

IsoMet™ 4000 & 5000

Linear Precision Saws



IsoMet™ 4000 & 5000 Precision Saws

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.

Automated Operation

- Start cutting and walk away
- Serial sectioning cuts parts into multiple pieces without the need to reclamp (IsoMet 5000 only)
- 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
- External tank available for heavy abrasive wheel use

Large, Versatile Workspace

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

Visibility

- Clearly view specimen through impact resistant safety hood

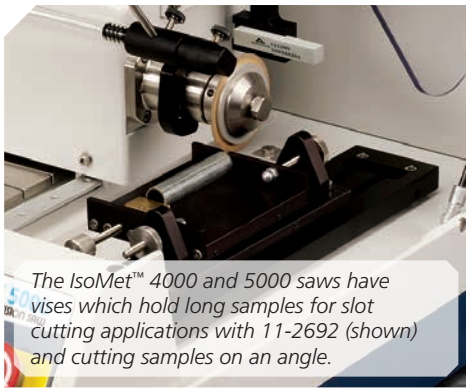
Simple to Operate

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

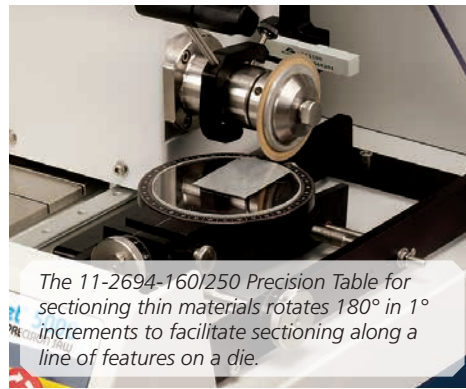


At a Glance

- 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



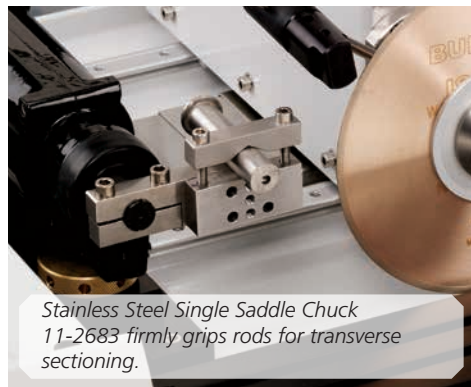
The IsoMet™ 4000 and 5000 saws have vises which hold long samples for slot cutting applications with 11-2692 (shown) and cutting samples on an angle.



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.

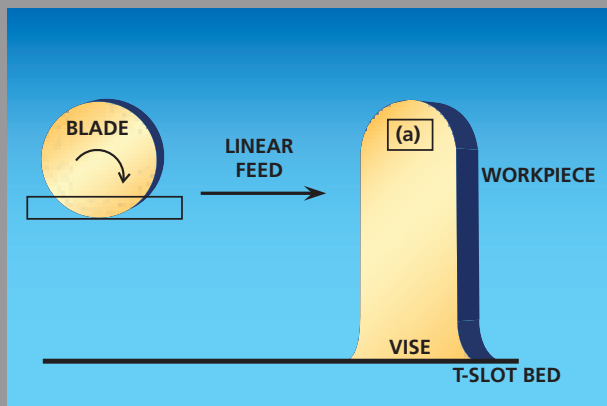


Stainless Steel Single Saddle Chuck 11-2683 firmly grips rods for transverse sectioning.



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).

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:

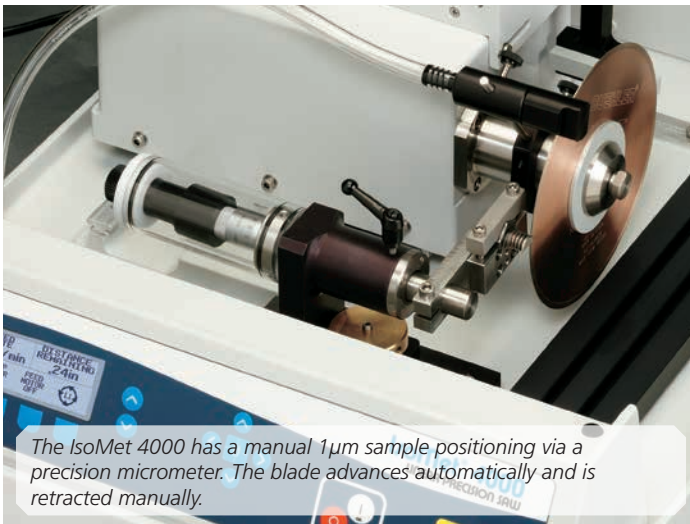
- Bones
- Fasteners
- Fossils
- Implants
- Tubing
- Turbine Blades



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.

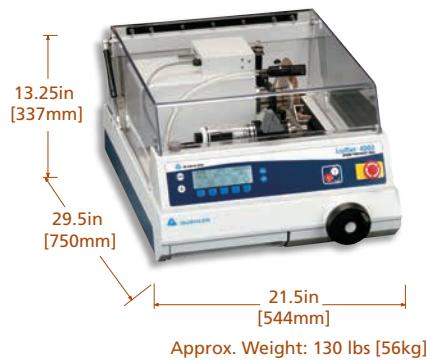


The 11-2696 Automatic Dressing System dresses the blade prior to and during operation to optimize cutting conditions, prolong blade life and provide the best cut surface.

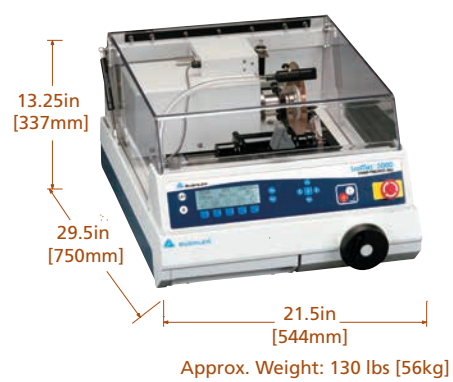


Adequate coolant volume and positioning is critical for high quality cutting, especially when using an abrasive blade (shown). The IsoMet 4000 & 5000 saws flood the blade with a full 0.7 gal/min [3ℓ/min]. The coolant tracks with the blade as it cuts.

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 Capacity	<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	
Cutting Chamber	16 L x 4 D x 4in H [406 x 102 x 102mm]	
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, 0.00004in increments; [0-25mm, 1μm increments]	0-0.9842in, 0.00008in 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

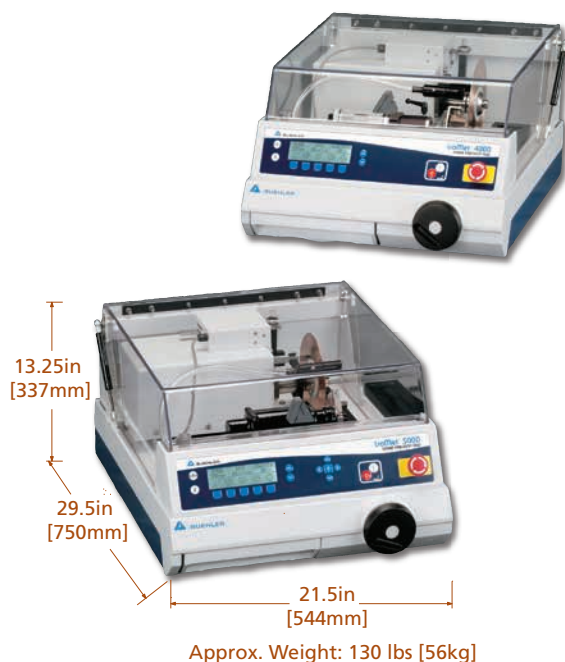
IsoMet™ 4000 and 5000

- 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, 35 preprogrammed and 20 customizable methods
- Compatible with external recirculating system
- 1.25Hp motor

(Includes 7in [178mm] IsoCut™ Blade for sectioning ferrous alloys and superalloys, 7in 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)

IsoMet 4000	Voltage/Frequency
11-2680	85-264VAC, 50/60Hz
11-2675 with external recirculation system	85-264VAC, 50/60Hz

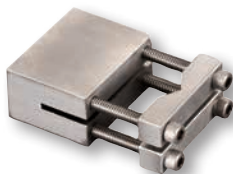
IsoMet 5000	Voltage/Frequency
11-2780	85-264VAC, 50/60Hz
11-2775 with external recirculation system	85-264VAC, 50/60Hz



IsoMet 4000 & 5000 Accessories

Double Saddle Chuck

Securely holds specimens up to 0.875in [22mm] from 2 points



11-2682

Single Saddle Chuck

Holds specimens up to 0.875in [22mm] in diameter



11-2683

Mount Chuck

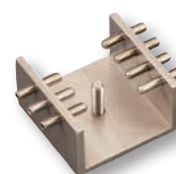
Stainless steel chuck holds mounted samples



11-2684 1.25in [32mm]
11-2685 1.5in [38mm]

Irregular Specimen Chuck

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



11-2686

Fastener Chuck

Holds specimens up to 2in [50mm] for longitudinal sectioning



11-2687

Sliding Vise

Attaches to T-slot table and holds specimens up to 2.5in [65mm]



11-2691

Large, Single Saddle Chuck

Holds specimens up to 2in [50mm] from 2 points



11-2285



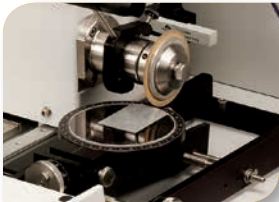
Large Bone Chuck

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



11-2494

IsoMet™ 4000 & 5000 Accessories

Slotted Vise Adjusts in vertical direction to enable operator to cut a slot at a constant depth  11-2692	Goniometer Rotates specimen along 3 axes  11-2693	Rotating Vise Rotates specimen chuck to increase the maximum cutting depth of the blade  11-2695	Automatic Dressing System Dresses blade prior to and during operation to optimize sectioning conditions  11-2696
Precision Positioning System, 1µm For manual sample positioning via precision micrometer  11-2699	Angle Vise Precisely holds specimen for cutting at an angle with the chuck rotating left and right  11-2698	T-slot Y-axis bed Additional T-slot for positioning vises  11-2701	T-slot X-axis bed Additional T-slot for positioning vises  11-2702
Sliding Vise 6in [152mm] maximum opening, use requires flange to be 2in [50mm] or less  11-2703	Thermal Spray Coating Chuck Uniformly distributes clamping forces and reduce cracking of brittle thermal spray coatings  11-2704	External Recirculating System Kit Increases cutting fluid capacity to 7gal [26.5ℓ] at 1.25gal/min [4.7ℓ/min]  11-2711	
Chuck Padding  11-2496		Precision Table Precisely aligns specimen forward, backward, up and down  11-2694-160 [115VAC, 50/60Hz] 11-2694-250 [230VAC, 50/60Hz]	
Aluminum Flange Set  11-1191 1.75in [44mm] 11-1192 1.38in [35mm] 11-2678 2in [50mm] 11-2679 2.5in [64mm] 11-2282 3in [76mm] 11-2283 4in [100mm] 11-2284 5in [127mm]		Stainless Steel Flange Set  11-2688 3in [76mm] 11-2689 4in [100mm] 11-2690 5in [127mm] 11-2697 6in [152mm]	

Precision Sectioning Blades for IsoMet™ Saws, 0.5in [12.7mm] Arbor (qty 1) [Part Number / Blade Thickness]

Recommended Use	3in [76mm]	4in [102mm]	5in [127mm]	6in [152mm]	7in [178mm]	8in [203mm]	Dressing Stick*
IsoMet 30HC - Polymers Rubber, Soft Gummy Materials			11-4239 0.030in [0.76mm]		11-4241 0.03in [0.76mm]	11-4242 ^{SO} 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	11-10066 0.07in [2mm]	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 , Zr ₂ O ₃ , Concrete	11-10067 0.07in [2mm]	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	11-10068 0.07in [2mm]		11-4285 0.015in [0.4mm]		11-4287 0.02in [0.5mm]	11-4288 ^{SO} 0.045in [1.1mm]	11-1290 ^{SO} 11-2495 ^{SO}
IsoMet 5LC - Soft, Friable Ceramics, Composites with Fine Reinforcing, CaF ₂ , MgF ₂ , Carbon Composites	11-10069 0.07in [2mm]		11-4295 0.015in [0.4mm]				11-1290 ^{SO} 11-2495 ^{SO}
IsoCut™ CBN LC - Fe, Co, Ni based alloys and superalloys	11-10070 0.07in [2mm]	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 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				

SO - Special Order. Items may have long lead times and minimum orders.

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

AcuThin™ Abrasive Wheels for IsoMet™ 4000 and 5000 Precision Saws, 0.5in [12.7mm] Arbor (qty 10)

[Part Number / Blade Thickness]

Recommended Use	5in [127mm]	7in [178mm]
Tool Steel, hard steel, HRC45 & Up	10-4060-010 0.19in [0.48mm]	
Medium hard, soft steel, HRC45 & Below	10-4061-010 0.19in [0.48mm]	
Steel, Stainless Steel		11-4207-010 0.030in [0.76mm]
Hard, soft non-ferrous materials		11-4217-010 0.030in [0.76mm]



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