LIGHTGUIDE

Minimally invasive devices

THE WORLD'S LEADING OPTICAL FIBER PRODUCTION LAB.

lightguide.com

LIGHTGUIDE

THE WORLD'S LEADING OPTICAL FIBER PRODUCTION LAB.

LIGHTGUIDE IS A DYNAMIC AND COMPETITIVE EUROPEAN COMPANY THAT DEVELOPS, MANUFACTURES AND SUPPLIES OPTICAL FIBERS, FIBER BUNDLES, CABLES AND LASER DELIVERY SYSTEMS FOR CUTTING-EDGE, HIGHLY SOPHISTICATED SCIENTIFIC, INDUSTRIAL AND MEDICAL APPLICATIONS WORLDWIDE.

OUR DEVICES ARE USED IN:

MEDICAL APPLICATIONS

- UROLOGY
- PHLEBOLOGY
- ATHERECTOMY
- PROCTOLOGY
- ONCOLOGY
- LIPOSUCTION (LIPOLYSIS)
- ENT
- GYNECOLOGY
- GENERAL SURGERY

INDUSTRIAL APPLICATIONS

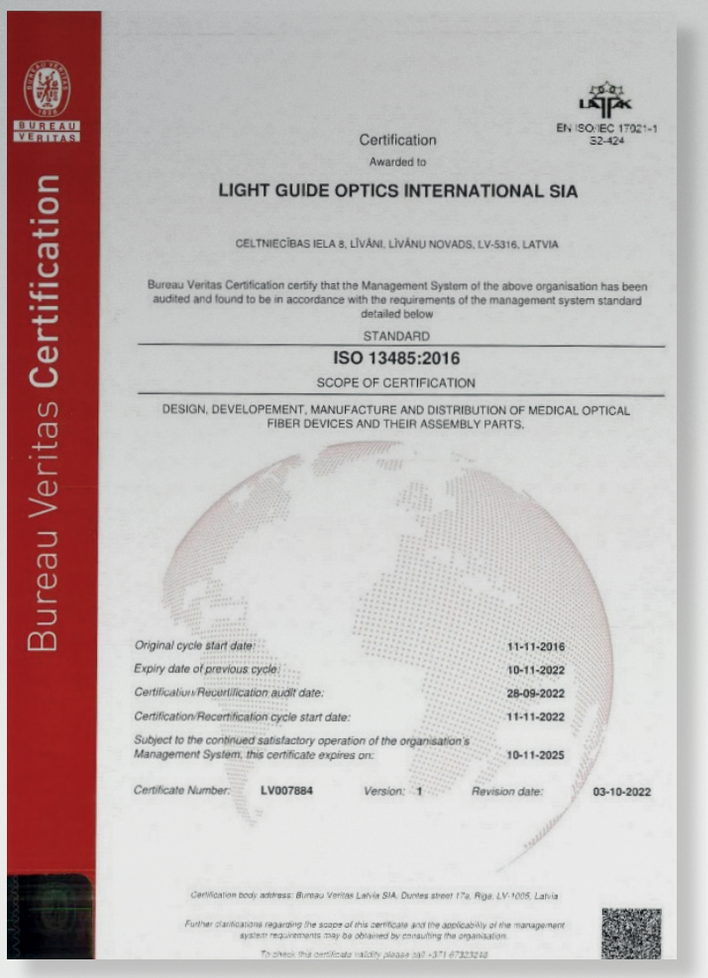
- SEMICONDUCTOR INDUSTRY
- ANALYTICAL INSTRUMENTS
- SPECTROSCOPY
- OPTICAL SENSORS
- LASER BEAM DELIVERY
- QUALITY CONTROL
- UV CURING
- INSPECTION SYSTEMS
- PROCESS ANALYSIS

LIGHTGUIDE

WE ARE CERTIFIED

Producing hundreds of thousands of devices annually, we maintain a consistent commitment to the highest quality standards. The excellence of our work is testified to by the certifications our quality management system has received: ISO 13 485 and ISO 9001.

Our consistent high standards are further validated by recurring customer audits conducted monthly.



Bureau Veritas Certification

EN ISO/IEC 17021-1
S2-424

Certification

Awarded to

LIGHT GUIDE OPTICS INTERNATIONAL SIA

CELTNIECĪBAS IELA 8, LĪVĀNI, LĪVĀNU NOVADS, LV-5316, LATVIA

Bureau Veritas Certification certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standard detailed below

STANDARD

ISO 13485:2016

SCOPE OF CERTIFICATION

DESIGN, DEVELOPEMENT, MANUFACTURE AND DISTRIBUTION OF MEDICAL OPTICAL FIBER DEVICES AND THEIR ASSEMBLY PARTS.

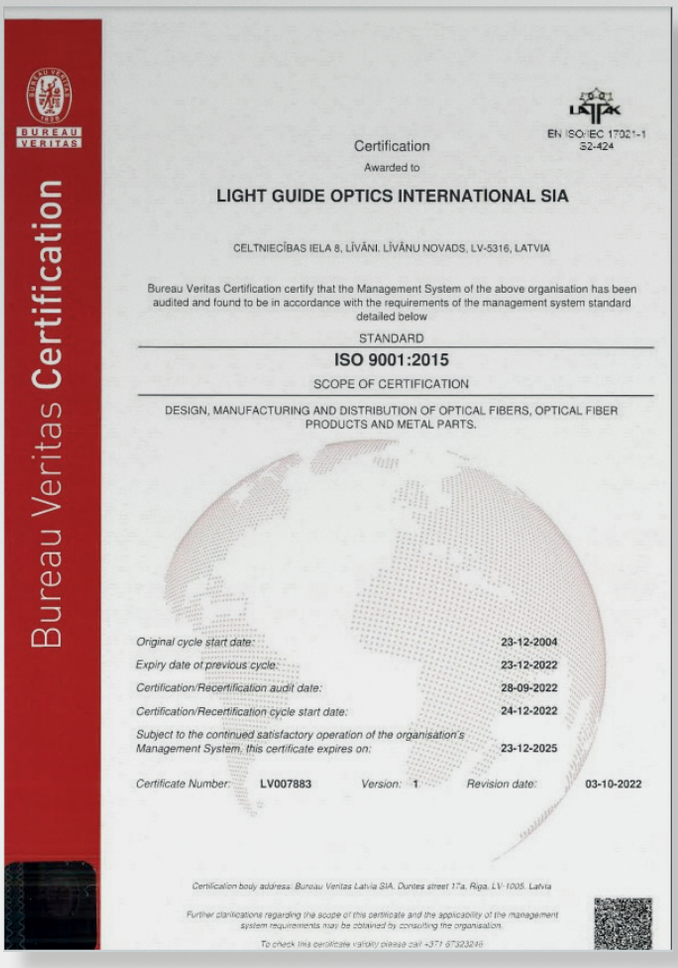
Original cycle start date:	11-11-2016
Expiry date of previous cycle:	10-11-2022
Certification/Recertification audit date:	28-09-2022
Certification/Recertification cycle start date:	11-11-2022
Subject to the continued satisfactory operation of the organisation's Management System, this certificate expires on:	10-11-2025

Certificate Number: **LV007884** Version: **1** Revision date: **03-10-2022**

Certification body address: Bureau Veritas Latvia SIA, Duntes street 17a, Riga, LV-1005, Latvia

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.

To check this certificate validity please call +371 67323218



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S2-424

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STANDARD

ISO 9001:2015

SCOPE OF CERTIFICATION

DESIGN, MANUFACTURING AND DISTRIBUTION OF OPTICAL FIBERS, OPTICAL FIBER PRODUCTS AND METAL PARTS.

Original cycle start date:	23-12-2004
Expiry date of previous cycle:	23-12-2022
Certification/Recertification audit date:	28-09-2022
Certification/Recertification cycle start date:	24-12-2022
Subject to the continued satisfactory operation of the organisation's Management System, this certificate expires on:	23-12-2025

Certificate Number: **LV007883** Version: **1** Revision date: **03-10-2022**

Certification body address: Bureau Veritas Latvia SIA, Duntes street 17a, Riga, LV-1005, Latvia

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organisation.

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LIGHTGUIDE IN THE WORLD

LIGHTGUIDE INTERNATIONAL
Production, R&D, Sales and Coordination
Livani, Latvia

LIGHTGUIDE GERMANY
Sales Office and technical support
Meckenheim, Germany

LIGHTGUIDE USA
Sales Office
San Jose, California, USA

LIGHTGUIDE CHINA
Sales Office
Shanghai, China

LIGHTGUIDE

NEW

INFINITY SIDE FIBER®

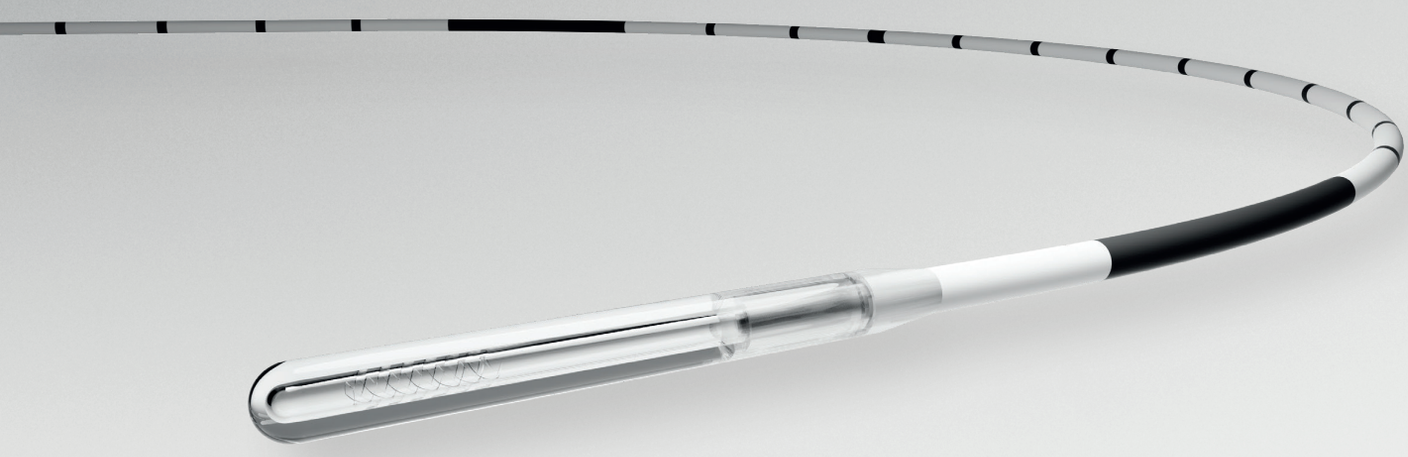
PHLEBOLOGY

PROCTOLOGY

LIPOLYSIS

GENERAL SURGERY

Lightguide's Infinity Side Fiber® is the next generation device for radial laser treatment.

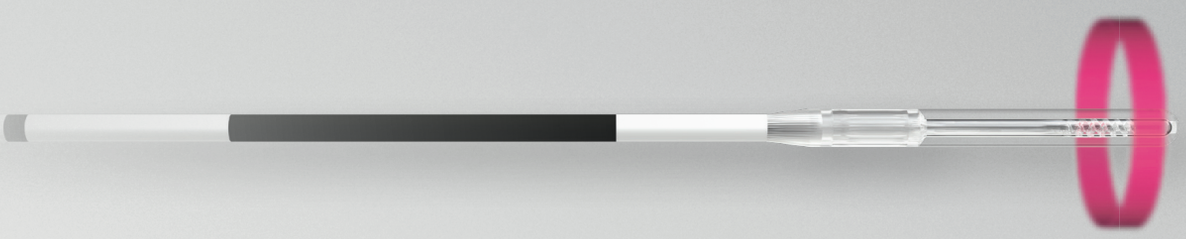


- Gentle energy transfer with low peak temperature
- Very uniform emission
- Cylindrical 360° emission profile
- 100% direct irradiation to the target
- Optimized fiber tip design for highest safety

Recent innovations made by Lightguide result in our best laser fiber for soft tissue laser surgery. The broad cylindrical 360° laser light emission of our Infinity Side Fiber® ensures smooth and gentle laser energy delivery to the target tissue. Intravascular, intrastitial and intracutaneous laser ablation treatments can benefit from the smoother procedure and higher patient comfort.

The optimized fiber tip design guarantees first-class safety and durability. The optical fiber has marking lines to ease positioning in the target tissue. Lightguide offers three fiber tip sizes: classic (1.8 mm), medium (1.6 mm) and small (1.3 mm). A compatible Introducer Set for vascular access is available.

EMISSION PROFILE



TECHNICAL DETAILS

Outer diameter (tip)	1.3 mm, 1.6 mm, 1.8 mm
Standard length	2.5 m
Wavelength e.g.	980 nm, 1470 nm and 1940 nm (and others)
Diffusing length	4 mm
Core diameter	400 µm or 600 µm typically
Custom design	according to customer's specification

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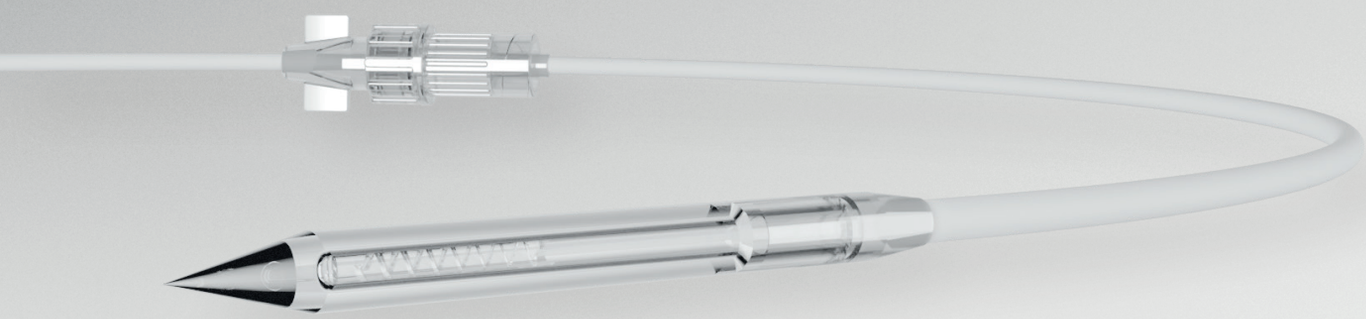
NEW

INFINITY HEMORRHOID PROBE

PROCTOLOGY

Minimal invasive laser therapy for 3rd or 4th degree hemorrhoid.



- Optimized fiber tip for maximum safety and reliability
- Suitable handpiece available for better handling

Definitive treatment of 3rd and 4th degree hemorrhoids by gentle and well controlled laser energy emission at low peak temperature in the tissue. This achieves a shrinking and fibrotization with limiting complications and preserving anoderm and the mucous membrane which results in restoring the natural anatomical structure. The specially designed pointed tip and strucutre of the Infinity Hemorrhoid Probe can be inserted into the hemorrhoidal package without incision avoiding open wounds and excisions.

DUAL LUERLOCK HANDPIECE

Squeeze Luer adapter delivered with each device, cannula and reusable handpiece available on request.

Precise alignment of the singular fibers for coagulation and vaporization of tissue.

TECHNICAL DETAILS

Outer diameter (tip)	1.8 mm
Standard length	2.5 m
Wavelength e.g.	980 nm, 1470 nm and 1940 nm (and others)
Typical transmission	98%
Emission angle	cylindrical and conical 360° all around, approx. 4 mm long
Core diameter	600 µm typically
Custom design	according to customer's specification

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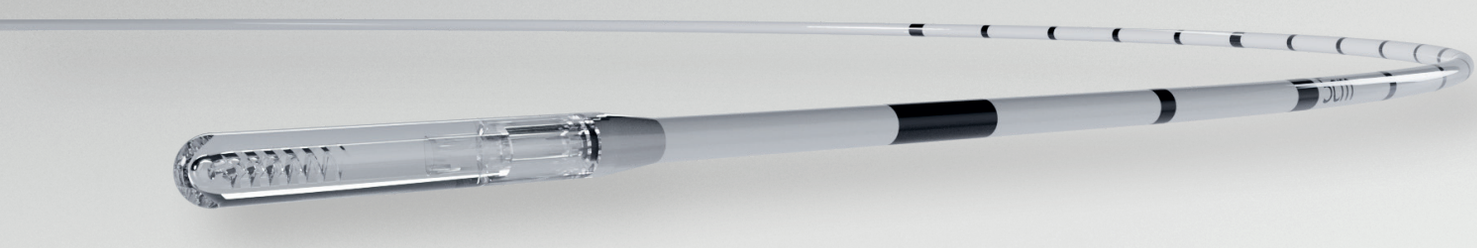
INFINITY FISTULA PROBE

PROCTOLOGY

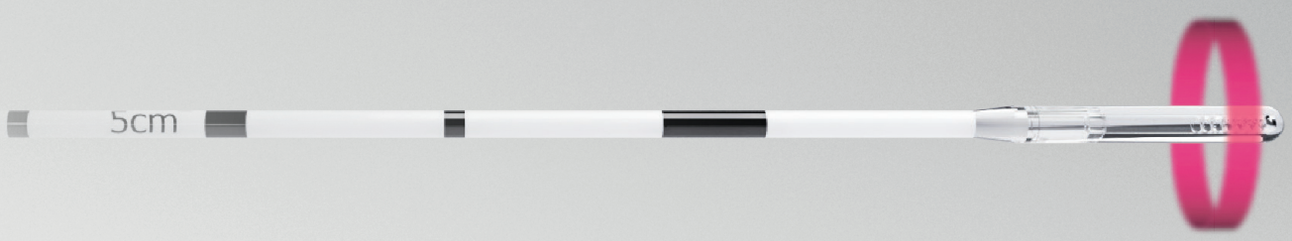
Minimal invasive laser treatment of anal fistulas and pilonidal sinuses.



- Gentle energy transfer with lowest peak temperature
- Efficient use of laser energy for optimized closure
- 100% direct irradiation to the target
- Optimized fiber tip design for highest safety

The Infinity Fistula Probe is specially designed to be inserted into an anal fistula or pilonidal sinus tract to distribute the laser energy circumferentially directly to the epothelized tissue. It therefore ensures a homogeneous thermal destruction of the fistula tract. The optimized fiber tip design guarantees first-class safety and durability. The optical fiber has dedicated marking lines to ease precise positioning of the fiber tip within the anal fistula or pilonidal sinus tract.

EMISSION PROFILE



TECHNICAL DETAILS

Outer diameter (tip)	1.6 mm
Standard length	2.5 m
Wavelength e.g.	980 nm, 1470 nm and 1940 nm (and others)
Typical transmission	98 %
Diffusing length	4 mm
Core diameter	600 µm
Custom design	according to customer's specification

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LATEST INNOVATION

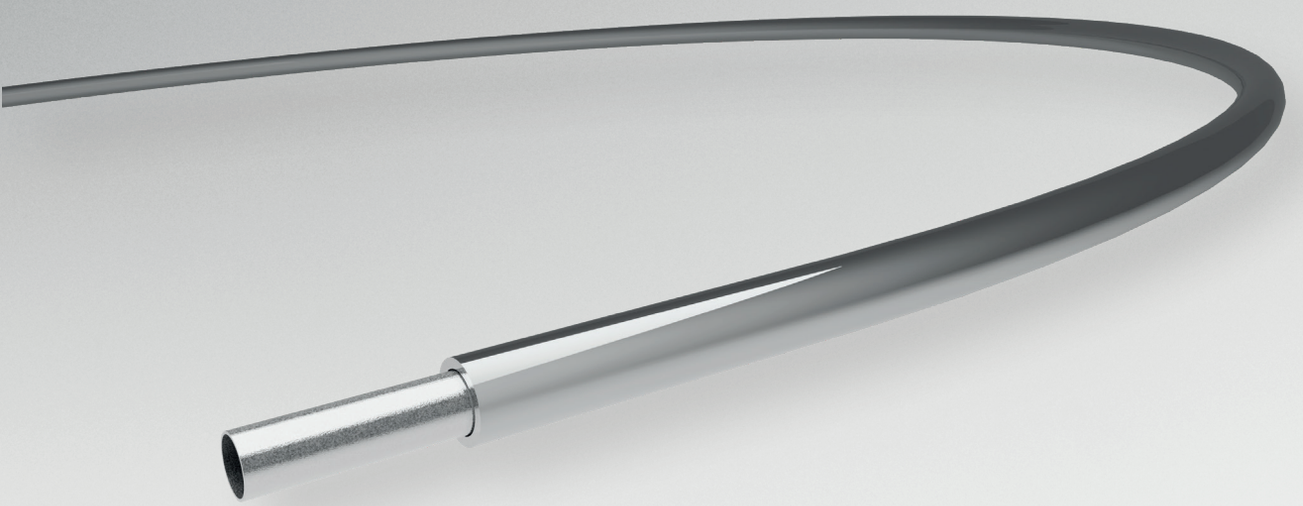
CO2 LASER FIBER

DERMOTOLOGY

GYNECOLOGY

OTOLARYNGOLOGY

High quality, flexible light guide for CO2 lasers.



- Available fully assembled and packed or bulk fiber
- Dual transmission of CO2 laser and aiming beam
- Customization possibilities for product design
- Compatible with EO sterilization

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CO2 laser fibers are a very versatile instrument for delivering CO2 laser power from the source to the treatment site on the patient and overcome the limitations of articulated arms and mirrors. CO2 laser fibers can be an alternative to the rigid sytems in almost all medical applications. The use of CO2 laser fibers allows to reach hardly accessible targets in the human body more conveniently in practically all medical disciplines. Lightguide's CO2 Laser Fibers are available as bulk fiber material or customer special assembly, with or without connector and optional sterilization and labeling.
All patient contacting materials are certified biocompatible.

EMISSION PROFILE

TECHNICAL DETAILS

Fiber type	CO2.300	CO2.500	CO2.750
Glass inner diameter	300 µm	500 µm	750 µm
Glass outer diameter	400 µm	650 µm	950 µm
Outer diameter fiber	500 µm	1040 µm	1300 µm
Straight loss dB/m	< 2.0	< 0.8	< 0.5
Wavelength	9.6 µm up to 10.6 µm (others on request)		

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BARE FIBER
TAPERED BARE FIBER

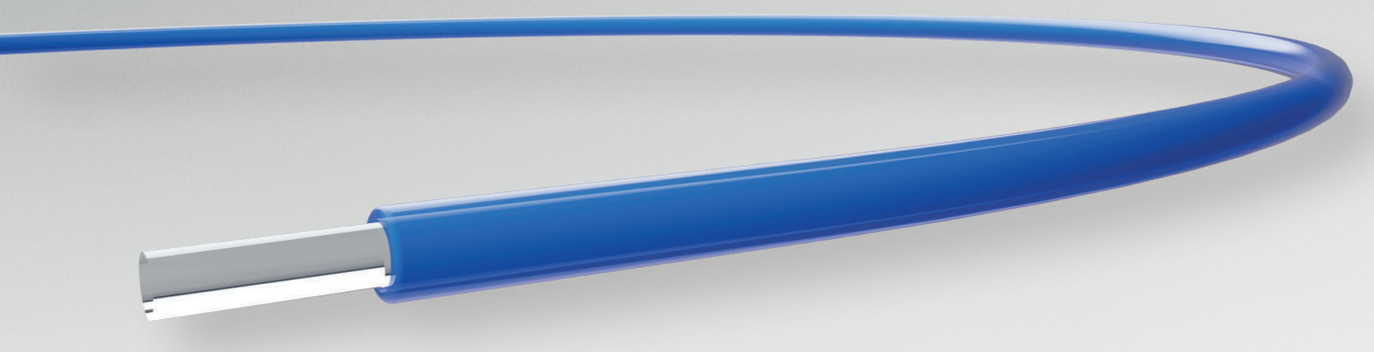
UROLOGY

GYNECOLOGY

LITHOTRIPSY

GENERAL SURGERY

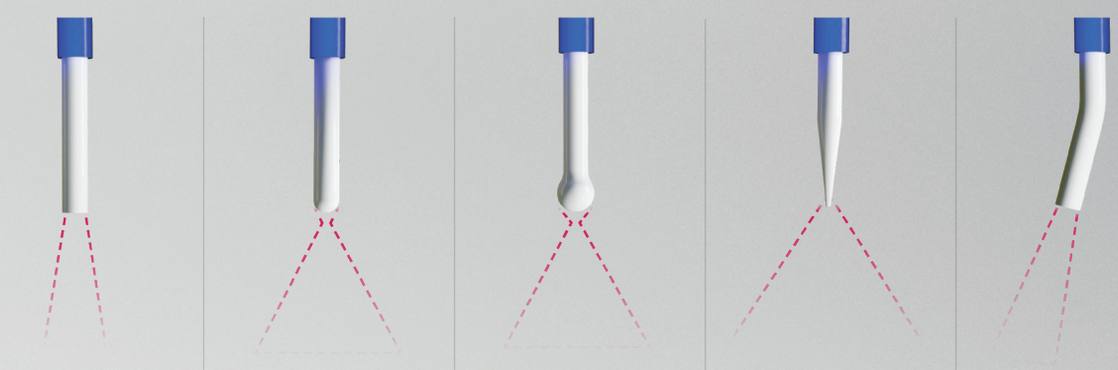
Full variety of fibers which are designed to different needs and applications.



- Low and high power applications
- Large customization possibilities
- Bare Fiber for diode, Ho:YAG, Nd:YAG, Thulium, and other lasers
- Reusable or disposable Bare Fiber

As market leader for Bare Fibers we can offer a full variety of fibers which are designed to fit different needs and applications. Our customer can choose between standard and tapered fibers. Tapered Bare Fibers have the clear benefit to combine a larger fiber diameter on the laser connector side with a smaller and more flexible application side (distal end). Taper technology is technically feasible also for all other fiber types.

FIBER TIP VARIATIONS



FLAT TIP | SPHERICAL TIP | BALL TIP | CONICAL TIP | BENT TIP

TECHNICAL DETAILS

Fiber type	quartz / quartz,
	quartz / quartz / hard clad,
	quartz / hard clad
Fiber coating	polyimide, nylon, ETFE
Numerical aperture	0.22 up to 0.37 (others on request)
Fiber core diameter	e.g. 100 µm up to 1000 µm (others on request)
Distal fiber tip	flat tip, spherical tip, ball tip, conical tip, bent tip
Wavelength	400 nm up to 2200 nm
Custom design	according to customer's specification

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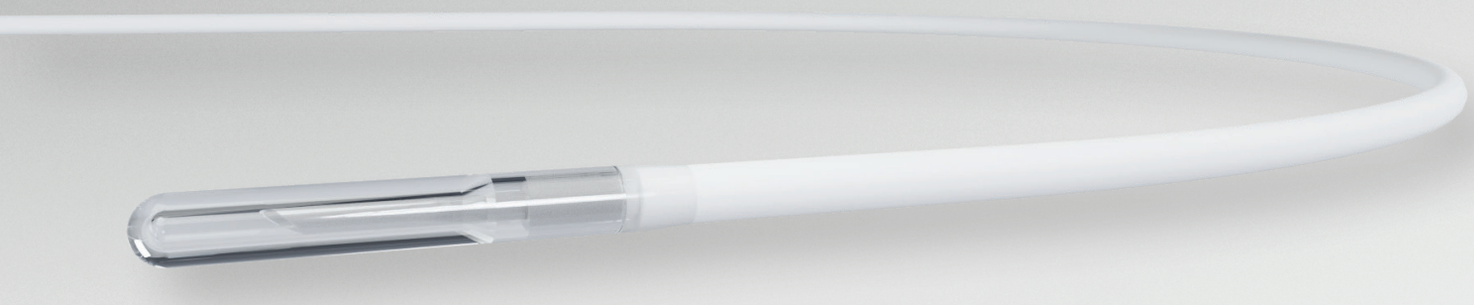
SIDE FIRE FIBER PROBE

UROLOGY

Minimally invasive surgical option for the definitive treatment of BPH.



- Optimized laser emission profile with no front firing for efficient use of laser energy
- Fused fiber tip for maximum safety and reliability

The lateral emission aims directly at the prostate tissue while the bladder sphincter is preserved. By means of the thumb holder the probe can easily be rotated about its axis. The Side Fire Fiber Probe can be used with all popular medical laser wavelength like 532 nm, 1064 nm and 2100 nm for example. Its fused fiber tip maximizes laser transmission and durability for optimum treatment results.

EMISSION PROFILE

TECHNICAL DETAILS

Outer diameter (tip)	1.8 mm or 2 mm
Standard length	2.5m
Wavelength e.g.	532 nm, 1064 nm and 2100 nm (and others)
Typical transmission	98 %
Numerical aperture	0.22, others on request
Core diameter	600 µm typically
Custom design	according to customer's specification

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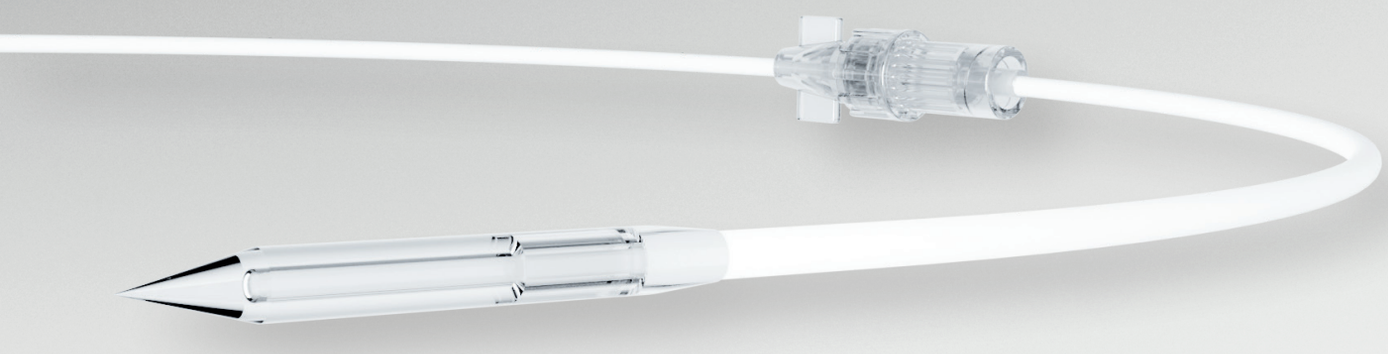
HEMORRHOID PROBE

PROCTOLOGY

Minimal invasive laser therapy for 3rd or 4th degree hemorrhoid.



- Fused fiber tip for maximum safety and reliability
- Suitable handpiece available for better handling

Definitive treatment of 3rd and 4th degree hemorrhoids by well controlled application of laser energy into the hemorrhoidal tissue. The emission angle of the laser beam ensures accurate ablation of the hemorrhoidal pile with feeding artery even in a relatively small hemorrhoidal node, as well as subsequent endoluminal ablation of the hemorrhoidal blood vessel itself. This achieves a shrinking and fibrotization with limiting complications and preserving anoderm and the mucous membrane which results in restoring the natural anatomical structure.

The specially designed pointed tip and structure of the Hemorrhoid Probe can be inserted into the hemorrhoidal package without incision avoiding open wounds and excisions.

DUAL LUERLOCK HANDPIECE

Squeeze Luer adapter delivered with each device, cannula and reusable handpiece available on request.

Precise alignment of the singular fibers for coagulation and vaporization of tissue.

TECHNICAL DETAILS

Outer diameter (tip)	1.8 mm
Standard length	2.5 m
Wavelength e.g.	980 nm, 1470 nm and 1940 nm (and others)
Typical transmission	98%
Emission angle	cone which points forwards, circular 360°
Numerical aperture	0.22
Core diameter	600 µm typically
Custom design	according to customer's specification

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DESIGN FOR SMA-905 CONNECTORS

ECONOMY DESIGN

— Color coded ring for fiber diameter
— Black rubber bend protection
— Cost efficient

DIMENSIONS

Length total	85 mm
Outer diameter	8.5 mm maximum

More connector designs available upon request. Customer-special dimensions can be designed individually. Connectors with RFID technology available, too.

Standard color-coding scheme (for Premium and Economy design)

- ≤ 200 µm
- 201...300 µm
- 251...300 µm
- 301...450 µm
- 451...750 µm
- ≥ 751 µm

UNIVERSAL DESIGN

— Labeling of the fiber type and brand name (company logo) on the bushing

— Black rubber bend protection

DIMENSIONS

Length bushing	45 mm
Length total	90 mm
Outer diameter	9.5 mm (knurling: 9.8 mm)

PREMIUM DESIGN

— Labeling of the fiber type and brand name (company logo) on the bushing

— Color coded ring for the fiber diameter

— Typically black rubber bend protection

DIMENSIONS

Length bushing	40 mm
Length total	100 mm
Outer diameter	11 mm (knurling: 11.6 mm)

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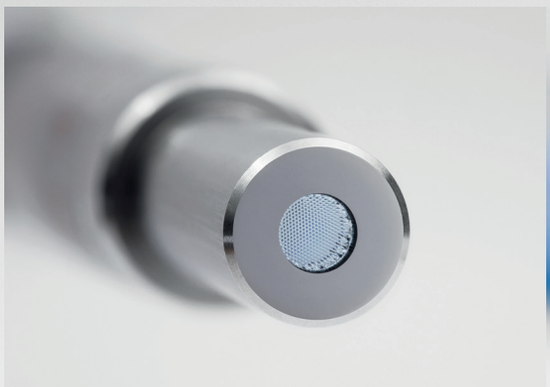
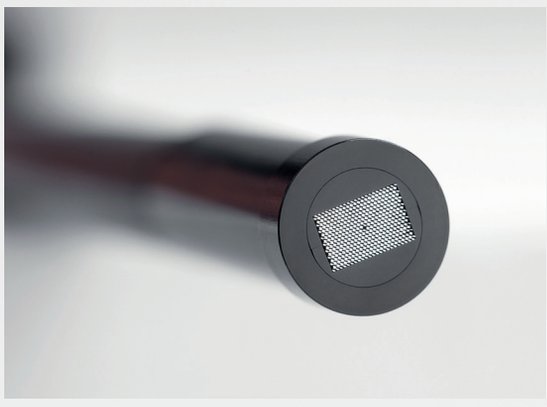
CUSTOMIZED ASSEMBLIES

- OEM CONTRACTOR
- PRIVATE LABEL MANUFACTURING
- HALF-FINISHED PRODUCTS
- JOINT R&D PROJECTS

At Lightguide, we have decades of experience in the development and manufacturing of specialty optical fibers, offering unparalleled expertise to guide you in finding the right product for your unique application. Whether you are looking for precision, reliability, or custom solutions, we are here to support you through every phase of product development — from the initial prototype to full-scale mass production.





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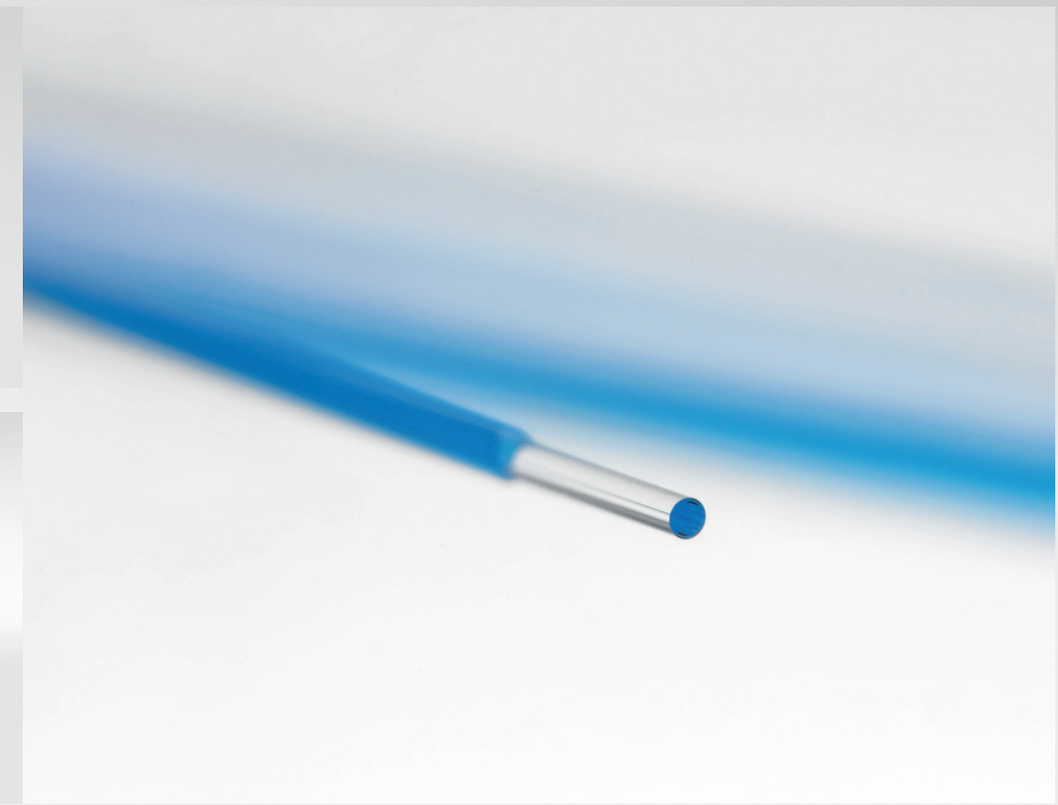
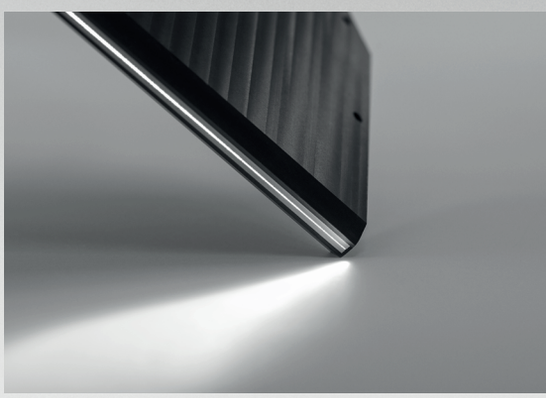
Our core capability lies in the production, assembly, and delivery of multimode quartz glass fibers and assemblies for medical and industrial applications. We have all core technologies in-house, such as fiber drawing and an extensive mechanical workshop, which reduces our dependency on external suppliers. Using advanced laser techniques, we manufacture highly sophisticated optical fiber-based medical devices specifically designed for specialized applications where precision and quality are crucial. We push our boundaries with every project we complete.

We specialize in the development of custom solutions and specifications, tailoring each product to meet the unique needs of our clients. From fiber bundles designed for tattoo and permanent hair removal applications to complex assemblies for industrial and medical use, we provide innovative solutions that meet the most stringent requirements.

Our vast experience in contract manufacturing includes the supply of everything from semi-finished optical fiber products to fully assembled, sterile, and labeled solutions for distribution. Whether your needs are in the industrial or medical field, we are dedicated to ensuring that our products meet the highest standards—delivering both performance and reliability every time.





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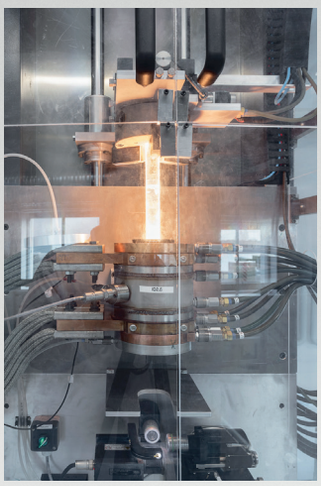
OUR MEDICAL PRODUCTION FACILITIES

Commitment to expanding infrastructure and developing new production technologies: We take a proactive approach to expanding our infrastructure and advancing production technologies. Our facilities are designed with flexibility in mind, enabling us to rapidly scale operations and integrate new equipment as needed.



Expansion of the optical fiber drawing department: we are investing in expanding our optical fiber drawing department to substantially increase production capacity. By scaling up operations, we aim to meet the growing demand for high-precision optical fibers. This expansion will allow us to produce fibers competitively also in the future while maintaining the high quality standards our customers expect.

Development of large-diameter preform drawing technology: we are advancing technology for drawing fibers from large-diameter preforms. This innovation will enhance the speed and efficiency of our fiber- drawing processes, enabling higher throughput and greater cost-effectiveness while maintaining precision.

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01/02/2026

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