

# Laser Use in Orthopedics & Spine

Microsurgical Solution for  
percutaneous pain management



- Intra-discal application on cervical spine, thoracic spine, lumbar spine
- Medial branch neurotomy for facet joints
- Lateral branch neurotomy for sacroiliac joints

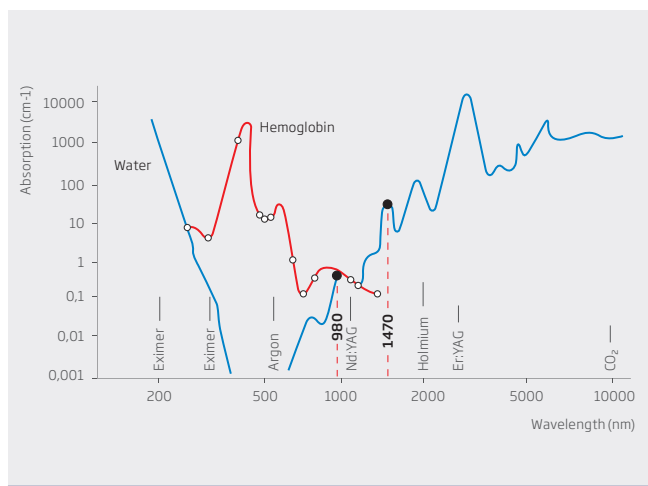


# EVOLVE<sup>®</sup> in PLDD

During treatment with EVOLVE<sup>®</sup>, a small volume in a closed hydraulic space (nucleus pulposus) is being vaporized to achieve a reduction of intra-discal pressure (thermic "shrinking effect"). The reduction in volume and pressure of the pathological disc induces the reduction of disc herniation and thus a reduction in nerve root compression. Furthermore, it leads to the denervation of the pain receptors (nociceptive nerves) of ingrowing nerves from dorsal ligament into annulus fibrosus. In addition to the above, pain causing facet joints can be treated in the same session to give an even better relief in a combination therapy.

The therapeutic effect of intra-discal laser therapy is based on the combination of the specific treatment characteristics. Thanks to the standardized treatment protocol and heating effect, the surgeon creates a defined shrinkage of the disc. Due to vaporization of disc liquid, intra-discal pressure decreases. The laser energy used in minimally invasive treatment strengthens the disc through laser-stimulated scarring as the collagen structure changes. Neo-vascularisation of inflamed discs can be switched off with denervation of pain receptors inside the annulus fibrosus.

## Tissue interaction with LEONARDO<sup>®</sup> DUAL



The LEONARDO<sup>®</sup> DUAL platform is based on the absorption characteristics of both 980 nm and 1470 nm wavelengths, which, thanks to its outstanding interaction in water and haemoglobin and moderate penetration depth into disc tissue, enables procedures to be carried out safely and accurately, especially in proximity of delicate anatomical structures.

Microsurgical precision is guaranteed by the technical characteristics of the special PLDD laser fibers, which allow for surgical effectiveness, ease of handling, and maximum safety.

The use of flexible tactile laser fibers with core diameters of 360 micron in combination with the microsurgical PLDD enables a very precise and accurate access and intervention to sensitive areas like the cervical and lumbar disc zones on the basis of clinical therapeutic needs.

PLDD laser treatments are mostly used after non-successful conventional therapeutic options under strict MRT/CT control.



## Applications

- Intra-discal application on cervical spine, thoracic spine, lumbar spine
- Medial branch neurotomy for facet joints
- Lateral branch neurotomy for sacroiliac joints



## Indications

- Contained disc herniations with consecutive foraminal stenosis
- Discogenic spinal stenosis
- Discogenic pain syndroms
- Chronic facet and sacroiliac joint syndrom
- Further surgical applications, e.g. tennis elbow, calcaneal spur

## Benefits of the minimally invasive PLDD procedure

- No soft tissue injury
- No risk of epidural fibrosis or scarring
- No extensive hospitalization (on outpatient basis possible)
- No general anesthesia, local anesthesia with mild sedation
- Minimal recovery time
- Lower costs



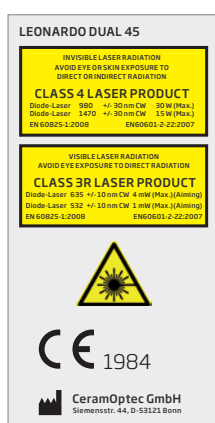
## LEONARDO®

Model	LEONARDO® Mini 1470 nm	LEONARDO® DUAL 45
REF	SL1470nm8W	SL980 + 1470 nm 45 W
Wavelength	1470 nm	980 nm and 1470 nm
Power	8 W (1470 nm)	max. 45 Watt (1470 nm / 15 Watt + 980 nm / 30 Watt) separately adjustable
Fiber diameter	≥ 360 µm	≥ 360 µm
Aiming beam	635 nm, max. 4 mW	532 nm and 635 nm, green 1 mW, red 4 mW, user controlled intensity
Treatment mode	CW, Pulse Mode (optional), ELVeS® Signal	CW, Pulse Mode, ELVeS® Signal, ELVeS® Segment, Derma Mode
Pulse duration/-break	0.01 – 60 sec. / 0.01 – 60 sec.	0.01 – 60 sec. / 0.01 – 60 sec.
Power supply	110 - 240 VAC, 50 - 60 Hz (7.2 VDC @ 36 W)	110 - 240 VAC, 50 / 60 Hz, 450 VA
Batteries	Li-ion batteries	-
Dimensions (H × W × D)	6.0 cm × 9.0 cm × 21.5 cm	approx. 28 cm × 37 cm × 9 cm
Weight	900 g	approx. 8.5 kg

All laser sets incl. 3 safety goggles, foot switch, interlock connector, power cord and manual in a carrying case.

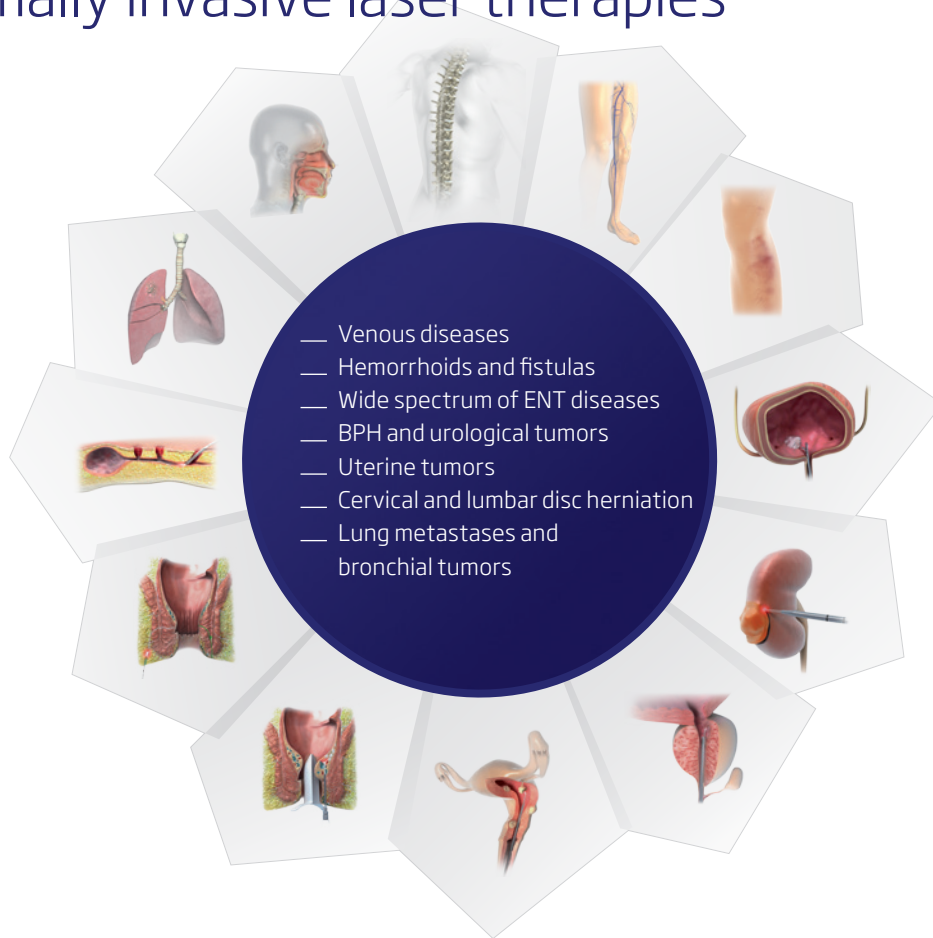
## Kit

503200830 PLDD Kit 360 / 18 / 150 Y-Click Adapter, IC



# Contact us

to learn more about a whole new world  
of minimally invasive laser therapies



## biolitec® worldwide

### **biolitec biomedical technology GmbH**

Otto-Schott-Str. 15  
07745 Jena, Germany  
Phone: +49 3641 519 53 0  
Fax: +49 3641 519 53 33  
info@biolitec.de  
www.biolitec.com

### **biolitec AG**

Wien, Austria  
Phone: +43 1 3619 909 50

### **biolitec Italia SRL**

Milano, Italy  
Phone: +39 0284230633

### **biolitec Tibbi Cihazlari**

Istanbul, Turkey  
Phone: +90 216 574 7456

### **biolitec SPb**

Saint-Petersburg, Russia  
Phone: +7 812 4492936

### **biolitec FZ LLC**

Dubai, UAE  
Phone: +971 44 29 85 92

### **biolitec laser science and technology Shanghai Ltd.**

Shanghai, China  
Phone: +86 21 6308 8856

### **biolitec (M) Sdn. Bhd.**

Petaling Jaya, Malaysia  
Phone: +603 56 32 71 28

### **biolitec India Pvt. Ltd.**

Baroda, India  
Phone: +91 265 3201106

### **biolitec Indonesia**

Tangerang, Indonesia  
Phone: +62 21 537 2994

### **biolitec Korea Ltd.**

Seoul, Republic of Korea  
Phone: +82 2 701 4707

### **Equipos Laser de Uso Medico y Fibra Optica SA de CV**

México City, Mexico  
Phone: +52 155 55 731800

### **biolitec Biotecnologia Comércio, Importação, Exportação, Ltda.**

São Paulo, Brazil  
Phone: +55 11 2093 8602



Manufacturer; MDD 93/42 EEC; CE1984:  
CeramOptec GmbH, Siemensstr. 44,  
D-53121 Bonn (unless otherwise specified)  
Disclaimer: Products might not be available  
in every country. biolitec®, LEONARDO® and  
EVOLVE® are registered Community Trade-  
marks (CTM) owned by biolitec. All fibers are  
free of latex and DEHP. Our fibers are single  
use products (unless otherwise indicated)  
delivered sterile for immediate use.