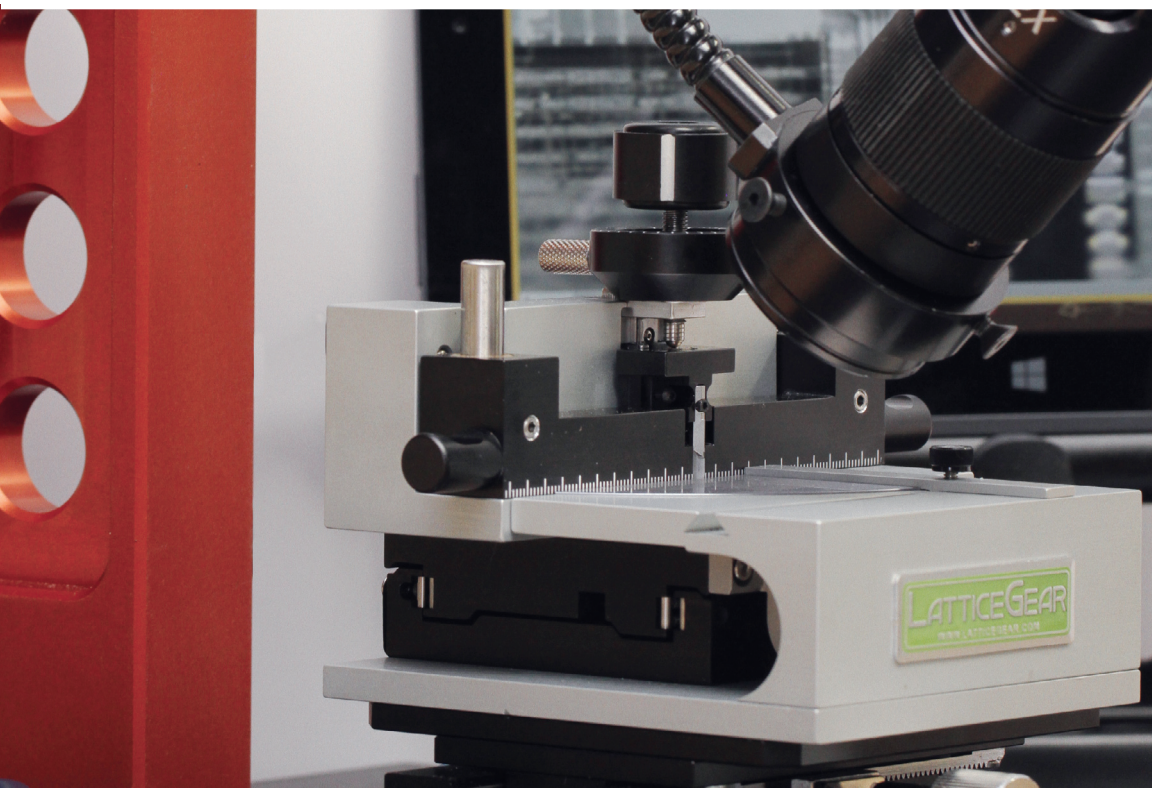


EDITION 3

# Cleaving & Scribing Systems And Tools

featuring...

**LATTICEGEAR**



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**Electron  
Microscopy  
Sciences**

## ■ LatticeAx® 120

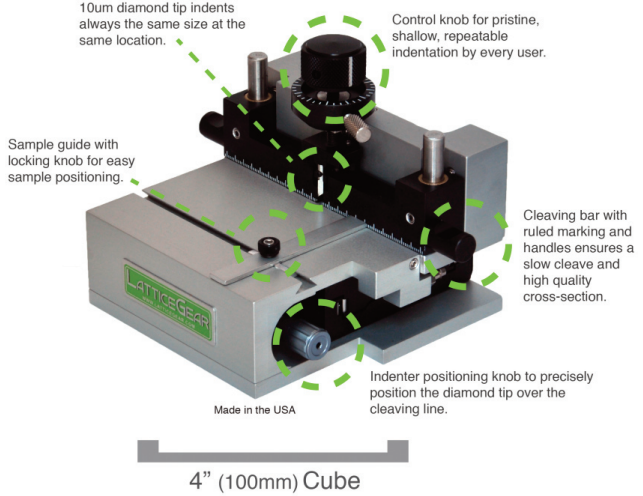
### Base Indent and Cleaving System

The patented LatticeAx® 120 is used by research institutions and industrial laboratories who need a cost effective solution for high quality cleaving results without excessive constraints with respect to sample dimensions and type.

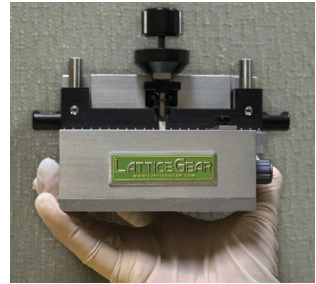
Instead of scribing, the 120 makes an accurately placed, dust-free microline indent. A controlled slow, 3-point cleaving process assures clean cleaves.

### Cleaving Reinvented

In the palm of your hand – literally – you hold a powerful solution that allows you to cleave your samples as they are, without additional preparation, and without strict rules on the size, shape, thickness, edge quality and material type. With the LatticeAx 120 base, every user can achieve



high quality cleaves within 2 minutes for samples that vary in size, thickness and material. Use the 120 to cleave silicon, GaAs, glass, sapphire, hard disk drives and other substrates.



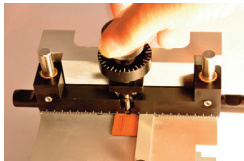
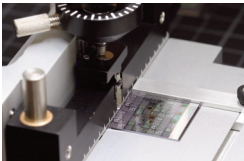
### The Process

*Using the LatticeAx®, wafer cleaving is accomplished in three basic steps that compliment existing skill sets used in wafer analysis.*

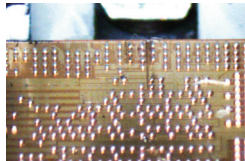
**It's simple. Just SET... INDENT...**

**CLEAVE...**

**RESULT**



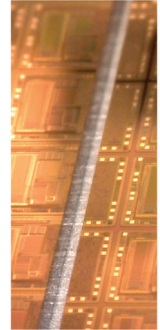
*Position the target under the indenter using the micrometer for fine positioning of the tip.*



*A precision control knob coupled with a sharp indenter tip results in fine indentation at the edge of the sample.*



*Cleaving position consists of a set cleaving pin and a cleaving bar used to apply uniform pressure to achieve a controlled cleave.*



*Cleave is always clean and precise.*

## LatticeAx® 120 (continued)

### Benefits

- Accurate and Repeatable Indent and Cleave
- Clean and high quality mirror finish cleaved face
- Simple to operate
- No maintenance contracts

### Features

- Small footprint (4"/100mm cube), easy to transport/move
- Purely mechanical design, no power required to operate the tool
- Diamond indenter with polished face for accurate positioning
- Clock dial for indent calibration
- Position control of indenter with 5 µm step size
- Vacuum pump to secure sample with pneumatic valve switch

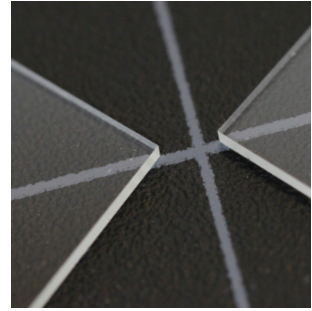
### Specifications

<b>Cleaving Cycle Time</b>	2 minutes
<b>Microline Indent</b>	.75 - 1 mm length
<b>Minimum Sample Intake Size</b>	<ul style="list-style-type: none"> <li>• 9.5 mm for 3 pt cleaving</li> <li>• 2 mm for wedge cleave</li> <li>• 3 mm for cleave with Small Sample Cleaver*</li> <li>• 4 mm for cleave with Small Sample Pliers*</li> </ul>
<b>Maximum Sample Size</b>	300 mm wafer when used with Large Sample Platform*
<b>Configuration</b>	
<b>LatticeAx® 120</b>	<ul style="list-style-type: none"> <li>• Pre-installed diamond indenter</li> <li>• Indenter positioning micrometer: ±5 µm</li> <li>• Calibrated Z-positioning for controlled indent depth</li> <li>• Cleaving bar with ruled markings for sample sizing</li> </ul>
<b>Vacuum Pump and Pneumatic Switch</b>	Whisper quiet pump, Auto-venting pneumatic switch between vacuum tweezers and LatticeAx
<b>Installation Requirements</b>	
<b>Flat Stable Work Surface</b>	8 x 8 in. (200 x 200 mm) footprint
<b>Single Phase Power</b>	Vacuum pump

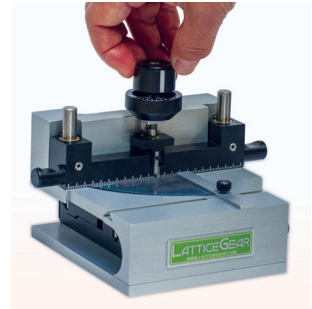
#### Optional Accessories, see page 8-9 for details

Diamond Indenter, Small Sample Cleaver, Small Sample Pliers, Large Sample Platform for LatticeAx, Wafer Cleaving Kit.

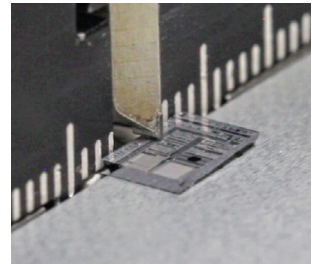
\*option



LatticeAx® 120 creates dust-free clean edges, as shown in this glass sample.



Smart mechanics enable indenting with high accuracy resulting in accurate and repeatable mirror finish cleaves.



Indent small samples with high accuracy and cleave with the Small Sample Cleaver or Small Sample Cleaving Pliers. See pages 9, 15.

### Ordering Information

Cat. No.	Description	Qty.
7640	LatticeAx® 120 Cleaving System	each



## ■ LatticeAx® 225

### Accurate Indent and Cleaving System

Meet the LatticeAx® 225, the versatile solution for a variety of sample preparation needs. Instead of scribing, the 225 makes an accurately placed, dust-free microline indent. A controlled slow, 3-point cleaving process assures clean cleaves. With its smart mechanics, the LatticeAx 225 allows users of all experience levels to achieve high quality results every time.

### Cleaving Reinvented

The LatticeAx 225 is ideal for precise downsizing or target cross-sectioning of single die to a 300 mm wafer. It can downsize both single crystal and amorphous materials. The LatticeAx 225 integrates the patent pending LatticeAx base with an industrial platform customized for indenting and cleaving. The imaging package includes a focusing mount, a digital microscope with polarizer and real-time image acquisition and display software to facilitate accurate placement of the indent with respect to the target, making cleaving easy, accurate and fast for all users.

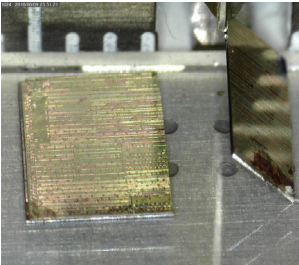
### Benefits

- High success rate independent of skills and expertise
- Fast process to increase laboratory productivity
- Reduces bottleneck at costly high demand sample preparation tools
- User maintained, no service contracts
- Simple to operate, ergonomic design and small footprint
- Perfect for the multi-user lab

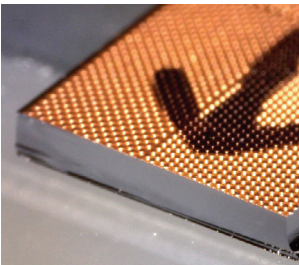
### Features

- High accuracy cleaving ( $\pm 20$  microns)
- Robust workstation platform designed specifically for indenting and cleaving
- USB2 digital microscope with real time digital imaging interface\*
- Microscope mount with fine focus control
- Vacuum pump with pneumatic valve switch to secure sample

\* computer and monitor not included



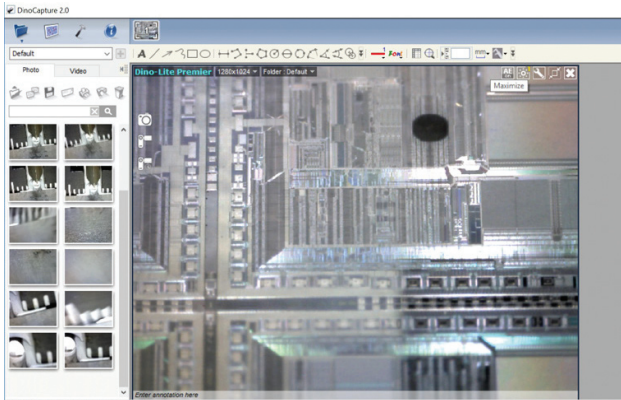
Edge view of cleaved, out of package die, prepared for failure analysis. The edge is clean and the sample surface is untouched.



The LatticeAx® 225 produces accurate, high quality, SEM ready, cross section samples.



## LatticeAx® 225 (continued)



### Specifications

<b>Cleaving Accuracy</b>	± 20 µm	
<b>Cleaving Cycle Time</b>	<5 minutes	
<b>Microline Indent</b>	.75 - 1 mm length	
<b>Minimum Sample Intake Size</b>	<ul style="list-style-type: none"> <li>• 9.5 mm for 3 pt cleaving</li> <li>• 2 mm for wedge cleave</li> <li>• 3 mm for cleave with Small Sample Cleaver*</li> <li>• 4 mm for cleave with Small Sample Pliers*</li> </ul>	
<b>Maximum Sample Size Configuration</b>	300 mm wafer when used with Large Sample Platform*	
<b>LatticeAx® 120</b>	<ul style="list-style-type: none"> <li>• Pre-installed diamond indenter</li> <li>• Indenter positioning micrometer: ±5 µm</li> <li>• Calibrated Z-positioning for controlled indent depth</li> <li>• Cleaving bar with ruled markings for sample sizing</li> </ul>	
<b>Microscope Stand with USB2 Microscope and Imaging Software</b>	LatticeGear custom ultra-stable, small footprint stand; integrated imaging system with 15 µm optical resolution and fine focus control.	
<b>Vacuum Pump and Pneumatic Switch</b>	Whisper quiet pump, Auto-venting pneumatic switch between vacuum tweezers and LatticeAx	
<b>Installment Requirements</b>		
<b>Flat Stable Work Surface</b>	12" (30cm) width x 10.75" (27.3cm) depth x 13" (33cm) height, excluding PC and monitor	
<b>Single Phase Power</b>	Vacuum pump, fiber optic power supply, computer and monitor	
<b>Computer with monitor, keyboard and mouse (not included)</b>	Windows xP, 7,8,10; monitor with at least 1600 x 1200 screen resolution	
<b>Optional Accessories, see page 8–9 for details</b>		
	Options package (Two diamond indenters plus Wafer Cleaving Kit), Small Sample Cleaver, Small Sample Pliers, Large Sample Platform for LatticeAx, Wafer Cleaving Kit	
	FlipScribe™ Backside Scriber for complex and stacked materials (both crystalline and amorphous), see pages 10–11.	
	*option	
<b>Ordering Information</b>		
<b>Cat. No.</b>	<b>Description</b>	<b>Qty.</b>
7641	LatticeAx® 225 Cleaving System	each

The addition of high magnification imaging enables accurate indenting resulting in samples cleaved with high accuracy. The LatticeAx® 225 delivers 20-µm accuracy with high quality cleaved surfaces in 5-min. It integrates the patented LatticeAx base with an industrial platform customized for indenting and cleaving. The imaging package includes a focusing mount, a digital microscope with polarizer and real-time image acquisition and display software. With realtime imaging the indent is placed accurately with respect to the target making cleaving sample target simple and fast for all users. The 220 accepts samples with a wide range of sizes, thicknesses and materials.





## ■ LatticeAx® 420

### The Ultimate High Accuracy Indent and Cleaving System

Meet the LatticeAx® 420, the compact, accurate, fast and low cost cleaving solution suitable for any lab. It's the perfect tool for engineers who need better accuracy and quality than can be achieved manually, but who don't have the budget or time for complex automated cleaving tools.

### Cleaving Reinvented

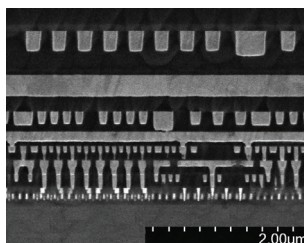
The LatticeAx uses a high accuracy cleaving (HAC) sample preparation methodology to deliver a choice between manual cleaving and expensive, automated process tools. Instead of scribing, the 420 makes an accurately placed, dust-free microline indent. A controlled slow, 3-point cleaving process assures clean cleaves. Precision controls on an ultra-stable workstation platform with a high-resolution digital imaging system assure clean, high quality surfaces ready for scanning electron microscopy (SEM) or target localization prior to processing with ion beam tools.

### Benefits

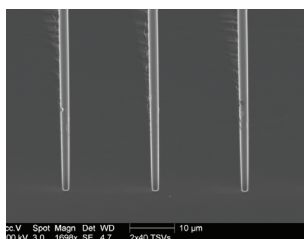
- Accurate micro line indent and high quality cleaving in a single tool
- Fast process increases laboratory productivity
- Reduces bottleneck at costly high demand sample preparation tools
- User maintained, no service contracts
- Cleaves a wide range of materials and sample sizes
- Simple to use, ergonomic design and small footprint

### Features

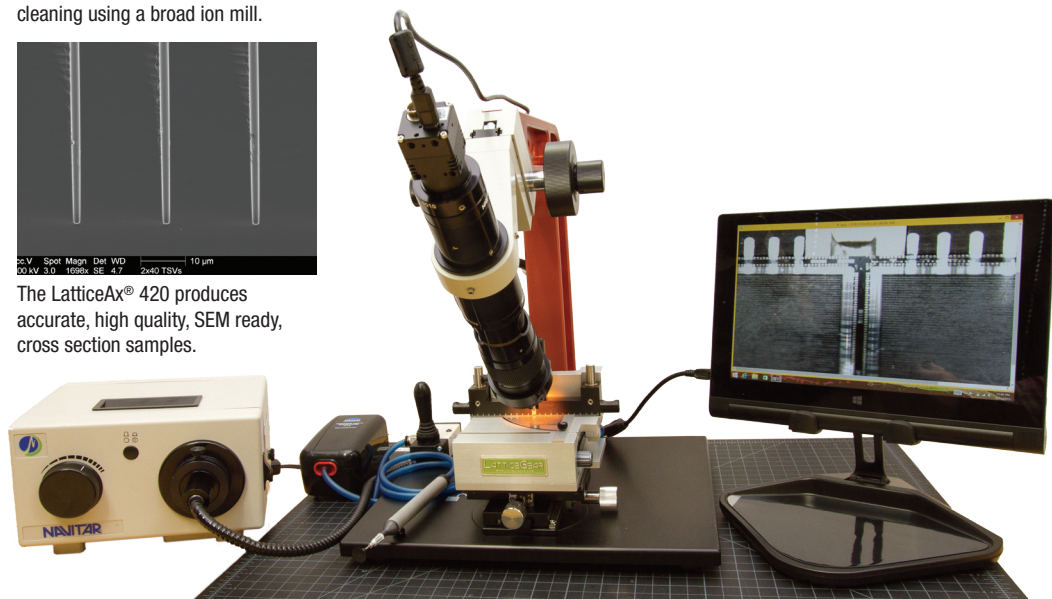
- High accuracy positioning of target ( $\pm 10$  microns)
- LatticeGear custom built: small footprint robust stand
- Focus mount with coarse fine focus control



Sample prepared by cleaving with LatticeAx® followed by 2 minutes cleaning using a broad ion mill.



The LatticeAx® 420 produces accurate, high quality, SEM ready, cross section samples.



## LatticeAx® 420 (continued)

- Monocular, parfocal, zoom lens (.58-7x) with color CCD camera
- Indent position control with 5 micron step size
- Polished tip diamond indenter
- 5 minute process (sample to cleave)

## Specifications

<b>Cleaving Accuracy</b>	± 10 µm
<b>Microscope Imaging Resolution</b>	3.3 µm
<b>Cleaving Cycle Time</b>	<5 minutes
<b>Microline Indent</b>	.75 - 1 mm length
<b>Minimum Sample Intake Size</b>	<ul style="list-style-type: none"> <li>• 9.5 mm for 3 pt cleaving</li> <li>• 2 mm for wedge cleave</li> <li>• 3 mm for cleave with Small Sample Cleaver*</li> <li>• 4 mm for cleave with Small Sample Pliers*</li> </ul>
<b>Maximum Sample Size Configuration</b>	300 mm wafer when used with Large Sample Platform*
<b>LatticeAx® 120</b>	<ul style="list-style-type: none"> <li>• Pre-installed diamond indenter</li> <li>• Indenter positioning micrometer: ±5 µm</li> <li>• Calibrated Z-positioning for controlled indent depth</li> <li>• Cleaving bar with ruled markings for sample sizing</li> </ul>
<b>X-Y LatticeAx Positioning Stage</b>	Fine micro-positioning, rack and pinion motion, ± 35 mm travel
<b>Monocular Microscope</b>	Zoom lens (.58-7x) with fine focus, 3.3 micron resolution, with 0.018-0.1 N.A.
<b>CMOS Camera and Imaging Software</b>	USB2 CMOS Camera 1600 (H) x 1200 (V)
<b>Microscope Stand</b>	LatticeGear custom ultra-stable, small footprint stand
<b>Coarse/Fine Focus Mount</b>	Precision rack and pinion control
<b>Vacuum Pump and Pneumatic Switch</b>	Whisper quiet pump, Auto-venting pneumatic switch between vacuum tweezers and LatticeAx
<b>Installment Requirements</b>	
<b>Flat Stable Work Surface</b>	Minimum of 24' x 18" (61 x 46 cm) excluding PC and monitor
<b>Single Phase Power</b>	Vacuum pump, fiber optic power supply, computer and monitor
<b>Computer with monitor, keyboard and mouse (not included)</b>	Windows 7, 8, 10; monitor with at least 1600 x 1200 screen resolution

### Optional Accessories, see page 8–9 for details

Options package (Two diamond indenters plus Wafer Cleaving Kit), Small Sample Cleaver, Small Sample Pliers, Large Sample Platform for LatticeAx, Wafer Cleaving Kit

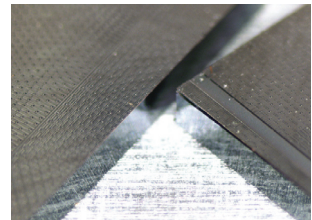
FlipScribe™ Backside Scribe for complex and stacked materials (both crystalline and amorphous), see pages 10–11.

\*option

## Ordering Information

Cat. No.	Description	Qty.
7650	LatticeAx® 420 Cleaving System (110V)	each
7651	LatticeAx® 420 Cleaving System (220V)	each

The patented LatticeAx® 420 is LatticeGear's highest performance cleaving solution. The LatticeAx 420 delivers our highest cleaving accuracy of 10-µm in <5 min making it ideal for the lab that values speed and high accuracy while at the same time needing to accommodate a variety of sample sizes, thicknesses and materials. The patented LatticeAx base is integrated with a complete vision package that includes a monocular microscope with 4-µm optical resolution, color CMOS camera and real-time image acquisition and display software, and an X-Y stage. This dedicated cleaving workstation is designed so any user can used to survey, align, micro-indent, cleave, and inspect processed samples.



TSVs cleaved on the LatticeAx® 420.

## ■ LatticeAx® Complete Options Package



Make sure you have everything to set up your cleaving workflow. This package includes:

### Two spare custom diamond indenters for the LatticeAx®:

The LatticeAx Indenter is replaced by the user and comes with allen wrenches and installation instructions in the LatticeAx manual.



**One Cleaving Kit:** The complete tool set to get from substrates and wafers to cleanly cleaved pieces. This is a critical step to getting the best cross-sections. The kit includes cleaving mat, scribes for marking and scribing, pliers for cleaving, and rulers.

- **Diamond Scriber:**

Pen style, optimal for top down scribe

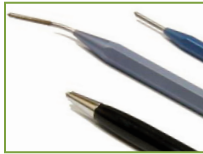
- **Diamond Scriber:**

Straight tip, optimal for top down precise marking and/or scribing

- **Diamond Scriber:** 30 degree tip, optimal for top down precise marking and/or scribing

- **CleanBreak Pliers:**

6" wafer-cleaving pliers. Simple and clean way to cleave (post scribe) wafers to strips and smaller pieces. 3/4" jaws configured for crystalline materials and glass.



- **Large Cutting Mat:** Wafer-cutting mat, self healing, double sided, green and black, 12" x 18"

- **Small Ruler Mat:** Self healing, Small wafer piece ruler mat, double sided, green and black, 3 1/2" x 5 1/2"

## ■ Large Sample Platform for LatticeAx®

The LSPL package includes the large sample support and the indenter position extender knob. This accessory easily attaches to the LatticeAx with a single

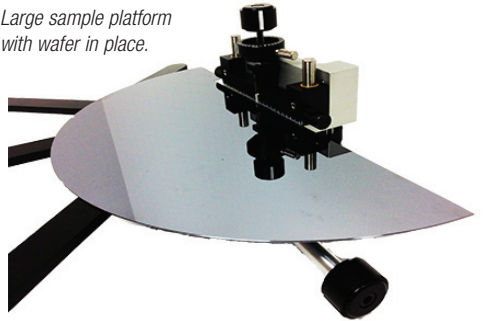


set-screw. The sample is supported by four delron arms that do not damage the backside of the sample. The indenter position extender knob allows the user to access to the LatticeAx positioning knob even with a large sample mounted so fine positioning of the diamond indenter is possible. The LSPL fits on all LatticeAx models.



Large sample platform on LatticeAx 120.

Large sample platform with wafer in place.



Cat. No.	Description	Qty.
7649	LatticeAx® Complete Options Package	each

Cat. No.	Description	Qty.
7653	Large Sample Platform	each



## ■ Small Sample Cleaver



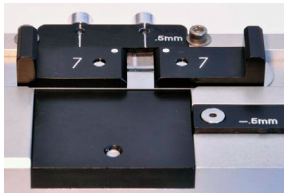
Using simple mechanics, the small sample cleaver (SSC) uses a novel sample holder and a cleaving platform to safely cleave samples into chips as small as 2x2 mm. The novel sample holder allows samples from 4-10 mm to be held during indenting and cleaving. No more handling samples directly with fingers. Gloved hands are ok, the holder has no screws, springs or pins.

### Benefits

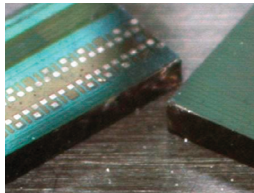
- Addresses the need to cleave small samples without loss of material or damage
- Accurate and repeatable cleaving of small samples without excessive handling
- Can be operated securely with gloved hands
- Flexible sample handling. Hold-downs accepts samples of various widths (3-15 mm) and thickness (200-900 μm)
- Easy to use

### Features

- The small sample cleaver (SSC) base comes with 4 magnetic hold-downs for samples from 200-900 μm thick
- Use the sample hold-downs to securely transfer the sample to the LatticeAx® for indent, then back to the SSC for cleaving
- Two cleaving pins for cleaving a variety of sample types
- Gauge sets the sample for an 0.5 mm indent versus the standard 1 mm indent on the LatticeAx®
- A storage case secures all components.



Sample on SSC ready for cleaving

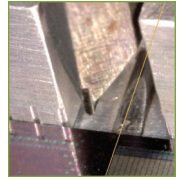


2 X 6 mm samples cleaved with the Small Sample Cleaver

Cat. No.	Description	Qty.
7652	Small Sample Cleaver	each

## LatticeAx® Diamond Indenter

Custom diamond indenter for the LatticeAx®. The LatticeAx indenter is easily replaced by the user and comes with screws and allen wrench.

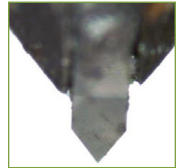


Cat. No.	Description	Qty.
7643	LatticeAx® Diamond Indenter	each

## LatticeAx® High Angle Diamond Indenter

Custom high angle diamond indenter for the LatticeAx®.

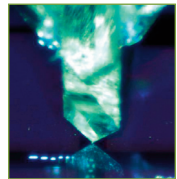
The LatticeAx indenter is easily replaced by the user and comes with screws and allen wrench.



Cat. No.	Description	Qty.
7655	LatticeAx® High Angle Diamond Indenter	each

## LatticeAx® "Short" Indent Diamond Indenter

The LatticeAx® short diamond indenter is designed to make an indent approximately half the length of the standard diamond indenter (0.5mm). The LatticeAx short indent diamond indenter has a polished face and 90 degree apex angle and comes pre-aligned in the same shank as the standard indenter. There is no change in installation or handling procedures relative to the standard indenter.



Cat. No.	Description	Qty.
7656	LatticeAx® "Short" Indent Diamond Indenter	each

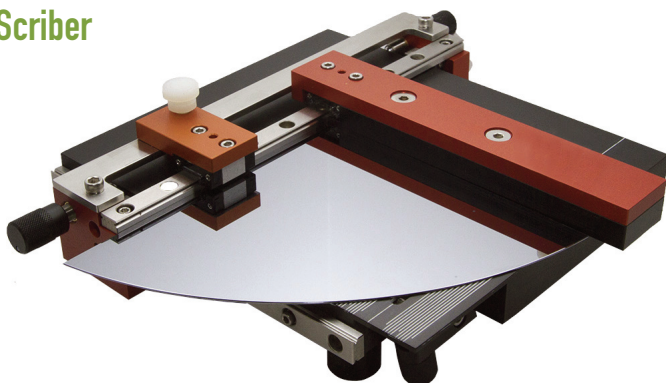
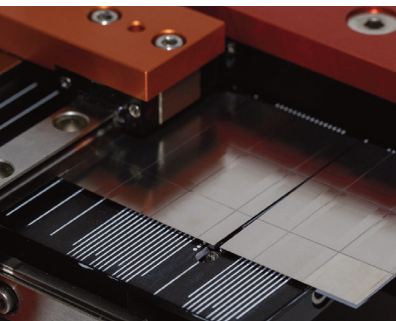
## ■ FlipScribe™ Backside Scriber

The patented FlipScribe™ takes scribing to a new performance level, making clean, straight scribe lines on the back side to accurately cleave front side targets, bonded wafers and other substrates. This method eliminates contamination of sensitive front side devices during the scribing processes and is valuable for both crystalline and amorphous samples.

### Scribing Reinvented

FlipScribe is a compact, stable, accurate, fast and low cost scribing and cleaving solution suitable for any lab; no utilities required. It provides a more accurate method for scribing than can be achieved with hand held tools, by integrating a robust diamond scribe into a sample platform with a fence guide design. Time required to align and scribe is about a minute. It allows users to accurately position the scribe mark relative to features on the front side, visualized either by eye or with a user-supplied high magnification microscope. FlipScribe also offers a quick method for cleanly downsizing large samples, with a "scribe stop" to allow the operator to define the length of the scribe.

Silicon device after scribing and cleaving



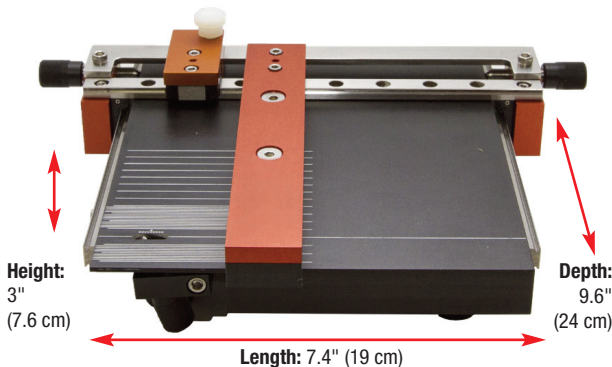
### Benefits

- Enables accurate cleaving through frontside targets with a scribe made on the backside of the substrate
- Scribe does not damage the frontside of the sample
- Accuracy of scribe  $\pm 200 \mu\text{m}$  (achievable)
- Flexible with respect to sample size and shape
- Capable of scribing bonded crystalline and amorphous wafers and chips for subsequent cleaving
- No maintenance required

### Features

- Accurate positioning of the scribe relative to features on the front side (the front side being observed either by eye or with a stereoscope)
- The length of the scribe can be varied from 1 mm to 100 mm
- Prealigned diamond scribe in user replaceable cartridge; height and angle adjustable
- Ruler embedded in platform enables precise and repeatable sample alignment and sizing
- The tool is purely mechanical; no power required

*FlipScribe's small footprint allows it to be placed on any work surface.*



## FlipScribe™ Scribing Machine (continued)

### Specifications

<b>Cleaving Accuracy</b>	± 200 µm
<b>Cleaving Cycle Time</b>	1-2 minutes
<b>Minimum Sample Size</b>	⅜"/9.5 mm (L) x ¼"/6.3 mm (W) x .01"/300 µm (H)
<b>Maximum Sample Size</b>	4" (100 mm) wafer; ¼ of 12" (300 mm) wafer; Non-wafer: ⅜"/9.5 mm (L) x ¼"/6.3 mm (W) x .01"/300 µm (H)

### Configuration

<b>Rail and Guide System</b>	Maintains sample orthogonality and method to push the sample when scribing.
<b>Sample Platform</b>	7" (178 mm) x 6" (152 mm); ruled to facilitate sample sizing
<b>Scribe Stop</b>	Sets the length of the scribe; continuously variable >1 mm - 4" (102 mm)
<b>Diamond Scribe</b>	Pre-installed diamond scriber with an eight (8) point diamond tip tool and 4 facets at 45° angle.

### Installment Requirements

<b>Flat Work Surface</b>	No power required. Stereo microscope with parfocal zoom recommended
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### No Assembly Required

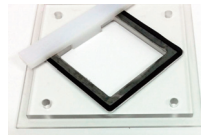
### Options

<b>LatticeAx™</b>	LatticeAx™ cleaving machine for analysis-ready samples with accuracy to ±10 microns
<b>Small Sample Cleaver</b>	Cleaver for small samples, includes sample holders and cleaving apparatus
<b>Cleaving Kit</b>	Cleaving kit including pliers and scribers

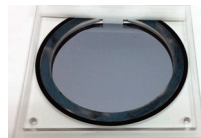


FlipScribe™ shown with Extension and Round Wafer Holder.

**7670-01** FlipScribe Replacement Cartridge



**7670-03** 45° Holder with Sample



Round Wafer Holder

### Ordering Information

Cat. No.	Description	Qty.
<b>7670</b>	FlipScribe™ Backside Scriber	each
<b>7670-01</b>	FlipScribe Replacement Cartridge	each
<b>7670-08</b>	FlipScribe Holder for Small Samples	each
<b>7670-03</b>	45 Degree Holder With Sample	each
<b>7670-04</b>	2" Round Wafer Holder	each
<b>7670-05</b>	3" Round Wafer Holder for FlipScribe	each
<b>7670-06</b>	4" Round Wafer Holder for FlipScribe	each
<b>7670-09</b>	FlipScribe Wafer Holder Kit	each
<b>7670-07</b>	Extension for FlipScribe	each

### Accessories

#### FlipScribe™ Holder for Small Samples



Designed for samples with parallel edges. The plastic holder grips samples from its edges. Sizes can be varied by sliding the gripper on the guide pins. No screws are needed! It holds samples from 5 to 25 mm (0.2 to 1") and 200 to 800 microns thick. It can also be used to grip scribed samples for cleaving with the Small Sample Pliers (Cat. #7647). Simply flip the sample over after scribing and cleave with the pliers.

#### Extension for FlipScribe™



Attaches to FlipScribe rails. The FlipScribe extension is an L-shaped bracket used to support wafer holders and large samples during the scribing process.

### NEW:

#### FlipScribe Wafer Holder Kit

The FlipScribe holder kit includes:

- Three- round wafer holders (2"/50mm, 3"/75mm, 4"/100mm)
- One holder for small samples
- One- 45 degree rotated holder to scribe samples at 45 degrees. Starting with a square or rectangular sample the scribe will be made along the diagonal.

## ■ FlexScribe Station

**For small samples – up to 200 mm wafers**

The new FlexScribe Station is a super-fast, simple method for downsizing wafers and samples by scribing on the topside. It uses a carbide scribing wheel mounted to a sliding scribing mechanism that always makes a straight scribe.

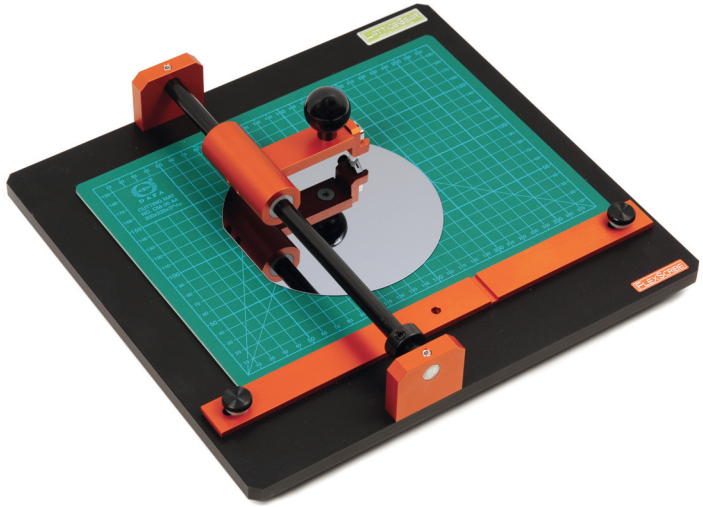
This new product is used to scribe a wide variety of materials without restrictions on shape, including glass slides, coverslips, silicon, III-V, sapphire and other crystalline and brittle materials. It can address very small samples down to 5 mm up to 200 mm wafers.

The standard tungsten carbide cutter installed on the FlexScribe is a great for a wide variety of samples including silicon, glass, GaAs and other crystalline materials.

### **Recommended:**

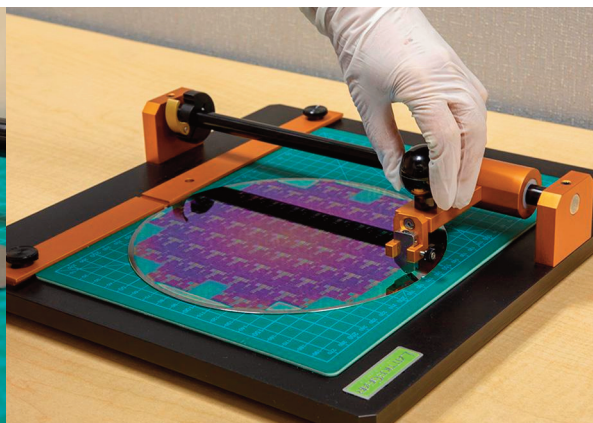
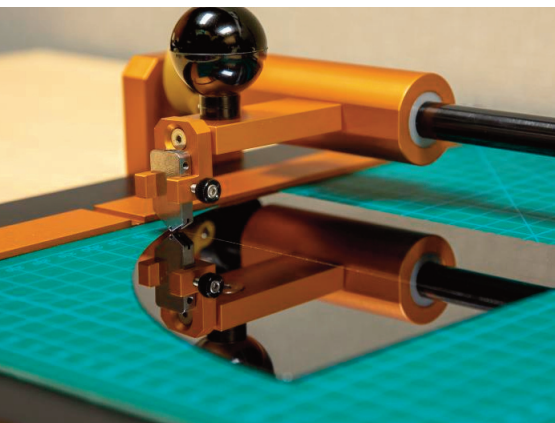
**Diamond Scribing Wheel** for very thin glass, tempered glass and hard materials such as sapphire

**Deep Cutting Wheel** for applications cleaving 100 silicon at 45 degrees and for thick glass.



### **Features**

- Integrated carbide wheel scriber
- Integrated, ruled (metric & inches) for position and alignment
- Integrated self-healing cleaving mat to support and protect the wafer/sample
- Integrated work table with non-skid feet to prevent movement during the scribing process
- Ceramic coated slide-shaft for smooth and easy scribing
- Slide shaft and scribe cartridge enable repeatable, long, straight scribes
- No power, no maintenance, easy to clean with minimal consumables

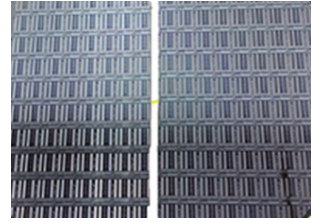
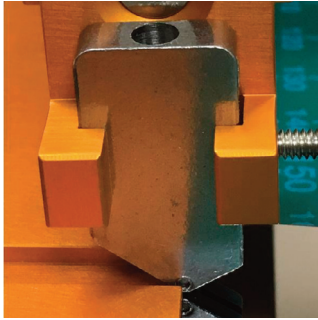


## FlexScribe Station (continued)

### Accessories

#### Replacement Scriber for FlexScribe

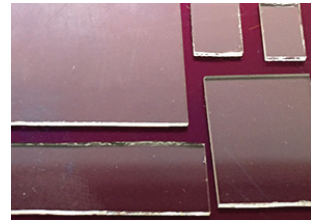
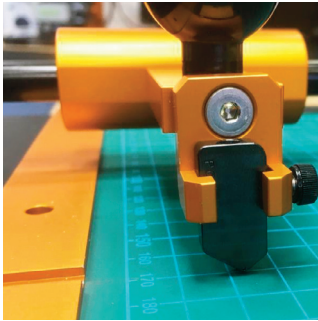
Replacement tungsten carbide scribing wheel for the FlexScribe Station.



Downsize wafers

#### Diamond Scribing Wheel for FlexScribe

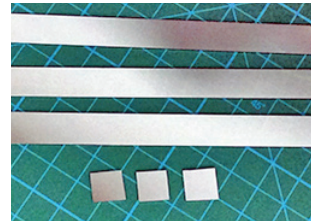
Poly crystalline diamond (PCD) high penetrating, non slip start. Best cutter for hard and thin glass, LCD, tempered glass, sapphire. Long lifetime relative to tungsten carbide scribing wheels. 2 week lead time.



Glass Amorphous Material

#### Deep Cutting Wheel for FlexScribe

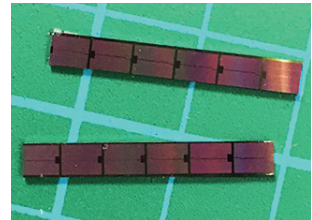
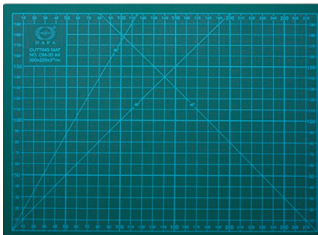
Tungsten carbide cutting wheel for FlexScribe. Deep cutter for 45 degree cleaving of silicon and thick glass to 15mm.



Strips and Dice (1cm grid)

#### Replacement Cleaving Mat for FlexScribe Station

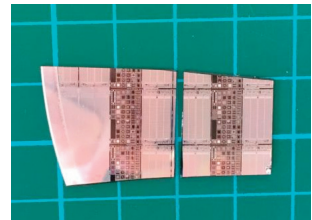
Replacement sample mat for the FlexScribe Station. 12x9" double sided ruled self healing mat.



Small Samples (1cm grid)

### Ordering Information

Cat. No.	Description	Qty.
7680	FlexScribe Station	each
7680-01	Replacement Scriber for FlexScribe Station	each
7680-02	Diamond Scribing Wheel for FlexScribe Station	each
7680-03	Deep Cutting Wheel for FlexScribe Station	each
7680-04	Replacement Cleaving Mat for FlexScribe Station	each



Thin and irregular shapes

## ■ Cleaving and Scribing Kits



### Cleaving Kit

The complete tool set to scribe and cleave cleanly. This is a critical step to getting the best cross-sections. The kit includes two diamond scribes for marking and scribing, one pen style diamond scribe and pliers for cleaving. This kit is suitable for a wide variety of substrates and wafers (Si, GaAs, glass). The standard configuration includes one each:

- Diamond Scribe-Pen style
- Diamond Scribe-straight tip
- Diamond Scribe- 30 degree tip
- Tweezers with black soft fiber fine tip (length 6¼")
- CleanBreak Pliers-Wafer cleaving pliers.
- Clear plastic ruler with metric and US units
- Tungsten cleaving wire



### Optional Cleaving Kit with Mat

The kit includes a large, 12x18" wafer mat. Note: Always remember to use safety glasses when cleaving the wafer.

Cat. No.	Description	Qty.
7642	Cleaving Kit	each
7642-M	Cleaving Kit with Mat	each



### The Cleaving Station

The Cleaving Station includes two diamond scribes for marking and scribing, one pen style diamond scribe and pliers for cleaving, everything in the Cleaving Kit. In addition, the Lattice Scriber, customized with an 8 point diamond tip that scribes well at any angle and small sample cleaving pliers are included so that a clean cleave is always possible on samples from a few mm's to 300 mm. The standard configuration includes one each:

- Diamond Scribe-Pen style
- Diamond Scribe-straight tip
- Diamond Scribe- 30 degree tip
- Tweezers with black soft fiber fine tip (length 6¼")
- CleanBreak Pliers-Wafer cleaving pliers
- Small ruler mat-Self healing, Small wafer piece ruler mat
- Clear plastic ruler with metric and US units
- Tungsten cleaving wire
- One small sample cleaving pliers
- LatticeScriber diamond scriber customized with and 8 point diamond tip



### Optional Cleaving Station with Mat

This Cleaving Station includes a 12x18" self healing cutting mat, two diamond scribes for marking and scribing, one pen style diamond scribe and pliers for cleaving, everything in the Cleaving Kit.

Cat. No.	Description	Qty.
7648	Cleaving Station	each
7648-M	Cleaving Station with Mat	each

## Cleaving and Scribing Kits (continued)

### Small Sample Scribing and Cleaving Kit

Scribing and Cleaving Kit for Small Samples Includes: clear ruler with metric and imperial/US units, fine tipped sharpie for marking the sample, sample handling tweezers, pen style diamond scriber for scribing prior to cleaving, and small sample pliers for cleaving and a handy carrying case to keep all of the tools together. The small sample pliers are custom, handheld cleaving pliers for cleaving samples into pieces from 1 - 30 mm. Stainless Steel covered with plastic handles for strong grip. Soft nylon covered jaws that do not damage your sample. Good for thin and small samples. Lightweight and easy to use. Instructions included.

Cat. No.	Description	Qty.
7654	Small Sample Scribing and Cleaving Kit	each



### Marker-Scriber Kit

Diamond scribers for marking fine marks and scribing the wafer surface. These diamond scribers also serve as replacements for those purchased in the starter kit. Three diamond scribers are included:

- Pen-style diamond scriber
- Fine scriber for precise marking and/or scribing
- Fine scriber with 30 degree tip for precise marking and/or scribing

Cat. No.	Description	Qty.
7644	Marker-Scriber Kit	each



## ■ Accessories

### Lattice Scriber

This is the best scriber you'll ever find for scribing semiconductor wafers. Lattice Scriber is the only scriber that has a 8-point truncated diamond tip that can be used for both toe and heel scribing held by a robust 4" long pin vise handle.

Cat. No.	Description	Qty.
7645	Lattice Scriber	each



### CleanBreak Pliers

CleanBreak 6" wafer cleaving pliers. Simple and clean way to cleave (post scribe) wafers and wafer strips and smaller pieces. 3/4" jaw, opening. Comes with one set of replaceable jaws to maintain the best cleaving performance.

Cat. No.	Description	Qty.
7646	CleanBreak Pliers	each

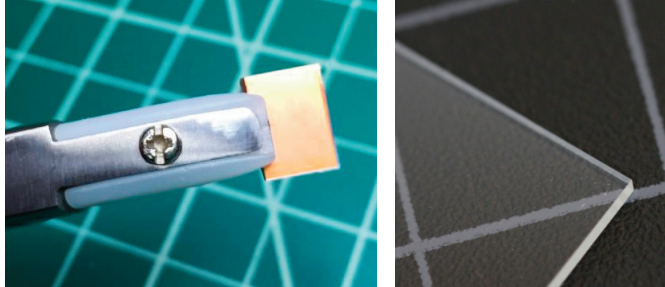


### Small Sample Cleaving Pliers

Custom, handheld cleaving pliers cleave small samples into pieces from 1 - 30 mm. Stainless Steel covered with plastic handles for strong grip. Soft nylon covered jaws that do not damage your sample. Good for thin and small samples. Lightweight and easy to use.

Cat. No.	Description	Qty.
7647	Small Sample Cleaving Pliers	each





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