

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

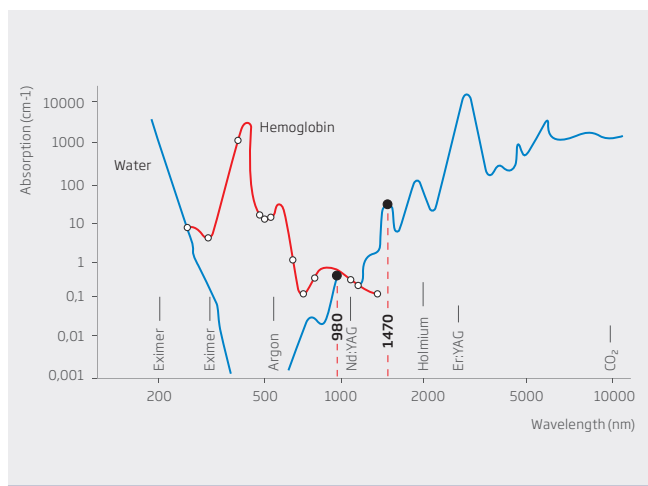


EVOLVE® in PLDD

During treatment with EVOLVE®, 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 facette 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® DUAL



The LEONARDO® 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

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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
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LEONARDO DUAL 45

INVISIBLE LASER RADIATION
AVOID EYE OR SKIN EXPOSURE TO DIRECT OR INDIRECT RADIATION

CLASS 4 LASER PRODUCT
Diode-Laser 980 nm +/- 30 nm CW 30 W (Max.)
Diode-Laser 1470 nm +/- 30 nm CW 15 W (Max.)
EN 60825-1:2008 EN 60601-2-22:2007

VISIBLE LASER RADIATION
AVOID EYE EXPOSURE TO DIRECT RADIATION

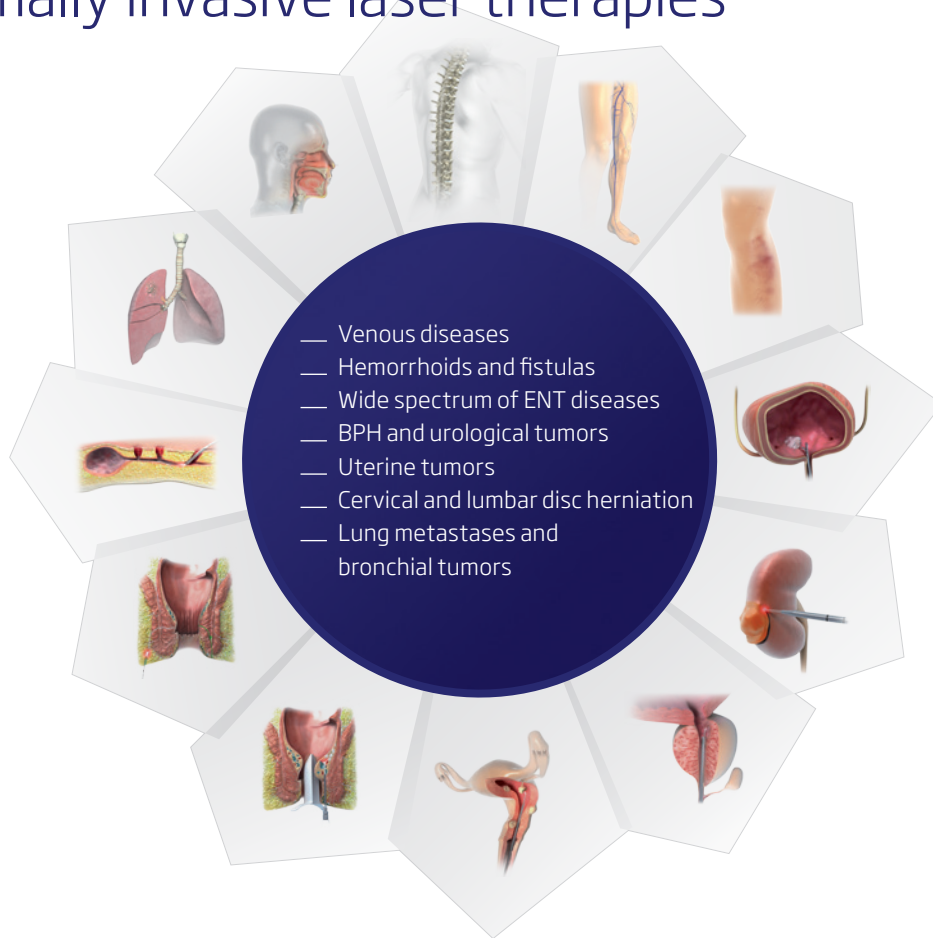
CLASS 3R LASER PRODUCT
Diode-Laser 532 nm +/- 10 nm CW 4 mW (Max.) (Aiming)
Diode-Laser 635 nm +/- 10 nm CW 1 mW (Max.) (Aiming)
EN 60825-1:2008 EN 60601-2-22:2007

CE 1984

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Contact us

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



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free of latex and DEHP. Our fibers are single
use products (unless otherwise indicated)
delivered sterile for immediate use.