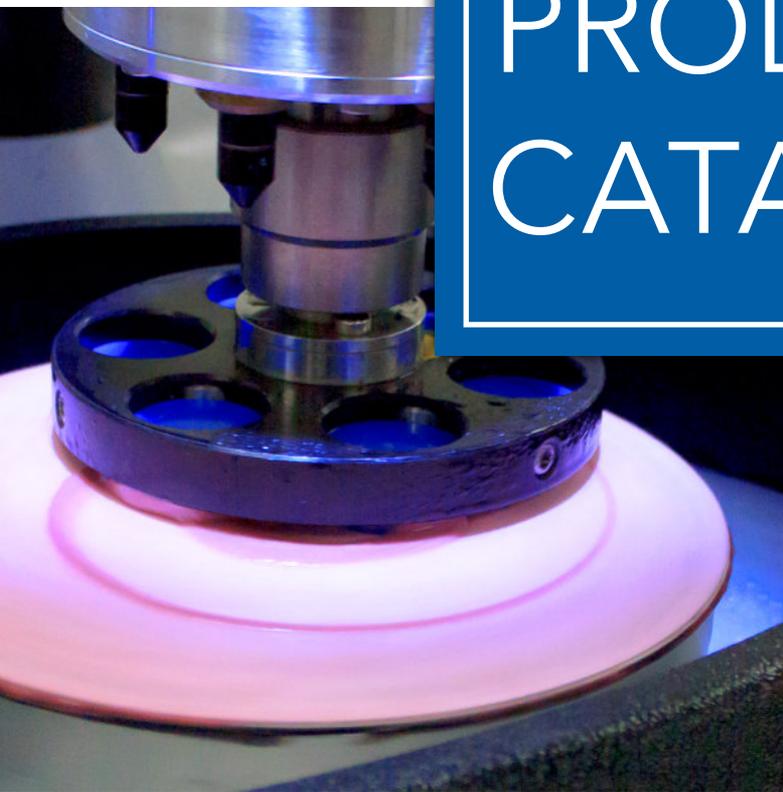




2019 PRODUCT CATALOG



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





Buehler Celebrates 20 Years ISO Certification

In 2018 Buehler celebrated its 20-year anniversary with DQS, a global certification company. Buehler successfully 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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SECTIONING

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

20

MOUNTING

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

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GRINDING & POLISHING

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

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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.

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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 Management Systems. Buehler innovates solutions and offers expert service and support throughout the materials preparation and analysis market. Buehler adheres to ASTM, NVLAP, A2LA, NADCAP, DIN, ISO, MIL 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.

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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, Singapore
- 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 accreditation 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 Reichert, 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.



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



SECTIONING

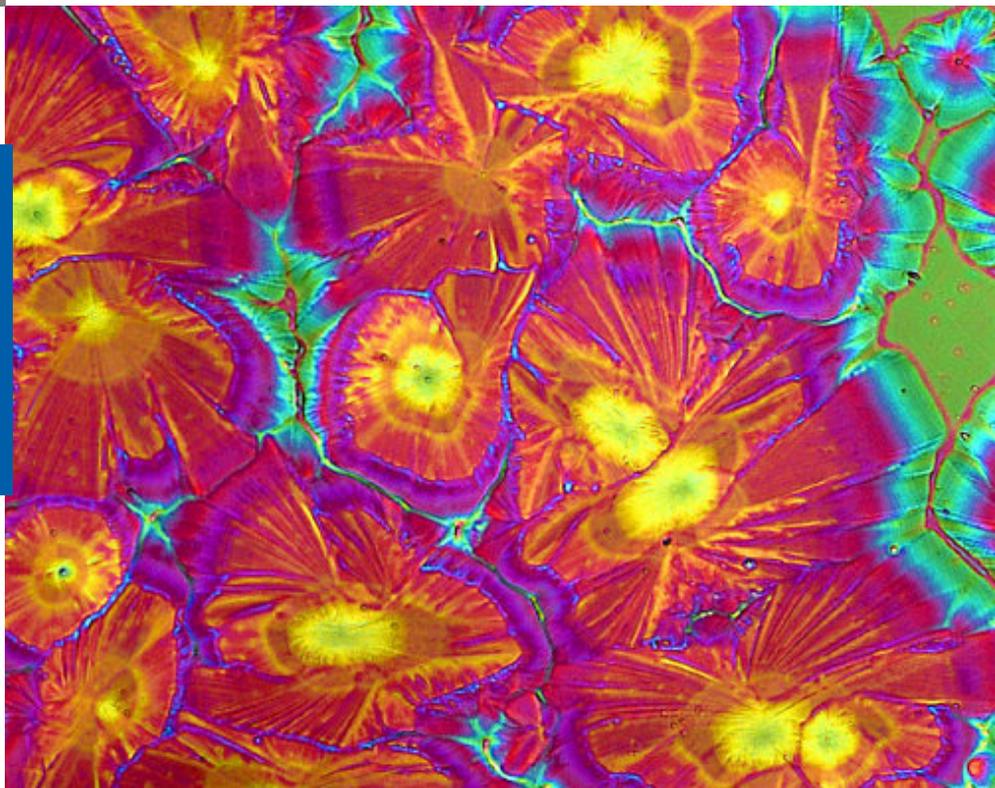
A full range of abrasive and precision saws, blades, and vises for cutting any material

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 BaTiO₃ thin film deposited by Molecular Beam Epitaxy on Silicon. The Fresnoite (Ba₂TiSi₂O₈) 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 |
| Maximum 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 [140mm] |

*Optional Items

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

Precision Cutters

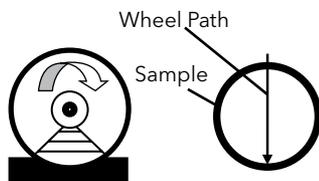
| | IsoMet™ Low Speed | IsoMet™ 1000 | IsoMet™ High Speed | IsoMet™ High Speed Pro | PetroThin™ Thin Sectioning System |
|----------------------------|-------------------|----------------|---|---|---|
| Maximum Wheel Diameter | 5in [127mm] | 7in [178mm] | 8in [203mm] | 8in [203mm] | 8in [203mm] |
| Cut 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

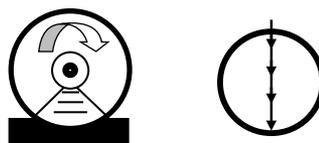
Chop Cutting

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



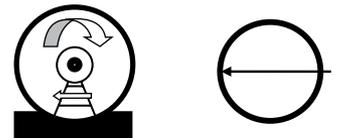
Chop Cutting with Pulsing

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.



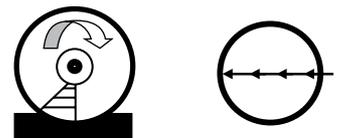
Y-Feed Cut

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.



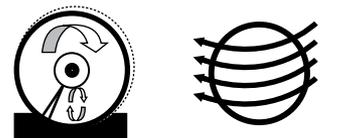
Y-Feed Cut with Pulsing

Wheel Contact arc is still governed by sample size. The pulsing action pauses the feed rate in short intervals enabling coolant to wash away swarf and dissipate heat.



Orbital

A chop cutting action with elliptical 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 viewing 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



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



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"
 [60 x 76 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



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



See Vising Guide for More Information

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)

Part Numbers **Description**
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.



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](#)

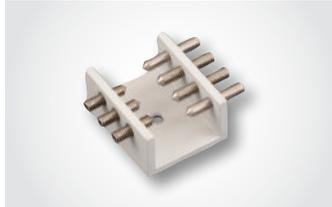
Double Saddle Chuck



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](#)



Precision Cutter Accessories

IsoMet™ High Speed Cutter Accessories

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

IsoMet™ Precision Cutter Flanges

| | | | |
|---|--|---|---|
|  | <p>Aluminum Flange Set</p> <p>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]</p> |  | <p>Stainless Steel Flange Set</p> <p>11-2688* 3in [76mm] 11-2689* 4in [102mm]</p> <p><i>*Recommended for the IsoMet High Speed</i></p> |
|---|--|---|---|



Precision Cutter Consumables



Precision Sectioning Blades for IsoMet™ Cutters, 0.5in [12.7mm] Arbor (qty 1)

[Blade Thickness is listed under Part Number]

| Use with Saws | 3in [76mm] | | 4in [102mm] | | 5in [127mm] | | 6in [152mm] | | 7in [178mm] | | 8in [203mm] | | Dressing Stick* |
|---|-----------------------------|----------------------------|----------------------------|-----|-----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---------------------------------------|--|-----------------------------|
| | All | All | All | All | All | 1000 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 ₂ O ₃ , ZrO ₂ , 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 $\pm 5\mu\text{m}$

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] |

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





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.

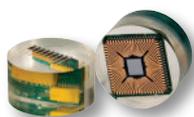
EpoThin™ 2



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

| Material | Powder | | Liquid† | | Kit† | |
|-------------------------------|-------------|------------------|-------------|--|-------------|--|
| | Part Number | Size | Part Number | Size | Part Number | Size |
| SamplKwick™ | 20-3562 | 1 lb [0.45kg] | 20-3564 | 12oz [0.36L] | 20-3560 | Powder 1 lb [0.45kg] Liquid 12oz [0.36L] |
| | 20-3566 | 5 lbs [2.3kg] | 20-3568 | 64oz [1.9L] | | |
| | 20-3562-025 | 25 lbs [11.3kg] | 20-3564-320 | 2.5gal [9.5L] | | |
| | 20-3562-100 | 100 lb [45kg] | 20-3564-640 | 5gal [19L] | | |
| VariKleer™ | 20-3591 | 2.2 lbs [1kg] | 20-3592 | 16.9oz [500mL] | 20-3590 | Powder 2.2 lbs [1kg] Liquid 16.9oz [500mL] |
| | 20-3591-002 | 4.4 lbs [2kg] | 20-3592-001 | 33.8oz [1L] | | |
| | 20-3591-010 | 22 lbs [10kg] | 20-3592-005 | 1.3gal [5L] | | |
| VariDur 10 | 11-1027 | 2.2 lbs [1kg] | 11-1029 | 16.9oz [500mL] | 11-1037 | Powder 2.2 lbs [1kg] Liquid 500mL |
| | 11-1031 | 22 lbs [10kg] | 11-1033 | 1.3gal [5L] | | |
| VariDur 200 | 11-1030 | 2.2 lbs [1kg] | 11-1029 | 16.9oz [500mL] | 11-1039 | Powder 2.2 lbs [1kg] Liquid 33.8oz [1L] |
| | 11-1034 | 22 lbs [10kg] | 11-1033 | 1.3gal [5L] | | |
| VariDur 3003 3-part system | 20-3531 | 3.3 lbs [1.5kg] | 20-3535 | .65gal [2.5L] Liquid 1 | 20-3530 | Powder 1.7 lbs [750g] Liquid 1 8.4oz [250mL] Liquid 2 16.9oz [500mL] |
| | 20-3534 | 16.5 lbs [7.5kg] | 20-3536 | 1.3gal [5L] Liquid 2 | | |
| | | | 20-3532 | Kit Contains: 16.9oz [500mL] Liquid 1 33.8oz [1L] Liquid 2 | | |

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

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

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

† Restricted article, requires special packaging



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 | Part Number | Description |
|-------------|-------------------------------|-------------|------------------------------|
| 2011122 | 1.25in Chamfer ram and spacer | 2011124 | 1.5in Chamfer ram and spacer |
| 2011123 | 30mm 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 | | |



Compression Mounting Compounds

General Purpose Compounds

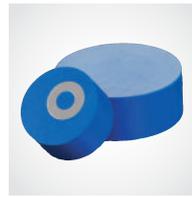


EpoMet™ G (Granular)

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 ●

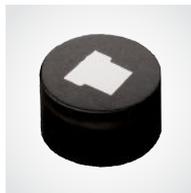


TransOptic

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.

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

Clear ○



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.

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

Copper ●

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.

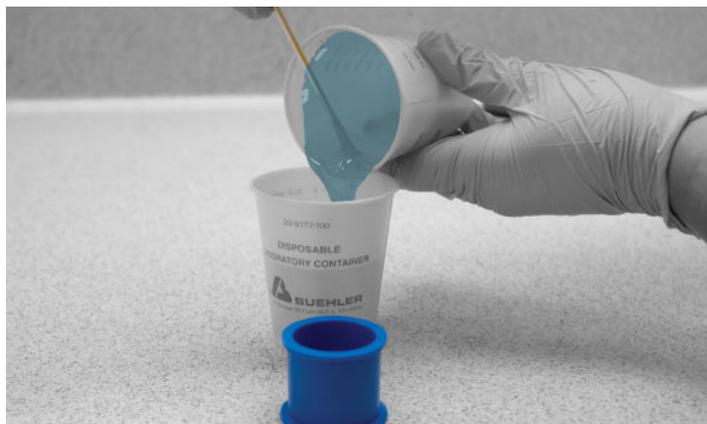


Mounting Tips

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.

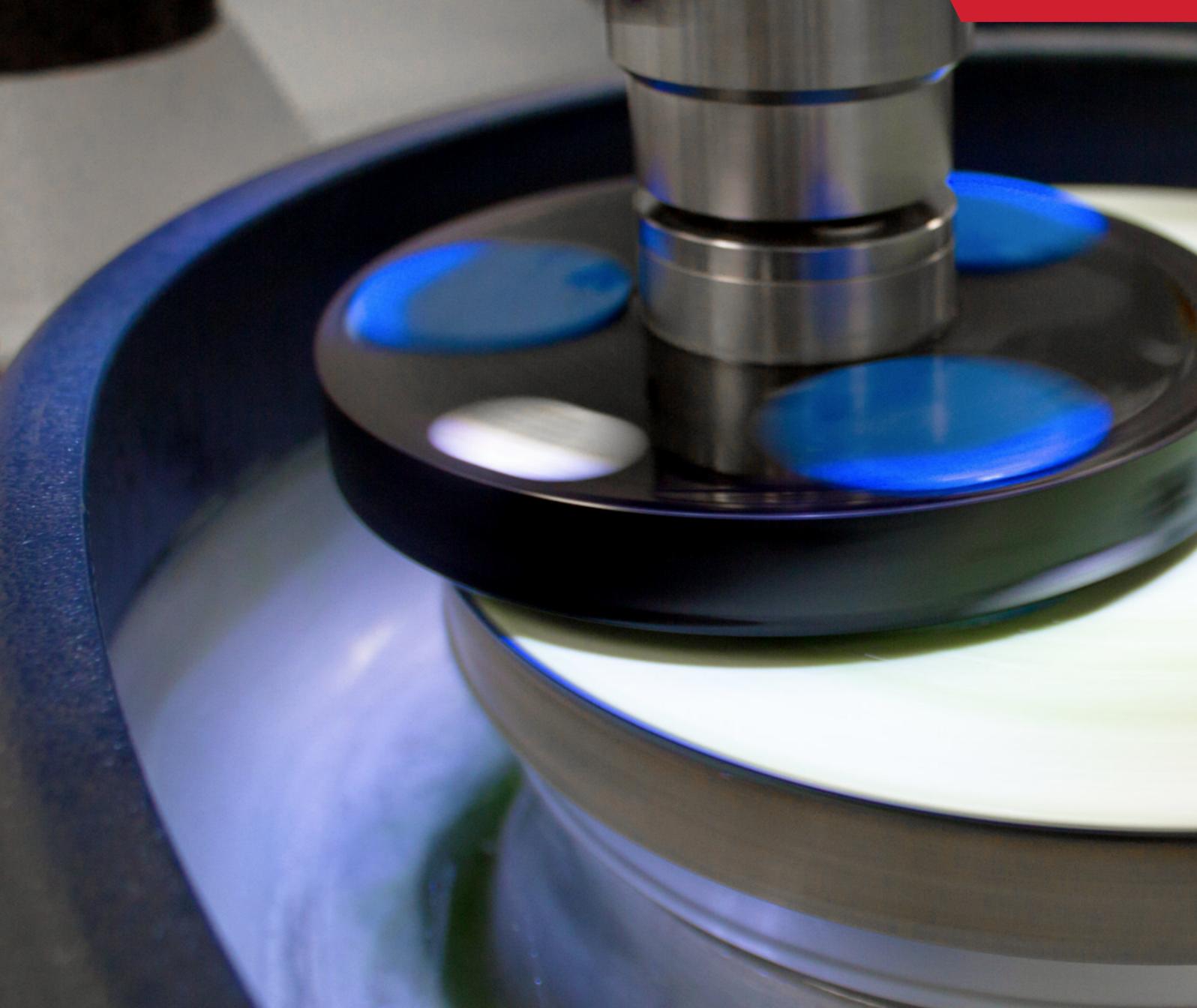


Acrylic Tips

- 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





GRINDING & POLISHING

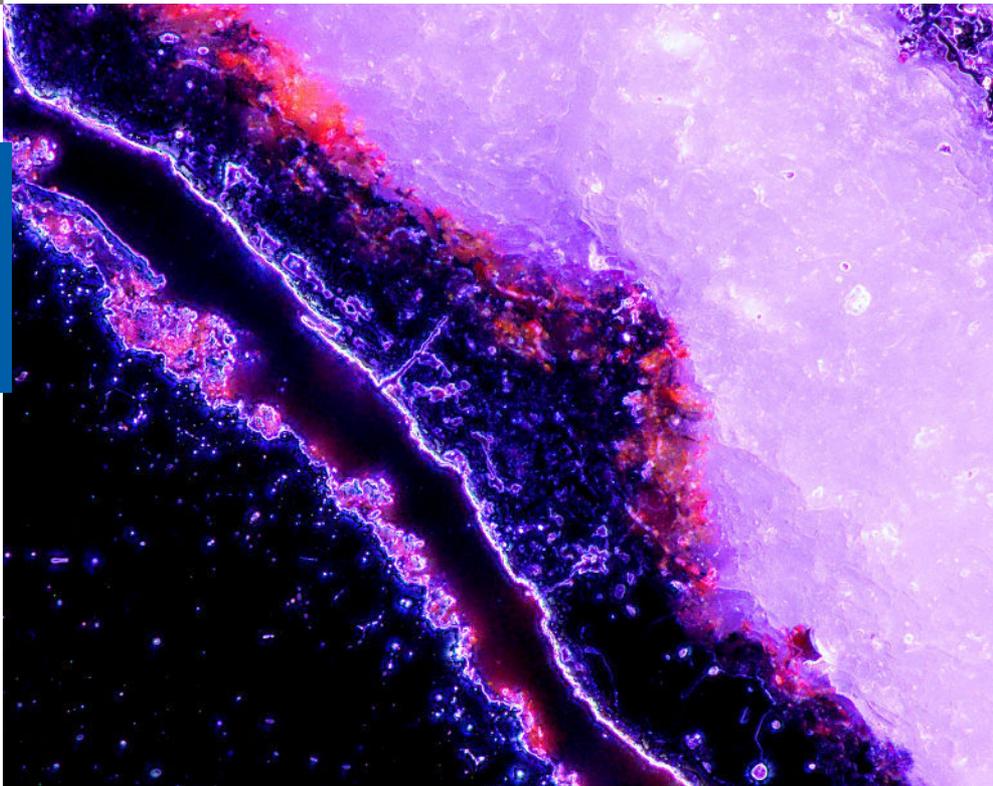
Automated and manual grinders and polishers with a broad range of consumables for any lab

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 DeLagrange and Jean Michel Lamarre; Conseil national de recherches Canada; Boucherville, Québec, Canada



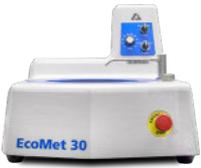


Product Comparison

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.



GRINDING & POLISHING

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 |

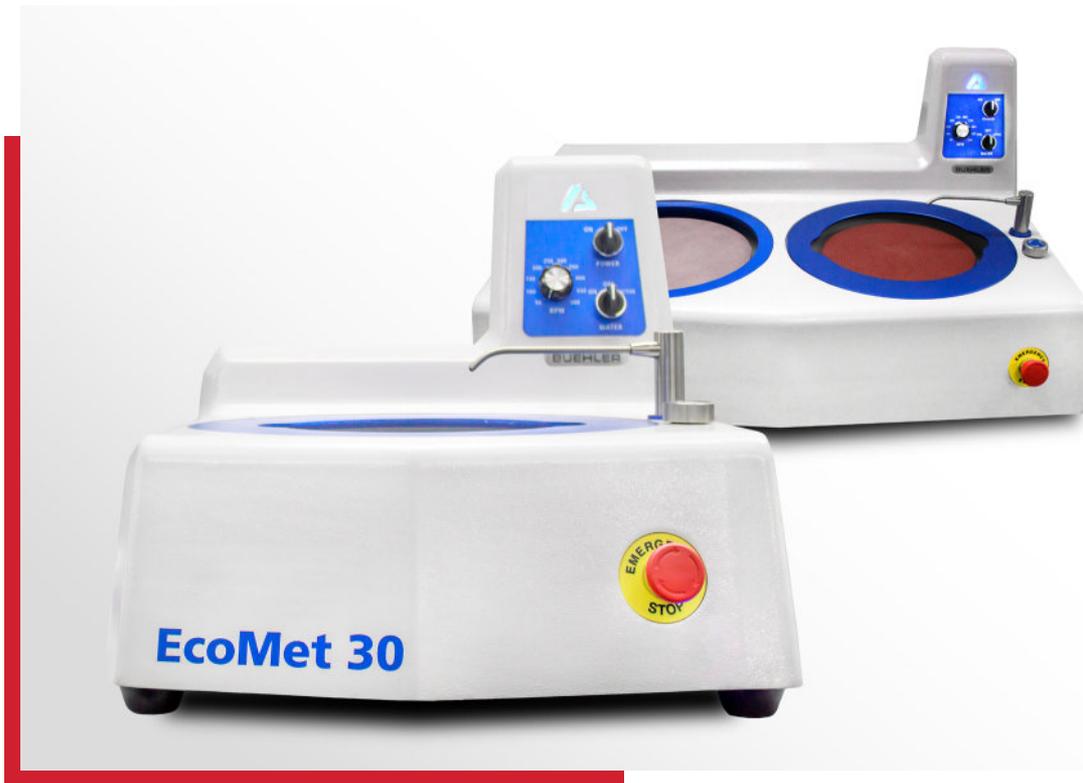
Visit www.buehler.com for ordering information.



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] Aluminum 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



Grinder Polisher Accessories

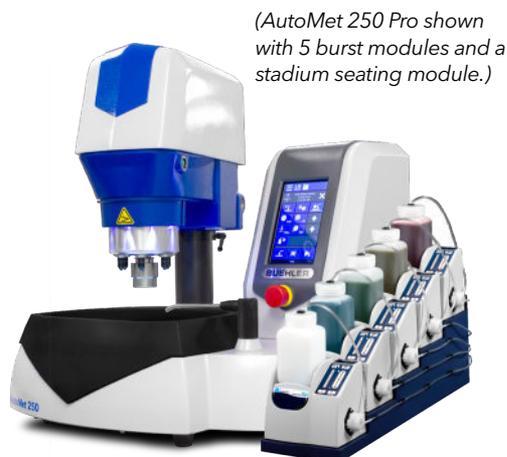
Burst Dispensing System

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 or 0.1mm.
- 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 |
| 60-9011 | ○ | 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 |
| 60-9061 | ○ | 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) |



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 | 69-1581 | Thin Section Bowls, 4.75in [121mm] (1 each Black, White, Blue) |
| 69-1112 | Caged Specimen Holder, for 1.5in [38mm] Mounted Specimens | 69-1582 | Thin Section Glass Platen, 4in [100mm] (Qty 3) (replacement) |
| 69-1500 | Polishing Bowls, 4in [100mm] Diameter (1 each Black, White, Blue) | 69-1583 | MiniMet Thin Section Slide Holder, 46 x 27mm |
| 69-1562 | Glass Circular Slides, 0.5in [13mm] Diameter (Qty 50) | 69-1590 | MiniMet Wafer Polishing Attachment |
| 69-1566 | MiniMet 1000 Precision Thinning Attachment | 69-1502 | Storage Caddie for MiniMet Bowls (Qty 3) |
| 69-1567 | Glass Disc, 2.145in [55mm] Diameter (Qty 5) | 69-1510 | Glass Platen (Qty of 3) |
| 69-1575 | Electro-mechanical Accessories | 69-1550 | MiniMet Alignment Fixture with 3 Drill Bits |
| 69-1580 | MiniMet Thin Section Attachment (includes 3 bowls, glass and section holder) | 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.

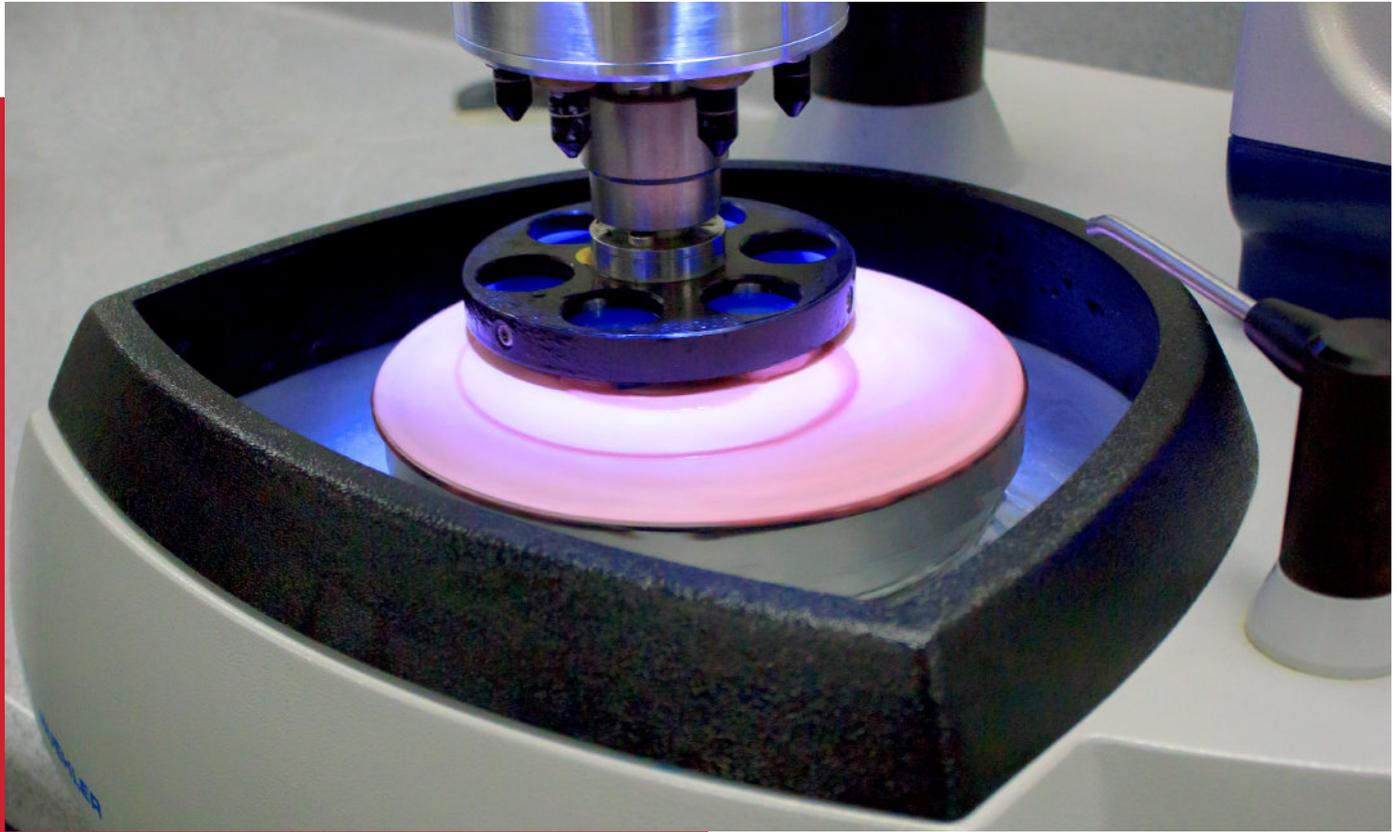
| Part Number | Description |
|-------------|--|
| 57-5000 | Replicating Tape, 1 x 0.005 x 25ft [25 x 0.13 x 7620mm] |
| 57-5001 | Replicating Adhesive Bases, 1 x 3in [25 x 76mm] (Qty 30) |

| 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.

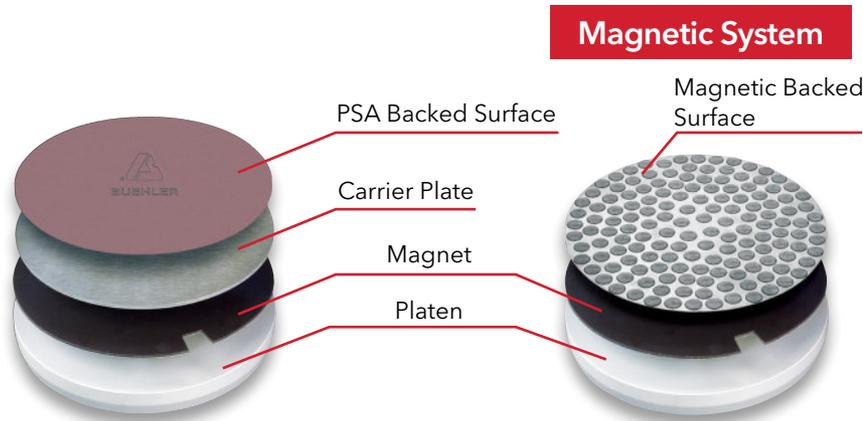


MetaDi Diamond Suspension & Paste

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.



- 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.

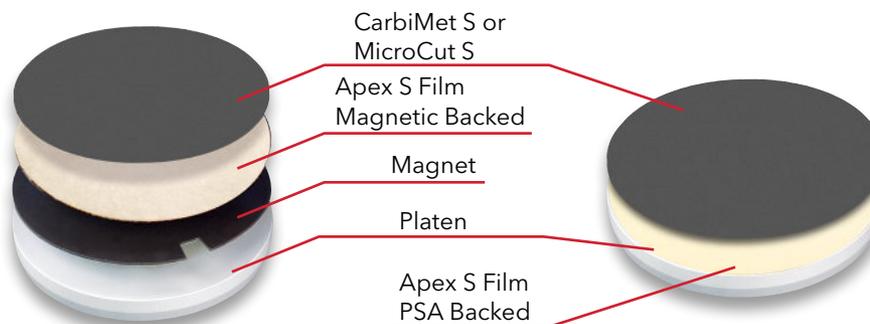
Magnet Selection - to convert a standard platen to a magnetic platen

| 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 |



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 initial 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: Recommendation 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

| Color | Micron | 8in [203mm] | | 10in [254mm] | | 12in [305mm] | |
|----------|--------|-------------|----------|--------------|----------|--------------|----------|
| | | 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 |



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

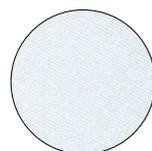
| | Cloth | Backing | Quantity | 8in [203mm] | 10in [254mm] | 12in [305mm] | Description |
|--------------|-------------|----------|----------|-------------|--------------|--------------|--|
| COARSE | UltraPad™ | PSA | 10 | 40-7118 | 40-7120 | 40-7122 | Hard woven, no nap |
| | | Magnetic | 5 | 42-3008 | 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 | |



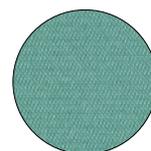
UltraPad™



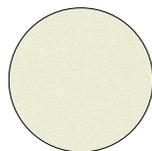
TexMet™ P



TriDent™



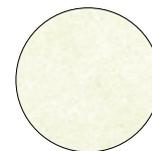
VerduTex™



UltraPol™



Nylon



TexMet™ C

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 |

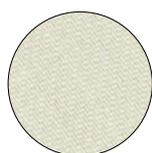
| Recommended Micron Size | Abrasive Type | Applications |
|-------------------------|--|--|
| 6µm & Up | Diamond | Ferrous materials and thermal spray coatings |
| 6µm & Up | Diamond | Minerals, coals, ceramics, inclusion retention in steels, and refractory metals |
| 6µm & Up | Diamond | Electronics, 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 ₂ O 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 ₂ O 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 ₂ O ₃ , SiO ₂ | Ferrous and nonferrous metals |
| 6 - 1µm | Diamond | Cast iron, copper and aluminum alloys |
| 5- 0.02µm | Diamond, Al ₂ O ₃ , SiO ₂ | Ferrous and nonferrous metals, ceramics, composites, PCBs, cast irons, cermets, plastics, electronics |
| 3 - 0.02µm | Diamond, Al ₂ O ₃ , SiO ₂ | Ferrous and nonferrous materials |
| 1 - 0.05µm | Al ₂ O ₃ , SiO ₂ | Soft nonferrous and microelectronics |
| 1 - 0.02µm | Al ₂ O ₃ , SiO ₂ | Titanium, stainless steel, lead/tin, solders, electronics, soft nonferrous metals, plastics |



VelTex™



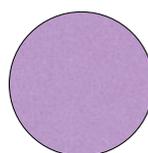
WhiteFelt™



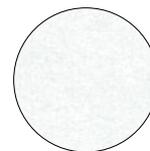
PoliCloth™



MicroCloth™



MicroFloc™



MasterTex™



ChemoMet™



Grinding & Polishing Consumables

Diamond Polishing Suspensions & Pastes

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

Repeatable Polishing Results

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

Fast Preparation Time

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

Processing Unique Materials

Some materials are not compatible with 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.

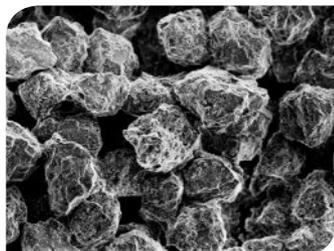
| Color | Diamond Size | 5g | 20g |
|----------|--------------|---------|---------|
| Grey | 0.25µm | 40-6241 | 40-6240 |
| Blue | 1µm | 40-6244 | 40-6243 |
| Green | 3µm | 40-6247 | 40-6246 |
| Yellow | 6µm | 40-6250 | 40-6249 |
| Deep Red | 9µm | 40-6253 | 40-6252 |
| Brown | 15µm | 40-6256 | 40-6255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

Polishing Lubricants

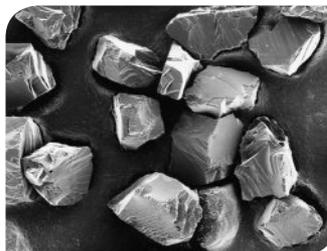
MetaDi Fluid is a water soluble lubricant for use with pastes and suspensions. AutoMet Oil is recommended for use with water sensitive materials.

| 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.



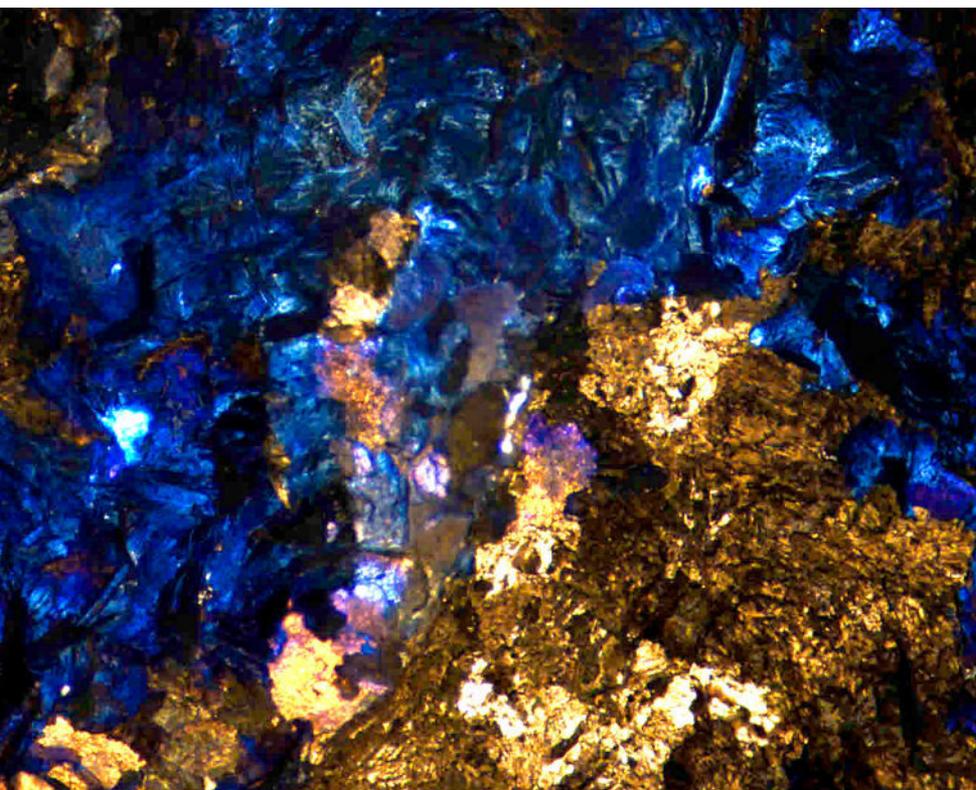
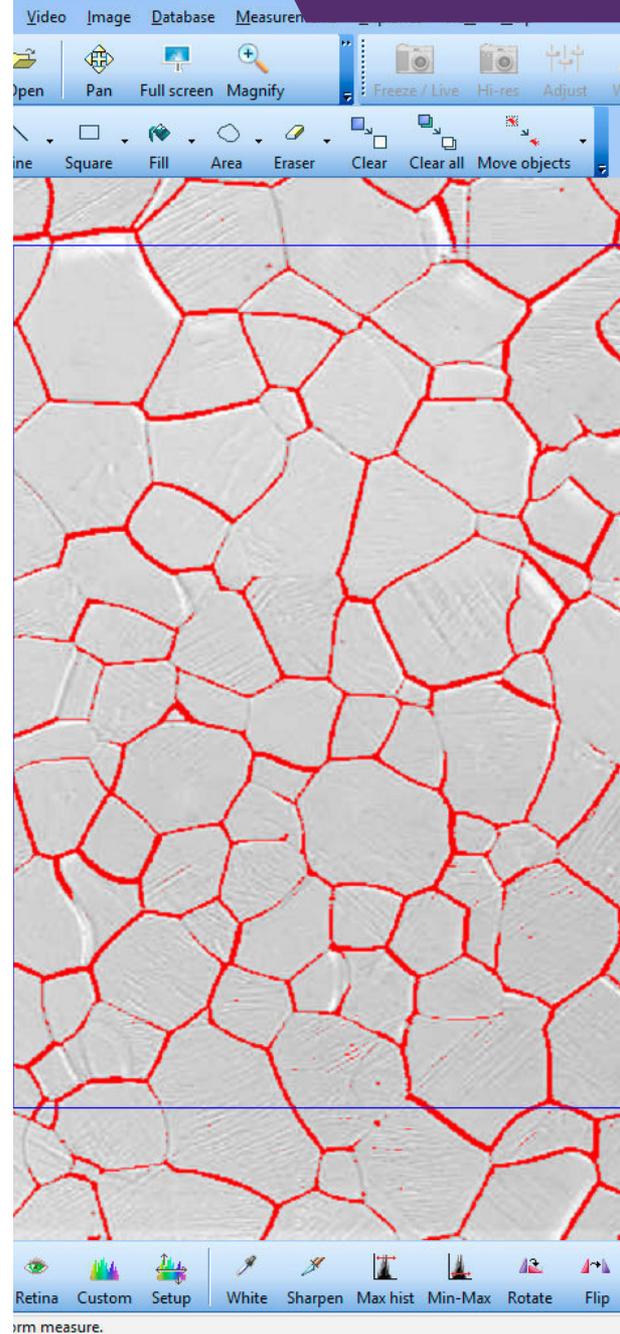
| Abrasive Type | Part Number | Grit Size ANSI [FEPA] | Micron |
|-----------------|-----------------|-----------------------|--------|
| Silicon Carbide | 40-6418-000-080 | 1000 [P2000] | 10µm |
| Silicon Carbide | 40-6415-600-080 | 600 [P1200] | 15µm |
| Aluminum Oxide | 40-6603-030-080 | – | 3µm |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

IMAGING & ANALYSIS

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

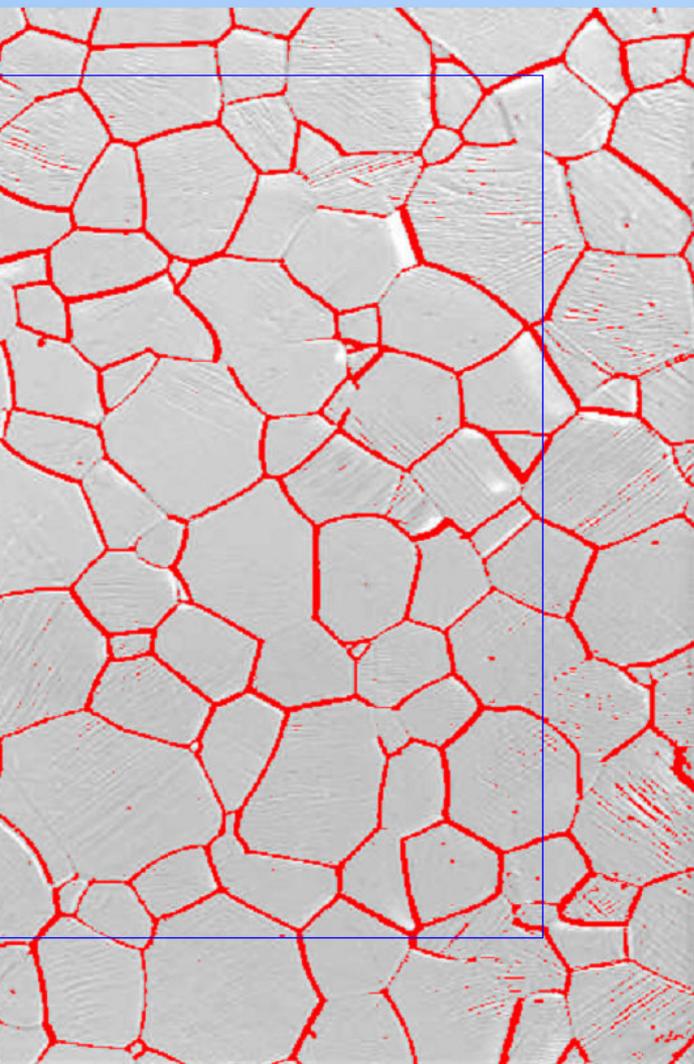
OmniMet™ delivers powerful image analysis possibilities combined with flexible database functionality. Customize OmniMet with intuitive user friendly point-and-click measurement possibilities, pre-programmed analysis routines, or with capabilities for running user programmable analysis scripts. The database 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

White Length Parallel Curve Area Radius Circle Angle Adj. Angle Count Object Delete Clear Statistics Result Excel ASTM-E112 Open Line



Statistics

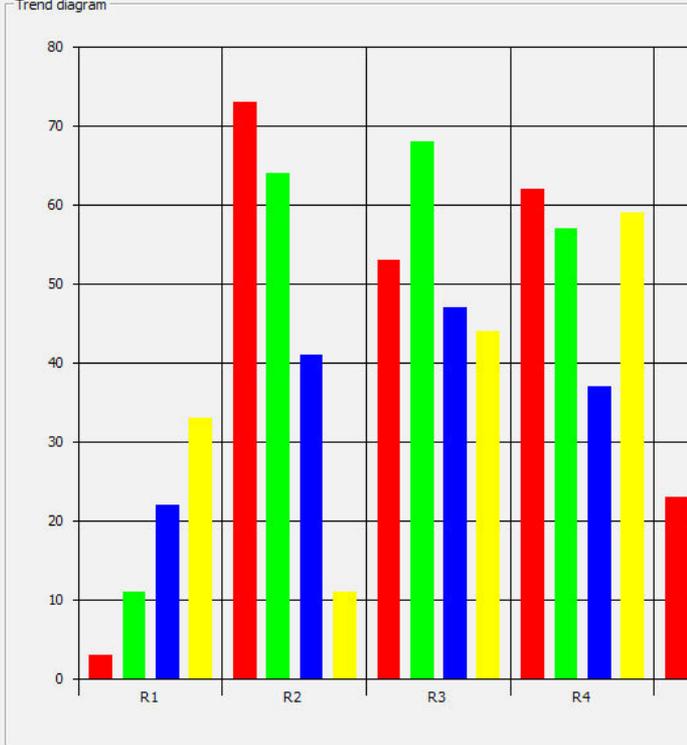
Image selection

Line number selection
All steps

Result type selection

Data Trend diagram Classification diagram

Trend diagram



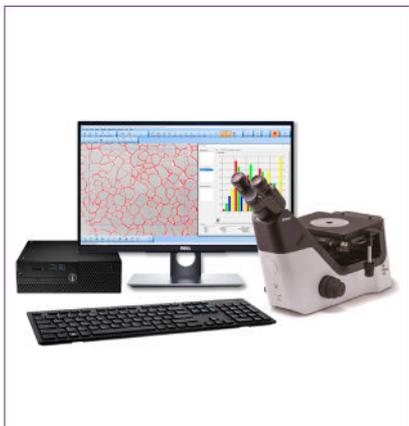
| Region | Bar 1 | Bar 2 | Bar 3 | Bar 4 |
|--------|-------|-------|-------|-------|
| R1 | 3 | 11 | 22 | 33 |
| R2 | 73 | 64 | 41 | 11 |
| R3 | 53 | 68 | 47 | 44 |
| R4 | 62 | 57 | 37 | 59 |

Statistics

| | | | | | |
|--------|--|--------------|--|----------------------|--|
| Mean: | | Std dev: | | Fields of view: | |
| Total: | | Data points: | | Total area analyzed: | |
| Min: | | 95 % CI: | | Magnification: | |
| Max: | | % RA: | | Calibration: | |

Bkg-corr Crop

Frozen --- 142%





OmniMet™ Modular Digital Imaging System

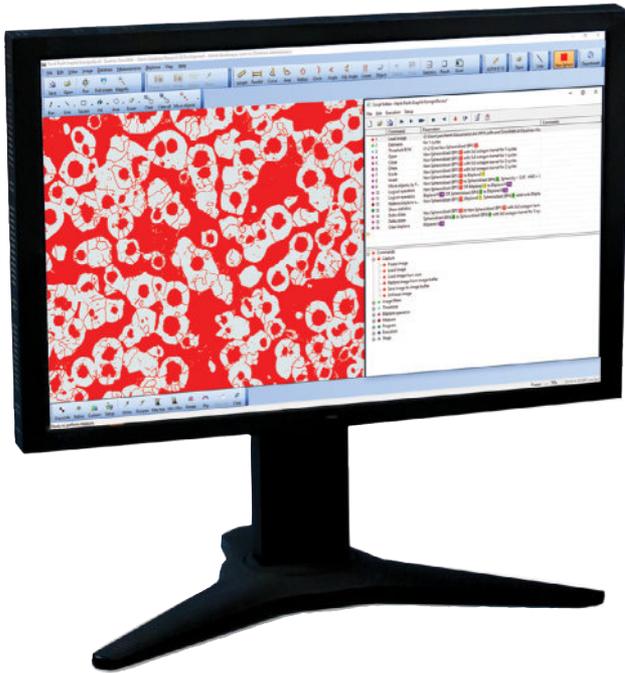
Designed for Demanding Production Lab Environments

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, IEEE 1394, 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 | | | • | • | • | • |
| <p>• Included with package ◊ Optional module (purchased separately) * OmniMet Enterprise comes with a selection of Scripts.</p> | | | | | | |

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. | 86-3150 | 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. |
| 86-3100* | 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. | 86-3310 | Surface Roughness - Surface roughness measurements in accordance with ASME B46.1-02. |
| 86-3300* | Coating Layer - Thickness Measures coating, plating or layer thickness of cross-sectioned samples in compliance with ASTM B487. | 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. |
| 86-3400* | 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. | 86-3525 | Cleanliness Assessment - Provides cleanliness assessment of particles on filter paper meeting the requirements of ISO 4406. |
| 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. | 86-3600 | 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. |
| 86-3550* | Porosity Assessment - Provides automated measurements of fine holes or pores in a material. | 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. |
| 86-3750* | Dendritic Arm Spacing - Delivers measurements of lengths between dendrite arms in cast aluminum alloys. | 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. |
| 86-3200* | Phase Area Percent - Determines phase area and percentage area of multiple phases in accordance with ASTM 562. | | |

* Included with OmniMet™ Enterprise

Upgrades and Updates

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

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:

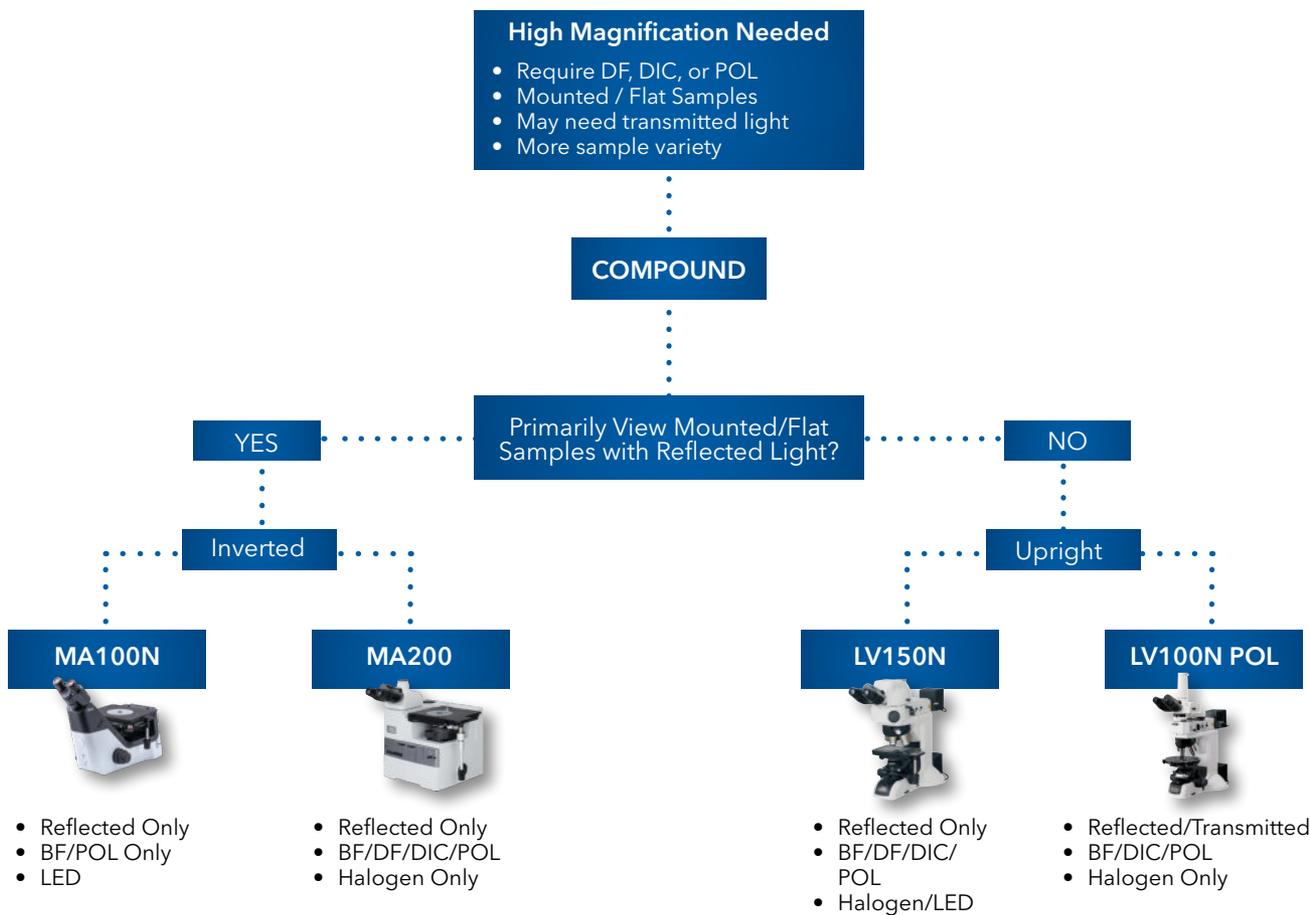
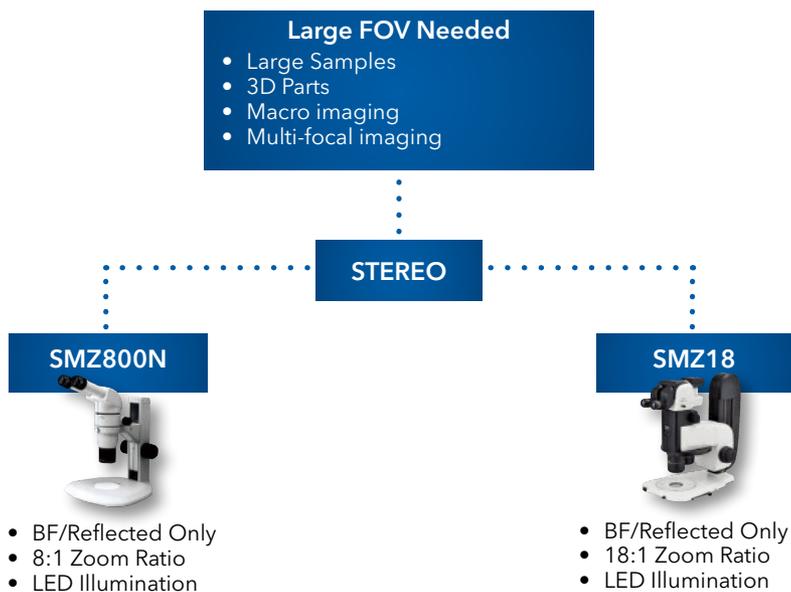
| | |
|---------|---------------------------|
| 86-4202 | Update Basic |
| 86-4204 | Update Advanced |
| 86-4205 | Update Viewer |
| 86-4206 | Update Capture N' Measure |
| 86-4201 | Update Express |
| 86-4203 | Update Enterprise |

| 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, diasopic (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.





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 NIMNH55160* - 1.5x
 NIMNH55100 - 1x 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 NIMUD00200 - 20x
 NIMUE12030* - 2.5x NIMUD00500 - 50x
 NIMUD00050 - 5x NIMUD00900 - 100x
 NIMUD00100 - 10x

**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

**Polarizer Required*

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

NIMUE12500 - 50x
 NIMUE12900 - 100x

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

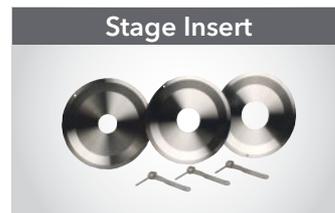
[8744-62](#)



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

*Polarizer Required

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

NIMUE12500 - 50x
 NIMUE12900 - 100x

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



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 diasopic (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



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



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



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



Camera Adapter, C-Mount, 1x, LV-TV, for 1" chip size cameras
[8749-13](#)



Microscopy Accessories

Digital Cameras



LE Edition



SE Edition

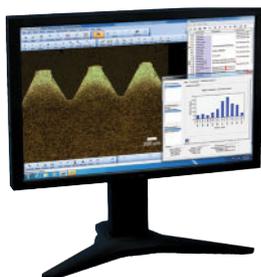
| Part Number | Model | Mega pixels | Chip Size | Resolution (w x h) | Frame Rate (fps) | Image Sensor | Interface |
|-------------|---------------|-------------|-----------|--------------------|------------------|--------------|-----------|
| 86-0274 | uEye 1460SE-C | 3.1 | 0.5in | 2048 x 1536 | 11.2 | 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

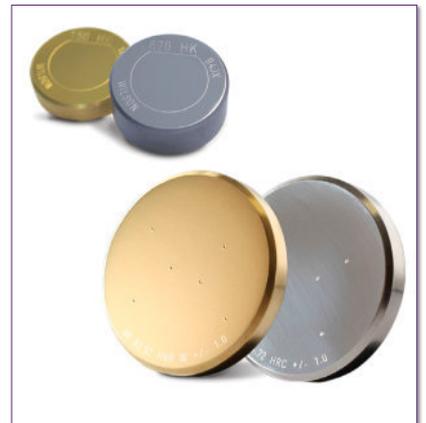
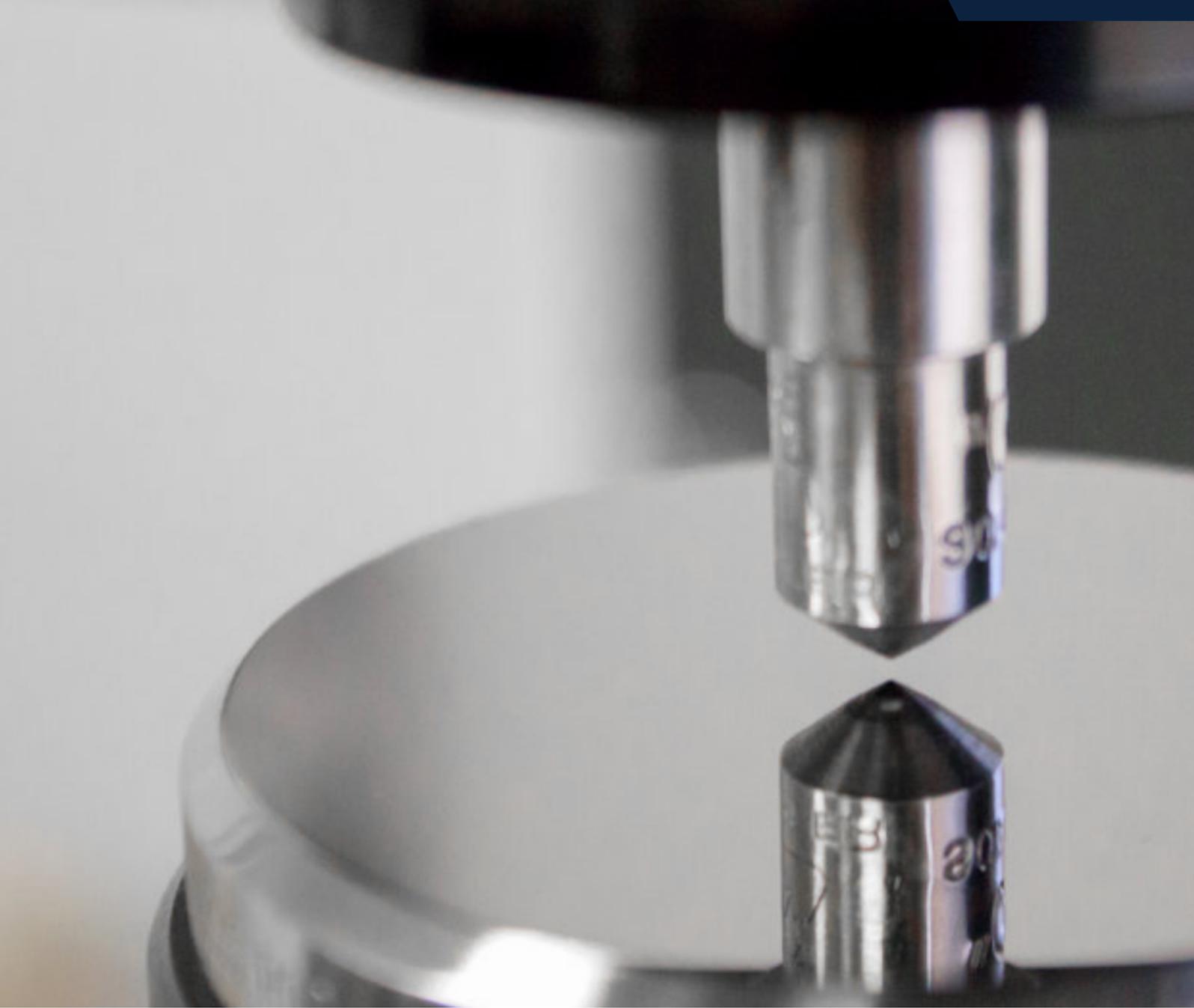


| Part Number | Description |
|-------------|---|
| 85-0124 | 24in Monitor, LCD with 1920 x 1200 display capability |
| 85-0135 | 24in Touch Monitor, LCD with 1920 x 1200 display capability |

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 |



HARDNESS TESTING

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

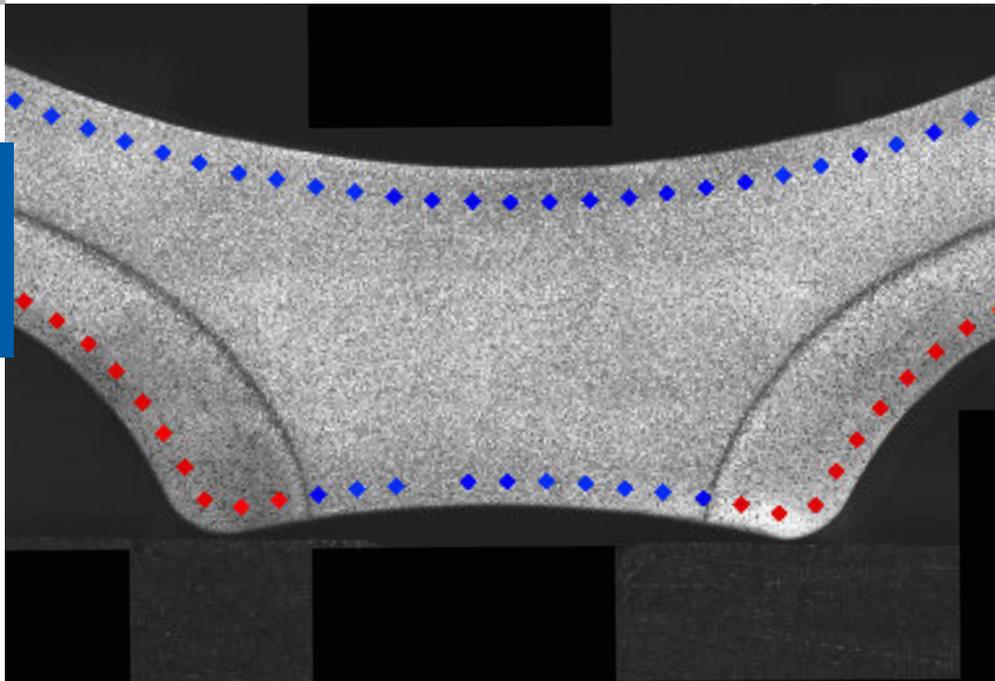
Wilson® hardness testers include a comprehensive range of hardness testers from Rockwell®, Vickers-Knoop, and Brinell to fully automatic production systems. Our testers are complemented by a range of test blocks, accessories, and fixtures. The Wilson Reference Block Laboratory is ISO/IEC 17025 certified 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

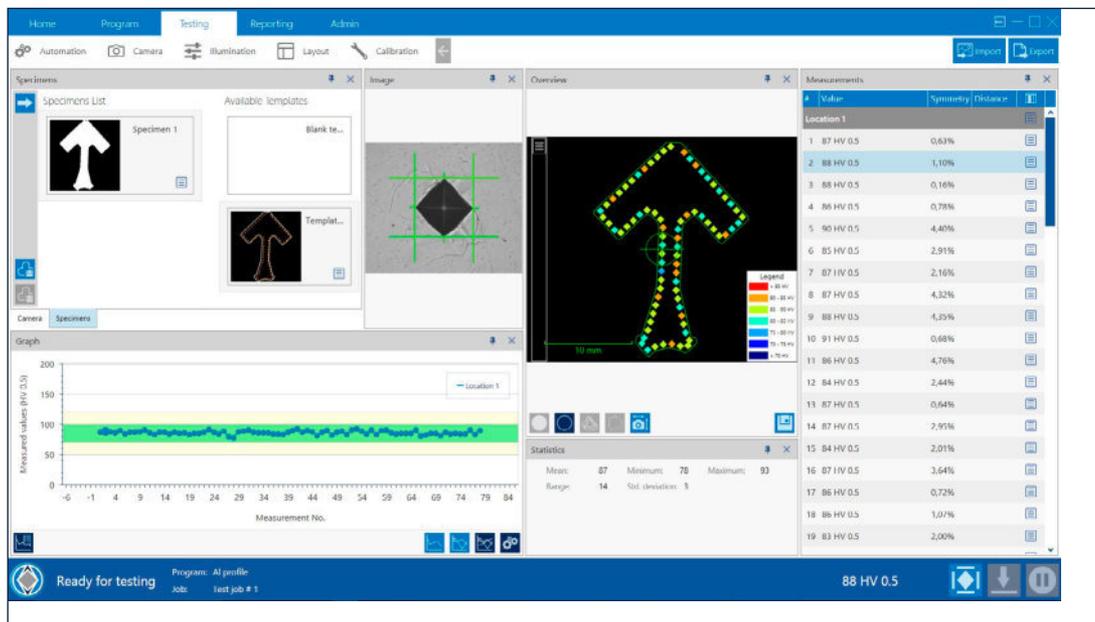
Use the functions you need - fully configurable

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

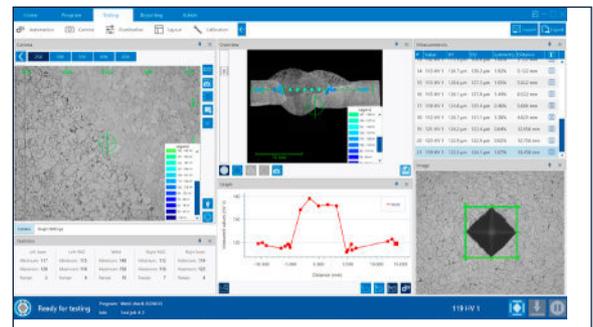
DiaMet - Automation Packages

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 | | ● | | | | ● standard |
| Digital Micrometers | | ○ | | | | ○ optional |
| Auto Measure | ● | ● | ● | ● | ● | |
| Auto Illumination | | ● | ● | ● | ● | |
| Motorized XY-Stage | | | ● | ● | ● | |
| Auto Focus | | | | ● | ● | |
| Scan, map & template | | | | | ● | |

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.

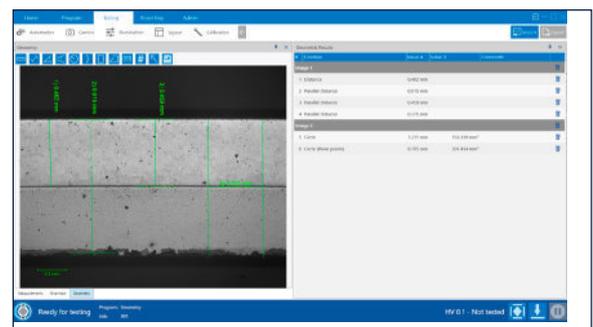


Color Mapping

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



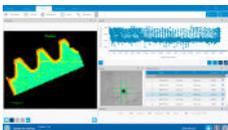
Wilson VH3300

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

*depending on configuration

W3210

Software Options



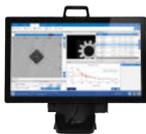
DiaMet Full-Automatic software package

W3100A03

DiaMet Enterprise software package

W3100A15

Monitors



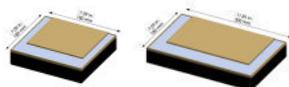
24" Touch screen

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)*

Wilson VH3100

Wilson VH3300

Vertical Test Capacity



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

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



- 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 | Indenter Holder* | Vickers Indenter | Knop Indenter | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------------|--------------------|--------------------|--------|----|--------|---------|-----|--------|---------|-----|-------|---------|-----|-------|---------|-----|-------|----------|------|-------|---|--|---|
| | <p><i>*for VH3100 Only</i></p> | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>Part Number</th> <th>Native Mag.</th> <th>Max. Field of View</th> </tr> </thead> <tbody> <tr> <td>W5XLWD</td> <td>5x</td> <td>3600µm</td> </tr> <tr> <td>W10XLWD</td> <td>10x</td> <td>1800µm</td> </tr> <tr> <td>W20XLWD</td> <td>20x</td> <td>900µm</td> </tr> <tr> <td>W40XLWD</td> <td>40x</td> <td>450µm</td> </tr> <tr> <td>W50XLWD</td> <td>50x</td> <td>360µm</td> </tr> <tr> <td>W100XLWD</td> <td>100x</td> <td>180µm</td> </tr> </tbody> </table> | 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 | <p>Standard holder W3100G01</p> <p>SnapGrip Holder W3100G02</p> | <p>Vickers Indenter, ISO & ASTM Certified W9100687</p> | <p>Knop Indenter, ISO & ASTM Certified W9100684</p> |
| 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 | | | | | | | | | | | | | | | | | | | | | | |

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



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



Solutions for NADCAP Accreditation

Buehler Has the Expertise for Direct Verification

As part of the ITW Test & Measurement Group, Buehler maintains its 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

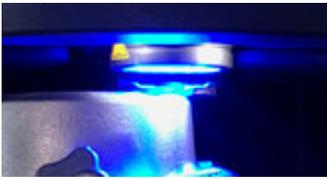
- | | |
|--------|-------------------|
| W4100L | Positioning Laser |
|--------|-------------------|

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

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

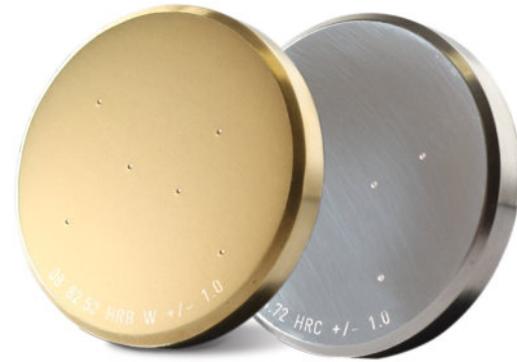


Wilson® Hardness Test Blocks

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 |
| 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 |
| 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 |
| 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



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

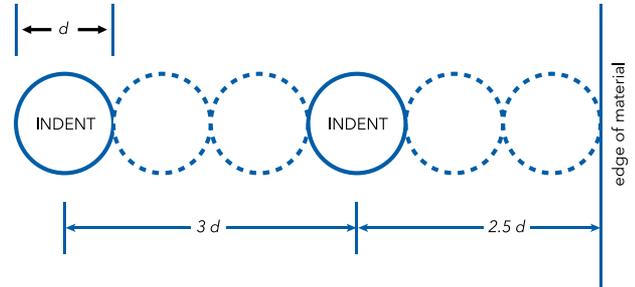
Proper Indent Spacing

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.

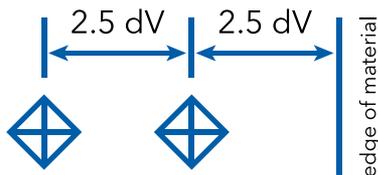
The distance from the center of any indentation to an edge of the test piece shall be at least two and a half times the diameter of the indentation.



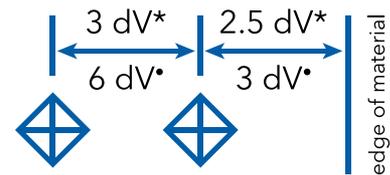
Vickers

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.

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.



dV = Vickers Diagonal

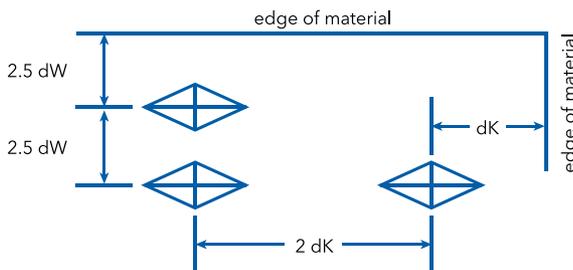


* For steel, copper and copper alloys
* For light metals, lead, tin and their alloys

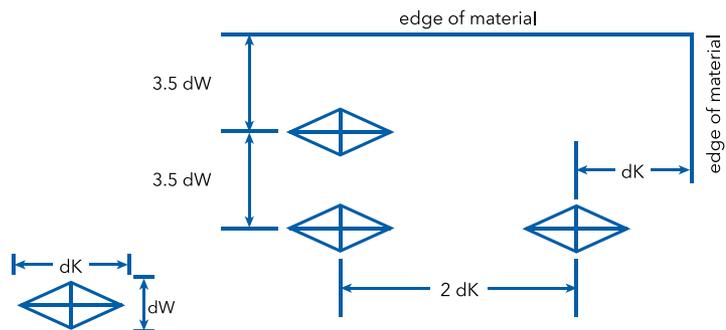
Knoop

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.

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.



dK = Knoop Long Diagonal
 dW = Knoop Short Diagonal





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 |
| ApexHercules 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.

SEND FILES:

ONLINE:

- Send your images through our website at <http://www.buehler.com/2020-buehler-calendar-contest>
- If an alternate method is preferred, please contact us at (847) 295-6500 or marketing@buehler.com for instructions on FTP login

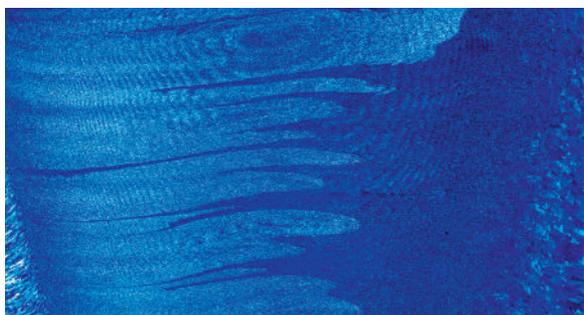
DEADLINE FOR SUBMISSIONS:

August 1st, 2019

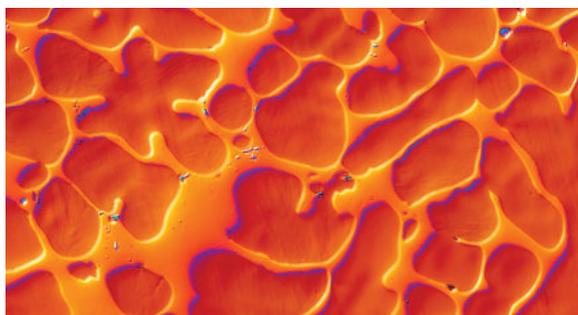
WINNERS:

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

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



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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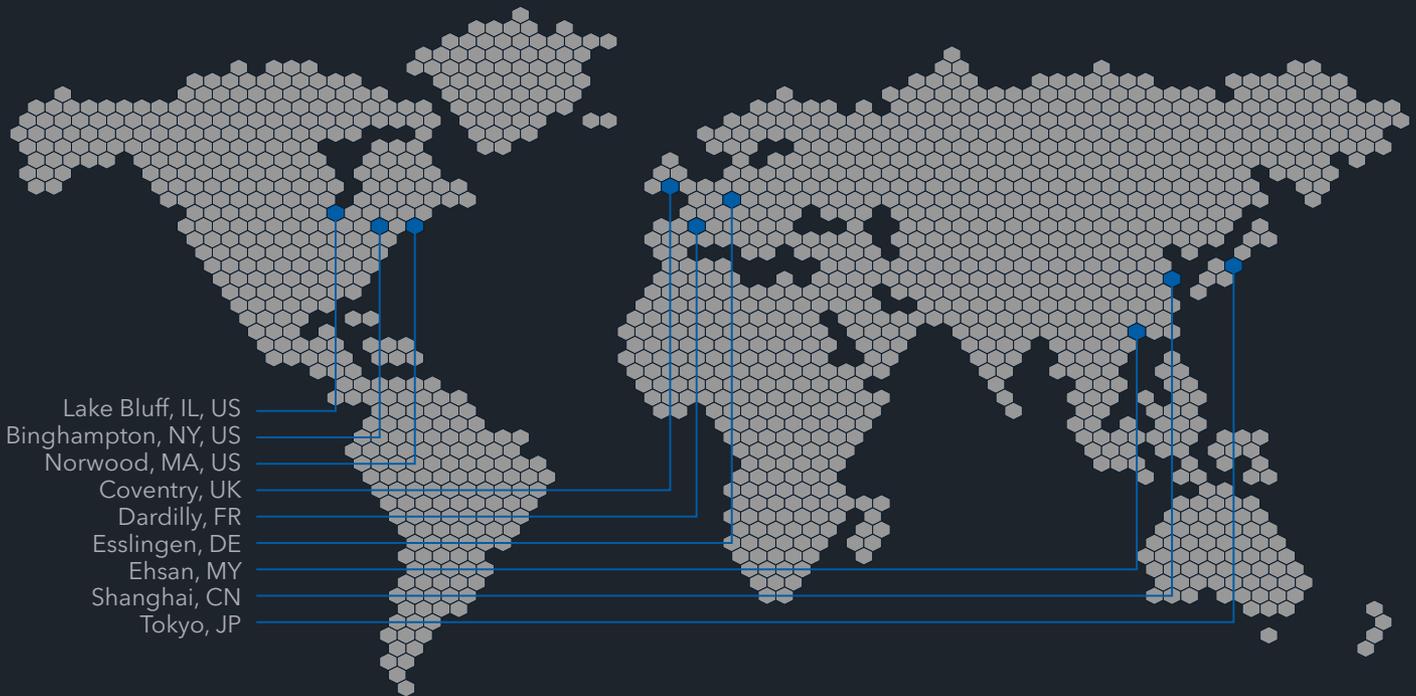
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