamber allows for 11, 1.5in molds to be processed simultaneously.
- The rugged vacuum pump supplies ample vacuum pull down to quickly evacuate trapped air from any porous specimen while the patented, high strength plastic chamber maintains vacuum throughout the impregnation period.

Optimized pore impregnation

- The unique dispensing mechanism with a built in rotating turn table allows pouring epoxy while under vacuum.

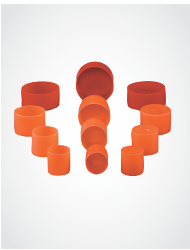
Part Number	Voltage/Frequency
20-1382-160	115VAC, 60Hz
20-1382-250	220VAC, 50Hz
20-1382-250E*	220VAC, 50Hz

**Available only in Europe and Asia*

Accessories

20-2835 Drierite Dehydrating Agent
20-2845 Vacuum Table Liners (Qty 100)

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

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

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]

Mounting Consumables & Accessories

Pigments

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]

Release Agent

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

20-8186-004† 4oz [120mL]
20-8186-032† 32oz [950mL]

Mold Release Spray

Less hazardous spray release agent for use on castable mounting molds

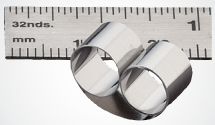
20-3050-008 8oz [0.24L]

Mold Release Powder

Powder release agent for use on mounting presses

20-3048 2oz [45g]

SamplKlip



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)

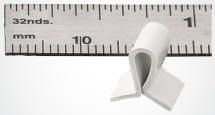
SamplKlip I

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)

Specimen Support Clip

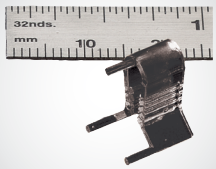


Plastic support clip best for castable mount systems.•

0.25 H x 0.290 W x 0.375in L
[6 x 7 x 9.5mm] 0.145g

20-4001-000 (Qty 1000)

UniClip Support Clip



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 (Qty100)
113043 Black (Qty 100)

Plastic Mixing Cup

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

20-8176-100

Paper Mixing Cup

Non Graduated Paper Mixing cup for mixing castable mounting systems. 5oz [148mL] (Qty 100)

20-8177-100

Stirring Sticks

For stirring castable mounting systems. (Qty 1000)

20-8175

MetKleer™ Adhesive Bases

For use with ring forms and castable systems.
4 x 5in [102 x 127mm] (Qty 10)

20-8188

Conductive Filler

Nickel-based filler makes castable mounting systems conductive

20-8500 2 lb [0.9kg]

Flat Edge Filler

Enhances edge retention in castable mounting systems by increasing hardness of mount

20-8196 1 lb [0.45kg]

Thermoplastic Cement

For adhering samples to glass slides or other specialty holders

40-8100 Use at 266° F [130°C] (Qty 12)

Crystalbond Mounting Wax

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]

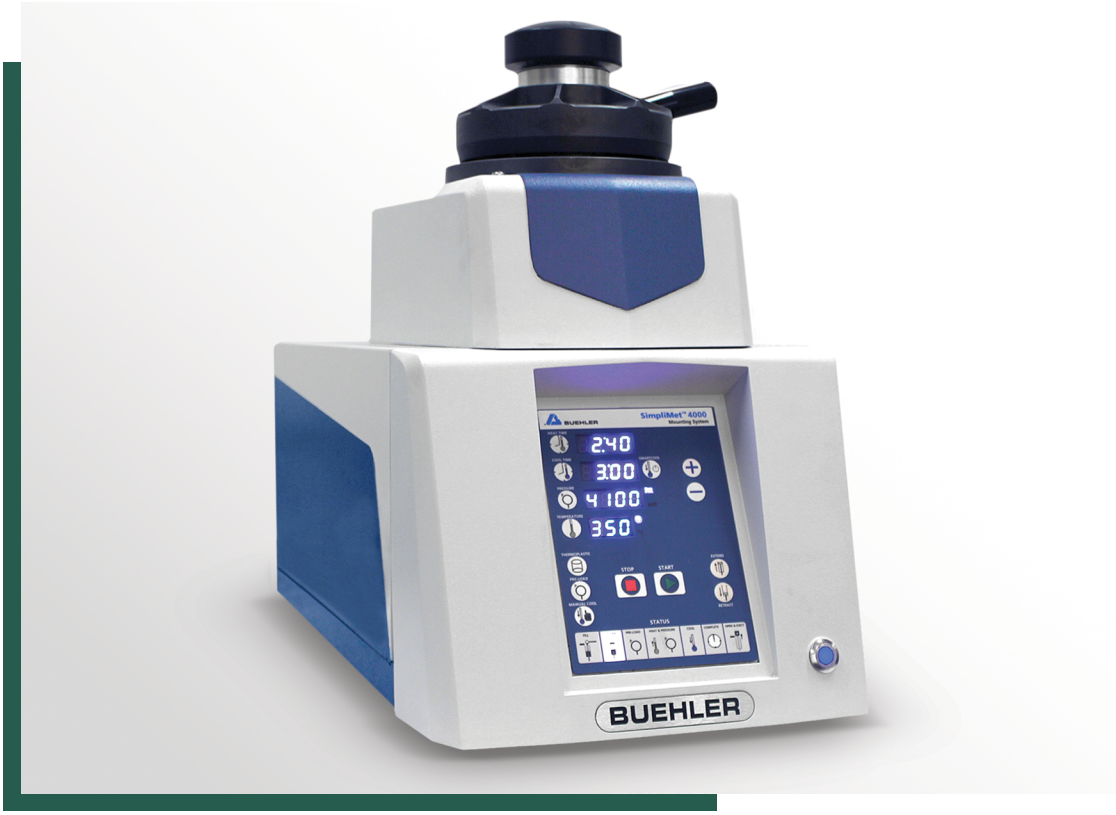
** Compatible with specimens up to 0.200in [5mm] thick*
† Restricted article, requires special packaging
• Compatible with specimens between 0.0035 – 0.090in [0.9 – 2.3mm]

Visit www.buehler.com for ordering information.

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 Mounting Press

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.

Part Number	Mold Assembly
20-1011-5001	with 1in Mold
20-1011-5025	with 25mm Mold
20-1011-5125	with 1.25in Mold
20-1011-5030	with 30mm Mold
20-1011-5150	with 1.5in Mold
20-1011-5040	with 40mm Mold
20-1011-5050	with 50mm Mold

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]

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 limits errors and protects the quality of your sample prep. Everything you need 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

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 is easier and cleaner to 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
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
KonductoMet™	SEM analysis when carbon is not the object of analysis	Black	~88	Good
ProbeMet™	SEM analysis when copper is not of interest. Great for electropolishing	Copper	~94	Better

General Purpose Compounds

PhenoCure™ Powder

A wood-flour phenolic thermoset resin that provides good edge retention and moderate shrinkage.

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™ Premold

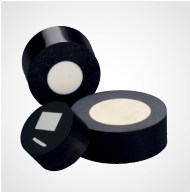
Premolds reduce mess and save time. Simply place the premold over the specimen in the mold cylinder. Premolds are sold 500/pack.

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		

Visit www.buehler.com for ordering information.

Compression Mounting Compounds

General Purpose Compounds

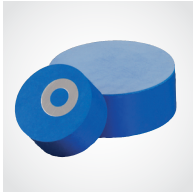


EpoMet™ G (Granular)

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 ●



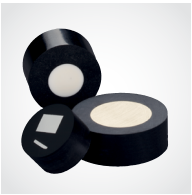
Diallyl Phthalate

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]

Blue ●

Specialty Compounds

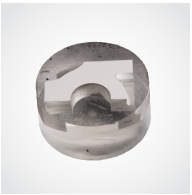


EpoMet™ F (Fine)

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]

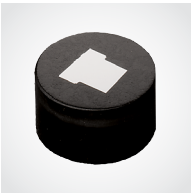
Black ●



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]



KonductoMet

A graphite and mineral filled phenolic thermoset recommended for SEM analysis of specimens when carbon is not the object of analysis.

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

Black ●

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]

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.

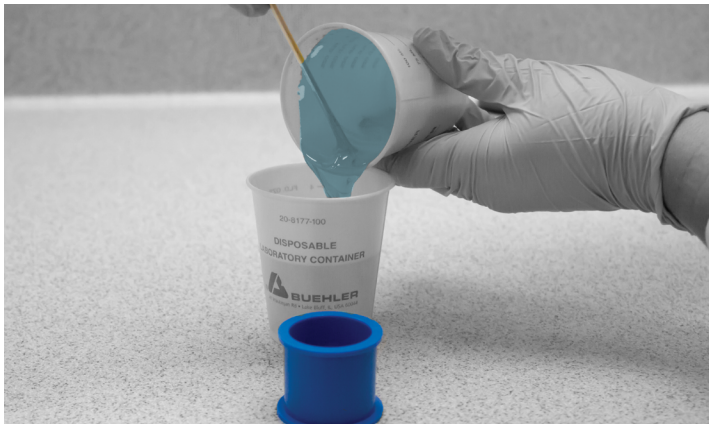
Unfused or frosted mounting compound is often a sign of insufficient molding temperatures or pressures. Ensure the temperature and pressure settings on the mounting press match the recommendations for the compression compound being using.

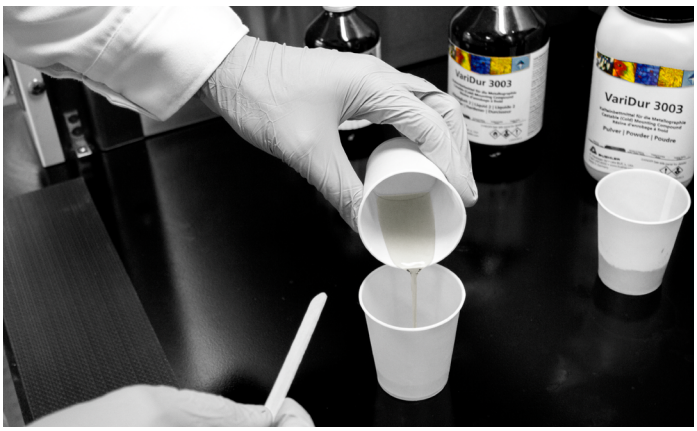
Mounting Tips

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 eliminates the gap at the sample/epoxy interface, 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.

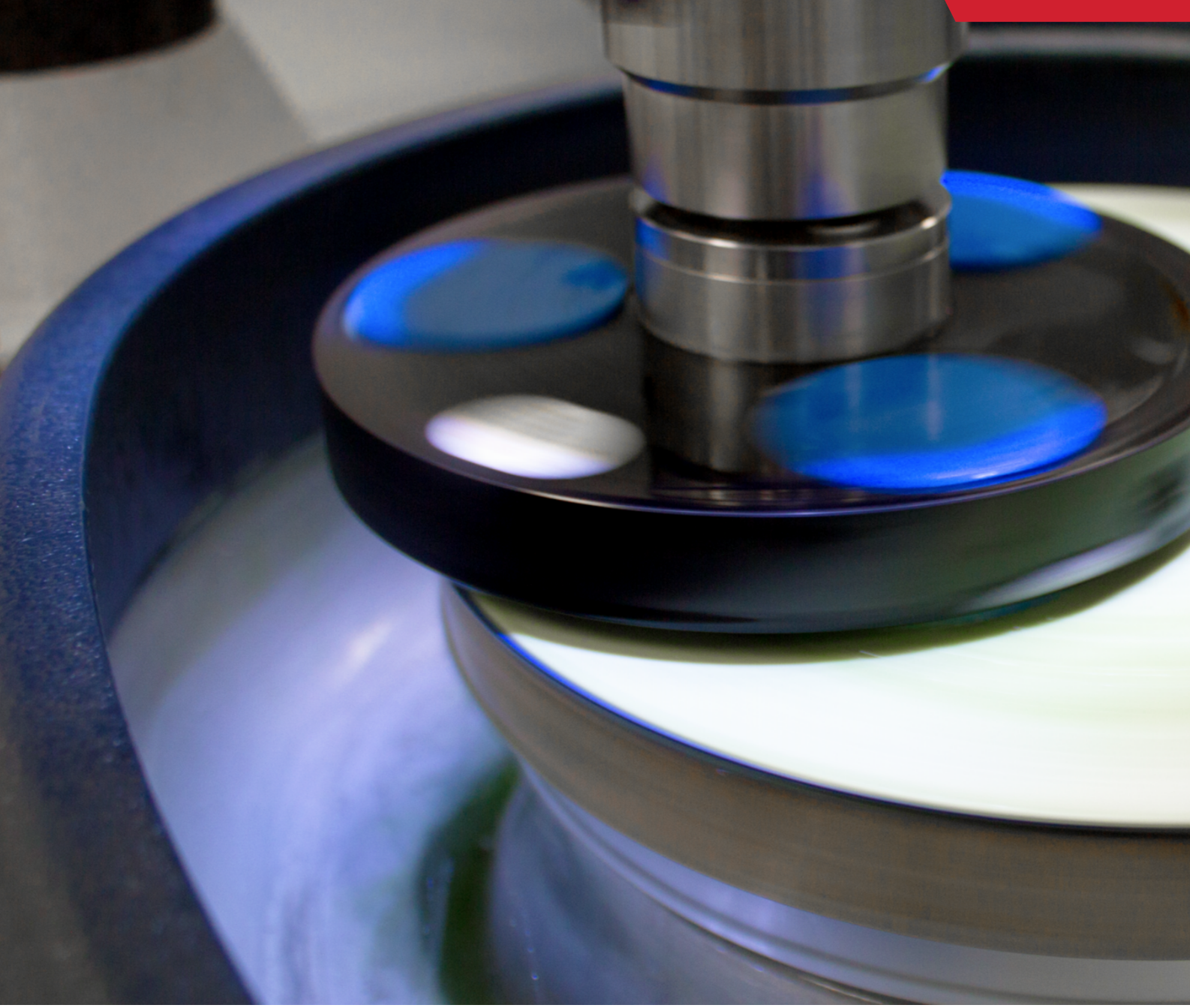




Acrylic Tips

- Acrylics cure quickly so it is highly recommended to pour the mixture into the mold immediately after mixing to prevent "gelling".
- Acrylic system 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.

See Mounting Guide for More Information



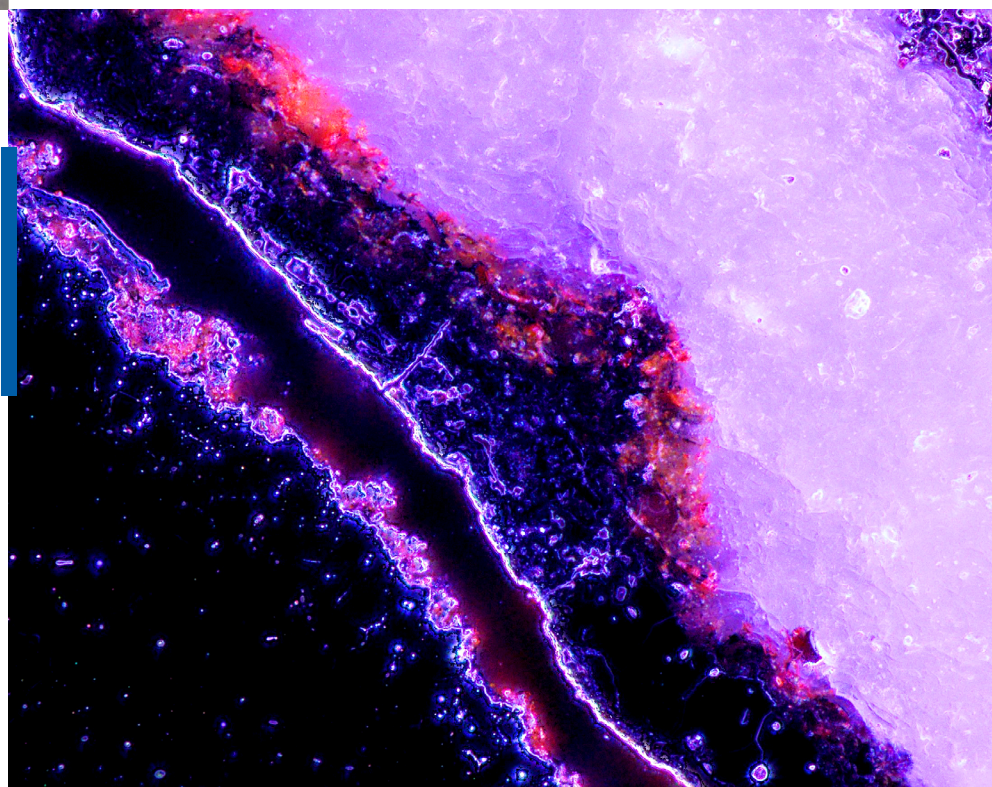
EcoMet 30
AutoMet 250

MetaDi™ Supreme
Polycrystalline Diamond Suspension
0.25 µm
MetaDi™

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 needs.



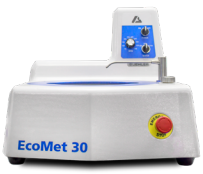
Featured Microstructure:
Alumina coating on steel substrate at 500x mag. in darkfield
~ David DeLagrave and Jean Michel Lamarre; Conseil national de recherches Canada; Boucherville, Québec, Canada

Product Comparison

A Grinder-Polisher Solution for Any Lab

With the launch of the AutoMet Grinder-Polisher, Buehler now offers a full line of easy-to-use machines. Choose from the EcoMet30 or 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 two platens.

EcoMet™ 30 Semi-Auto

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

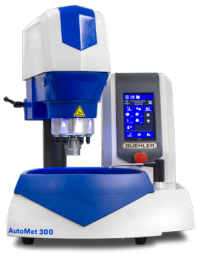
AutoMet™ 250

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

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.

AutoMet™ 300 Pro



AutoMet 300 Pro is similar to the AutoMet 250 Pro, with a stronger 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.

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

	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)
Method Storage				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™ Grinder-Polisher

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 that makes advanced functionality easy with 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	170-240 VAC, 50-60Hz

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

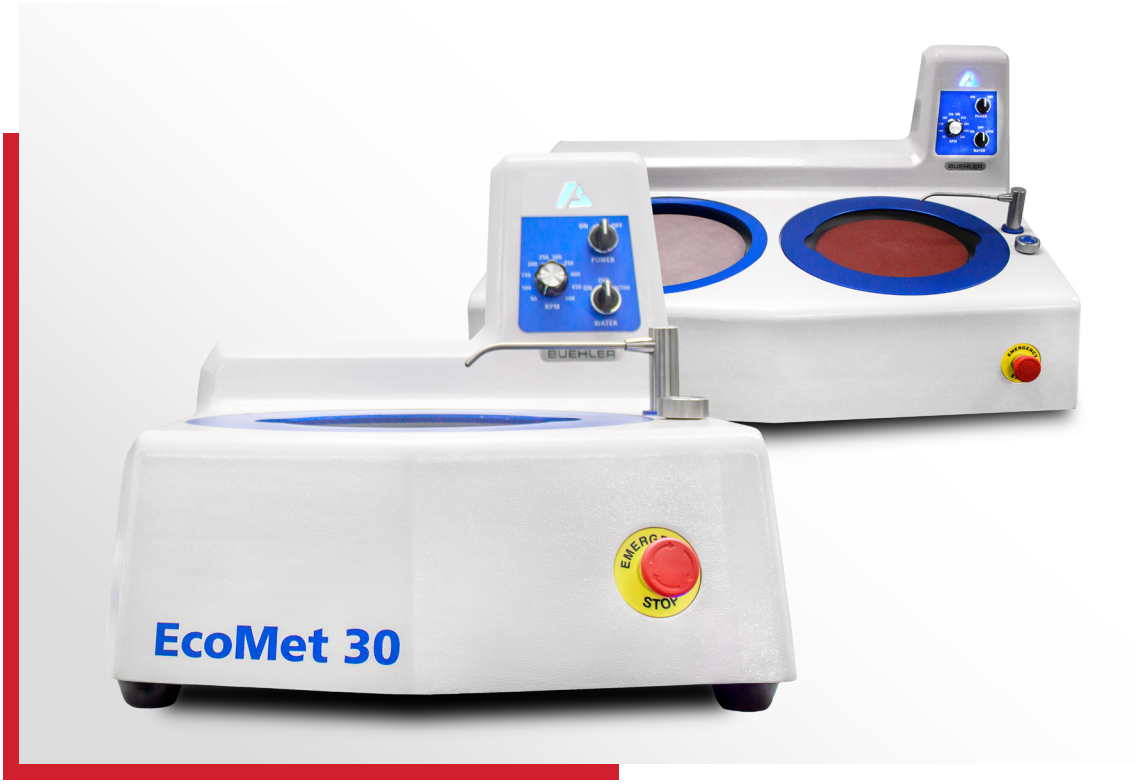
40-0500	10in [254mm] Aluminum Platen
49-1777	12in [305mm] Aluminum Platen
60-9081	Disposable Bowl Liners (Qty 5)
4961-300	Splash guard for AutoMet 300
49-1300	Lid for AutoMet 300

Visit www.buehler.com for ordering information.

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 Grinder Polisher

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 flexible enough to be compatible with 8in [203mm], 10in [254mm] and 12in [305mm] platens.

EcoMet 30 Manual

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

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

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
- Low force on/off knob

Easy to Clean

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

EcoMet 30 Twin Manual

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

Dimensions: 37.4in [950mm] L x 26in [660mm] D x 17.7in [450mm] H
Weight: 154lbs [70kg]

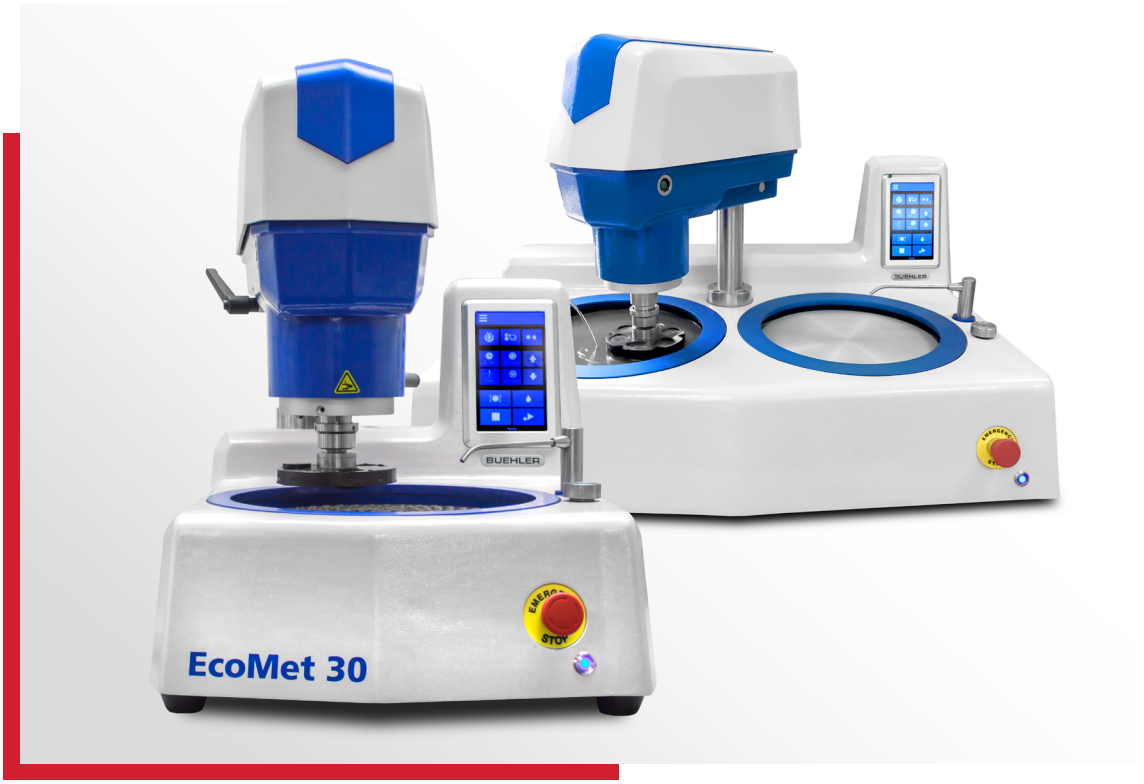
Accessories

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



EcoMet 30 Semi-Automatic Grinder Polisher

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 saves time with advanced cleaning features. Durability tested over 2500 hours and flexible enough to be compatible with 8in [203mm], 10in [254mm] and 12in [305mm] platens.

EcoMet 30 Semi-Automatic

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

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

Routine Grinding and Polishing Made Easy

- Intuitive touchscreen interface
- No complicated menus
- Focus on everyday use features

Easy to Clean

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

EcoMet 30 Twin Semi-Automatic

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

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

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

Visit www.buehler.com for ordering information.

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 AutoMet 250 Pro and AutoMet 300 Pro

How to configure the fully integrated burst system:

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 optional 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 prevents 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 optional 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 prevents 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

Planar Grinder

PlanarMet™ 300 Planar Grinder

The PlanarMet 300 bench top planar grinding machine with a high torque, continuous duty, 5.7Hp motor has an aggressive material removal rate normally seen in much larger, more expensive floor model machines. Convenience features such as an integrated auto wheel dressing and built in cooling make it easy to get consistent results.

High Quality Results

- Auto Dressing System ensures fresh consistent abrasive surface giving consistent results.
- Controlled material depth removal (Z-axis) is programmable and accurate to 0.0004in or0.1mm.
- High water flow and unique manifold keeps specimens cool, minimizing subsurface damage

Save space

- Compact format that is just as powerful as a large, floor standing model
- Bench top design ideal for direct integration to bench top polishing steps

Flexibility to adapt to changing needs

- Choice of grinding stones available for almost any material application
- Timed cycle provides flexibility in methods

Benefits of planar grinders

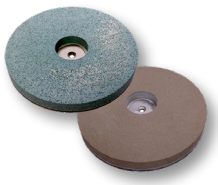
- Reduce process steps and grind 4X faster compared to SiC paper
- Go from 3 grinding steps to just 1 step

Part Number	Voltage/Frequency
49-10000-250	208-240VAC, 50Hz, 3-Phase
49-10000-260	208-240VAC, 60Hz, 3-Phase
49-10000-450	380-480VAC, 50Hz, 3-Phase
49-10000-460	380-480VAC, 60Hz, 3-Phase

Dimensions: 21.25in [539mm]W x 31in [787mm]D x 29.75 [755mm]H
Weight: 275 lbs [125 kg]

Accessories & Consumables for PlanarMet 300

Grinding Stones



Planar Grinding Stones are multi-use abrasive discs designed for the PlanarMet 300. They provide high material removal rates and consistent scratch patterns.

Size: 12in [305mm], 1in [25mm] thickness
Grit: 120grit [P120] Alumina or SiC

Part Number	Description
49-7280	Alumina Grinding Stone for Ferrous & Superalloy
49-7281	SiC Grinding Stone for Non-Ferrous & Ti Alloys
49-100	Replacement Dressing Stick, Metal-Matrix Diamond
49-1001	Chuck adaptor for legacy specimen holders

Recirculation System

Recirculation tank on wheels for use with PlanarMet™ 300.

Part Number	Capacity	Voltage/Frequency
56-0026	12gal [60L]	380-400VAC, 50/60Hz
56-0027	12gal [60L]	200-240VAC, 50/60Hz

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

Round/Barrel Rectangle Slides

EcoMet 30 Power Head *For use with 60-9005 Drive Adapter*

Part Number	Style	Size	Capacity	Additional Accessories
60-10060		1in	4	63-1022 Retaining Rings (Qty 6pk)
60-10061		1.25in	4	63-1023 Retaining Rings (Qty 6pk)
60-10062		1.5in	4	63-1024 Retaining Rings (Qty 3pk) 69-1583 1 x 2in Glass Slide Holder
60-10063		25mm	4	63-1022 Retaining Rings (Qty 6pk)
60-10064		30mm	4	63-1023 Retaining Rings (Qty 6pk)
60-10065		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		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		1.25in	6	63-1023 Retaining Rings (Qty 6pk)
60-9012		1.5in	6	63-1024 Retaining Rings (Qty 3pk)
60-9020		25mm	6	63-1022 Retaining Rings (Qty 6pk)
60-9021		30mm	6	63-1023 Retaining Rings (Qty 6pk)
60-9022		40mm	6	63-1024 Retaining Rings (Qty 3pk)
60-9030		Multiple	6	

AutoMet™ 300 Power Head *For use with 60-9005 Drive Adapter.*

Part Number	Style	Size	Capacity	Additional Accessories
60-9060		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		1.25in	6	63-1023 Retaining Rings (Qty 6pk)
60-9062		1.5in	6	63-1024 Retaining Rings (Qty 3pk)
60-9063		2in	6	
60-9070		25mm	6	63-1022 Retaining Rings
60-9071		30mm	6	63-1023 Retaining Rings
60-9072		40mm	6	63-1024 Retaining Rings
60-9073		50mm	6	
60-9049		For Target Holders	3	

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	◯	1in	10
60-5282	◯	1.25in	10
60-5252	◇	1.25in or 30mm	9
60-5287	◯	30mm	10
60-5283	◯	1.5in	6
60-5253	◇	1.5in or 40mm	6
60-5288	◯	40mm	6
60-5299	◯	2in	5
60-5296	◇	2in or 50mm	5
60-5245	▭	2 x 1.38in [50 x 35mm]	5
60-5297	▭	55 x 30mm	5
60-5298	▭	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	◯	1in	6
60-2483	◯	1.25in	6
60-2422	◇	1.25in [32mm]	6
60-2485	◯	1.5in	3
60-2486	◯	30mm	6
60-2487	◯	40mm	3
60-2409	▭	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	◇	18 - 51mm	5
60-8210	◇	12 - 40mm	6
60-8262	◇	10 - 25mm	12
60-8254	▭	55 x 30mm	5
60-8255	▭	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 130mm and 157mm diameter
60-2412	Loading Plate for 157mm and 181mm diameter
60-2413	Loading Plate for 130mm and 181mm diameter

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
60-8112	For 30mm mounted specimens
60-8113	For 40mm mounted specimens
60-9049	Specimen Holder for Target Holders (Drive Adapter 60-9005 required)

Visit www.buehler.com for ordering information.

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	EcoMet™ 30, AutoMet™ 250
60-5254	7.12in [181mm] for 12" platens only	AutoMet 300

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 EcoMet 30 and AutoMet 300

Part Number	Contents
60-5090	Indexing pins, carbide and diamond stops, pin loader, dial indicator, gauge blocks and wooden case

Accessories

60-5053	Coupon Pins 1.0625in [27mm] long (Qty 1000)
60-5067	Cup, Extended Upper Mold Plate, 0.8in (Qty 6)
60-9000	Central Force Drive Adapter for AutoMet™ 250/300

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

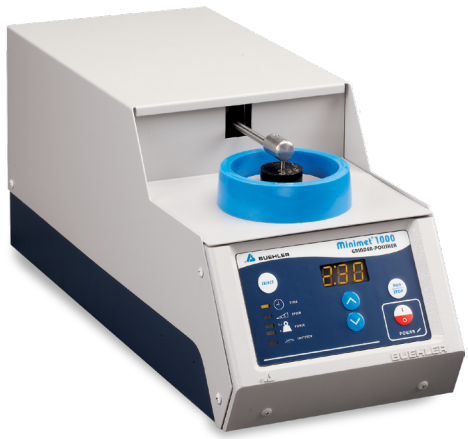
Accessories

60-5186	PWB Met Short Pin Loader 0.375in [10mm] long,
60-5084	PWB Met Pins 0.375in [10mm] long (Qty 3000)

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
69-1112	Caged Specimen Holder, for 1.5in [38mm] Mounted Specimens
69-1500	Polishing Bowls, 4in [100mm] Diameter (1 each Black, White, Blue)
69-1562	Glass Circular Slides, 0.5in [13mm] Diameter (Qty 50)
69-1566	MiniMet 1000 Precision Thinning Attachment
69-1567	Glass Disc, 2.145in [55mm] Diameter (Qty 5)
69-1575	Electro-mechanical Accessories
69-1580	MiniMet Thin Section Attachment (includes 3 bowls, glass and section holder)
69-1581	Thin Section Bowls, 4.75in [121mm] (1 each Black, White, Blue)
69-1582	Thin Section Glass Platens, 4in [100mm] (Qty 3) (replacement)
69-1583	MiniMet Thin Section Slide Holder, 46 x 27mm
69-1590	MiniMet Wafer Polishing Attachment
69-1502	Storage Caddie for MiniMet Bowls (Qty 3)
69-1510	Glass Platen (Qty of 3)
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

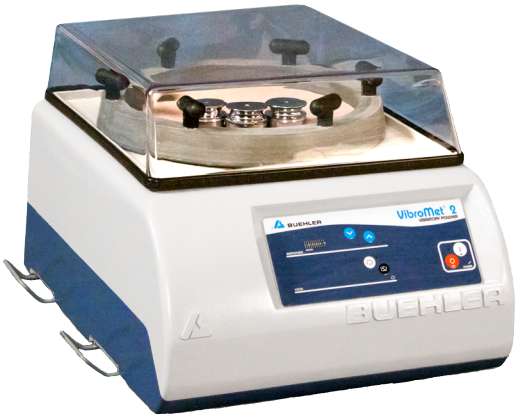
Cloth	Stage	Part Number
MicroCloth™	Fine	40-7212
MasterTex™	Fine	40-7702
ChemoMet™	Fine	40-7902

Visit www.buehler.com for ordering information.

Grinder Polisher Specialty & Support Equipment

VibroMet™ 2 Vibratory Polisher

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

Accessories

67-1525	Specimen Holder, 2in [50mm] (Qty 3)	67-1530	Polishing Bowl Accessory
67-1526	Specimen Holder, 1in [25mm] (Qty 3)	67-1529	Specimen Weights (Qty 9)
67-1527	Specimen Holder, 1.25in [32mm] (Qty 3)	67-1541	Loading Fixture, 2in and 50mm
67-1528	Specimen Holder, 1.5in [38mm] (Qty 3)	67-1540	Loading Fixture, 1in [25mm], 1.25in [32mm], 1.5in [38mm]

Electropolishing & Etching Systems

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

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

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

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

PoliMat™ 2

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

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

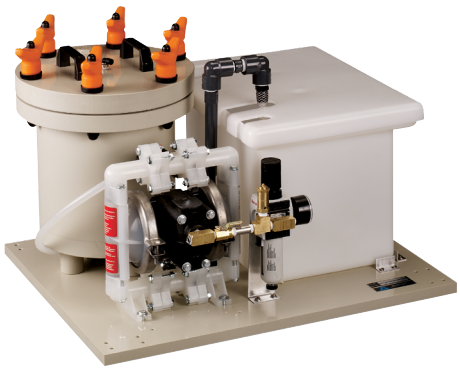
Dimensions: 19.7in [500mm]W x 11.8in [300mm]D x 9.8in [250mm]H

Accessories

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

EnvironMet™ System

Filtration and recirculation systems compatible with all grinder-polishers. The recirculating version removes down to 1µm particulates. The filter version removes down to 100µm particulates. The system requires no electrical connections and has a 6gal [23L] capacity. **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

Replicating Materials for Field Applications

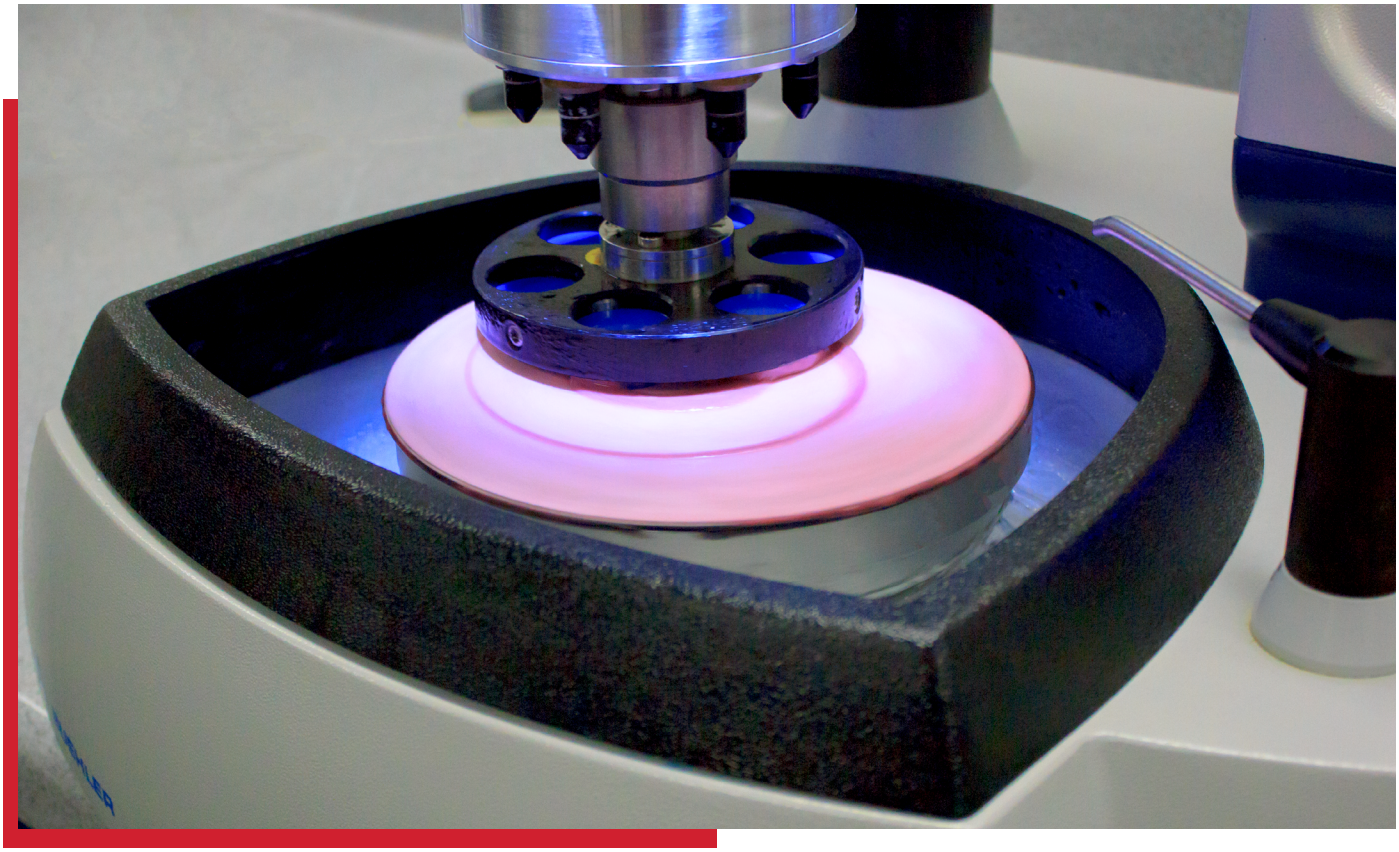
Field metallography is necessitated by certain applications. Both Replicating Tape and Replicating Media provide users the ability to produce a portable copy of the microstructure of interest. Replicating Tape requires some skill for producing excellent results. Replicating Media is a simple two-part system that easily captures the surface detail.

Part Number	Description
57-5000	Replicating Tape, 1 x 0.005 x 25ft [25 x 0.13 x 7620mm]
57-5001	Replicating Adhesive Bases, 1 x 3in [25 x 76mm] (Qty 30)

Part Number	Description
57-6004	Replicating Media Cartridges, 50ml each (Qty 8)
57-6005	Dispensing Gun for Replicating Media
57-6006	Nozzles for Replicating Media Dispensing Gun

Grinding & Polishing Consumables

The choice of grinding and polishing consumables is a key factor that impacts the preparation process. Buehler's consumables are designed to improve efficiency and ensure repeatability within the process. With a wide variety of products, there is a Buehler consumable that can improve your materials preparation process.



CarbiMet Silicon Carbide Paper

CarbiMet is a specialized silicon carbide grinding paper that offers quick and efficient material removal with minimal surface damage.

Premium Polishing Cloths

The selection of a polishing cloth depends on the material being processed and the requirements for the final analysis. With a variety of fabrics, weaves and naps, there is a high quality Buehler cloth to fit every application.

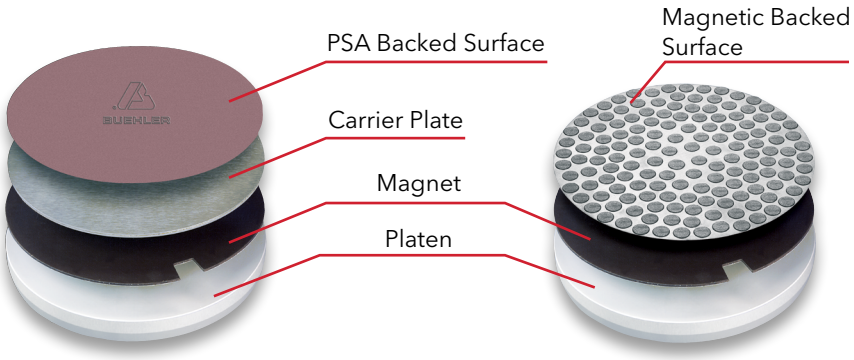
MetaDi Diamond Suspension & Paste

MetaDi is the premier line of diamond suspensions and pastes that ensures consistency in the polishing process. A variety of types and micron sizes are available to fit any application.

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 for use or utilize a carrier plate for PSA backed surfaces.

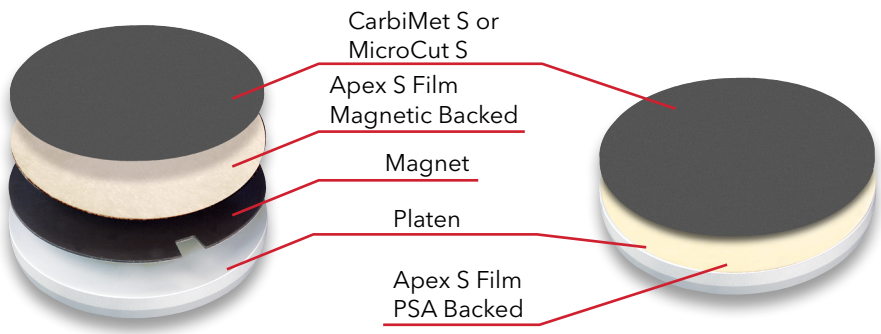
Magnet Selection - to convert a standard platen to a magnetic platen

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	16-2073	16-2573	16-3073
Apex B Carrier Plate (Qty 1)	Prevents adherence of magnetic particles via bimetallic plate	41-2739-208-001	41-2739-210-001	41-2739-212-001
MagnoMet Carrier Plate (Qty 5)	Standard stainless steel carrier plate	16-2072	16-2572	16-3072

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

Visit www.buehler.com for ordering information.

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 (Qty 100)

High friction backing allows for easy & fast changeovers between grinding steps

	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
	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
MicroCut	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

PSA Backed (Qty 100)

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

	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
	1000 [P2500]	8.4	36-08-1000	36-10-1000	36-12-1000
MicroCut	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*

Plain Backed (Qty 100)

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

	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
	1000 [P2500]	8.4	30-08-1000	30-10-1000	30-12-1000
MicroCut	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 offer a long-wear surface that provides excellent surface flatness for a wide variety of materials. Buehler offers multiple different types of products depending on the material being processed.

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 Mosaic™ (Diamond Grinding Discs) (Qty 1)

- Combines high material removal rate with good recovery to reduce prep time
- Available with magnetic backing

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 includes dressing stick 11-1190 (Requires dressing before intial use)

Application Methods for DGD Mosaic

Material	120 grit	220 grit	320 grit	400 grit	1000 grit
Low Hardness Surface Treated Steels			•		
Medium Hard Surface Treated Steels		•			
Very Hard Surface Treated Steels	•				
>60 HRC Steel	•				
50-60 HRC Steel		•			
40-50 HRC Steel			•		
Low Carbon Steel			•		
Cast Irons		•	‡		
Nodular Cast Irons (SG)		•	‡		
White Cast Iron	•				
High Alloy Steels		•			
Iron Based Superalloy		•	‡		
High Strength Alloy Steel		•			
Nickel		•	‡		
Cobalt			•		
Thermal Spray Coatings			•	‡	
Silicon, Boron, and Sintered Carbides			• →		•
Capacitors, Diodes and Si Wafers				•	‡

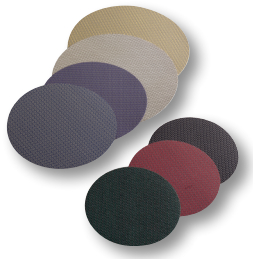
•=recommendation #1 ‡=recommendation #2 Note: Recomendation may vary based on specific material and desired surface finish

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

DGD Color (Diamond Grinding Discs) (Qty 1)



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

			8in [203mm]		10in [254mm]		12in [305mm]	
Color		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 (Qty 1)

- 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

DGD Ultra (Qty 1)

- 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

Visit www.buehler.com for ordering information.

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

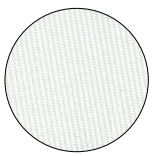
The type of cloth used depends heavily on the material being processed and the requirements for the final analysis. With a variety of fabrics, weaves and naps, there is a cloth to fit every application.

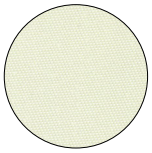
Reliable Preparation Results

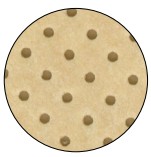
Buehler's cloths are thoroughly tested and developed with MetaDi Diamond to provide a complete solution that delivers reliable results for each sample processed.

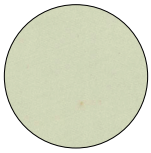
Polishing Cloth Selection Guide

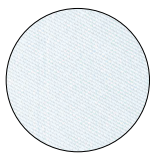
	Cloth	Backing	Quantity	8in [203mm]	10in [254mm]	12in [305mm]	Description
COARSE	UltraPad™	PSA	10	40-7118	40-7120	40-7122	Hard woven, no nap
		Magnetic	5	42-3008	42-3010	42-3012	
	UltraPol™	PSA	10	40-7448	40-7450	40-7452	Hard woven, non-aggressive silk
	TexMet™ P	PSA	5	40-7638	40-7640	40-7642	Hard non-woven, 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	
	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
	PoliCloth	PSA	10	40-8418	40-8420	40-8422	Medium hard, woven wool
		Magnetic	5	42-3608	42-3610	42-3612	
FINE	MicroCloth™	PSA	10	40-7218	40-7220	40-7222	Soft synthetic rayon, long nap
		Magnetic	5	42-3708	42-3710	42-3712	
	MicroFloc	PSA	10	40-8318	40-8320	40-8322	Soft, long nap
		Magnetic	5	42-3808	42-3810	42-3812	
	MasterTex™	PSA	10	40-7738	40-7740	40-7742	Soft synthetic velvet, low nap
		Magnetic	5	42-3908	42-3910	42-3912	
	ChemoMet™	PSA	10	40-7918	40-7920	40-7922	Soft synthetic, porous, chemically resistant
		Magnetic	5	42-4008	42-4010	42-4012	

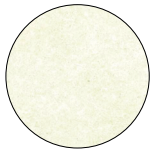

UltraPad™

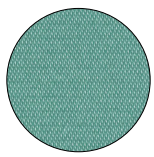

UltraPol™


TexMet™ P

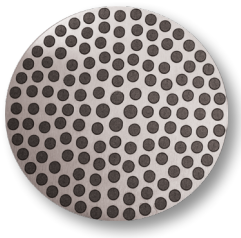

Nylon


TriDent™


TexMet™ C


VerduTex™

Apex™ Hercules

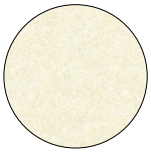


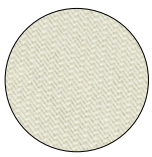
- Magnetic backed resin surface that provides excellent flatness and edge retention
- Use with MetaDi™ Diamond Suspension

Type	8in [203mm]	10in [254mm]	12in [305mm]
Apex Hercules H For materials ≥ HRC20	41-2740-308-001	41-2740-310-001	41-2740-312-001
Apex Hercules S For materials < HRC20	41-2740-408-001	41-2740-410-001	41-2740-412-001

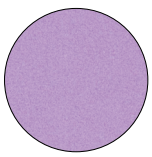
Recommended Micron Size	Abrasive Type	Applications
6µm & Up	Diamond	Ferrous materials and thermal spray coatings
6µm & Up	Diamond	Minerals, coals, ceramics, inclusion retention in steels, and refractory metals
6µm & Up	Diamond	Electronics, ceramics, carbides, petrographic, hard metals, glass, and metal matrix composites
6µm & Up	Diamond	Ferrous materials, sintered carbides and cast irons
15 - 0.02µm	Diamond, Al_2O_3, SiO_2	Ferrous and nonferrous metals, ceramics, electronics, PCB's, thermal spray coatings, cast irons, cermets, minerals, composites, plastics
15- 0.02µm	Diamond, Al_2O_3	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_2O_3, SiO_2	Ferrous and nonferrous metals
6 - 1µm	Diamond	Cast iron, copper and aluminum alloys
5- 0.02µm	Diamond, Al_2O_3, SiO_2	Ferrous and nonferrous metals, ceramics, composites, PCBs, cast irons, cermets, plastics, electronics
3 - 0.02µm	Diamond, Al_2O_3, SiO_2	Ferrous and nonferrous materials
1 - 0.05µm	Al_2O_3, SiO_2	Soft nonferrous and microelectronics
1 - 0.02µm	Al_2O_3, SiO_2	Titanium, stainless steel, lead/tin, solders, electronics, soft nonferrous metals, plastics

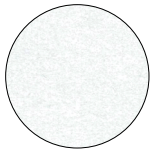
VelTex™


WhiteFelt™


PoliCloth™

MicroCloth™


MicroFloc


MasterTex™

ChemoMet™

Visit www.buehler.com for ordering information.

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 traditional 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

Polycrystalline suspension provides the fastest material removal with minimal subsurface deformation.

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.*

MetaDi™ Diamond Pastes

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.

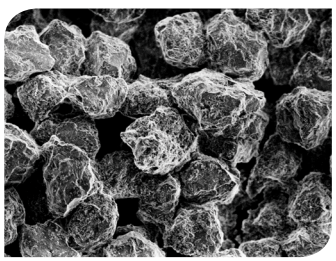
Color	Diamond Size	5g	20g
Grey	0.25µm	40-6241	40-6240
Blue	1µm	40-6244	40-6243
Green	3µm	40-6247	40-6246
Yellow	6µm	40-6250	40-6249
Deep Red	9µm	40-6253	40-6252
Brown	15µm	40-6256	40-6255

Polishing Lubricants

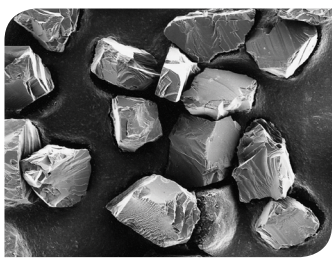
MetaDi Fluid is a water soluble lubricant for use with pastes and suspensions. AutoMet Oil is recommended for use with water sensitive materials.

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.



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 alumina and silica 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 (0.05µm, ~8.5pH) is excellent for minerals, ferrous metals, carbides, precious metals, PWB's and electronics.

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 (0.06µm, ~10pH) that provides chemo-mechanical polishing and is excellent for metals, minerals, ceramics and polymers.

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

MasterMet 2 Colloidal Silica

Non-crystallizing amorphous colloidal silica suspension (0.02µm, ~10.5pH) that provides chemo-mechanical polishing action and is excellent for metals, minerals, ceramics and polymers.

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

MasterPolish Final Polish

Blend of high purity alumina and colloidal silica (0.05µm, ~9pH) that contains minimal water and is optimal for water sensitive materials.

40-10084	32oz [0.95L]

MasterPolish 2 Final Polish

Iron oxide suspension (0.06µm, ~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]

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.

40-6323-016	0.3µm 1lb [0.45kg]
40-6323-080	0.3µm 5lb [2.3kg]
40-6322-016	1µm 1lb [0.45kg]

MicroPolish II Alumina Suspension

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

40-6363-006	0.3µm 6oz [0.18L]
40-6363-128	0.3µm 1gal [3.8L]

FibrMet™ Abrasive Discs (Qty 50)

FibrMet Abrasive Discs are for fine grinding applications on glass, epoxy or polymers and produce a fine surface finish. FibrMet Discs use aluminum oxide and are available with PSA backing.

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	69-3120

UltraPrep™ Diamond Lapping Films (Qty 5)

UltraPrep Diamond Lapping Films are for fine grinding of hard materials such as ceramics. They provide a fine surface finish and gentle material removal.

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

Abrasive Powders - (5lb)

Abrasive Powders are for fine grinding on cast iron, tin, or cloth-covered platens. They should be mixed with distilled water to achieve desired consistency.

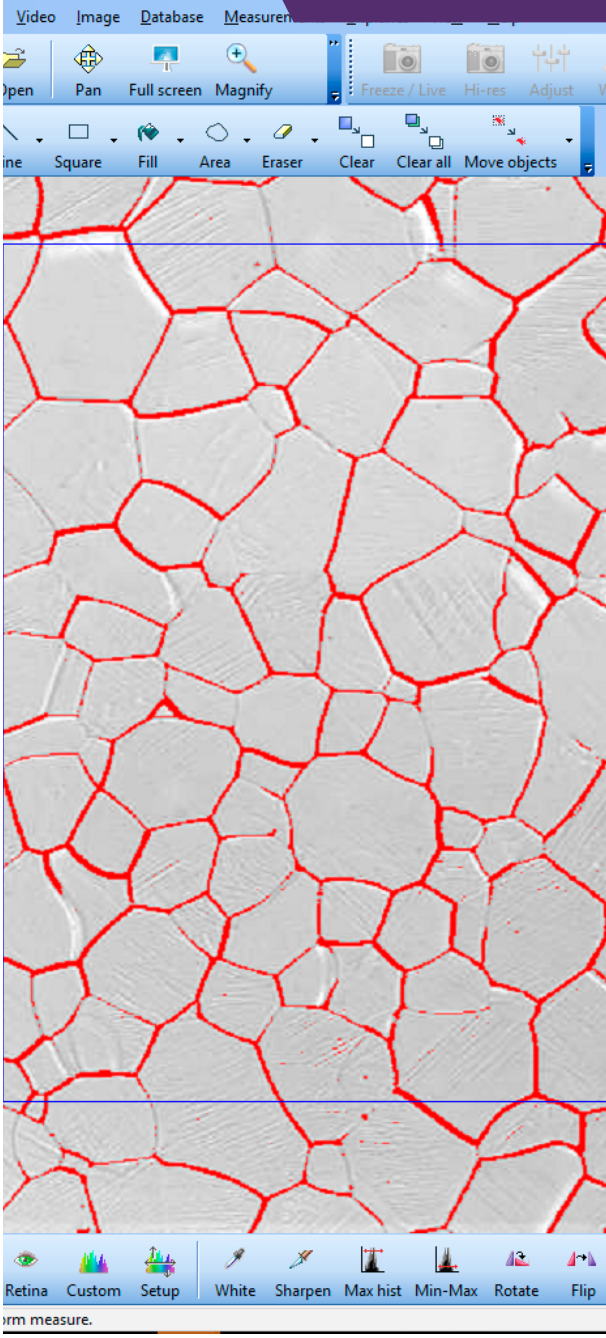
Abrasive Type	Part Number	Grit Size ANSI [FEPA]	Micron
Silicon Carbide	40-6418-000-080	1000 [P2000]	10µm
Silicon Carbide	40-6415-600-080	600 [P1200]	15µm
Aluminum Oxide	40-6603-030-080	–	3µm
Aluminum Oxide	40-6605-050-080	–	5µm

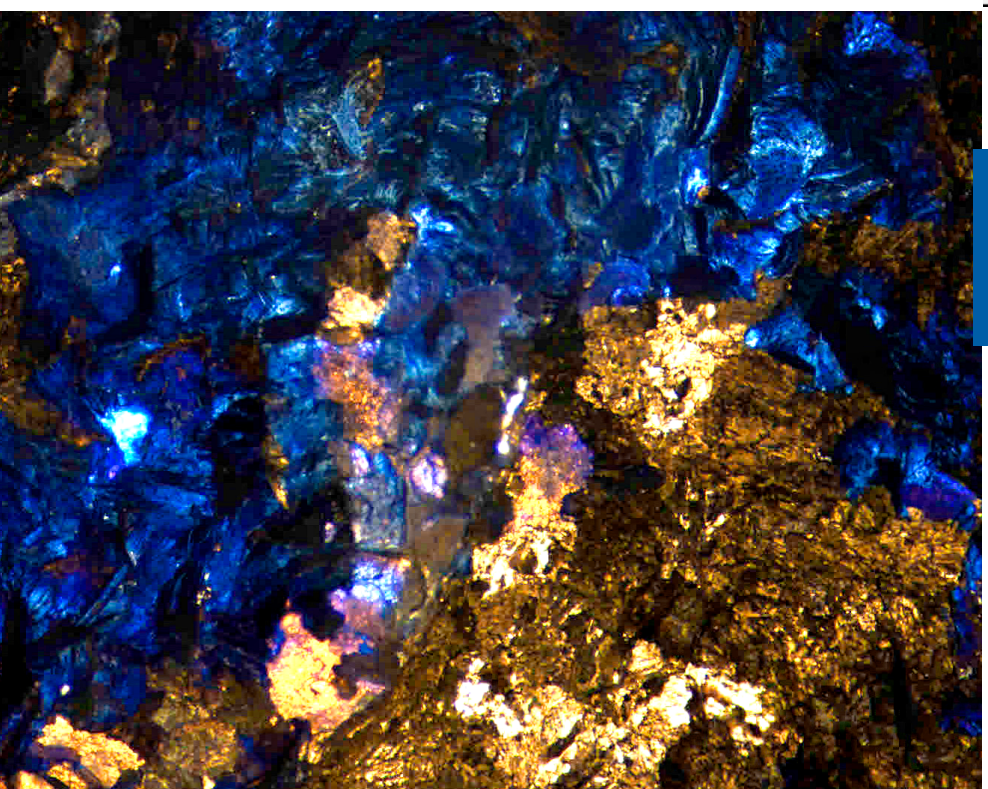
IMAGING & ANALYSIS

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

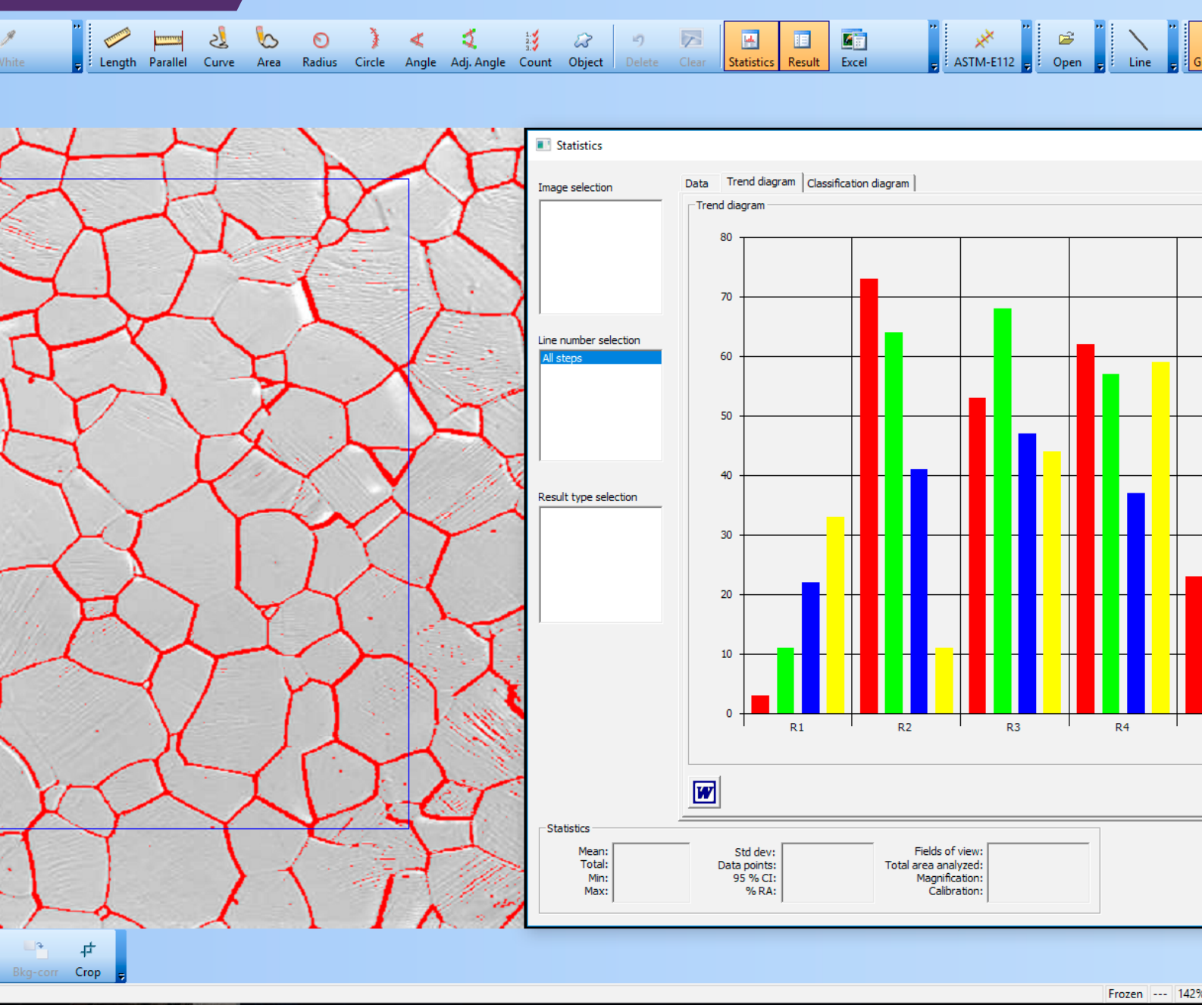
OmniMet™ delivers powerful image analysis possibilities combined with flexible database functionality. Customize OmniMet with intuitive user friendly point-and-click measurement possibilities, pre-programmed analysis routines, or with capabilities for running user programmable analysis scripts. The database 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. In general, any standard format image may be viewed directly from a calibrated microscope or be imported into OmniMet for analysis. OmniMet software is offered at different levels of flexibility, functionality, and analytical power to meet the metrology needs of every laboratory requiring image data archiving and quantitative image analysis.





Featured Microstructure:
TiAl fracture surface viewed at 8x mag with reflected light
~ Melissa Galant; General Motors; Warren, Michigan, United States


Length
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Statistics
Image selection
Line number selection
All steps
Result type selection
Data
Trend diagram
Classification diagram
Trend diagram
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R3
R4
Statistics
Mean:
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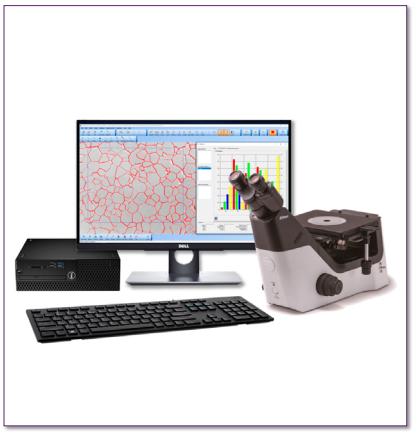
Min:
Max:
Std dev:
Data points:
95 % CI:
% RA:
Fields of view:
Total area analyzed:
Magnification:
Calibration:
Bkg-corr
Crop
Frozen
142%



OmniMet™ Modular Digital Imaging System

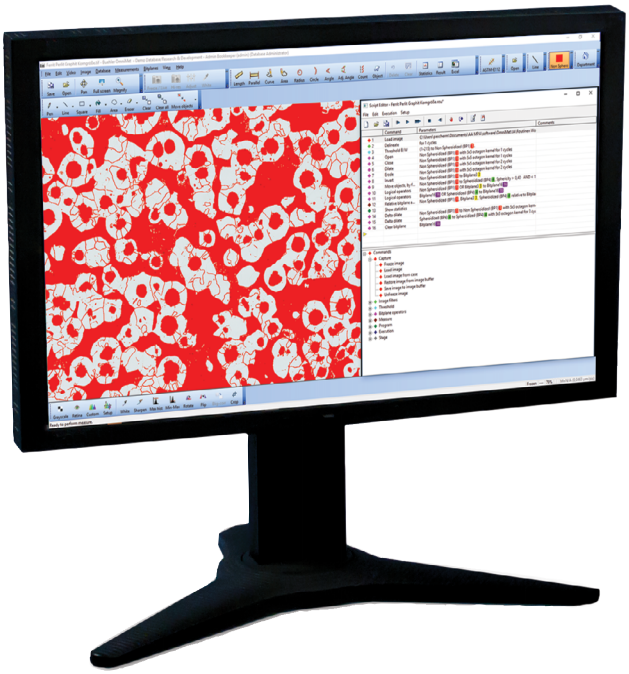
Designed for Demanding Production Lab Environments

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 calibrated 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 Package includes software pre-installed on a Windows 10, 64-bit workstation and mousepad. Includes keyboard and mouse, does not include a monitor.*

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

OmniMet™ Software Modules & Features

Software Description	Viewer	CnM	Basic	Advanced	Express	Enterprise
Capture						
Load and Save	•	•	•	•	•	•
Brightness, Auto-White Balance, Color Correction	•	•	•	•	•	•
Digital Zoom, Rotate, Calibration & Annotation	•	•	•	•	•	•
Camera Interface (USB, EEE I394, Capture Cards, DirectShow, Twain, etc.)		•	•	•	•	•
Motorized Stage Controller			•	•	•	•
Capture Modules (optional)			◊	◊	◊	◊
Measure						
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)					◊	◊*
Report						
Report Data, Report Generator (requires Microsoft® Office)			•	•	•	•
Results Window with measurements log				•	•	•
Organize						
Database Interface	•		•	•	•	•
Database Creation & Administration			•	•	•	•

• *Included with package*
◊ *Optional module (purchased separately)*
* *OmniMet Enterprise comes with a selection of Scripts.*

Capture and Advanced Measurement Modules *(optional)*

Capture Modules

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

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* **Manual Interactive -** Thickness Measurements of line lengths with statistics for length and thickness measurements.

86-3100* **Grain Size** - 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.

86-3300* **Coating Layer** - Thickness Measures coating, plating or layer thickness of cross-sectioned samples in compliance with ASTM B487.

86-3400* **Graphite in Cast Iron** - 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.

86-3500* **Particle Sizing** - Detects and measures particles in a field of view providing statistics on quantity and size distribution. Suitable for non-agglomerated particulates, precipitates, and powders.

86-3550* **Porosity Assessment** - Provides automated measurements of fine holes or pores in a material.

86-3750* **Dendritic Arm Spacing** - Delivers measurements of lengths between dendrite arms in cast aluminum alloys.

86-3200* **Phase Area Percent** - Determines phase area and percentage area of multiple phases in accordance with ASTM 562.

86-3150 **Intercept Grain Size** - Automated grain size determination delivering average grain size per field using straight line and circular intercept methods in accordance with ASTM E112.

86-3310 **Surface Roughness** - Surface roughness measurements in accordance with ASME B46.1-02.

86-3350 **Decarburization Depth Assessment** - Determines depth of total or partial decarburization according to the relative amount of free ferrite present according to ASTM E1077.

86-3525 **Cleanliness Assessment** - Provides cleanliness assessment of particles on filter paper meeting the requirements of ISO 4406.

86-3600 **Indentation Hardness** - 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.

86-3700 **Banding Assessment** - 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.

86-3850 **Inclusion Rating** - 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.

** 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.

Upgrade OmniMet to a higher functional level:
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 FOV 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

Primarily View Mounted/Flat Samples with Reflected Light?

YES

Inverted

MA100N

- Reflected Only
- BF/POL Only
- LED

MA200

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

NO

Upright

LV150N

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

LV100N POL

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

Visit www.buehler.com for ordering information.

Stereo Microscopes

Nikon SMZ800N Zoom Stereo Microscope

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, ¼ 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, ¼ Lambda plate, and dust cover.

Nikon SMZ800N Objectives and Accessories

Nikon SMZ800N Objectives

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

**Cannot use with ¼ Lambda Plate*
†Cannot use with ringlight, Coax illuminators or ¼ Lambda Plate

Manual Rotatable Nosepiece

Rotatable nosepiece for 2 objectives (Choose a 2nd objective for this option)

8741-61

Camera Adapter

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

8749-13

Camera Adapter

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

8749-11

Camera Adapter

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

8749-12

Nikon SMZ18 Zoom Stereo Microscope

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)
- 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
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, ¼ Lambda plate, and dust cover

Nikon SMZ18 Objectives and Accessories

Nikon SMZ800N Objectives

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

**Cannot use with Coax or ringlight*

Camera Adapter

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

8749-11

Camera Adapter

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

8749-12

Camera Adapter

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

8749-13

Inverted Industrial Microscopes

Nikon Eclipse MA100N Inverted Microscope

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

Nikon Eclipse MA100N Objectives

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

**Polarizer Required*

Polarizer/Analyzer

Polarizer/Analyzer set for MA100N

874365

Stage Insert

Includes 1in,1.125in, 1.5in stage inserts

8743-63

Includes 25mm, 30mm, 40mm stage inserts

8743-64

Camera Adapter

Camera Adapter, C-Mount, 0.7x, ISO

8749-14

Camera Adapter

Camera Adapter, C-Mount, 1x, ISO

8749-15

Grain Size Reticle

For eyepiece

8743-62

Nikon Eclipse MA200 Inverted Microscope

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 Objectives

Brightfield Objectives

NIMUE12010* - 1x
NIMUE12030* - 2.5x
NIMUE12050 - 5x
NIMUE12100 - 10x
NIMUE12200 - 20x
NIMUE00400 - 40x
NIMUE12500 - 50x
NIMUE12900 - 100x

**Polarizer Required*

Darkfield/DIC Objectives

NIMUE42050 - 5x
NIMUE42100 - 10x
NIMUE42200 - 20x
NIMUE42500 - 50x
NIMUE42900 - 100x

Inverted Industrial Microscopes

Nikon Eclipse MA200 Accessories

Polarizer/Analyzer

Included with DIC Package

8744-61

Grain Size Reticle Slider

Slider for grain size analysis

8744-62

Scale Dial Slider

5x, 10x, 20x, 50x, 100x

8744-63

Stage Insert

Includes 1in,1.125in, 1.5in stage inserts

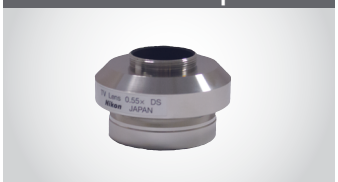
8744-64

Stage Insert

Includes 25mm, 30mm, 40mm stage inserts

8744-65

Camera Adapter



Camera Adapter, C-Mount, 0.55x, LV-TV, for 1/2" chip size cameras

8749-11

Camera Adapter

Camera Adapter, C-Mount, .7x, LV-TV, for 2/3" chip size cameras

8749-12

Camera Adapter

Camera Adapter, C-Mount, 1x, LV-TV, for 1" chip size cameras

8749-13

ViewMet™ Inverted Microscope

Entry level, inverted microscope for general purpose applications.

Part Number	Configuration
0760-0100	Includes main body, trinocular head, c-mount, mechanical stage with 15 x 15mm XY travel, 6V/30W illumination, a pair of 10x eyepieces and 5x, 10x, 20x and 50x Plan Achromat objectives, diffusion, yellow, green and blue filters, power cord, instruction manual and dust cover.

Brightfield Objectives

0750-0005 5x Plan Achromat Objectives Lens, NA 0.12, W.D. 18.3mm
0750-0010 10x Plan Achromat Objective Lens, NA 0.25, W.D. 8.9mm
0750-0020 20x Plan Achromat Objective Lens, NA 0.40, W.D. 8.7mm
0750-0050 50x Plan Achromat Objective Lens, NA 0.70, W.D. 2.02mm
0750-0080 80x Plan Achromat Objective Lens, NA 0.80, W.D. 0.96mm
0750-0100 100x Plan Achromat Objective Lens, NA 1.25, oil, W.D. 0.36mm

Upright Industrial Microscopes

Nikon Eclipse LV150N Upright Microscope

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/analyzer, DIC slider, and dust cover.

Nikon LV150N Objectives & Accessories

Nikon LV150N Optional Objectives

Brightfield Objectives

NIMUE12010* - 1x
NIMUE12030* - 2.5x
NIMUE12050 - 5x
NIMUE12100 - 10x
NIMUE12200 - 20x
NIMUE00400 - 40x
NIMUE12500 - 50x
NIMUE12900 - 100x

**Polarizer Required*

Darkfield/DIC Objectives

NIMUE42050 - 5x
NIMUE42100 - 10x
NIMUE42200 - 20x
NIMUE42500 - 50x
NIMUE42900 - 100x

Polarizer/Analyzer

For LV150N Halogen

8745-61

Polarizer/Analyzer

For LV150NL LED

8745-62

Camera Adapter

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

8749-13

Camera Adapter

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

8749-11

Camera Adapter

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

8749-12

Visit www.buehler.com for ordering information.

Upright Industrial Microscopes

Nikon Eclipse LV100N POL Upright Microscope

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.

- Upright microscope suitable for reflected and transmitted light application ideal for petrography applications.
- Available with Halogen Illuminations (12V/50W) for BF, DIC, & POL.
- Configured with precision circular stage and attachable XY stage.
- Accomplished advanced polarizing microscopy under both reflected and transmitted illumination.
- Epi Plan Fluor POL objectives provide superior chromatic aberration performance, high numerical apertures, and long working distance at all magnifications.

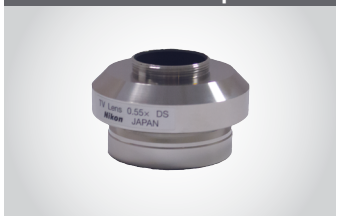
Part Number	Configuration
8746-01	Nikon LV100N POL Upright Microscope in BF/DIC/POL - with Episcopic (reflected) and diascopic (transmitted) halogen illumination (8746-61 Epi/Dia Dual Kit required for simultaneous use) with 2 lamphouses, 50W bulbs, trinocular body with camera port (requires camera adapter), 10x eyepieces, rotating circular precision stage with attachable XY stage (35 x 25mm travel), 5-position nosepiece with 5x, 10x, 20x, and 50x Epi Plan Fluor POL objectives, flip-out condenser, NB11 and ND4 filters, ¼ wave plate, and dust cover.

Nikon LV100N POL Objectives and Accessories

Nikon LV100N POL Objectives

NIMUE13050 - 5x
NIMUE13100 - 10x
NIMUE13200 - 20x
NIMUE13500 - 50x
NIMUE13900 - 100x

Camera Adapter



Camera Adapter, C-Mount, 0.55x, LV-TV, for 1/2" chip size cameras
8749-11

Camera Adapter

Camera Adapter, C-Mount, 0.7x, LV-TV, for 2/3" chip size cameras
8749-12

Camera Adapter

Camera Adapter, C-Mount, 1x, LV-TV, for 1" chip size cameras
8749-13

Microscopy Accessories

Digital Cameras

LE Edition

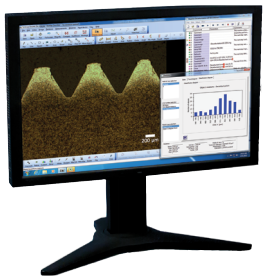
SE Edition

Part Number	Model	Mega pixels	Chip Size	Resolution (w x h)	Frame Rate (fps)	Image Sensor	Interface
86-0274	uEye 1460SE-C	3.1	0.5in	2048 x 1536	11.2	CMOS	USB2.0
86-0270	uEye 1460LE-C	3.1	0.5in	2048 x 1536	11.2	CMOS	USB2.0
86-10004	uEye 1480SE-C	5	0.5in	2560 x 1920	6.3	CMOS	USB2.0
86-0278	uEye 2240SE-C	1.3	0.5in	1280 x 1024	15	CCD	USB2.0
86-0358	uEye 3580LE	5	0.5in	2560 x 1920	15.2	CMOS	USB3.0
86-0336	uEye 3360CP	2	0.67in	2048 x 1088	15.2	CMOS	USB3.0
86-0337	uEye 3370CP	4	1in	2048 x 2048	80	CMOS	USB3.0

Stage Micrometer

Part Number	Description
8749-21	Stage Micrometer, mm-Inch NIST Certified
8749-22	Stage Micrometer, Metal, 1mm/0.01mm
8749-25	Stage Micrometer, Metal, 50mm/0.1mm w/ UKAS certificate

Monitors



Part Number	Description
85-0124	24in Monitor, LCD with 1920 x 1200 display capability
85-0135	24in Touch Monitor, LCD with 1920 x 1200 display capability

Leveling Accessories for all Upright Microscopes

Part Number	Description
8749-31	Leveling Press
8749-33	Protective paper (Josef-Paper)
8749-34	Metal Slides, Set of 5, 75mm x 25 mm
8749-35	Metal Slides, Set of 2, 1in x 3in

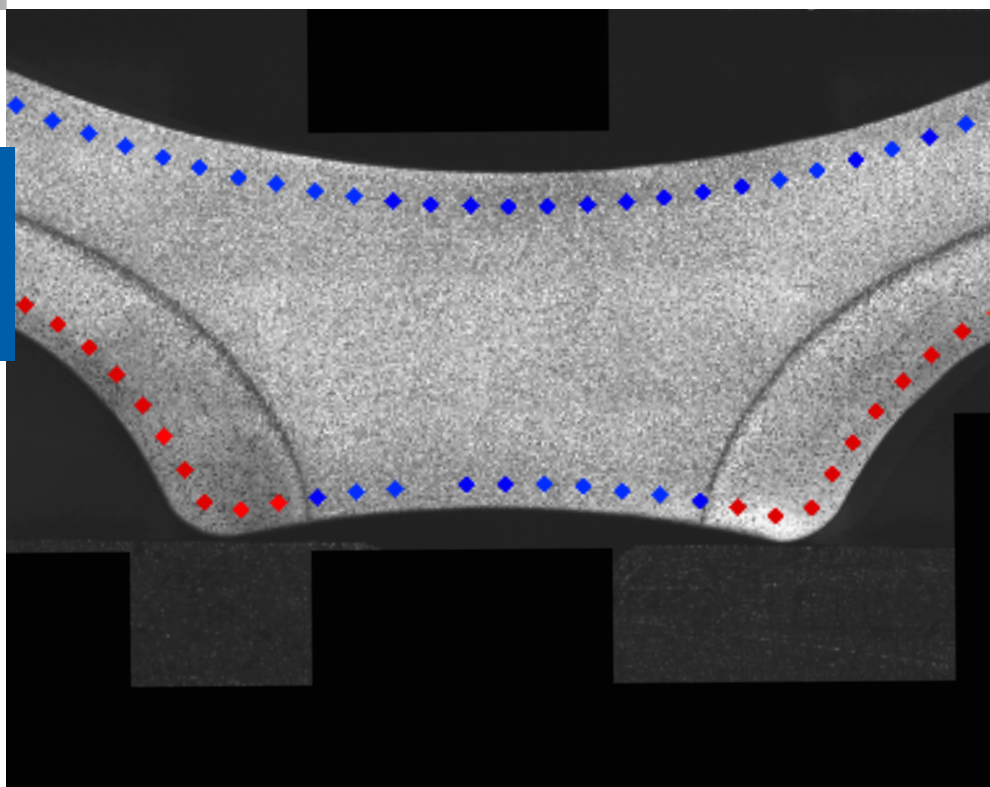
Visit www.buehler.com for ordering information.

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. The Wilson Reference Block Laboratory is ISO/IEC 17025 certified and is recognized as the global leader in the production of premium test blocks and indenters.

Buehler is dedicated to ensuring the highest quality calibration, verification, service and applications support. Wilson hardness equipment, reference blocks and calibration services help customers meet Nadcap accreditation and audits.



Featured Microstructure:
Contour scan of an induction heat treated sample of a drive shaft using HV1. Color shows hardness level (red=hard, blue=soft).
~Buehler

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 to 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.

Expert Control & Evaluation Software

DiaMet is optimized for evaluating Vickers, Rockwell, Brinell and Knoop measurements according to ISO 6506, ISO 6507, ISO 6508, ISO 4545 and ASTM E384, ASTM E92, ASTM E10 and ASTM E18. A standard DiaMet feature is an automatic symmetry calculation for Vickers, Knoop and Brinell indents. This extra validation, with clear visual indication, helps to ensure the results conform to standards.

Flexible User Interface

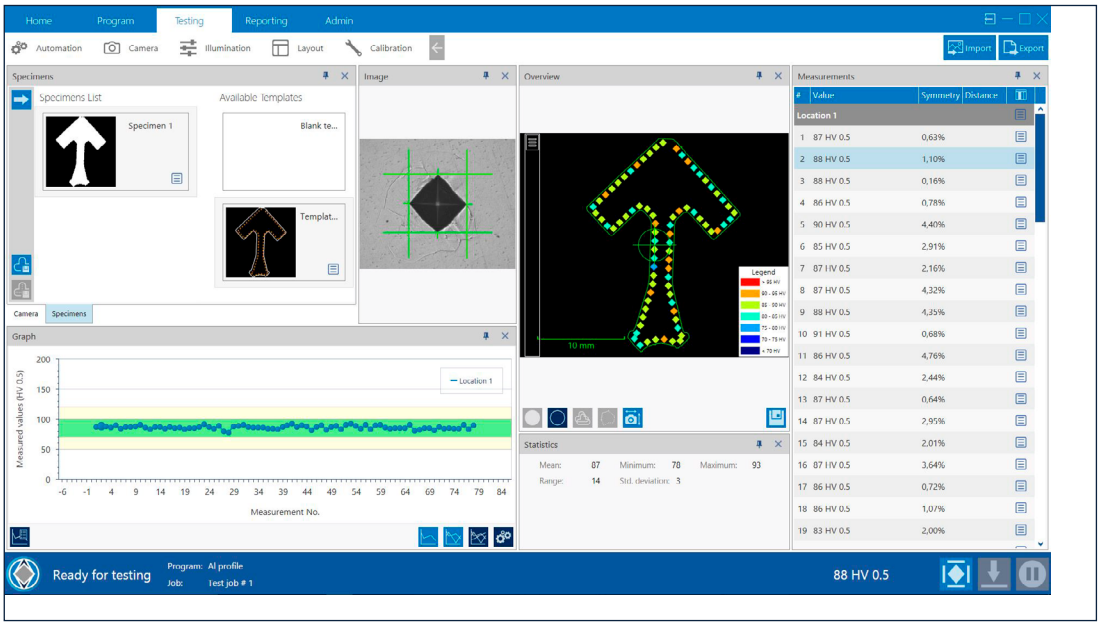
Use the functions you need – fully configurable

Measurement

State-of-the-art algorithms ensure auto-measure, illumination and focus

Overview

Use the overview window for specimen navigation and pattern placement



Specimens

Scan your samples and save them as templates - automatic pattern placement

Status Bar

Total test time and indent counter – plan your test cycles

Data Management

Review and manage your test data with easy access

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.

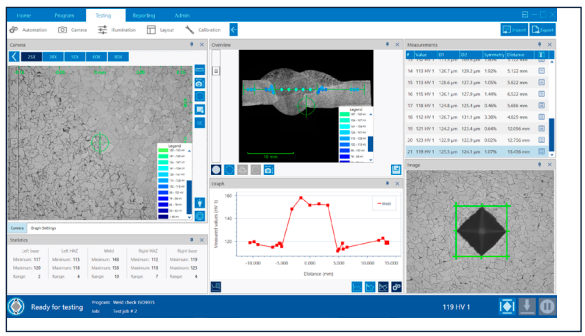
	Manual	DiaMet Basic	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
Analog Micrometers		●			
Digital Micrometers		○			
Auto Measure	●	●	●	●	●
Auto Illumination		●	●	●	●
Motorized XY-Stage			●	●	●
Auto Focus				●	●
Scan, map & template					●

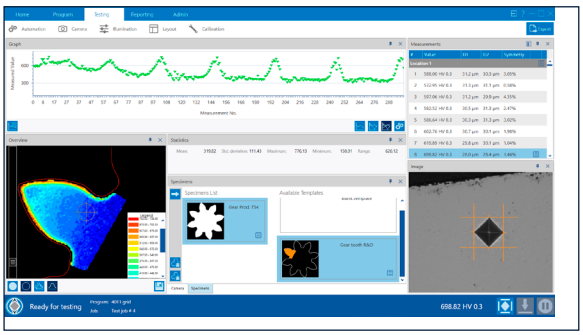
● standard

○ optional

Weld Testing

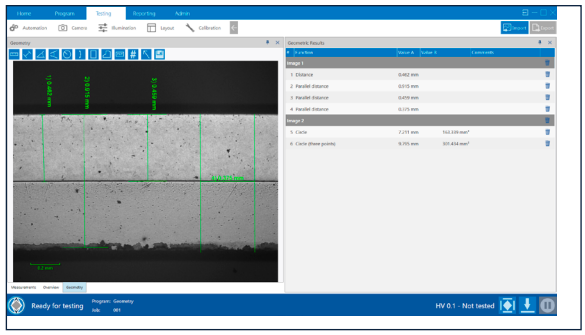
Weld testing has never been easier. Use the intuitive weld pattern generator in the program section and align your pattern on each weld section within seconds.





Color Mapping

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



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.

Vickers-Knoop Hardness Testers

Wilson® VH3100-3300 Vickers-Knoop Hardness Tester

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 10gf – 50kgf 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]

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

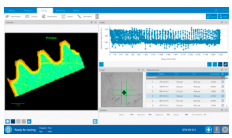
W3111

Wilson VH3300
- 3+3 position motorized turret
- 0.010 - 50kgf load range*

**depending on configuration*

W3210

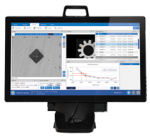
Software Options



DiaMet Full-Automatic software package
W3100A03

DiaMet Enterprise software package
W3100A15

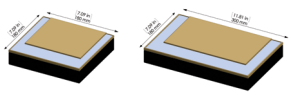
Monitors



24" Touch screen
W3100B03

24" Full HD monitor
W3100B04

Motorized Stages



Standard size
- 180 x 180mm

W3100C02

Large size
- 300 x 180mm

W3100C03

Standard size
- 180 x 180mm

W3200C02

Large size
- 300 x 180mm

W3200C03

System Configurations *(Continued)*

Vertical Test Capacity

Wilson VH3100	Wilson VH3300
W3100D01 - height 125mm W3100D02 - height 170mm W3100D03 - height 215mm	W3200D01 - height 105mm W3200D02 - height 155mm

Load Cell

select one for VH3100, select between one and three for VH3300

Wilson VH3100	Wilson VH3300
W3100E02 - 100N loadcell	W3210E01 - 10N loadcell W3200E02 - 100N loadcell W3200E04 - 500N 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

Wilson VH3100	Wilson VH3300
• Separate overview camera • Includes Scan & Stitch function in the DiaMet software W3110F01	• Turret integrated overview • Includes Scan & Stitch function in the DiaMet software W3200F01

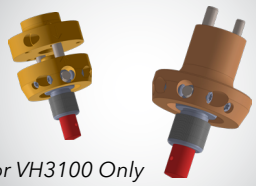
Additional Accessories

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

Objectives

Part Number	Native Mag.	Max. Field of View
W5XLWD	5x	3600µm
W10XLWD	10x	1800µm
W20XLWD	20x	900µm
W40XLWD	40x	450µm
W50XLWD	50x	360µm
W100XLWD	100x	180µm

Indenter Holder*



Standard holder
W3100G01

SnapGrip Holder
W3100G02

Vickers Indenter

Vickers Indenter, ISO & ASTM Certified
W9100687

Knoop Indenter

Knoop Indenter, ISO & ASTM Certified
W9100684

Please select your sample holder on page 78

Vickers-Knoop Hardness Testers

Wilson® VH1102-1202 Vickers-Knoop Hardness Tester

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 and ASTM E384
- The wide load range with 9 individual load steps, offer testing capabilities from 10gf up to 2kgf

VH1102 Standalone Tester
Part Number - W1102D01 for Vickers
W1102D02 for Knoop

Description	
Hardness scales	HV or HK
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 & manual 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 & manual 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]

VH1102-1202 with DiaMet Automation Software

Testers	DiaMet Basic Manual (Analog)	DiaMet Basic Manual (Digital)	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
VH1102 Vickers	W1102D31	W1102D33	W1102D35	W1102D37	W1102D45
VH1102 Knoop	W1102D32	W1102D34	W1102D36	W1102D38	W1102D46
VH1202 Vickers & Knoop	W1202D31	W1202D33	W1202D35	W1202D37	W1202D45

Diamet models require computer and monitor package.

9314416 Small form personal computer and 24" touch monitor
9314415 Small form personal computer and 24" monitor.

Wilson® VH1150 Macro Vickers Hardness Tester

The Wilson VH1150 is the ultimate evolution of the deadweight Vickers hardness tester with a unique load range, 300gf – 50kgf, 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 E384.
- 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 & manual XY Stage

Dimensions
9in [230mm]W x 25in [625mm]D x 30in [760mm]H
Vertical Test Capacity – 8.2in [210mm
with standard flat anvil
Horizontal Test Capacity – 6.3in [160mm]

VH1150 with DiaMet Automation Software

Testers	DiaMet Basic Manual (Analog)	DiaMet Basic Manual (Digital)	DiaMet Semi Auto	DiaMet Full Auto	DiaMet Enterprise
VH1150	W1151D31	W1151D33	W1151D35	W1151D37	W1151D45

Diamet models require computer and monitor package.

9314416 Small form personal computer and 24" touch monitor
9314415 Small form personal computer and 24" monitor.

Accessories

Indenters for VH1102-1202-1150

W9100687	Vickers indenter, includes ASTM & ISO certificate
W9100684	Knoop indenter, includes ASTM & ISO certificate

Manual Stages

9170506	XY-stage with analog metric micrometers
9170507	XY-stage with digital micrometers

Objectives for VH1102-1202-1150

W5XLWD	5x Long Working Distance objective
W10XLWD	10x Long Working Distance objective
W20XLWD	20x Long Working Distance objective
W40XLWD	40x Long Working Distance objective
W50XLWD	50x Long Working Distance objective
W100XLWD	100x Long Working Distance objective

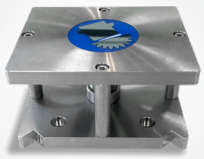
Visit www.buehler.com for ordering information.

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



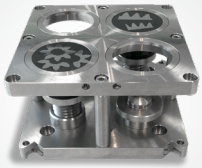
Self leveling vise for a single round mounted sample up to 40mm (without insert).

886164

Self leveling vise for a single Ø 50mm round mounted samples with inserts.

886167

4 Fold Leveling Vise



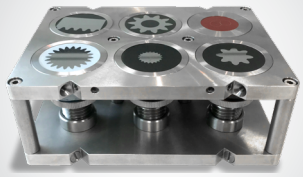
4x Self leveling vise for round mounted samples up to 40mm (without inserts).

886169

4x Self leveling vise for Ø 50mm round mounted samples (with inserts).

886175

6 Fold Leveling Vise



6x Self leveling vise for round mounted samples up to 40mm (without inserts).

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

**Mount Cap requires the Canister*

Sample Holder Insert

Sample holders 886168, 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 [610 x 460mm]

9100904 for VH3300
9100905 for VH3100

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

Globally Recognized Accreditation

CERT#2237.01 - CALIBRATION

Solutions for NADCAP Accreditation

Buehler Has the Expertise for Direct Verification

As part of the ITW Test & Measurement Group, Buehler maintains it own service department of experienced service engineers and also coordinates direct verification with Instron and an experienced sales and distributor team. We have global presence and global experience in working with customers to meet NADCAP audits.

DiaMet Hardware Software – Prompts User to Perform Indirect Verification Tests

Buehler developed a special verification software module within the DiaMet hardness software. The verification program will prompt operators to perform indirect verification tests as required. This way, full traceability is guaranteed and is clearly exhibited during audits.

Calibration and Cleaning Services

Ensure consistent performance of equipment, minimize production downtime and reduce the likelihood of costly repairs with Buehler Calibration Services. Cleaning and calibration of high precision equipment provides repeatable and reliable results. As a valued customer, we appreciate your partnership and are here to support you with repair services and spare parts under warranty and beyond.

ISO / ASTM Calibrated Hardness Blocks Direct from Buehler

All hardness test blocks used in day to day indirect verification in accordance with ISO & ASTM standards and are calibrated in the Buehler standards laboratory on machines with Direct verification traceability.

A Solid Partner for Your Metallography Laboratory

Consultation Available for New Equipment or Improved Processes

Buehler field engineers and laboratory experts are available to provide custom solutions for your application.
Visit **buehler.com/contact-buehler.php**

Buehler carries a complete line of metallography equipment

From sectioning, grinding/polishing, mounting, image analysis to hardness testing.
Visit **www.buehler.com/#products**

Service Technicians Available for Calibration

An accredited technician will perform a scheduled calibration in compliance with current ASTM. E10, E18 or E384 using N.I.S.T. traceable standards where applicable.
Visit **buehler.com/contact-buehler.php**

Certified Hardness Reference Blocks

For Rockwell, Brinell, Vickers and Knoop hardness testers produced in our own facility.
Visit **www.buehler.com/hardness-testing.php**

Complete Line of Consumables Available

Most are in stock and ready to ship daily. Visit **shop.buehler.com**.

Universal Hardness Testers

Wilson® UH4000 Series Hardness Testers

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 and 3-750kgf, 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 targetting and a ringlight for best Brinell measurement accuracy

Increase up-time & reduce service costs

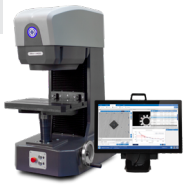
- Steel casting provides full protection for production environments.

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]

System Configurations

Start by selecting either the UH4250 or UH4750 and continue on to create a customized Universal Hardness tester

Main Unit



Wilson UH4250

- Load Range 0.5-250kgf, Standard Monitor 24”

W4250

- Load Range 0.5-250kgf , Touchscreen 15”

W4251

Wilson UH4750

- Load Range 3 - 750kgf, Standard Monitor 24”

W4750

- Load Range 3 - 750kgf, Touchscreen 15”

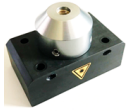
W4751

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



Laser

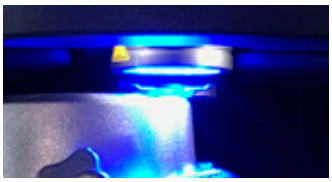
W4100L	Positioning Laser

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

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 1000 x 700 x 800mm [30 x 27 x 31in] with spindle hole

944872

Anvils

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 80mm diameter

740095

Test anvil flat 80mm diameter

740191

Test anvil flat 190mm diameter

740101

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 and can accommodate a wide variety of applications.

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

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.

574R Regular - for all Regular test scales

Part Number - WH574R

Description	
Pre-load	10kgf
Main-load	60, 100, 150kgf
Hardness scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV

574S Superficial - for all Superficial test scales

Part Number - WH574S

Description	
Pre-load	3kgf
Main-load	15, 30, 45kgf
Hardness scales	15N, 30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y

574T Twin - for all Regular and Superficial test scales

Part Number - WH574T

Description	
Pre-load	3, 10kgf
Main-load	15, 30, 45, 60, 100, 150kgf
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, 30Y, 45Y

Wilson® Rockwell® 2000

The Rockwell 2000 Series Hardness Testers achieve the highest level of depth measurement accuracy and resolution available and as a result has the best GR&R performance in the industry. This instrument is offered in two sizes, 10 - 14 in vertical capacity, to accommodate varying sample sizes and is available in three different variations of Rockwell Regular, Superficial, or Twin hardness scales.

Dimensions-
13.5in [343mm]W x 23.2in [590mm]D x 48.5 [1232mm]H
Vertical Test Capacity –
Size 2: 10in [254mm]
Size 3: 14in [356mm]
Horizontal Test Capacity – 8.5in [216mm]

Industry Leading GR&R Performance

- Load cell force application ensures fast, precise, and reliable testing. Highly accurate "in-line" depth measuring scale.

Ease of Use

- One button start – tester controls load application speed and dwell times.
- A flexible and user friendly LCD control panel for method set up and configuration.

Flexible

- Available in two sizes ranging from 10 - 14 in (254 – 356 mm) to accommodate varying sample sizes.
- Available in three different variations: Regular, Superficial, or Twin hardness scales.

2002R & 2003R Regular - for all Regular test scales

Part Numbers - Size 2: WH2002R, Size 3: WH2003R

Description	
Pre-load	10kgf
Main-load	60, 100, 150kgf
Hardness scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV

2002S & 2003S Superficial - for all Superficial test scales

Part Numbers - Size 2: WH2002S, Size 3: WH2003S

Description	
Pre-load	3kgf
Main-load	15, 30, 45kgf
Hardness scales	15N, 30N, 45N, 15T, 30T, 45T, 5W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y

2002T & 2003T Twin - for all Regular and Superficial test scales

Part Numbers - Size 2: WH2002T, Size 3: WH2003T

Description	
Pre-load	3, 10kgf
Main-load	15, 30, 45, 60, 100, 150kgf
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, 30Y, 45Y

Rockwell Hardness Testers Accessories

Rockwell® Hardness Testers Accessories

Part Number	Description
90007156	Anvil, Pedestal spot
90000788	Anvil, 0.5in [12.7mm] Shallow "V", < 6mm diam
900030797	Anvil, 1.5in [38.1mm] Standard "V", > 6mm diam
900007730	Flat Anvil, 8in [203mm] testing table
9100401	NIST standard "C" Diamond Indenter
900002015	NIST standard "N" Diamond Indenter
9100405	1-16in Carbide Ball Indenter with ball
9100406	1-8in Carbide Ball Indenter with ball

Part Number	Description
741038	Single Bar Jominy Fixture for stage mount
CP102392	Three Bar Jominy Fixture for stage mount
9100-564	Specimen Clamping Fixture
9100568	T-Slot table - 13 x 11in [330 x 280mm]

Kits contain recommended indenters and test blocks. Please refer to your local Buehler representative for details.

Part Number	Description
A582143	Regular scale accessory kit
A58239	Superficial scale accessory kit
A582144	Twin scale accessory kit

Rockwell® Diamond and Ball Indenters

Rockwell 2000 and Rockwell 574

Part Number	Description
9100401	Certified Diamond Indenter Rockwell "C" 120° Cone
900006838	Certified Diamond Indenter Rockwell "A" 120° Cone
900002015	Certified Diamond Indenter Rockwell "N" 120° Cone
9100405	Certified Carbide Ball Indenter, 0.0625in with 4 additional spare balls
9100406	Certified Carbide Ball Indenter, 0.125in with 2 additional spare balls
9100407	Certified Carbide Ball Indenter, 0.25in with 1 additional spare ball
9100408	Certified Carbide Ball Indenter, 0.5in with 1 additional spare ball

Special Purpose Indenters available on request such as Thin Tipped Diamonds and Ball indenters, side cut for difficult applications. Please let us know if you have a special need or application.

Why Buehler for Hardness Testing?

Buehler® is committed to providing a superior range and level of support services to its customers. Buehler, the world's leading manufacturer of hardness testing equipment, has been in the forefront of manufacturing and servicing a comprehensive range of hardness testers manufactured by Wilson Instruments, Wolpert and Reicherter for over 85 years.

Buehler offers an extensive range of calibration and verification services for hardness testing instruments and related equipment. Buehler's factory trained service engineers are uniquely qualified to not only perform accredited calibrations, but to also provide expert preventive maintenance, adjustments and repairs using parts from the factory that meet original equipment specs. This extends the life of your equipment and optimizes its accuracy and reliability.

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).

BH3000

Part Number: WH3000BH

Description	
Hardness scales	HB
Main-load	62.5 - 3000kgf

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]

Accessories

WHSCOPE20X	Brinell microscope 20X with LED light source
WHSCOPE40X	Brinell microscope 40X with LED light source
WHSCOPE60X	Brinell microscope 60X with LED light source
WHKINGSC4	King Scan IV - Computer Based Automatic Brinell Measurement System
9110-213	Testing table diameter 235mm
9110-123	Indenter 10mm Carbide Ball with certificate
9110-122	Indenter 5mm Carbide Ball with certificate
9110-121	Indenter 2.5mm Carbide Ball with certificate
900000485*	10mm Carbide Ball with NVLAP certificate (Qty 2)
900000595*	5mm Carbide Ball with NVLAP certificate (Qty 2)
900007350*	10mm Ball Retainer, MJ, L, K, KDR, AP, & CLB3

**Products only available in North America & South America*

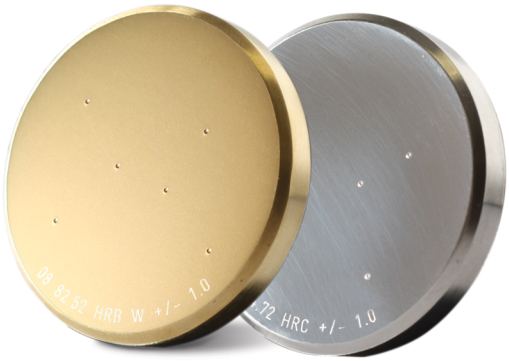
Wilson® Hardness Test Blocks

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)

Wilson® Rockwell Test Blocks

	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
	9203171	55HRC
	9203181	60HRC
	9203191	63HRC
Rockwell E•	9205010W	57HRE
	9205020W	63HRE
	9205050W	81HRE
	9205060W	87HRE
	9205070W	93HRE
Rockwell F•	9206020W	63HRF
	9206050W	80HRF
	9206070W	91HRF



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

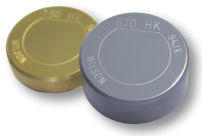
• *Certified using a Tungsten Carbide ball indenter*

Special Order Items

Part Number	Description
9201002	Special Range-Hardness Request
9201003	Engraving for Indent Spacing
9201006	API Compliance

Wilson® Vickers-Knoop Test Blocks

According to ISO 6507 & ASTM E92



Vickers Test Blocks

Load (kg)	Part Number	Nominal Hardness	Range
HV0.1	93-001-200	200 HV	175-224
	93-001-425	425 HV	400-450
	93-001-515	515 HV	490-540
	93-001-775	775 HV	750-800
HV0.2	93-002-200	200 HV	175-224
	93-002-425	425 HV	400-450
	93-002-515	515 HV	490-540
	93-002-775	775 HV	750-800
HV0.3	93-003-200	200 HV	175-224
	93-003-310	310 HV	285-335
	93-003-425	425 HV	400-450
	93-003-515	515 HV	490-540
	93-003-700	700 HV	675-725
	93-003-775	775 HV	750-800
	93-003-830	830 HV	805-855
HV0.5	93-005-200	200 HV	175-224
	93-005-310	310 HV	285-335
	93-005-425	425 HV	400-450
	93-005-515	515 HV	490-540
	93-005-700	700 HV	675-725
	93-005-775	775 HV	750-800
	93-005-830	830 HV	805-855
HV1	93-010-200	200 HV	175-224
	93-010-310	310 HV	285-335
	93-010-450	450 HV	425-475
	93-010-515	515 HV	490-540
	93-010-700	700 HV	675-725
	93-010-775	775 HV	750-800
	93-010-830	830 HV	805-855

Load (kg)	Part Number	Nominal Hardness	Range
HV5	93-050-200	200 HV	175-224
	93-050-310	310 HV	285-335
	93-050-450	450 HV	425-475
	93-050-515	515 HV	490-540
	93-050-600	600 HV	575-625
	93-050-700	700 HV	675-725
	93-050-775	775 HV	750-800
	93-050-830	830 HV	805-855
HV10	93-100-200	200 HV	175-224
	93-100-310	310 HV	285-335
	93-100-450	450 HV	425-475
	93-100-515	515 HV	490-540
	93-100-600	600 HV	575-625
	93-100-700	700 HV	675-725
	93-100-775	775 HV	750-800
	93-100-830	830 HV	805-855
HV20	93-200-200	200 HV	175-224
	93-200-310	310 HV	285-335
	93-200-450	450 HV	425-475
	93-200-515	515 HV	490-540
	93-200-600	600 HV	575-625
	93-200-700	700 HV	675-725
	93-200-775	775 HV	750-800
	93-200-830	830 HV	805-855
HV30	93-300-200	200 HV	175-224
	93-300-310	310 HV	285-335
	93-300-450	450 HV	425-475
	93-300-515	515 HV	490-540
	93-300-600	600 HV	575-625
	93-300-700	700 HV	675-725
	93-300-775	775 HV	750-800
	93-300-830	830 HV	805-855

Knoop Test Blocks

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

Part Number	Description
93-000-001*	Vickers Microindentation (10gf - 500gf)
93-000-002*	Vickers Macroindentation (1kgf - 50kgf)
94-000-001*	Knoop Microindentation (10gf - 500gf)
93-000-012•	2 Vickers-Knoop Calibrations
93-000-013•	3 Vickers-Knoop Calibrations
93-000-014•	4 Vickers-Knoop Calibrations

**Specify hardness required and load force for calibration*

•Specify additional load force for calibration

Visit www.buehler.com for ordering information.

Wilson® Hardness Test Blocks

Wilson® Brinell Test Blocks

Brinell reference blocks up to 250kgf load

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

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 †

Part Number	Description
WHSMLBRIN*	1mm or 2.5mm ball indenter

Part Number	Description
WHSPECBRIN*	5mm or 10mm ball indenter

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

See Test Block Guide for More Information

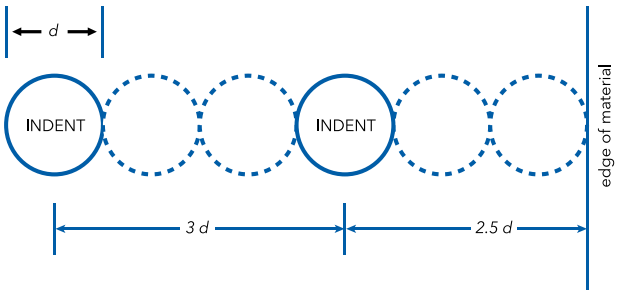
Proper Indent Spacing

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

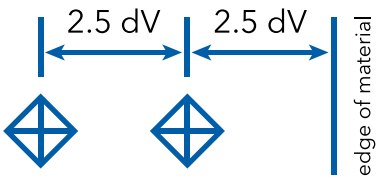
According to ASTM and ISO Standards: The distance between the centers of two adjacent indentations shall be at least three times the diameter (d) of the indentation.

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.



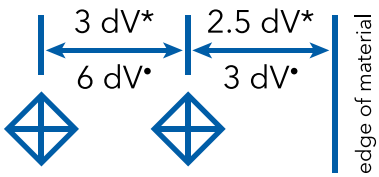
Vickers

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 (dV) of the indentation.



dV= Vickers Diagonal

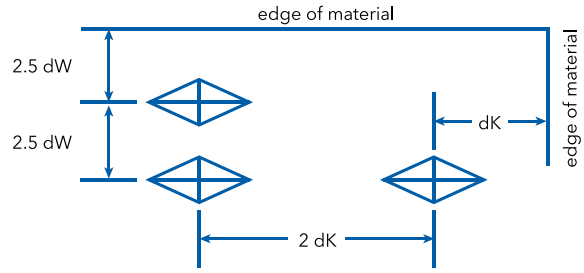
According to ISO Standards: The distance between the centers of two indents shall be at least three times the diagonal (dV) of the indent for steel, copper and copper alloys, and at least six times for light metals, lead and tin and their alloys. The distance between the center of an indent and the edge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

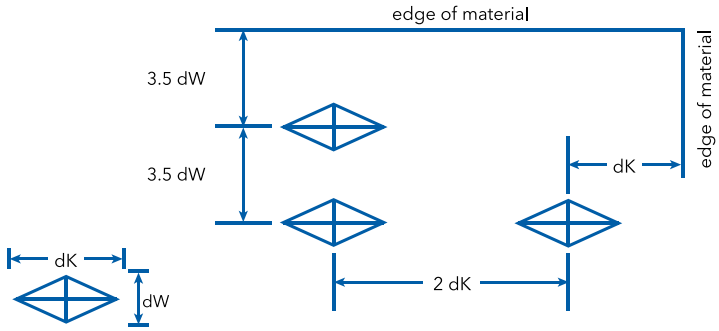
Knoop

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



dK = Knoop Long Diagonal
dW = Knoop Short Diagonal

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



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
UltraMet™ 2 Sonic Cleaning Solution	2 years
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

2020 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 2020 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.

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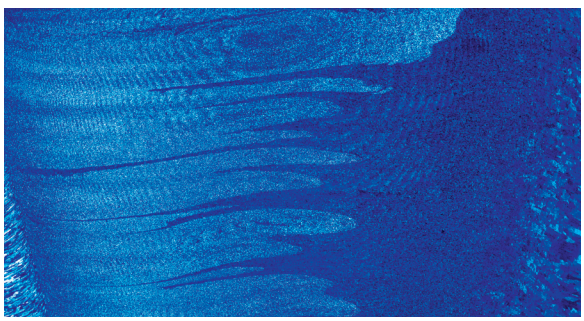
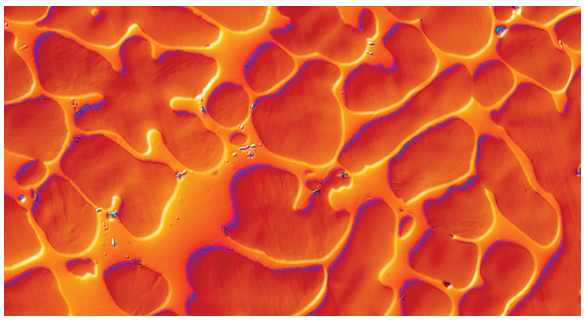


7075 and 6061 Aluminum Weld, etched with Barker's reagent, mag. 50x, polarized light
~Matthew Ryder and Xiangbin Wang; Worcester Polytechnic Institute; iMdc, Worcester, MA USA



Aluminum beryllium casting, mag. 200x, viewed with Differential Interference Contrast.
~ Daniel Slates; Materion Brush Performance Alloys; Elmore, Ohio USA

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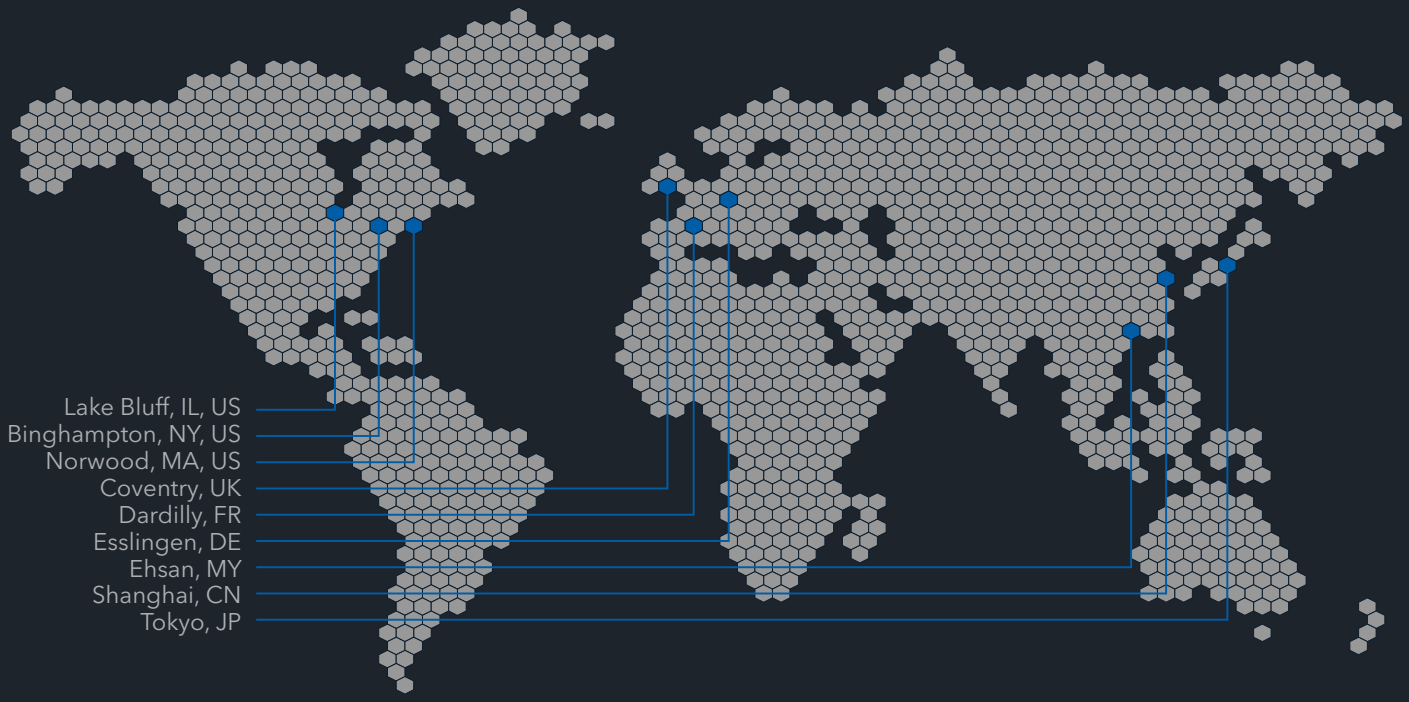

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