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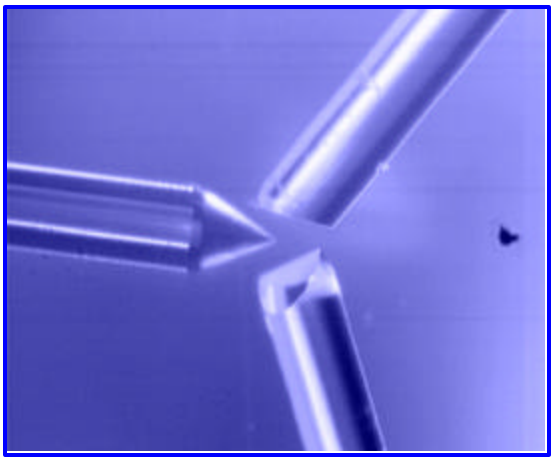
FiberSmith©



Bare Fiber Processing and Lensing System

CONICAL, CHISEL, ANGLE SHAPING

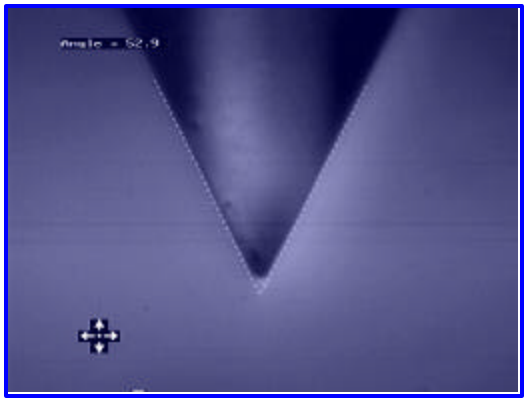
REAL-TIME MONITORING

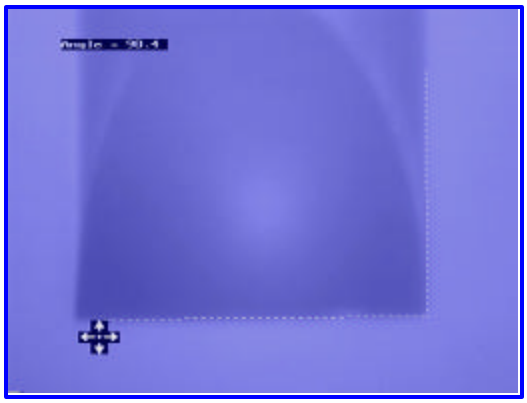
IN-LINE BEAM PROFILING

AUTOMATED PC CONTROL

GEOMETRY VERIFICATION

PM FIBER SUPPORT





FiberSmith™ is the first commercially available, automated system that can process bare optical fiber into various shapes. Conical, chiseled, angled, and flat/PC tips can be formed and lensed using the FiberSmith™ polisher. Fibers shaped with this method can be used to optimize coupling efficiency to opto-electronic devices and passive components. FiberSmith™ creates an integral lens on these fibers, eliminating the need for discreet lens systems. Customized fiber shapes can also be used for unique sensing applications. FiberSmith™ supports most fiber types, including metallized versions.

PERFORMANCE

FiberSmith™ is automated and controlled via a PC. A library of programmed polishing routines for various fiber shapes and angles are downloaded into the unit's controller. Once activated, FiberSmith™ automatically positions itself to the proper orientation for fiber shaping and initiates the polishing process. The intuitive user interface prompts the technician, guiding him through each step of the polishing procedure.

ERGONOMICS

Unique to FiberSmith™ is its in-line vision system. Fiber tip forming is constantly monitored during the polishing process. The technician is able to view the actual polishing action in real time. An inspection mode automatically retracts the fiber from the polishing position for 360 degree viewing of the fiber tip. This permits instant feedback to the technician regarding the status of the fiber shaping.

The lensing process is also performed in-line. Fiber tips are radiused immediately after shaping. Controlled radiusing can be viewed with FiberSmith™'s vision system. A separate, off-line lensing station is not required.

QUALITY

A geometry measurement feature is incorporated with FiberSmith's™ vision system. Parameters such as inclusive angle, tip concentricity and squareness can be verified in-process while the fiber is still in the polishing fixture.

Additionally, anticipated optical performance can be observed in-process. FiberSmith™ utilizes beam profiling technology to measure the emitted light pattern from a fiber during the radiusing process. Any fiber removed from the FiberSmith™ is therefore guaranteed to meet the desired geometric and optical specifications without the need of secondary, off-line measurement operations.

FLEXIBILITY

FiberSmith™ also accommodates Polarization Maintaining (PM) Fiber. It includes both a viewing fixture and rotation mechanism that that actively aligns the stress members to the desired orientation prior to polishing. Shaping can then be referenced off of the fast axis, slow axis, or any angle in between.

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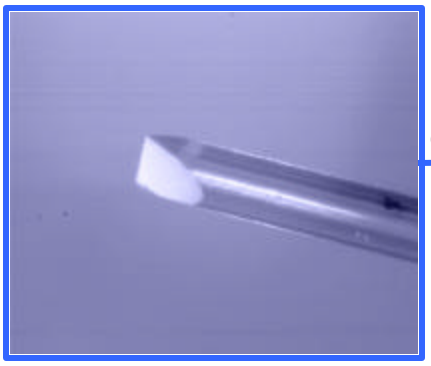
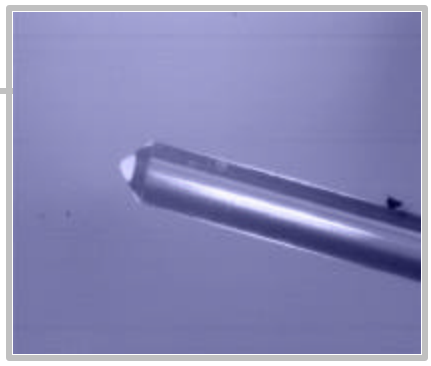
SPECIFICATIONS AND FEATURES

Bare Fiber Processing System

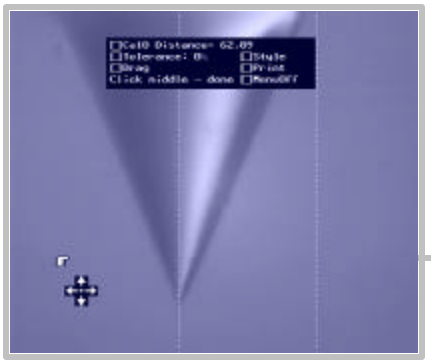


CHISEL

CONE

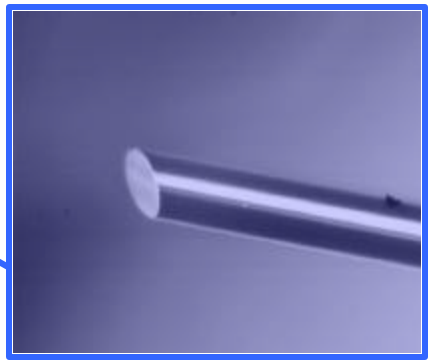


Angle Range	140° to 50° inclusive	140° to 50° inclusive	0° to 60° off diameter
Angle Tolerance (typ.)	+/- 0.5 degrees	+/- 0.5 degrees	+/- 0.5 degrees
Squareness (typ.)	+/- 0.5 degrees	n/a	n/a
Concentricity	1 micron	1 micron	n/a
Tip Radius Range (std.)	<1 to >60 microns	<1 to >60 microns	n/a
Fiber Size (std.)	80 to 140 micron dia.	80 to 140 micron dia.	80 to 140 micron dia.
Metallized Fiber	Yes	Yes	Yes
PM Fiber Support	Yes	Yes	Yes
Polishing Cycles	1	1	1



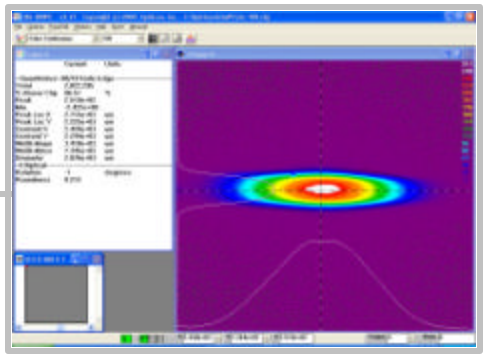
SPECS

ANGLE



IN-LINE

BEAM PROFILING



FiberSmithÔ FS200 System:

- Polishing station with 5 axes of motion
- In-line vision monitoring system
- Geometry verification system
- In-line radiusing and beam profiling system
- PM alignment optics and hardware
- Dual axis illumination
- PC controller, monitor and terminal interface
- Fiber assembly stem set

Contact Krell for custom fixtures and process applications.

Specifications are subject to change without notice. Rev. 2, 4/03

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