



TechCut 5x™
PRECISION HIGH SPEED SAW

*A VERSATILE, PROGRAMMABLE
SECTIONING MACHINE DESIGNED TO
CUT A WIDE VARIETY AND SIZE OF MATERIALS*

Quality Products for Metallographic Sample Preparation & Analysis

The **TechCut 5x™** precision high speed saw is a versatile, programmable machine designed to cut a wide variety and size of materials. It automatically sections materials at high speeds, increasing sample throughput.

The PLC-based system controls sample feed rate, distance and force. Closed-loop monitoring of the blade and table optimizes cutting performance and minimizes blade breakage by automatically adjusting the feed rate when variations in sample material or thickness are detected.

When sectioning is complete, the table automatically retracts the sample to the home position and stops blade rotation and coolant flow.

The unique fixturing system allows for easy changes between the T-slot table and the X-axis tables. Both table types offer a variety of convenient table-specific fixture options.

Tables, accessories and consumables are sold separately.

Item	Description
5-5750-ER	TechCut 5x™ with External Reservoir, 100–240 V
5-5750-IR	TechCut 5x™ with Internal Reservoir, 100–240 V
5-5750-FT	TechCut 5x™ with Water Flow-Through, 100–240 V

(see page 8 for coolant system details)

Features:

- Unique fixturing design that allows use of either indexing or T-slot tables
- Soft-starting function for easing blade into cut/material
- Programmable feed rate and cut depth with high speed auto retraction
- Sample rotation for difficult, round or thick samples (requires rotation attachment)
- 7" color LCD touchscreen with keypad entry to control all functions



Unparalleled Fixturing Versatility



The unique design of the TechCut 5x™ allows the user to quickly and easily switch between T-slot and X-axis indexing tables.

The greater surface area of the T-slot table is more suitable for larger samples, while indexing tables provide quantitative X-axis positioning between the sample and blade for precision sectioning applications.

This flexibility enables quick breakdown and setup of fixturing when dealing with a wide range of sample shapes and sizes.



Joystick Sample Positioning



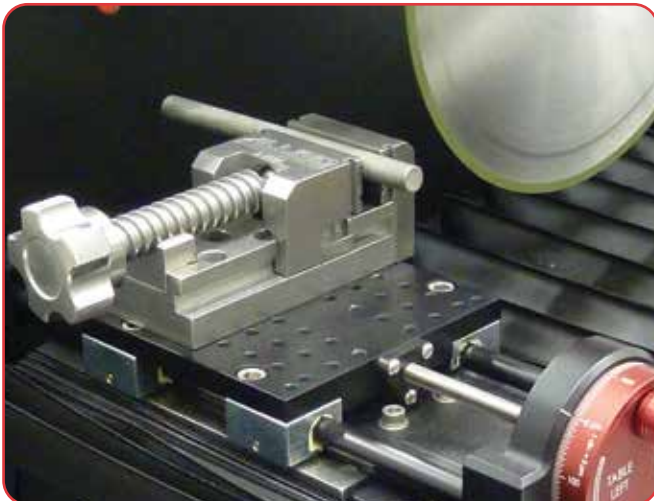
The joystick, with three programmable speed ranges and proportional control, allows the user to position the table quickly and accurately while observing the sample as it moves into position.

Hand Wheel Sample Positioning



The hand wheel is utilized to slowly feed delicate samples into the blade to minimize damage, allowing the user to "feel" the sectioning operation. It is also convenient for blade dressing. When not in use, the folding black knob rests inside the wheel hub to avoid entanglement.

Automatic Sample Feed



During the cutting process, adaptive force control optimizes the feed rate throughout the sectioning process, allowing the operator to select force (low, medium or high) or feed rate as the preference for control.

As thicker or harder regions of the sample pass through the blade, resistance will increase. The adaptive control lowers the feed rate as it passes through this region and raises it when it detects less resistance. If the closed-loop monitoring system senses abnormal motor loads or blade binding, the table is retracted and the cutting cycle is stopped, reducing blade binding/breakage.

Cut depth can be set up to 8"/200 mm in 0.01"/0.2 mm increments. Feed rate is programmable from 0.01" to 5" (0.2 mm to 125 mm) per minute.

Dual Purpose Blade Flanges



The included 2" (50 mm) and 3" (75 mm) flanges accommodate blades between 3" (75 mm) and 8" (200 mm) in diameter, with either a 0.5" (12.7 mm) or 1.25" (32 mm) ID arbor hole.



When reversed, the outer flange features a step-arbor to allow use of blades with a 1.25" (32 mm) arbor hole.

LCD Touchscreen



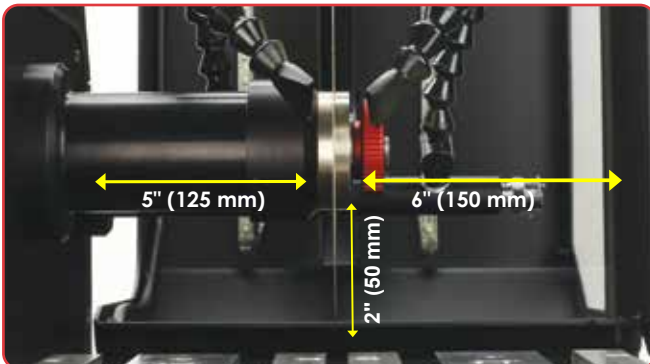
The 7" color LCD touchscreen is used to control all functions and is extremely easy to navigate, allowing greater efficiency among users.

LED Illumination



LED illumination inside the cover allows easy observation of the sectioning process through the large viewing windows.

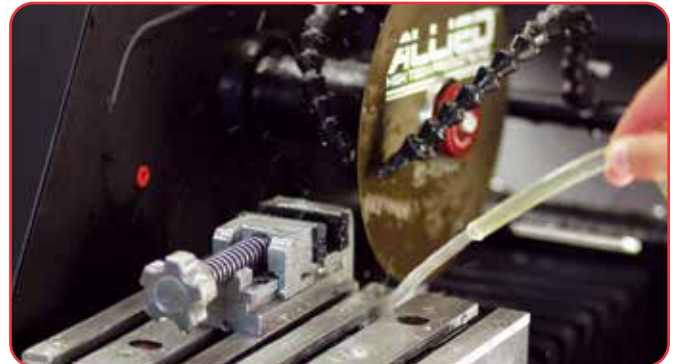
Large Cutting Compartment



With a 5" (125 mm) clearance to the left-hand side of the blade and 6" (150 mm) to the right side, long and/or large parts are easily accommodated.

The T-slot table provides 2" (50 mm) of clearance beneath the spindle, and the X-axis tables provide 3" (75 mm) of clearance.

Wash-Down Hose



The wash-down hose is used to clean the cutting compartment. A quick-connect fitting on the end of the coolant nozzle bridge allows the hose to be connected for temporary use and disconnected for storage.

Easy Blade Changes



A spindle lock button holds the rotating hub in place while a specially designed wrench loosens the retaining nut. This allows blades to be quickly and easily changed.

Blade Dressing



Loaded/clogged blades can easily be dressed to resume optimal cutting performance. The quick-slide vise or vertical clamp is used to hold the dressing stick, which is then manually fed into the blade using the hand wheel.

T-Slot Table



The T-slot table allows the use of a wide range of clamping and fixturing options available to accommodate a variety of sample shapes and sizes.

Measuring 7.75" W x 8.25" D (195 x 210 mm), it is machined from aluminum billet and fitted with stainless tops for durability.

Item	Description
5-5330	T-Slot Table

Table Clamp



Flat samples up to 0.25" (6 mm) thick can easily be secured to the T-slot table with these height adjustable clamps.

Item	Description
5-5350	Table Clamp (Pk/4)

Vertical Adjusting Clamp



The vertical adjusting clamp can be positioned in any orientation throughout the T-slots in the table. The height adjustable lever allows various size samples up to 2.25" (57 mm) to be secured. Interchangeable pads allow handling of a variety of sample shapes. One (1) angled pad and one (1) flat pad are included.

Item	Description
5-4050	Vertical Adjusting Clamp
5-4050SPA	Swivel Pad Assortment Kit

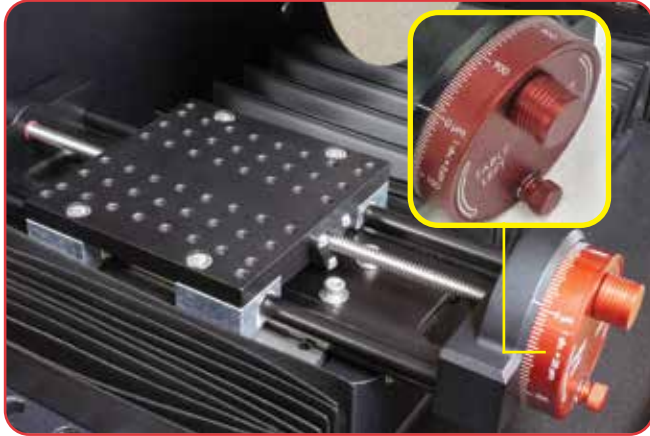
Quick-Slide Vise



Made of hardened 17-4 stainless steel, the quick-slide vise features a lead-screw that disengages for quick and easy operation. Removable Delrin inserts (included) are ideal for holding brittle or delicate samples. The vise mounts directly to the indexing or T-slot tables.

Item	Description
5-5525	Quick-Slide Stainless Steel Vise
5-5525-1-S	1" Jaw Spacer/Extender

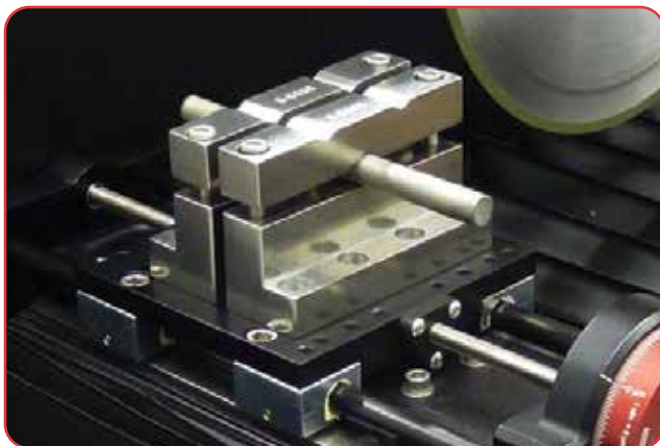
X-Axis Indexing Tables



The X-axis indexing tables allow quantitative positioning for sectioning in precise locations. Two resolution options are offered: 25 μm (coarse) and 5 μm (fine). Coarse positioning is more applicable for metallurgical sectioning applications, while fine positioning is more suitable for tight geometry requirements usually found in microelectronic failure analysis and dicing applications.

Both feature 4" (100 mm) of travel and a 0.5" (12.7 mm) center-threaded mounting interface for maximum fixture positioning versatility. The easy-to-read indexing dial can be rotated to allow zeroing of the scale.

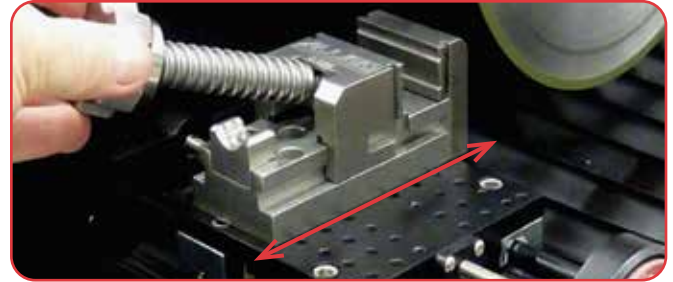
Item	Description
5-5320	X-Axis Indexing Table, 25 μm Resolution
5-5325	X-Axis Indexing Table, 5 μm Resolution



These stainless steel saddle clamps provide single or dual clamping for cross-section cuts. They mount directly onto the indexing tables and can be spaced at different widths for versatility. V-notches on both sides of the clamp hold parts securely in place.

Item	Description
5-5555	Saddle Clamp (Pk/2)

Quick-Slide Vise



Made of hardened 17-4 stainless steel, the quick-slide vise features a lead-screw that disengages for quick and easy operation. Mounts directly to the indexing or T-slot tables.



Removable delrin inserts (included) are ideal for holding brittle or delicate samples. (Vise riser #5-5515 shown above.)

Item	Description
5-5525	Quick-Slide Stainless Steel Vise
5-5514	0.75" (19 mm) Vise Riser
5-5515	1.5" (38 mm) Vise Riser

Saddle Clamp

Cam-Lock Fixture Adapter



The cam-lock fixture adapter offers a quick and convenient method for securing and detaching the #15-1045 multipurpose fixture to the indexing tables. The sectioned sample can then be transferred without disturbing orientation directly to the MultiPrep™ for grinding/polishing on the same plane.

Item	Description
5-5520	Cam-Lock Fixture Adapter
15-1045	Multipurpose Fixture

Rotational Cutting Attachment



The rotational cutting attachment, which mounts directly to the indexing or T-slot tables, enables sample rotation during a cut. Its benefits include:

- Increased sample thickness capacity
- Shortened cutting time
- Reduced blade/motor load
- Reduced heat on the sample

The sample can be rotated continuously or oscillated through the cut. All fixtures shown on page 10 are included.

Item	Description
5-5745	Rotational Cutting Attachment with Holders

Dicing Rotation Stage



The dicing rotation stage (shown mounted on #5-5730 Z-axis stage and #5-5325 fine indexing table) allows 360° rotational positioning of flat substrates. Samples are mounted to the borosilicate glass insert using wax, which is secured with set-screws for quick attachment and removal. It can be mounted directly to the indexing tables, or to the Z-stage to control cutting depth.

Item	Description
5-5540	Dicing Rotation Stage, 360°/0.1° resolution

Teardrop Holder



The teardrop holder secures various sized mounts from 25 mm to 2" diameter. It is mounted to the indexing tables for precise location sectioning, and positions the mount at the center of the blade.

Item	Description
5-5560	Teardrop Holder for 25 mm - 2" mounts

Fixture Rotation Stage



The fixture rotation stage (shown with #5-5525 vise) allows angle cutting in 2° increments. A variety of fixtures can be mounted to provide rotational adjustment of the sample relative to the blade. It mounts directly to the indexing tables or Z-axis stage.

Item	Description
5-5070	Fixture Rotation Stage, 360°/2° resolution

Z-Axis Stage



The Z-axis stage (shown mounted on #5-5325 fine indexing table with #5-5540 dicing rotation stage) allows vertical positioning of the sample relative to the blade. It provides 2" (51 mm) of Z-travel with 5 μ m increments. The platform has a 0.5" center-threaded mounting interface for stage/fixture positioning versatility, and it mounts directly to the indexing tables.

Item	Description
5-5730	Z-Axis Stage, 5 μ m increments

External Filtration System



With a reusable/cleanable 75 μ m stainless steel filter, this filtration system is designed for applications where excessive debris is generated during sectioning operations (plastics, resins, composites, ferrous metals). This filter is only to be used with an internal reservoir (IR) system.

Item	Description
5-5590	External Filtration System

Coolant System Options

Internal Reservoir, 1.25 Gallon (4.7 L)

An internal 1.25-gallon (4.7 L) stainless steel reservoir sits beneath the cutting platform. An internal pump draws coolant from the reservoir through a filtered intake designed to prevent clogging.



Shown with optional #5-5580 Magnetic Particle Collector

External Reservoir, 7 Gallon (26.5 L)

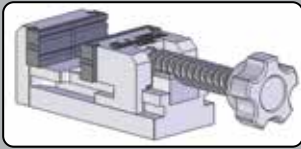
The 7-gallon (26.5 L) recirculating coolant system is constructed of corrosion resistant materials for maximum durability. The reservoir fits conveniently in the available cabinet, or can be placed near the machine in existing lab furniture. A removable catch screen enables quick cleaning of larger particles. Baffles inside the reservoir trap particulates. The optional roller cart (included with cabinet) allows easy transfer for cleaning.



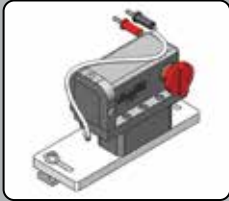
Water Flow-Through System

The flow-through version of the TechCut 5x™ is configured for continuous, non-recirculating flow of water, typically preferred for applications where purity is essential, such as wafer/substrate dicing. It requires connection to a pressurized water source and drain.

Universal T-Slot / X-Axis Table Accessories



5-5525
Quick-Slide Vise with Delrin jaw inserts, 2" (51 mm) capacity



5-5745
Rotational Cutting Attachment

T-Slot Table Accessories



5-4050
Vertical Adjusting Clamp



5-5350
Table Clamp

X-Axis Table Accessories



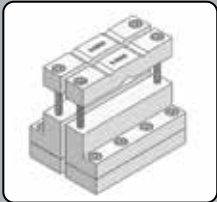
5-5070
Fixture Rotation Stage



5-5520
Cam-Lock Fixture Adapter



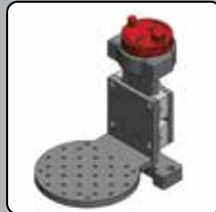
5-5540
Dicing Rotation Stage



5-5555
Dual Saddle Clamp set, with 0.25" (6 mm) risers

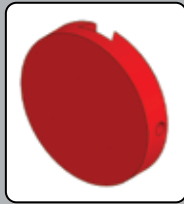


5-5560
Teardrop Holder, 25 mm - 2" mounts



5-5730
Z-Axis Stage

Rotational Attachment Fixtures



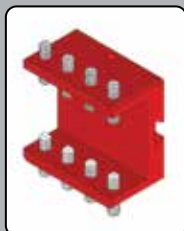
20-1501
Surface Mount
Fixture



20-1507
Mount Holder,
2" (51 mm)
diameter capacity



20-1515
Multipurpose
Fixture,
1" x 1.5"
(25 x 38 mm)
capacity



20-1502
Multipurpose
Fixture,
1.5" x 2"
(38 x 51 mm)
capacity

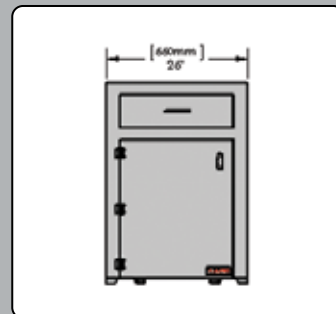
Cabinet/Stand



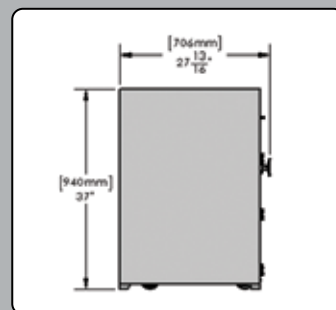
5-4230
Cabinet



Cabinet - Internal View with
External Coolant Reservoir
(5-5750-ER)

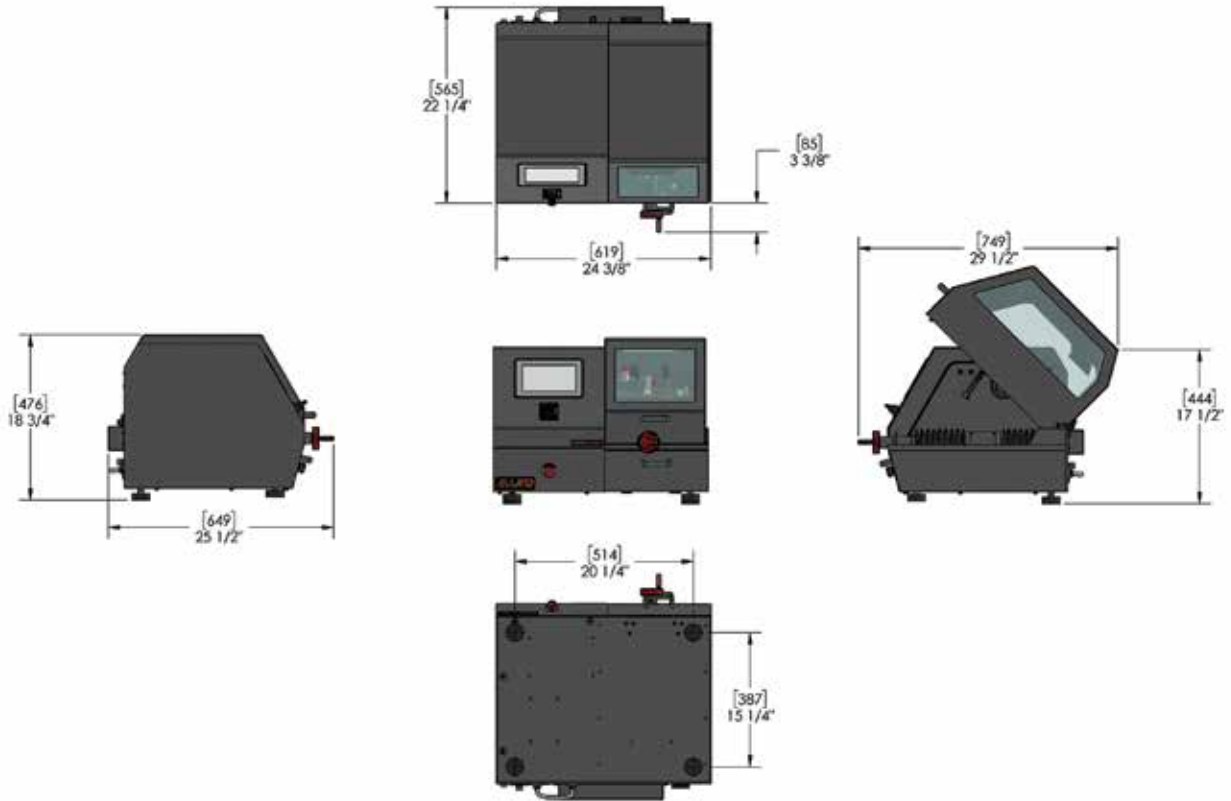


Cabinet (Front Elevation)



Cabinet (Side Elevation)

Dimensions



Technical Specifications

Blade Range	Diameter: 3" – 8" (76 – 200 mm) Arbor Hole: 0.5" or 1.25" (12.7 or 32 mm)
Flange Sizes	2" (51 mm) & 3" (76 mm) included
Sample/Cutting Capacity	6" W x 6" L x 2.5" H (152 x 152 x 64 mm)
Y-Axis Cut Depth	Manual or programmable cut-depth from 0.01" – 8" (0.2 – 200 mm)
Y-Axis Feed Rate	Programmable from 0.01" – 5" (0.2 – 125 mm) per minute
X-Axis Table (if purchased)	4" (102 mm) travel, 5 µm or 25 µm increments with zeroing dial
T-Slot Table	7.75" D x 8.25" W (195 x 210 mm) with four (4) channels
Force	Low / Medium / High
Motor Power	1.25 HP (950 W)
Blade RPM	500 – 5,000 (100 RPM increments)
Electronics	PLC controlled
Operating Voltage	100–240 VAC, single phase 50/60 Hz
Display	7" LCD touchscreen - imperial or metric units
Cutting Action(s)	Linear or Linear + Rotation
Recirculating Coolant Capacity	Internal: 1.25 gallons (4.7 L) External: 7 gallons (26.5 L)
Safety	Electronic sensor/blade cut-off for cover, Emergency stop
Weight	132 lb. (60 kg)
Warranty	2 years
Includes	Operation manual, country-specific power cord

Global Distribution of the World's Finest Products



Brochure #: TC5x V2.0

Equipment is subject to change due to innovations/improvements at any time.



Allied Equipment and Fixtures are
Designed and Manufactured by
Allied in the U.S.A.

ALLIED
HIGH TECH PRODUCTS, INC.

- Cerritos, California
- Norwalk, California
- Edmond, Oklahoma

310.635.2466 Worldwide / 800.675.1118 U.S. & Canada
Visit us online! www.alliedhightech.com