

Fiber Cleavers



LDC450B
Portable Cleaver

Capabilities



Cleave



LDC401
Standard Cleaver

vytran® Fiber Cleavers

Thorlabs' Vytran® Fiber Cleavers use the tension-and-scribe method to achieve high-quality cleaves and can be used to cleave both standard and specialty fibers. Flat cleave only or flat/angled cleave units give you the flexibility to choose the best fit for your application.

Our Standard line of cleavers can cleave fibers with claddings from $\varnothing 80 \mu\text{m}$ up to $\varnothing 1.25 \text{ mm}$, while the LDC450B Portable cleaver can handle fibers with claddings from $\varnothing 200 \mu\text{m}$ up to $\varnothing 800 \mu\text{m}$. The Standard line offers flat only or flat/angled cleave units, while the Portable cleaver is flat cleave only. Thorlabs also offers a line of Compact, Clip-Based Cleavers which can cleave fibers with claddings from $\varnothing 60 \mu\text{m}$ up to $\varnothing 600 \mu\text{m}$. These cleavers offer flat cleave only and flat/angled cleave options.

THORLABS

Fiber Cleaving

Standard Cleavers

Our standard cleaver line can cleave fibers with claddings from $\varnothing 80\ \mu\text{m}$ to $\varnothing 1.25\ \text{mm}$. Each unit comes with a handset controller for setting cleave parameters and a built-in micrometer backstop to support specialty fibers during low-tension cleaves. These cleavers use standard Vytran fiber holder inserts, making these units easy to integrate with other Vytran workstations and ideal for production environments.

Portable Cleaver

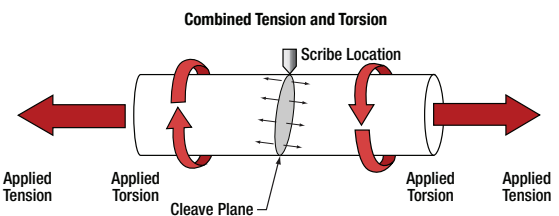
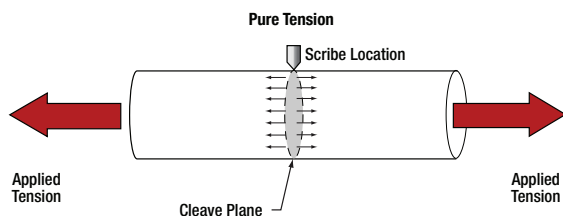
The portable cleaver cleaves fibers with claddings from $\varnothing 200\ \mu\text{m}$ to $\varnothing 800\ \mu\text{m}$. This cleaver is reduced in size compared to the Standard line, and features a rechargeable battery, enabling portability. Each unit is provided with a handset controller and a built-in micrometer backstop. The portable cleaver uses the same standard Vytran fiber holder inserts as our Standard line.

Compact Cleavers

The compact cleaver line cleaves fibers with claddings from $\varnothing 60\ \mu\text{m}$ to $\varnothing 600\ \mu\text{m}$. These cleavers are configured and controlled from a web interface that can be accessed from any web browser. An ethernet cable is included for communication. The compact cleavers use fiber clips, which may be pre-loaded with fiber for faster processing times.

Tension-and-Scribe Cleave Process

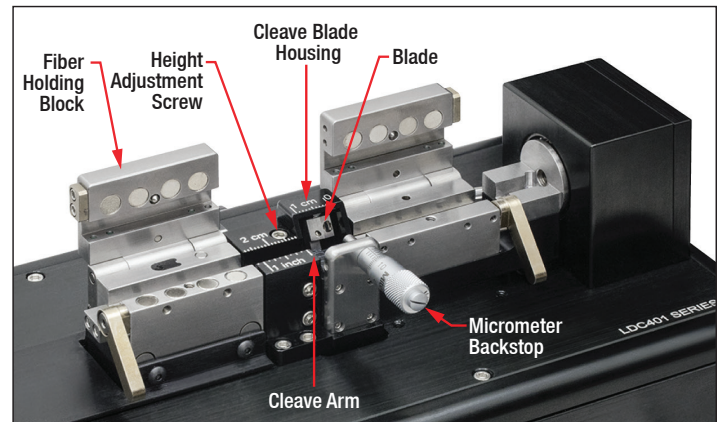
Thorlabs' fiber cleavers use the "tension-and-scribe" cleaving process, where tension is applied along the length of the fiber followed by an automatic scribing process using a diamond blade. Tension is maintained, causing the scribe to propagate across the fiber width and complete the cleave. Angled cleaves are accomplished by using the rotation stage to apply torsion to the fiber prior to commencing the "tension-and-scribe" process.



Features

- ◆ Flat (0°) or Angled Cleaves (Up to 15°)
- ◆ Cleave Fibers of Various Sizes
 - Standard Cleaver: Claddings from $\varnothing 80\ \mu\text{m}$ to $\varnothing 1.25\ \text{mm}$
 - Portable Cleaver: Claddings from $\varnothing 200\ \mu\text{m}$ to $\varnothing 800\ \mu\text{m}$
 - Clip-Based Cleavers: Claddings from $\varnothing 60\ \mu\text{m}$ to $\varnothing 600\ \mu\text{m}$
- ◆ Programs for Cleaving Standard or Specialty Fiber:
 - Single Mode, Multimode, and Polarization-Maintaining Fiber
 - Photonic Crystal Fiber^a
 - Capillary Tubes
 - Microstructured Fibers^a
 - Non-Circular Fibers^a
- ◆ Mirror-Quality End Face Finishes for High-Performance Splicing
- ◆ Robust Diamond Scribe for Longevity and High-Volume Fiber Processing
- ◆ Industry Preferred Unit for Production Line Environments

a. It may not be possible to create clean, angled cleaves in specialty fibers with large "air-fill" fractions due to the structural properties of the fiber.



Standard Cleaver, Flat and Angled Cleave Unit

Certain specialty fibers, such as photonic crystal fiber, microstructured fibers, or highly stressed fibers, such as polarization-maintaining fiber, may require special parameters in order to create clean cleaves at the desired angle. For these cleaves, the initial tension applied to the fiber is lower and is slowly increased after the scribe to propagate it across the fiber and complete the cleave.

Specifications

Item #	LDC401	LDC401A	LDC450B
Fiber Cladding	Ø80 µm to Ø1.25 mm		Ø200 µm to Ø800 µm
Fiber Buffer/Coating	Ø80 µm to Ø3.198 mm		Ø250 µm to Ø3.2 mm
Cleave Angle	0°	0° to 15°	0°
Cleave Angle Accuracy	±0.5°	±0.5° (Flat); ±1.0° (Angled)	±0.5° (Cladding ≤Ø400 µm); ±1.0° (Cladding >Ø400 µm)
Cleave Method	Tension and Scribe		

Standard and Portable Cleavers

Required Items for Basic Setup

- ◆ One LDC401 (Flat Cleave Only),
One LDC401A (Flat/Angled Cleave), or
One LDC450B (Portable, Flat Cleave Only)
- ◆ Two Fiber Holder Top Inserts (Not Included)
- ◆ Two Fiber Holder Bottom Inserts (Not Included)
- ◆ Handset Controller for Large Diameter
Cleavers (Included)
– Intuitive GUI and Capacitive Touchscreen

Additional Customization

- ◆ Top and Bottom Inserts for Fiber Holding Blocks
- ◆ Transfer Bottom Inserts for Fiber Outer
Diameters ≤1047 µm
– Corresponding Clamp for Transferring Fiber
Between Processing Stations in Assembly
– Graphite Tips for Supporting Cladding or Buffer
During Transfer
- ◆ Digital Microscope Kit (Standard Cleavers Only)
- ◆ Replacement Diamond Blade



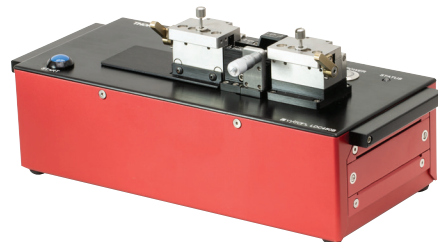
Bottom Fiber
Holder Insert



Top Fiber Holder
Insert, Dual Sided



Our digital microscope kits allow the user to image the fiber, cleave blade, and micrometer position during the cleaving process (Standard cleavers only).



The LDC450B Portable Cleaver shares the same basic setup requirements as the Standard cleavers.



ACL83
Replacement
Diamond Blade



VHT1
Transfer Clamp with
Magnetic Lid



VYT300C
Handset Controller
(Included with Standard
and Portable Cleavers)

Contact Us

Contact Thorlabs for
assistance in selecting
components for your
specific application.

1-973-300-3000 or
techsales@thorlabs.com



Robert Walz
General Manager
Thorlabs Vytran Division

Clip-Based Cleavers

Compact Cleavers

Required Items for Basic Setup

- ◆ One CAC400 (Flat Cleave Only) or One CAC400A (Flat/Angled Cleave)
- ◆ One V-Groove Fiber Clip (Not Included)
- ◆ One Top V-Groove Fiber Holder Insert (Not Included)
- ◆ One Bottom V-Groove Fiber Holder Insert (Not Included)

Additional Customization

- ◆ Eight Sizes of V-Groove Fiber Clips
- ◆ Six Top and Bottom V-Groove Insert Options
- ◆ Micrometer Backstop and Camera Assembly
 - Supports Large-Diameter or Specialty Cleave
 - Provides 200X Magnification of Cleave Process
- ◆ Replacement Diamond Blade

Specifications

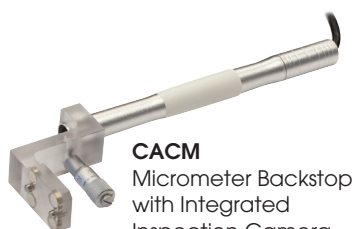
Item #	CAC400	CAC400A
Fiber Cladding	Ø60 µm to Ø600 µm	
Fiber Buffer/Coating	Ø67 µm to Ø1200 µm	
Cleave Angle	0°	0° to 15°
Cleave Angle Accuracy	±1.0°	±1.0°
Cleave Method	Tension and Scribe	



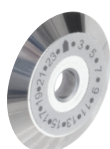
CAC400
Compact Cleaver



VHM165
V-Groove Clip



CACM
Micrometer Backstop
with Integrated
Inspection Camera



CLVB
Replacement
Blade



CLV150
Manual
Cleaver

Manual Fiber Cleaver

The CLV150 Manual Cleaver with sliding blade provides quality, repeatable cleaves needed for fusion splicing of fiber optics. Replacement blades are available separately and are rated up to 48,000 cleaves.

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