

**PATRIOT**  
**LASER**

# THE PATRIOT DUO THULIUM FIBER LASER



**200 W CW  
SOFT TISSUE**

**60 W PULSED  
STONES**

# TECHNICAL SPECIFICATIONS PATRIOT DUO LASER

|                        |                                  |
|------------------------|----------------------------------|
| Wavelength             | 1940 $\mu$ m                     |
| Max CW Laser Power     | 200 W                            |
| Max Pulsed Power       | 60 W (6J , 10Hz)                 |
| Cooling System         | Water Cooled                     |
| Single Pulse Energy    | 0.01~6J                          |
| Repetition Rate        | 1~2500Hz                         |
| Aiming Beam            | Green - 5 Intensity Settings     |
| Pulse Width            | Adjustable (short, medium, long) |
| Dual Pedal Foot switch | Yes                              |
| Electrical             | 230VAC, 50H-60Hz, 15A            |
| Dimensions (W×H×L)     | 21" × 37" × 46"                  |
| Weight                 | 390 lbs                          |
| Warranty               | 1 Year                           |



# PHYSICIAN BENEFITS

## ADVANCED TREATMENT FOR BPH AND SOFT TISSUE

- Minimally invasive
- Designed for precision ablation and enucleation of the prostate/tissue
- Highly efficient vaporization
- Little to no charring
- Minimal blood loss (EBL)

## CLINICAL EFFICIENCY

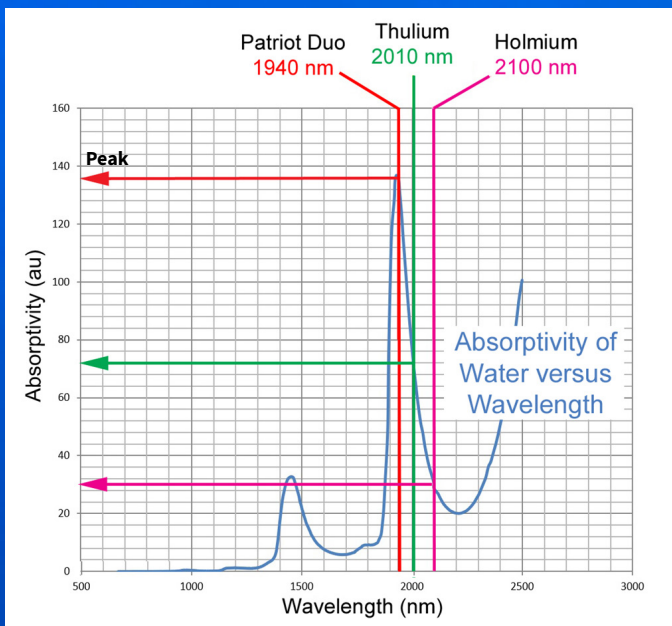
- Common CPT codes
- Intuitive procedure (short learning curve)
- Minimal post-operative care (NO ROUNDING)
- 2-in-1 design for variety of urological cases

## PATIENT BENEFITS

- Short catheter time
- Rapid relief and recovery from BPH symptoms
- Breaks the cycle of medications and avoids their side effects
- Safe, precise and efficient procedures
- Quick return to normal activities



# THULIUM FIBER LASER VS HO:YAG FOR STONES



## HIGHER EFFICIENCY

- Thulium fiber lasers are significantly more effective than traditional systems.

## SUPERIOR WATER INTERACTION

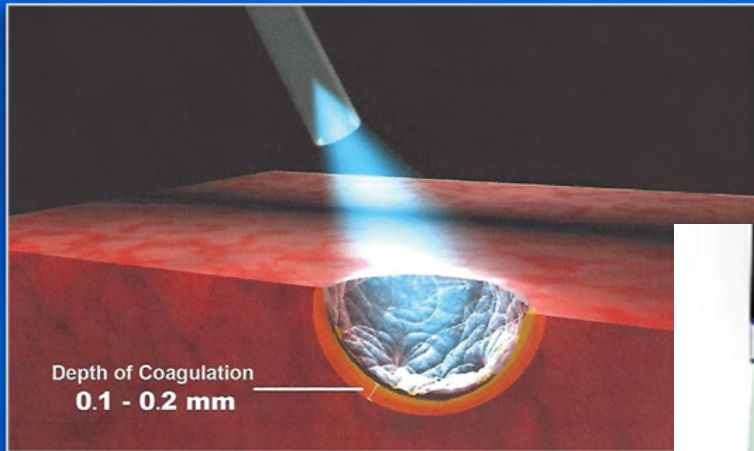
- The Patriot Duo is four times more absorbed in water.
- Patriot Duo is optimized at 1940um for superior water absorption.

## LOWER STONE MOVEMENT

- The system causes minimal movement of stones during treatment.

# PATRIOT DUO LASER TECHNOLOGY

- The Patriot Duo is the first Thulium Fiber laser with 200W CW and 60W Pulsed.
- This may lead to shorter procedures and quicker patient recovery – clinical efficiency with better patient outcomes.



## PATIENT BENEFITS IMPROVED QUALITY OF LIFE

After thousands of cases, preoperative and perioperative parameters were evaluated & compared with the baseline. There were highly significant improvements in each of the following parameters:

- The International Prostate Symptom Score (IPSS)
- Quality of Life Scores (QOLS)
- Maximal Flow Rate (QMAX)
- Post-Void Residual Urine (PVR)



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# TRIMEDYNE



## OmniPulse<sup>®</sup> MAX

The Dependable, Durable,  
and Feature-Rich Holmium  
Laser from Trimedyne<sup>®</sup>

# TRIMEDYNE



## Model: OmniPulse<sup>®</sup> MAX

|   |   |
|---|---|
| Laser System Model  | Model 1210-VHP 80 Watt Holmium: YAG Laser |
| Laser Source  | Pulsed, solid-state                       |
| Wavelength  | 2100 nm                                   |
| Energy per Pulse in Single Pulse Mode                       | 0.2 to 3.5 Joules                         |
| Effective Energy per Pulse In DoublePulse <sup>™</sup> Mode | 0.4 to 7.0 Joules                         |
| Pulse Repetition Rate in Single Pulse Mode                  | 5 to 60 Hz                                |
| Pulse Repetition Rate in DoublePulse <sup>™</sup> Mode      | 3 to 30 Hz                                |
| Pulse Duration in Single Pulse Mode                         | 350 microseconds                          |
| Duration of Pulses in DoublePulse <sup>™</sup> Mode         | 700 microseconds                          |

### Doublepulse<sup>™</sup> vs. Single Pulse Mode



In DoublePulse<sup>™</sup> Mode, two pulses are moved together to effectively double the tissue ablation effect (Data on file)



# TRIMEDYNE



Side-Firing Fibers with Irrigation



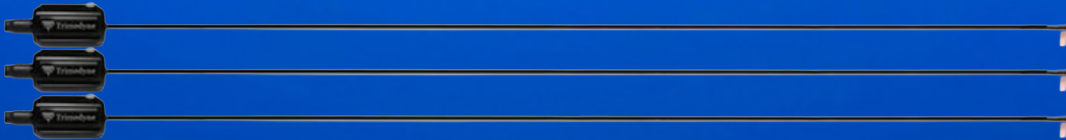
Lithotripsy Fibers



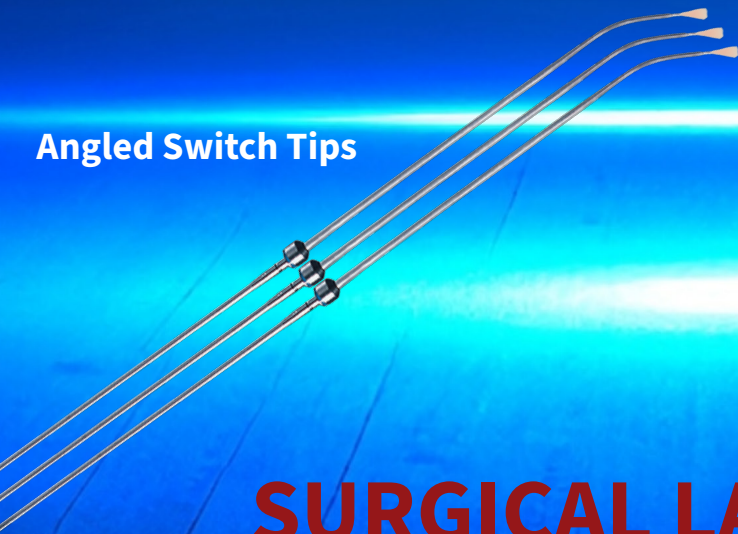
Connectors and Handles



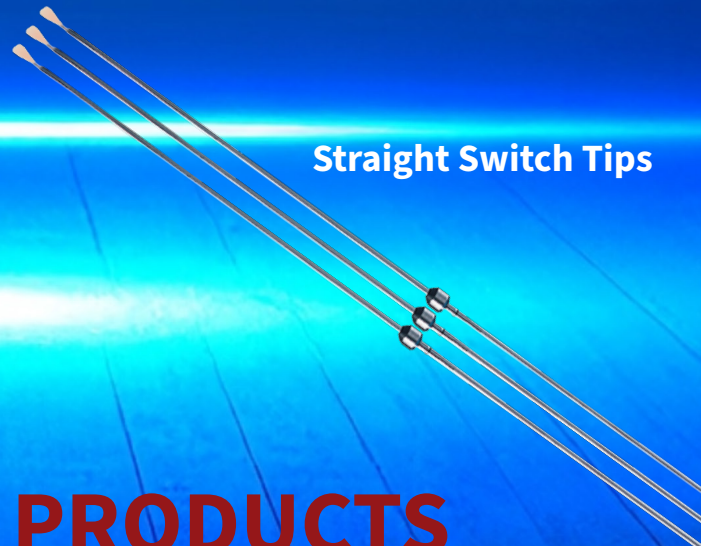
Side-Firing Urology Fibers



Angled Switch Tips



Straight Switch Tips



## SURGICAL LASER PRODUCTS

# TRIMEDYNE



## Flex MAX<sup>®</sup> LITHOTRIPSY FIBERS



| Model #  | Description  |
|----------|--|
| S200*    | Single Use, Blue 200 $\mu\text{m}$ Optical Fiber, 3 meter        |
| S272*    | Single Use, Blue 272 $\mu\text{m}$ Optical Fiber, 3 meter        |
| S365*    | Single Use, Blue 365 $\mu\text{m}$ Optical Fiber, 3 meter        |
| S550 *   | Single Use, Blue 550 $\mu\text{m}$ Optical Fiber, 3 meter        |
| S1000*   | Single Use, Blue 1000 $\mu\text{m}$ Optical Fiber, 3 meter       |
| B200*    | Reusable, Blue 200 $\mu\text{m}$ Optical Fiber, 3 meter          |
| B200-5M* | Reusable, Blue 200 $\mu\text{m}$ Optical Fiber, 5 meter, Biliary |
| B272*    | Reusable, Blue 272 $\mu\text{m}$ Optical Fiber, 3 meter          |
| B365*    | Reusable, Blue 365 $\mu\text{m}$ Optical Fiber, 3 meter          |
| 20021-M* | Reusable, Blue 550 $\mu\text{m}$ Optical Fiber, 3 meter          |
| 20025-M* | Reusable, Blue 1000 $\mu\text{m}$ Optical Fiber, 3 meter         |

\* has an SMA version

# TRIMEDYNE



## VaporMAX<sup>®</sup> UROLOGY FIBERS



| Model #   | Description  |
|-----------|--|
| 20444     | Single Use, Side Firing Laser Fibers with Trimedyne <sup>®</sup> Connector |
| 20444-SMA | Single Use, Side Firing Laser Fibers with SMA Connector                    |

## TaperTIP<sup>™</sup> ARTHROSCOPY



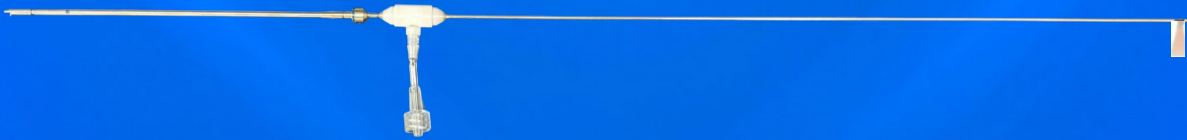
| Model # | Description  |
|---------|--|
| 20402-M | Reusable, 30° 12.5 cm, 3.0 taper to 1.5 mm O.D., 3 meter Fiber |
| 20403-M | Reusable, 60° 12.5 cm, 3.0 taper to 1.5 mm O.D., 3 meter Fiber |
| 20405-M | Reusable, 20° 12.5 cm, 3.0 taper to 1.5 mm O.D., 3 meter Fiber |

# TRIMEDYNE



## OmniTip™

### Omni™ SWITCHTIP SPINAL LASER NEEDLES



| Model #  | Description   |
|----------|---|
| 20371-HP | Single Use, Side Firing Switch Tip Needle, 30 cm with Suction/Irrigation, 2 mm O.D. |
| 20373-HP | Single Use, Side Firing Switch Tip Needle, 35 cm with Irrigation, 2 mm O.D.         |
| 20462-HP | Single Use, Side Firing Laser Needle, 25 cm, 1.5mm O.D.                             |

### SWITCHTIP HANDPIECE



| Model #  | Description  |
|----------|--|
| 20470-HP | Reusable, Handpiece and 3 meter fiber for use with Switch Tips |

### Omni™ ARTHROSCOPY SWITCHTIP LASER NEEDLES



| Model #  | Description   |
|----------|---|
| 20495-HP | Single Use, 0°, SJ-90mm, 9cm, 1.5 taper to 1.0 mm O.D.  |
| 20497-HP | Single Use, 0°, SJ-50mm, 5 cm, 1.5 taper to 1.0 mm O.D. |

# TRIMEDYNE



## Omni™ ARTHROSCOPY SWITCHTIP ANGLED-FIRING LASER NEEDLES



| Model #   | Description  |
|-----------|--|
| 20475M-HP | Reusable, 20°, 12.5 cm, 3.0 taper to 1.5 mm O.D.   |
| 20476-HP  | Single Use, 30°, 12.5 cm, 3.0 taper to 1.5 mm O.D. |
| 20476M-HP | Reusable, 30°, 12.5 cm, 3.0 taper to 1.5 mm O.D.   |

## Omni™ ARTHROSCOPY SWITCHTIP SIDE-FIRING LASER NEEDLES



| Model #  | Description   |
|----------|---|
| 20489-HP | Single Use, Mini Side Firing, 6.5 cm, 3.0 mm taper to 2.0 mm O.D. |
| 20496-HP | Single Use, SJ-90 mm Side Firing, 9 cm, 1.5 mm O.D.               |
| 20479-HP | Single Use, Side Firing, 12.5 cm, 3.0 taper to 2.0 mm O.D.        |
| 20462-HP | Single Use, Side Firing Laser Needle, 25 cm, 1.5mm O.D.           |

# TRIMEDYNE



## ORTHOPEDICS

Meniscectomy, Lateral Release, Chondroplasty, Synovectomy, ACL Debridement, Acromioplasty, Subacrominal Decompression, Capsulectomy, Debridement of Joints



## ENT

Sinusotomy, Turbinectomy, Ethmoidectomy, Polypectomy, Uncinate Process Ablation, DCR, Bony Tissue



## GENERAL SURGERY

Hemorrhoidectomy, Endoscopic and Open Procedures



## GI SURGERY

Appendectomy, Gallstones, Endoscopic and Open Procedures



## GYNECOLOGY

Soft Tissue Ablation, Laparoscopic Procedures



## LITHOTRIPSY

Fragmentation of Urinary and Biliary Calculi



## LUMBAR, THORACIC, AND CERVICAL DISCS

Disc Decompression & Discectomy



## UROLOGY

Treatment of BPH, Bladder Tumors, Bladder Neck Contractures, Urethral & Ureteral Strictures, Condyloma



| <b>Model:<br/>OmniPulse® MAX</b> |  |
|----------------------------------|--|
| <b>Output Power</b>              | 1.5 to 80 watts to tissue                |
| <b>Electrical Service</b>        | 230 VAC, 40 amps, single phase, 50/60 Hz |
| <b>Cooling</b>                   | Self-contained air / water               |
| <b>Aiming Beam</b>               | Adjustable, 5mW maximum, red             |
| <b>Dimensions</b>                | 25.5" W × 39.5" L × 48.5" H              |
| <b>Weight</b>                    | 670 lbs (303 kg)                         |
| <b>Warranty</b>                  | 1 year parts and labor                   |

## Want to Learn More?



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BR # 10120, 25/09 (Orthopedic)

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# ProFlex LLF™

Intelligence Design  
for Superior Performance

# A History of Design Excellence & Thought Leadership

## As a result of our non-stop research & development efforts:

- ❖ **InnovaQuartz LLC** has produced more urological laser fiber patents than any other company.
- ❖ **InnovaQuartz'** patented technologies enable more urological laser fibers than all other companies'.
- ❖ **InnovaQuartz'** latest patent for stone fibers -- **Pulsar™ HPC** – has been approved by the US Patent Office for issue in 2015.

Holmium lasers generate both productive and harmful energy. The productive energy breaks-up stones where the harmful energy breaks equipment. Potentially damaging laser energy must first be removed before the productive energy is optimized for safe and effective delivery to surgical targets. Harmful energy that cannot be salvaged comes in two fundamental forms:

- **spatial overfill** -- here the beam is off center, oval or too large for the fiber and
- **angular overfill** -- the beam angle is too high to couple to the fiber safely.

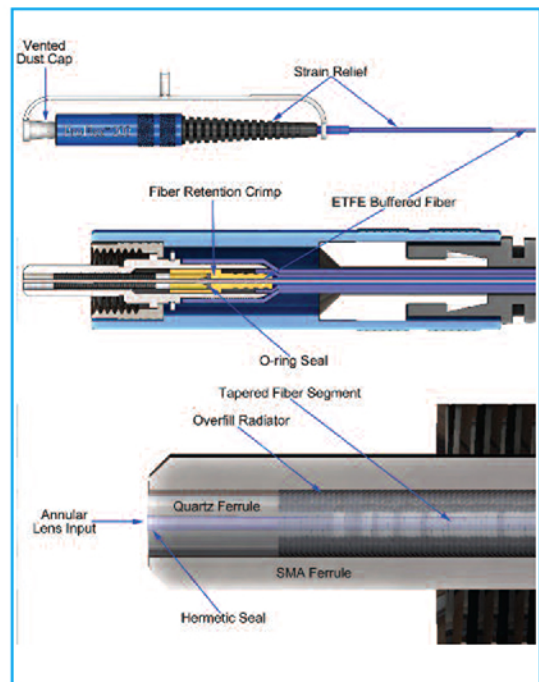
20-years ago, **InnovaQuartz** set out to solve the **spatial** problem and developed the first tapered and quartz ferrule reinforced connector called the **Black Hole™** (US Patent 6,282,349). The **Black Hole™** captured much of the **spatial overfill** without damaging the laser or the connector. Lithotripsy fibers equipped with the **Black Hole** became known as **SureFlex™** for allowing full deflection within all urethrosopes, for the first time.

In 2013, **InnovaQuartz LLC** set out on another ambitious R&D mission: improve collimation of the productive energy while solving the dual challenge of **angular & spatial overfill**. Two years of exhaustive research produced the **Pulsar™ HPC** that is the key to **ProFlex LLF** performance.”

## ProFlex™ LLF with Patent Pending Pulsar™ HPC Technology

**ProFlex™** lithotripsy fibers containing **Pulsar™ HPC** technology successfully capture and collimate more useful surgical energy while rejecting the destructive spatial and angular overfill energy.

The **Pulsar™ HPC** is also paired with the highest performance holmium optical fiber and **IQ's Smooth Passage™** working tip, yielding the latest holmium fiber from your laser lithotripsy leader **ProFlex™ LLF**.



# The Gold Standard in Laser Lithotripsy - ProFlex™ LLF

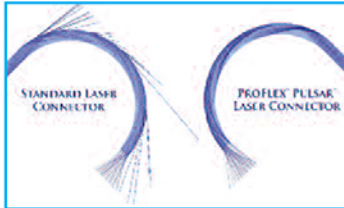
## Annular Optical Lens Technology

### Industry Standard Solution

Standard holmium fibers accept laser focal angles that predispose fibers to 'burn through' failure in bending.

### Issue:

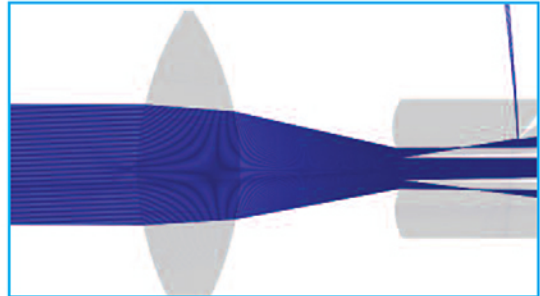
Laser fiber can carry limited angles of photonic energy. When these limits are exceeded, photons leak into the blue plastic jacket. Tight bends in a fiber force photons to adopt higher angle pathways. The closer a photon's angle is to the fiber maximum, the less of a bend is needed to overcome a fiber's carrying capacity. If enough photons leak at the same spot the fiber burns through, injuring you, your patient or damaging your ureteroscope.



### The ProFlex™ Solution

The **Pulsar™ HPC** is manufactured with a miniature, state-of-the-art compound annular lens: a lens featuring a concave corrective center lens that is ringed by a convex dispersing lens.

A **concave** lens in the center of the **HPC** augments the holmium laser focal lens, collimating the energy to a nearer zero angle for optimum coupling through the tapered fiber. The ring of quartz surrounding the concave lens is **convex** so the highest angles are directed away from the fiber.



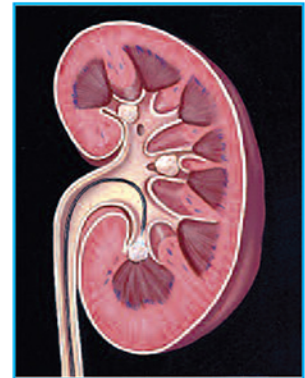
**Pulsar™** Annular Optical Lens collimating Holmium laser energy while dispersing overfill energy

During surgery, holmium lithotripsy fibers to bend through some rather tortuous pathways in reaching the surgeon's target. **ProFlex's Pulsar HPC** eliminates rogue holmium energy and insures that only extremely low angle collimated light energy enters the fiber.

**ProFlex** fibers do not leak even if bent within flexible ureteroscopes at maximum deflection, or well beyond maximum deflection.

### Benefit:

**ProFlex's Pulsar HPC** lithotripsy fiber optic technology maximizes the capture, collimation and delivery of more high quality holmium energy to minimize burn through without compromising procedural efficiency.



Lower pole calculi

# ProFlex's™ Pulsar™ HPC Technology

## Energy Management Technology

### **Industry Standard Solution**

Other manufactures fibers equipped with quartz ferrules deliver all overfill energy to the rear of the connector where it can inadvertently couple to the fiber core at potentially damaging high angles or concentrate as heat to cause connector failures.

### **Issue:**

Overfill energy directed to the rear of the connector inadvertently couples to the fiber core at damaging high angles or concentrates heat to cause connector failure.

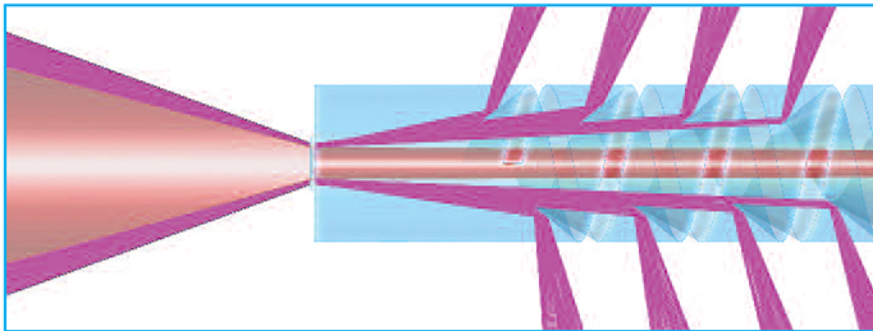
### **The ProFlex™ Solution**

**ProFlex's Pulsar HPC** technology doesn't end with separating useful from harmful laser energy, optimizing useful energy and conditioning that energy for safer delivery to the surgical target; the rejected energy must be dealt with safely.

**Pulsar HPC's** internal ferrule features a highly reflective helical groove that is laser cut directly into the quartz with a designed depth and pitch. Each turn of the groove catches bits of the overfill energy and reflects it into the wall of the connector so that the energy is dissipated uniformly along the full length of the **Pulsar HPC**.

### **Benefit:**

**ProFlex's Pulsar HPC** helical grooved ferrule technology prevents destructive holmium energy from entering the fiber or concentrating as heat in the connector, preventing urethroscope damage and fiber connector failure.



*Management of rejected overfill energy within the Pulsar HPC*

# ProFlex™ Pulsar™ HPC Technology

## Tapered Fiber Technology

### *Industry Standard Solution*

During surgery, repeated discharges of holmium laser energy heat the laser rod and cause the beam to dance about and bloom into large focal spots that are unable to fit into a small core fiber.

#### **Issue:**

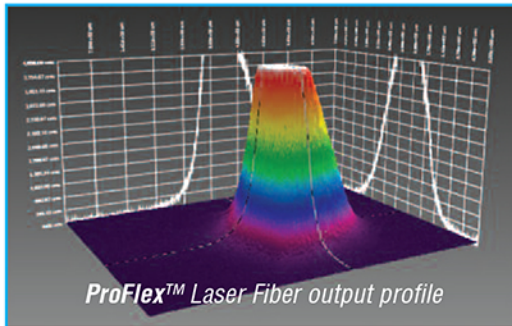
Holmium lasers require sub-optimally large and stiff fibers that indiscriminately couple potentially damaging laser energy simply to accommodate laser beam bloom.

### **The ProFlex™ Solution**

**ProFlex's** solution is an up-tapered fiber at the laser input fused inside the helical grooved quartz ferrule to provide a larger aperture (opening) for the laser energy to enter. The beam is then focused to correct for taper coupling to provide more energy and better quality energy allowing a smaller core, more flexible fiber.

#### **Benefit:**

**ProFlex' Pulsar** captures more useful energy for safe delivery to the surgical target.



## Smooth Passage™ Tips Technology

### *Industry Standard Solution*

Mechanically polished fibers and cleaved tips damage the forceps channel of ureteroscopes, even when passed through without deflecting the scope. Sharp fiber edges may dig into the liner and snap off. Fiber shards cut and gouge the rest of the fiber as it passes.

#### **Issue:**

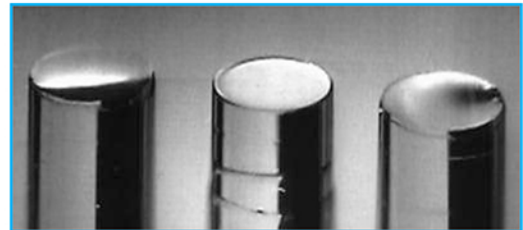
Sharp fiber edges cut scope liners. Tips snap off and damage the fiber. Cut liners harbor bioburden.

### **The ProFlex™ Solution**

Over a decade ago, **InnovaQuartz** was the first to develop a solution: A laser polished bare fiber tip that we soon added to SureFlex™ and AccuFlex™ fibers. The tips of all **ProFlex** fibers are laser polished and branded as **Smooth Passage™** because they pass forceps channels without causing or suffering any damage, even if the scope is fully deflected.

#### **Benefit:**

The risks of snagged and broken fibers, liner damage and contamination are minimized.



*Polished tip, Smooth Passage™ tip, Cleaved tip*

# ProFlex's™ Pulsar™ HPC Ordering Information

| IQ Product   | Product Description                | Dornier New Star StoneLight | Lumenis Coherent Quanta | Trimedyn | Aura |
|--------------|------------------------------------|-----------------------------|-------------------------|----------|------|
| LLF200LT     | ProFlex 200 Smooth Passage Fiber   |                             | X                       |          |      |
| LLF200TG     | ProFlex 200 Smooth Passage Fiber   | X                           |                         |          |      |
| LLF200TG-T   | ProFlex 200 Smooth Passage Fiber   |                             |                         | X        |      |
| LLF200TRC    | ProTrac 200 Ball Tip Fiber         |                             | X                       |          |      |
| LLF200TRC-DS | ProTrac 200 Ball Tip Fiber         | X                           |                         |          |      |
| LLF200TRC-T  | ProTrac 200 Ball Tip Fiber         |                             |                         | X        |      |
| LLF200SPY    | ProFlex 200 5 Meter Ball Tip Fiber |                             | X                       |          |      |
| LLF200SPY-T  | ProFlex 200 5 Meter Ball Tip Fiber |                             |                         | X        |      |
| LLF273LT     | ProFlex 273 Smooth Passage Fiber   |                             | X                       |          |      |
| LLF273TG     | ProFlex 273 Smooth Passage Fiber   | X                           |                         |          |      |
| LLF273TG-T   | ProFlex 273 Smooth Passage Fiber   |                             |                         | X        |      |
| LLF273TRC    | ProTrac 273 Ball Tip Fiber         |                             | X                       |          |      |
| LLF273TRC-DS | ProTrac 273 Ball Tip Fiber         | X                           |                         |          |      |
| LLF273TRC-T  | ProTrac 273 Ball Tip Fiber         |                             |                         | X        |      |
| LLF273SPY    | ProFlex 273 5 Meter Ball Tip Fiber |                             | X                       |          |      |
| LLF273SPY-T  | ProFlex 273 5 Meter Ball Tip Fiber |                             |                         | X        |      |
| LLF365       | ProFlex 365 Smooth Passage Fiber   | X                           | X                       |          |      |
| LLF365-T     | ProFlex 365 Smooth Passage Fiber   |                             |                         | X        |      |
| LLF365SPY    | ProFlex 365 5 Meter Ball Tip Fiber | X                           | X                       |          |      |
| LLF365SPY-T  | ProFlex 365 5 Meter Ball Tip Fiber |                             |                         | X        |      |
| LLF365AU     | Aurora 365 Smooth Passage Fiber    |                             |                         |          | X    |
| LLF550       | ProFlex 550 Smooth Passage Fiber   | X                           | X                       |          |      |
| LLF550-T     | ProFlex 550 Smooth Passage Fiber   |                             |                         | X        |      |
| LLF550AU     | Aurora 550 Smooth Passage Fiber    |                             |                         |          | X    |
| LLF910       | ProFlex 910 Smooth Passage Fiber   | X                           | X                       |          |      |
| LLF910-T     | ProFlex 910 Smooth Passage Fiber   |                             |                         | X        |      |



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