

IsoMet™ 4000 & 5000

Linear Precision Saws



BUEHLER

Solutions for Materials Preparation, Testing and Analysis

IsoMet™ 4000 & 5000 Linear Precision Saws

Automated Operation

- Start cutting and walk away
- Serial sectioning cuts parts into multiple pieces without the need to re-clamp*
- Automatic blade dressing prolongs blade life

Integrated Cooling

- Integrated coolant delivery system floods sample from both sides of the blade while tracking with blade movement
- Coolant hose can be used for washdowns

Large, Versatile Workspace

- Complete line of accessories for clamping any specimen
- Removable T-slot beds maximize cutting envelope

Simple to Operate

- SmartCut™ System prevents over heating specimens, improving cut quality
- Manual blade positioning speeds set-up
- Accessible emergency stop

Unimpeded Viewing

- Clearly view specimen through impact resistant safety hood

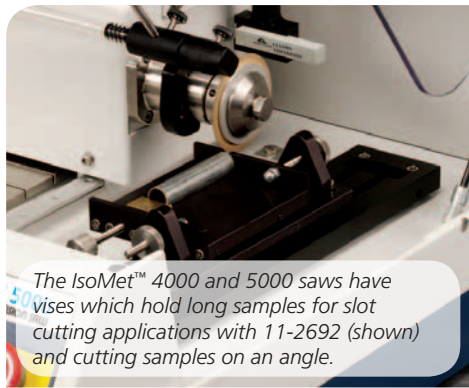


IsoMet Family

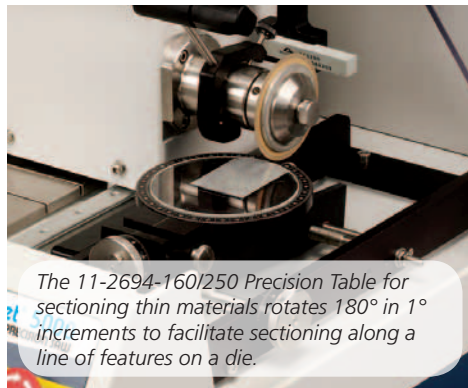
The IsoMet 4000 & 5000 Precision Saws cut materials with minimal specimen deformation and low kerf loss. The IsoMet 4000 & 5000 saws feature a manual blade positioning knob that accelerates set-up while clamping a specimen in a large unrestricted workspace. A wide selection of vises allow the user to precisely section virtually any material including metals, ceramics, composites, cements, laminates, plastics, electronic components, and biomaterials.

Features and Benefits

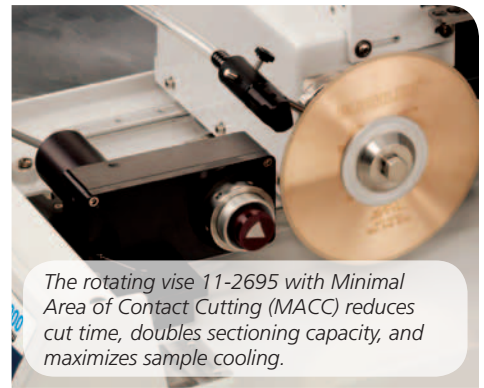
- Large open workspace provides excellent visibility during cutting and unrestricted access while clamping the specimen
- Linear feed mechanism with variable feed rate sections even the most delicate specimens
- Automated sectioning enhances lab productivity
- Versatile vising and blade options provide optimal sectioning for any shape specimen
- Manual blade positioning for quick setup and retraction
- SmartCut system monitors and adjusts feed rates to enhance surface quality and prevent damage to specimen or machine



The IsoMet™ 4000 and 5000 saws have vises which hold long samples for slot cutting applications with 11-2692 (shown) and cutting samples on an angle.



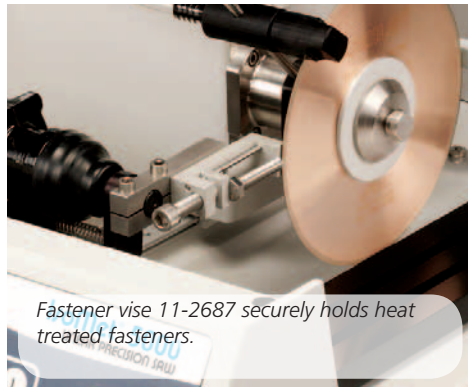
The 11-2694-160/250 Precision Table for sectioning thin materials rotates 180° in 1° increments to facilitate sectioning along a line of features on a die.



The rotating vise 11-2695 with Minimal Area of Contact Cutting (MACC) reduces cut time, doubles sectioning capacity, and maximizes sample cooling.

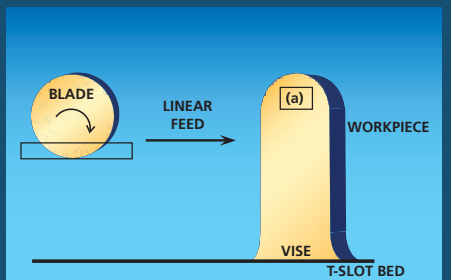


Stainless Steel Single Saddle Chuck 11-2683 firmly grips rods for transverse sectioning.

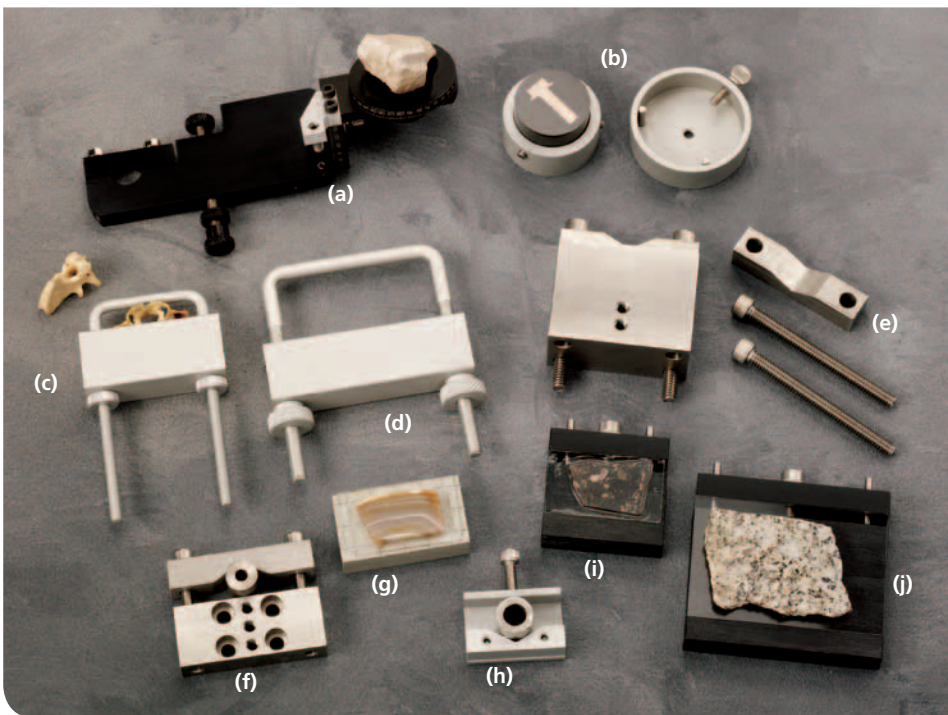


Fastener vise 11-2687 securely holds heat treated fasteners.

Linear Feed Mechanism



The IsoMet 4000's and 5000's blade feeds into the fixed workpiece on precision linear bearings. The linear travel provides constant feed rate cutting and allows sectioning of longer and irregular shaped samples. The workpiece can be positioned at the top (a) center or underneath the blade (b).



(a) 11-2693 Goniometer for positioning samples at precise angles
(b) 11-2084 and 11-2685 Round Specimen Chucks
(c) 11-1194 Small Bone Chuck
(d) 11-2494 Large Bone Chuck
(e) 11-2483 Double Saddle Chuck

(f) 11-2683 Single Saddle Chuck
(g) 11-2486 Wafer Chuck
(h) 11-1184 Bar and Tube Chuck
(i) 11-2484 Small Glass Slide Chuck
(j) 11-2488 Large Glass Slide Chuck

APPLICATIONS

Ferrous & Non-Ferrous Materials:

- Aluminum
- Biomedical Alloys
- Ceramics
- Copper Base Alloys
- Integrated Circuit Materials
- Magnesium
- Metal Matrix Composites
- Minerals
- Plain Carbon Steel
- Plastics
- Refractories
- Stainless Steels
- Thermal Spray Coatings
- Titanium
- Tool Steels

Precision Longitudinal Cuts and Slot Cutting on Long Samples:

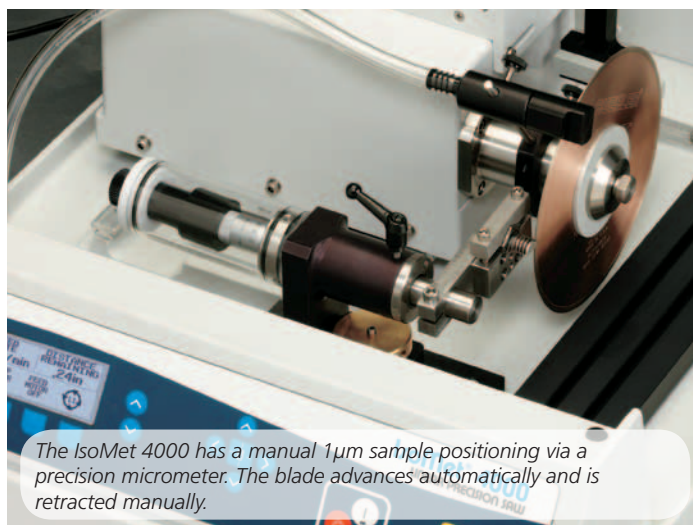
- Bones
- Fasteners
- Fossils
- Implants
- Tubing
- Turbine Blades



Coolant hose doubles as a clean-out hose for easy maintenance. Internal recirculating tank can be cleaned without removing the blade.



Touch button controls are easy to operate and manual feed knob speeds set-up. IsoMet™ 5000 can store 55 program methods for cutting various material types. For example, cup grindings 11-2740 (shown) can grind to target to prepare thin sections.



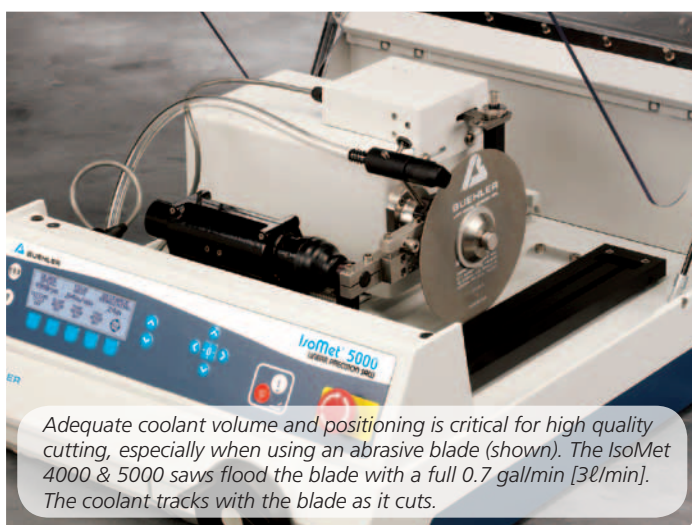
The IsoMet 4000 has a manual 1µm sample positioning via a precision micrometer. The blade advances automatically and is retracted manually.



The IsoMet 5000 has an automatic positioning system with a 2µm accuracy. The blade retracts automatically.

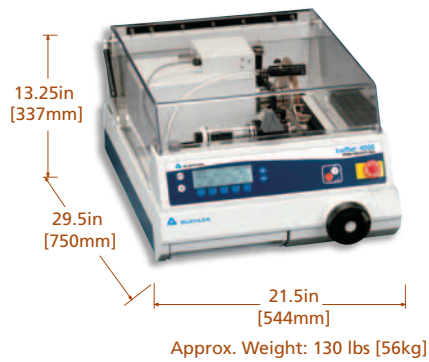


The 11-2696 Automatic Dressing System dresses the blade prior to and during operation to optimize cutting conditions, prolong blade life and provide the best cut surface.

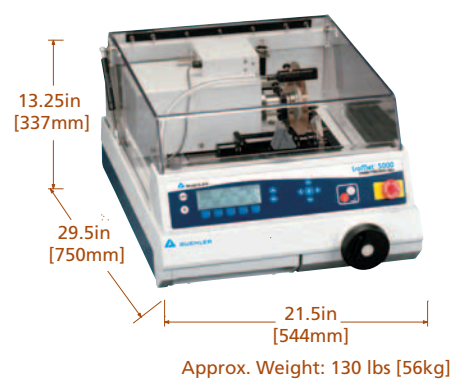


Adequate coolant volume and positioning is critical for high quality cutting, especially when using an abrasive blade (shown). The IsoMet 4000 & 5000 saws flood the blade with a full 0.7 gall/min [3ℓ/min]. The coolant tracks with the blade as it cuts.

IsoMet™ 4000



IsoMet 5000



| Specifications | IsoMet 4000 | IsoMet 5000 |
|--|---|---|
| Operation | Automatic with constant feed rate or SmartCut™ process control | |
| Cutting Action | Linear blade feeds automatically into workpiece | Automatic Linear Blade Feed and Retraction |
| Motor Power | 1.25Hp [950W] | |
| Feed Rate | 0.05-0.75in/min, 0.01in increments [1.2-19mm/min, 0.2-0.3mm increments] | |
| Blade Speed | 200-5000rpm in 50rpm increments | |
| Programmable Cutting Length with Auto Shut-off | 0.01-8in, 0.01in increments [0.25-200mm, 0.25mm increments] | |
| Electronics | Microprocessor controlled | |
| Display | 240 x 64 pixel Liquid Crystal Display (LCD) with backlighting | |
| Touch Pad Controls | Membrane keypad with tactile feedback buttons | |
| Process Prompts | "Warning Hood Open"; "Blade Pinched"; "Distance Remaining"; "Emergency Stop"; "Arm Limit" | |
| Languages | English, French, German, Portuguese, Spanish, Chinese, Japanese, Korean | |
| Wafering Blade Diameters | 3-8in [75-200mm] | |
| Abrasive Blade Diameters | 5-7in [125-180mm] | |
| Coolant Systems | Built-in Recirculating System, 0.9gal [4ℓ]; Optional External Recirculating System, 7gal [26.4ℓ] | |
| Flow Rate | 0.7gal/min [3ℓ/min] | |
| Main Power | [85-264VAC, 50-60Hz, 1 phase] / [120VAC, 5amp, 600W] / [240VAC, 2.3amp, 570W] | |
| Safety Features | Emergency Stop; Magnetic Safety Interlock | |
| Other Features | Cutting chamber clean-out hose; Manual Blade Positioning Knob | |
| Cutting Envelope | <i>Maximum Diameter of Sample:</i> Cutting capacity of up to 2.75in [70mm], dependent upon vising options | |
| | <i>Maximum Rectangular Sample:</i> 6 L x 2 D x 0.5in H [150 x 50 x 13mm] with 8in [203mm] blade | |
| X-axis Working Space | 16 L x 4 D x 4in H [406 x 102 x 102mm] | |
| Y-axis Working Space | 10 L x 8 D x 4in H [250 x 102 x 203mm] | |
| Programming | Retains last settings | 20 Customizable Methods and 35 Preset Buehler Methods, for a variety of materials including ferrous metals, non-ferrous metals, ceramics and geological specimens |
| Sample Position Settings | 0-0.9842in, 0.0025in increments; [0-24mm, 10µm increments] | 0-0.9842in, 0.0008in increments [0-25mm, 2µm increments] |
| Serial Cut Quantity | 1 - 100 | |
| Blade Thickness Settings | 0.000in, 0.006in, 0.012in, 0.015in, 0.020in, 0.025in, 0.030in, 0.035in [0.000mm, 0.150mm, 0.305mm, 0.381mm, 0.508mm, 0.635mm, 0.762mm, 0.889mm] | |
| Compliance | Accordance with EC Directive(s) | |

Ordering Information

IsoMet™ 4000 and 5000

- Simple to operate, automatic precision saw
- SmartCut™ adjusts feed rate to eliminate damage to system or sample
- Rotating vise for larger samples
- IsoMet 5000 includes cup grinding capabilities and 55 preprogrammed methods
- Compatible with external recirculating system
- 1.25Hp motor

(Includes 7in [178mm] IsoCut™ Blade for sectioning ferrous alloys and superalloys, 7" abrasive wheels, T-slot table, automatic dressing system, dressing stick, Cool 2 Fluid, 2 sets of flanges and the following chucks: irregular specimen, single saddle and 1.25in [32mm] round specimen)

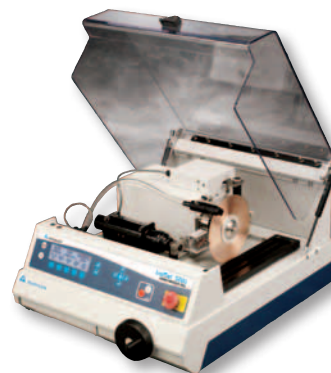
Available in the following voltage/frequency:

IsoMet 4000

11-2680 [85-264VAC, 50/60Hz]
 11-2681 [85-264VAC, 50/60Hz] Saw only
 11-2675 [85-264VAC, 50/60Hz] with external recirculation system

IsoMet 5000

11-2780 [85-264VAC, 50/60Hz]
 11-2781 [85-264VAC, 50/60Hz] Saw only
 11-2775 [85-264VAC, 50/60Hz] with external recirculation system



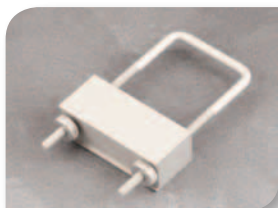
IsoMet Precision Saw Accessories



11-1186 Wafer Chuck



11-1187 Single Saddle Chuck



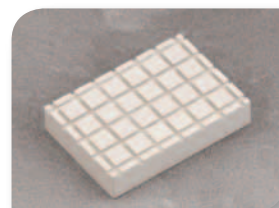
11-1194 Small Bone Chuck



11-1198 Dressing Block Spacer



11-2484 27 x 46mm Glass Slide Chuck



11-2486 Wafer Chuck



11-2488 2 x 3in [50 x 76mm] Glass Slide Chuck



11-2494 Large Bone Chuck



11-2496 Chuck Padding



Flange Set

11-1192 1.38in [35mm]
 11-1191 1.75in [44mm]
 11-2678 2in [50mm]
 11-2679 2.5in [64mm]
 11-2282 3in [76mm]
 11-2283 4in [100mm]
 11-2284 5in [127mm]



Precision Flange Set

11-2688 3in [76mm]
 11-2689 4in [100mm]
 11-2690 5in [127mm]
 11-2697 6in [152mm]

Accessories



11-2682 1.25in [32mm]
Double Saddle Chuck



11-2683 1.25in [32mm]
Single Saddle Chuck



11-2684 1.25in [32mm]
Mount Chuck



11-2685 1.5in [38mm]
Mount Chuck



11-2686 Irregular
Specimen Chuck



11-2687 Fastener Chuck



11-2691 Sliding Vise,
2.5in [65mm] maximum
opening



11-2692 Slotted Vise



11-2693 3-Axis
Goniometer



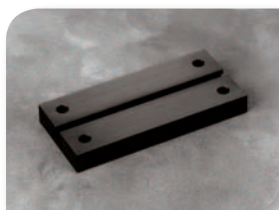
11-2695 Rotating Vise



11-2698 Angle Vise



11-2701 T-slot Y-axis bed



11-2702 T-slot X-axis bed



11-2703 Sliding Vise, 6in
[152mm] maximum opening



11-2704 Thermal Spray
Coating Chuck



11-2711 External
Recirculating System Kit



Precision Table
11-2694-160 [115VAC, 50/60Hz]
11-2694-250 [230VAC, 50/60Hz]

AcuThin™ Abrasive Wheels for IsoMet™ 4000 and 5000 Precision Saws, 0.5in [13mm] Arbor (qty 10)

| Recommended Use | 5in [127mm] | 7in [178mm] |
|---------------------------------------|-------------|-------------|
| Tool Steel, Hard Steel HRC45 & Up | 10-4060-010 | |
| Medium hard, soft steel HRC45 & Below | 10-4061-010 | |
| Steel, Stainless Steel | | 11-4207-010 |
| Hard, soft non-ferrous materials | | 11-4217-010 |

Precision Sectioning Blades for IsoMet™ Saws (qty 1)

| Recommended Use | 3in [76mm]* | 4in [102mm] | 5in [127mm] | 6in [152mm] | 7in [178mm] | 8in [203mm] | Dressing Stick |
|---|----------------|----------------|----------------|-----------------------|----------------|-----------------------|--|
| 30HC - Polymers Rubber, Soft Gummy Materials | | | 11-4239 | | 11-4241 | 11-4242 ^{SO} | N/A |
| 20HC - Aggressive Sectioning of Metals | | | 11-4215 | | 11-4237 | 11-4283 | 11-1190 11-2490 |
| 15HC - Metal Matrix Composite, PCBs, Bone, Ti, TSC | 11-10066 | 11-4244 | 11-4245 | 11-4246 | 11-4247 | 11-4248 | 11-1190 11-2490 |
| 20LC - Hard tough Materials, Structural Ceramics | | | 11-4225 | | 11-4227 | 11-4228 | 11-1190 11-2490 |
| 15LC - Hard Brittle Materials, Glass, Al ₂ O ₃ , Zr ₂ O ₃ , Concrete | 11-10067 | 11-4254 | 11-4255 | 11-4276 | 11-4277 | 11-4279 | 11-1190 11-2490 |
| 10LC - Medium to Soft Ceramics, Glass Fiber Reinforced Composites | 11-10068 | | 11-4285 | | 11-4287 | 11-4288 ^{SO} | 11-1290 ^{SO} 11-2495 ^{SO} |
| 5LC - Soft, Friable Ceramics, Composites with Fine Reinforcing, CaF ₂ , MgF ₂ , Carbon Composites | 11-10069 | | 11-4295 | | | | 11-1290 ^{SO} 11-2495 ^{SO} |
| CBN LC - Fe, Co, Ni based alloys and superalloys | 11-10070 | 11-4264 | 11-4265 | 11-4266 | 11-4267 | 11-4268 | 11-1190 11-2490 |
| CBN HC - Fe, Co, Ni based alloys and superalloys | | 11-5264 | 11-5265 | 11-5266 | 11-5267 | 11-5268 | 11-1190 11-2490 |
| Cup Grinder for Ferrous Material (IsoMet™ 5000 only) | | | | 11-2720 ^{SO} | | | |
| Cup Grinder for Non-Ferrous Material (IsoMet™ 5000 only) | | | | 11-2730 ^{SO} | | | |
| Cup Grinder for Ceramic & Geological Materials (IsoMet™ 5000 only) | | | 11-2740 | | | | |

* 3in [76mm] blades are recommended for use with Precision Table 11-2694-160/250
SO - Special Order. Items may have long lead times and minimum orders.

For a complete listing of consumables, please refer to our Buehler Buyer's Guide or contact your local Buehler Sales Engineer. Buehler continuously makes product improvements; therefore technical specifications are subject to change without notice.

Sectioning
AbrasiMet • AbrasiMatic • IsoMet

Mounting
SimpliMet

Grinding & Polishing
EcoMet • AutoMet • MetaServ

Imaging & Analysis
OmniMet

Hardness Testing
Wilson® Hardness



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