ULTRASLICE



Precision Sawing Equipment for High-Tech Applications



Precision Slicing & Dicing of Important Materials



The need to produce surfaces with precision saws is widespread through manufacturing industry and research. Slicing operations are normally required to achieve one or more of the following:

- To achieve a specific thickness or form
- To provide a reproducible cross-section
- To uncover a hidden layer or microstructure
- To singulate multiple identical dice from a wafer
- Rapid material removal to reduce grinding/polishing time



After sawing, the resulting surface or shape may be an end-in-itself, or the starting point for subsequent lapping & polishing.

ULTRASLICE saws have been specifically designed to provide success on the maximum number of applications. The 'open' design of **ULTRASLICE** machinery makes each system specifically GENERAL PURPOSE.

By table-mounting the sample/workpiece, the opportunity for precision and delicacy of cut is enhanced - Each **ULTRASLICE** incorporates a speed controllable Y-direction stage.

In addition, the number of mounting methods is increased – samples can be held in a vise, flat wafers or specimens can be adhered to a substrate for dicing-type cuts. With the addition of a 'Quick Release' mounting interface, many of ULTRA TEC's specialist mounting plates can also be used for holding optic, fiber optic and microscopy specimens – with rapid and seamless transfer between the saw and an ULTRAPOL Polisher.

ULTRASLICE Standard Features



Retractable Plexiglass Splashguard



Convenient Coolant Recirculation Changeovers



Open System Design





ULTRASLICE

A Benchtop combination of advanced controls, power and versatility

Developed to facilitate precision sectioning applications in Industry and Research, **ULTRASLICE** Precision Saw provides the user with a unique combination of features:

VERSATILE SAMPLE HOLDING

The system may be readily converted to handle sample cutting requirements of most shapes, sizes, and applications.

CUTTING ACCURACY & CONSISTENCY

The use of precision lead screws on all sample feed mechanisms mean that cuts can be positioned accurately. All-metal construction and an accurately calibrated spindle movement assures low transmission of vibration to the workpiece.

LONG CUTS & DICING

The large work-table and overall layout of the machine, allows for long cuts to be achieved, indexed in the Y direction with the integral motorized table feed. The saw's layout also makes it a competent low-production dicing machine.

SPEED & POWER

ULTRASLICE has the power and range of blade speeds to achieve higher cutting rates when necessary. The system features an integral coolant recirculation system and extends blade life and clears cutting debris to improve cutting rate and surface quality. All system controls are positioned on a conveniently located panel. An automatic cut-out is provided so that **ULTRASLICE** may be left unattended during a cutting cycle.

PRODUCT HIGHLIGHTS:

- **Z-Spindle** Allows for cutting depth to be altered **even during** operation. The system can handle sample cutting requirements of most shapes, sizes and applications.
- Cutting Accuracy The use of precision lead screws on all sample feeds means cuts may be positioned accurately
- Specialized Cutting The large work-table and layout of the machine allows for long cuts to be achieved - perfect for failure analysis and QA applications such as longitudinal sectioning of components.
- Most Blade Types The system accepts a wide range of O.D. diamond and abrasive blades for standard cutting, and is readily adaptable to accept special 'dicing' blades for the smallest kerf.



DEDRIKSDED







3590.1 W-Rotational Stage





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ULTRASLICE compact

Versatile Precision Saw for Small Workspaces and Small Budgets

For the user who wants all the functionality and unique control of cutting parameters offered by a high end saw, while working on a tight budget or with limited lab space, **ULTRASLICE** compact provides the answer.

The system features an integral coolant recirculation system which extends blade life and clears cutting debris to improve cutting rate and surface quality.



Work is fed into the blade by several different methods, by use of table attachments.

A fully splashguard enclosure is provided which may be opened to allow front panel access or be completely swung away from the cutting area.For Industrial and research operations, *compact* offers an unparalleled combination of cut quality, accuracy, versatility, and affordability.

PRODUCT HIGHLIGHTS:

• Versatility - The system may be readily converted to handle sample cutting requirements of most shapes, sizes and applications

• Cutting Accuracy - The use of precision lead screws on all sample feeds means cuts may be positioned accurately

• Long Cuts & Dicing - The large work-table and layout of the machine allows for long cuts to be achieved - perfect for failure analysis, and QA applications such as longitudinal sectioning of components

It Slices... It Dices



8520.4Z Z-Spindle Option



3575.2 Vise Holder



3518.4 Substrate Holder



3632.1 Y-Table Automatic Cut-out Switch Option





ULTRASLICE macrotome

A New Precision Sawing System for the Sample Prep of Delicate and Unique Materials

ULTRASLICE *macrotome* precision diamond saw, is a quiet, direct drive design for smooth, chatter free slicing system for important and fragile industrial, hard tissue, biological and certain industrial specimens. The system suits Fish & Game applications, such as Otolith and Statolith samples. Specimens can be oriented to ensure a flat surface is parallel to the desired section plane such as sagittal, frontal or transverse.



macrotome can also be used in many other industrial applications where the best price/performance ratio is required. The wheel (spindle) rotation is variable speed, to allow for optimized cut quality. An easy access coolant reservoir, allows for quick efficient coolant changes.

PRODUCT HIGHLIGHTS:

- Suits Low Budgets The system is price 'to sell' for all lab sizes and budgets
- Z-Spindle Option Make Cutting height changes quickly even during cutting operations
- Manual Crank Motorized-Feed Option all feed are possible for achieving optimum cutting results
- Otolith, Statolith, undecalcified Bones & Teeth the system cuts most hard tissue
- Industrial Components accepts a variety of blades for cutting a range of industrial materials



8520.4M Y-Motor Drive Option



Standard Vise also Rotates for maximum versatility



ILTRASLICE

3572.1 X-Axis Cut-Thickness Micrometer Option



MATES THE

Standard X-Axis Macro-Adjust





ULTRATRIM

Entry-level Slicing Machine

ULTRATRIM is a low cost, entry-level, precision sawing machine for producing rapid cross-sections for microscopy and QC checks.

The saw includes a straightforward coolant reservoir, the saw blade dips into the reservoir for effective cooling and lubrication of the sawing process. An intelligently designed manually fed cutting table, makes slicing fast and easy.

PRODUCT HIGHLIGHTS:

- Accepts 4 inch o.d. blades, with standard 0.5 inch spindle
- Quiet, powerful motor with speed control
- Manual Table-fed cutting for fast, convenient sample prep
- Convenient reservoir for blade coolant and lubrication
- Extremely competitive pricing



ULTRASLICE Custom Solutions

Saw/Polisher Combination



Encapsulated Sample Holder mounted on ULTRASLICE



3541.8 Quick-Release Interface

The Quick Release Interface (QR) opens the possibilities for a wide range of standard and custom holders that can transfer between saw and polisher. This technique has already proved useful for Medical, Photonics and Microscopy-related customers. Ask how we can assist with your applications!



GANG-BLADE SLICING Allows for the yield of multiple slices from a single

saw pass. Custom flanges (cheek plates) are normally required to produce the correct slice thickness



CUSTOM HOLDER DESIGN Is available to our sawing & polishing customers. Shown above is a custom design which holds a large automotive transmission component



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SLICING BLADES & SUPPLIES



DIAMOND Metal Bond Blades Low Concentration

For use on lower loads & speeds, brittle or hard materials like silicon, ceramics, carbides, glass, etc.

Order Code	O.D. (inches)	Blade Thickness (over diamond)
7311.1	3	0.006
7312.1	3	0.012
7412.1	4	0.012
7417.1	4	0.017
7516.1	5	0.016
7620.1	5	0.020

DIAMOND Metal Bond Blades High Concentration

For use on higher loads & speeds, metals, PC boards, polymers, titanium, etc.

Order Code	O.D. (inches)	Blade Thickness (over diamond)
7311.2	3	0.006
7312.2	3	0.012
7412.2	4	0.012
7417.2	4	0.017
7516.2	5	0.016
7620.2	5	0.020



DIAMOND BLADES – Resin-Bond

Recommended for delicate, hard or brittle materials such as carbides, ceramics, composites

Order Code	O.D. (inches)	Blade Thickness (over diamond)
7415.1	4	0.015
7520.1	5	0.020
7620.3	5	0.020

ABRASIVE CUT-OFF WHEELS

For steels, medical & engineering components, etc.

Order Code	O.D. (inches)	Blade Thickness
7812.1.1	4	0.012 (10 pk) NF
7812.1.1	4	0.025 (10 pk) NF
7812.1.1	4	0.025 (10 pk) F

Note: "F" – optimized for steels (ferrous metals); "NF" – optimized for non-ferrous metals



FLANGES (Cheek Plates)

Used to support the cutting blade to minimize blade wander.

Order Code	O.D. (inches)
3525.2	2.5
3525.3	3
3525.4	3
3525.4	4

FLUIDS & DRESSING STICKS

Used to maintain optimum cutting performance

Order Code	Description
2396.1	Cutting / Lapping Oil (1 Gallon)
2388.1	Aquigrind - Water Soluble Oil (1 Gallon)
1561.1	Dressing Stick - Fine - 4" x 0.5" Square
1561.2	Dressing Stick - Coarse - 4" x 0.5" Square



Note: All Blades have a 0.5 inch (12.7mm) diameter arbor (center hole) to fit ULTRASLICE saws. Other arbor sizes are available for special order.

ULTRA TEC is proud to operate a continuous product improvement program. Product specifications and appearance are subject to modifications without prior notification.



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ULTRASLICE

Precision Saw Specifications

FEATURE	ULTRASLICE	ULTRASLICE Compact	ULTRASLICE Macrotome	ULTRATRIM
Motorized Y Table	Standard Feature	Standard Feature	option (8520.M)	-
Length of Y-table travel, Inches (cm)	9.75 (25cm)	4.5 (11cm)	7.5 (19cm)	-
Length of X-table travel, Inches (cm)	5.25 (13cm)	4 (10 cm)	4 (10 cm)	-
Z-Spindle	Standard Feature	option (8520.4Z)	option (8520.4Z)	_
Ammeter Cutting Pressure Indicator	Standard Feature	-	-	-
Spindle Arbor Size, Inches (mm)	0.5 (12.7mm)	0.5 (12.7mm)	0.5 (12.7mm)	0.5 (12.7mm)
Standard Blade Sizes (inches od)	3, 4, 5, 6	3, 4, 5	3, 4, 5	4
Maximum Cutting Torque, 1(lowest) to 5(highest)	5	4	2	3
Maximum Blade Speed (RPM)	6,000	1,800	2,500	2,500
Electrical	Single Phase 110-240V (50/60Hz)	Single Phase 110-240V (50/60Hz)	Single Phase 110-240V (50/60Hz)	Single Voltage Only 110V and 220V versions
Footprint – length x depth, inches (cm)	27 x 25 (68cm x 63cm)	15 x 18 (38cm x 45cm)	15 x 19 (38cm x 48cm)	15 x 11 (38cm x 28cm)
Height, Inches (cm)	21 (53cm)	17.5 (44cm)	17.5 (44cm)	9 (22cm)
Weight, Ibs (Kg)	145 (66Kg)	90 (41Kg)	90 (41 Kg)	9 (4Kg)

Ordering Information				
ITEM	ULTRASLICE	ULTRASLICE Compact	ULTRASLICE Macrotome	ULTRATRIM
System Order Code	8560.1	8520.1	8520.4	8505.1 – 110V 8505.2 – 220V
Quick Release Interface	3541.8	3541.8	3541.8	-
Y-table Automatic Cut-out Switch	Standard Feature	3632.1	-	-
X-Axis Cut Thickness Indicator	Standard Feature	3572.1	3572.1	-
Ammeter Cutting Pressure Indicator	Standard Feature	-	-	-
Vise Holder	3575.1	3575.2	Standard Feature	_
Substrate (Dicing) Holder	3518.4	3518.4	3518.4	-

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