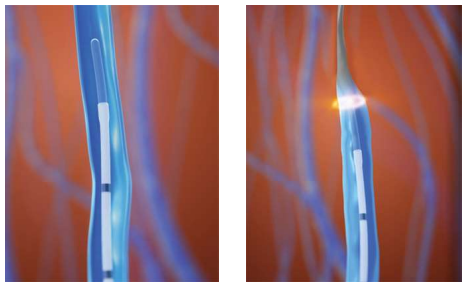


Phlebological laser
for Varicose Veins - EVLT

TWIST 1940 nm

Less invasive as possible





EVLT - EndoVenous Laser Treatment

EndoVenous Laser Treatment (EVLT) was first used in the USA. Since that time, the unique advantages of this method have made it more and more popular.

Considering the advantages of this method, it is now globally becoming the method of choice in the treatment of superficial venous incompetence in large veins. This modern method of endovascular treatment enables large vein closure without making skin incisions, which is not possible when using traditional methods.

EVLT with 1940 nm

EVLT with 1940 nm– advantages of the method:

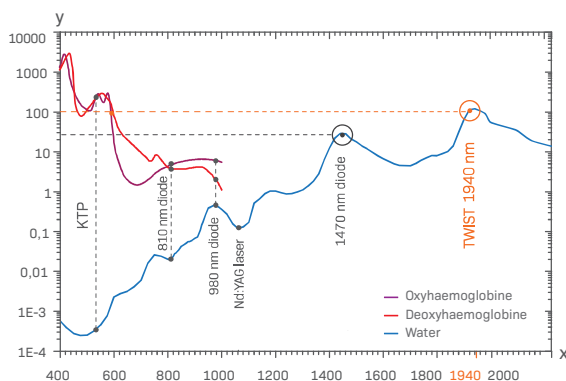
- Effective vein closure using smaller dose of energy supplied to the vein (47 J/cm on average at the power range from 4 to 6 W)
- Total lack of tissue carbonization effect in vein and blood on the optical fibre ensuring homogeneous energy dose transfer along the entire vein. Thanks to this, the optical fibre may be used in a single procedure performed on both extremities without the need to remove char from its surface or replacing it with a new one.
- Lower energy doses result in decreased pain (compared to the therapy using laser emitting light with 1470 nm wavelength), absence of the risk of burns and the related skin discolouration effects.
- High effectiveness of treatment of 95% in the first year after treatment and 93% after three years according to scientific publications.¹
- No aneurysmal dilatation of the GSV stump (laser crossectomy)

1940 nm versus 1470 nm

- Absorption in water 1940 nm is 4.8 times higher than 1470 nm
- Similar occlusion rates
- No significant difference in post procedural pain and complication rates
- Lower power: 6W instead of 10W
- Lower energy: 48 J/cm instead of 70 J/cm
- No risk of fiber carbonization
- Better and faster resorption of vein segments

Biophysics

Optimal degree of water absorption in the tissue



Axis y: Absorption coefficient [cm⁻¹]
Axis x: Wavelength [nm]

Source: G. M. Hale, M. R. Querry, "Optical constants of water in the 200 nm to 200 μm wavelength region," Appl. Opt., 12, 555-563 (1973). Scott Prah, <https://omlc.org/spectra/hemoglobin/>, Oregon State of Technology, USA.

Biophysics: The practical advantages of the laser with the wavelength of 1940 nm result from the high degree of absorption of laser light through interstitial water in the venous walls. Biophysical studies have confirmed the superiority of the diode laser with the wavelength of 1940 nm in this application. It is characterised with absorption rate that is 4.8 times higher than a 1470 nm laser, 70 times higher than a 1064 nm laser. and up to 290 times higher than the 980 nm laser.²

¹ Medium and long-term outcomes of endovenous treatment of varicose veins with a 1940 nm diode laser: critical analysis and technical considerations. Luiz Marcelo Aiello Viarengo, Gabriel Viarengo, Aline Meira Martins, Marília Wechellian Mancini, Luciana Almeida Lopes

² Hale GM, Querry MR. Optical constants of water in the 200 nm to 200 μm wavelength region. Appl Opt. 1973; 12(3):555-63. PMID:20125343. <http://dx.doi.org/10.1364/AO.12.000555>.

TWIST 1940 nm

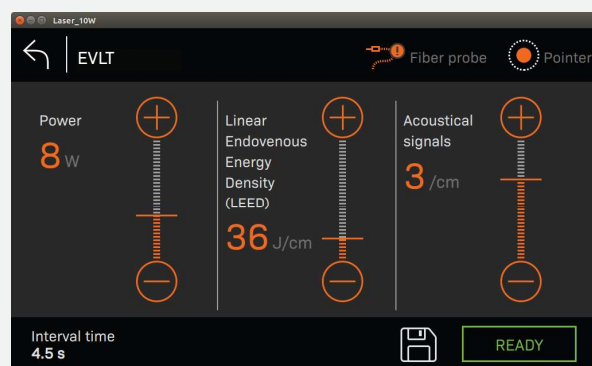
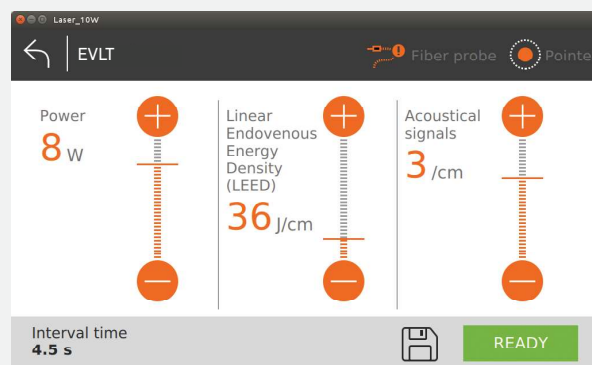
Software which makes the work easier

The TWIST DIODE laser is controlled from very high definition touch screen with excellent colour quality and a wide field of view in order to provide the operator with ease of use. Individual user settings can be saved in the device, allowing quick and easy selection of treatment parameters. Additionally, the device has a several convenient modes for EVLT procedure.

The laser software allows the energy emission in continuous wave (CW) mode where the operator based on the ultrasound image (on-line), retracts the optical fibre in reaction to the visible response of the vein to the emission of energy.

The device software includes a mode of operation (EVLT) enabling control of the vein ablation process by audibly informing the operator about delivering a programmed (or pre-set) dose of energy (J/cm) to the vein, thus determining the rate of optical fibre retraction from the treated vessel (sec/cm). After generating the desired energy dose, the laser automatically signals the optical fibre relocation time. The operator using this functionality can fully concentrate on tracking the ultrasound image without the need to control the laser operation.

The use of additional equipment such as "optical fibre retractor" is unnecessary, which reduces costs and also increases the quality and safety of the procedure.



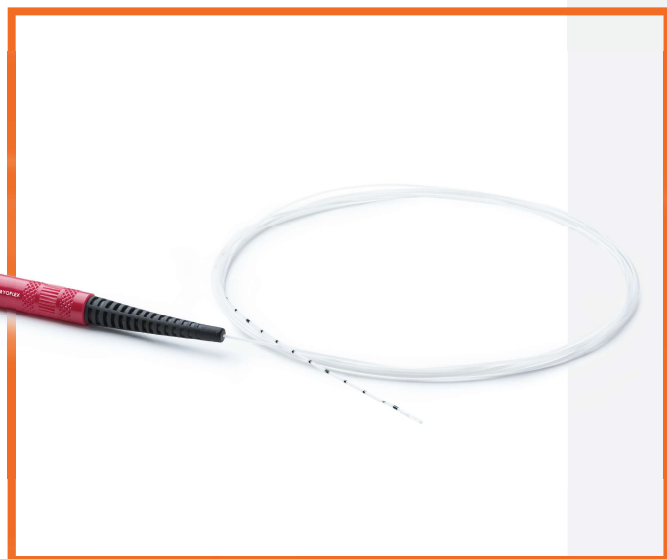
Advantages of TWIST 1940 nm

- Intuitive touch screen panel with black or white interface
- Easy and quick list of set up programs to choose from
- Several convenient modes such as: flebology, continuous mode, ENT, and much more
- Possibility to create and save own programs
- Automatically signals the optical fibre relocation time for the better control
- The highest quality optical fibre 360°

Black or white?

You can choose the colour of the interface and change it whenever you want. The device remembers your last settings, so you don't have to change it each time you turn on the device.





Optical Fibre

Radial fibre 360°

The EVLT procedure should be performed using a combination of the TWIST DIODE 1940 nm laser and a unique radial optical fibre (ring emission).

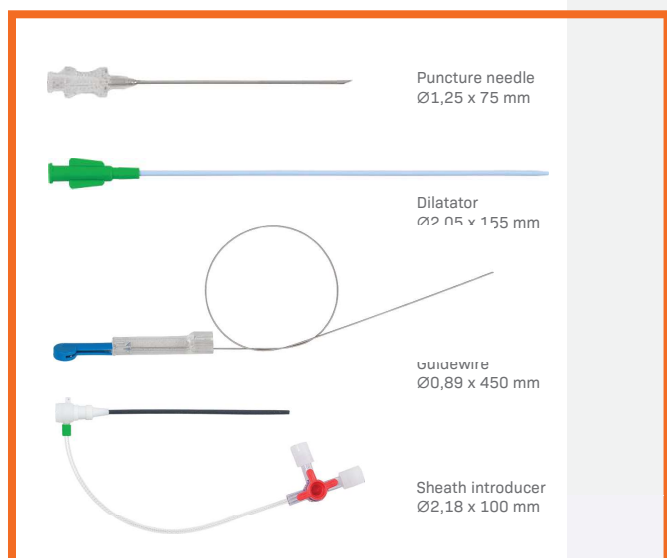


This combination ensures the concentration of the laser energy on the vein wall ensuring high efficiency. The MC company offers radial optical fibres in two diameters:

- Standard 600 µm - e.g. GSV, SSV
- Slim 400 µm - e.g. perforators. The thinnest available on the market

The use of radial fibres provided by MC together with the TWIST laser guarantees full compatibility of the set and thus effective energy transfer into the treatment field. This means that the nominal laser energy, as declared by the manufacturer, is fully available at the optical fibre tip, and thus it is equal to that delivered to the tissue. Many other lasers and optical fibres cause losses of up to 20%, which can cause vein recanalisation due to uneven energy density and power losses during EVLT procedure.

Fibers are delivered to the customer in sterile, double packages and are ready to use. The storage period without the risk of losing its sterility is up to 5 years.



Tumescence pump, dispenser for varicose vein laser treatment

Universal, sturdy pump

The Dispenser DP is a specifically designed tumescence infiltration pump, delivering high volume of tumescence liquid with an optimal pressure.

- Good price/performance ratio
- Easy handling with low maintenance effort
- Continuously variable and precise adjustable infiltration performance
- Delivery of tumescence liquid up to 27 liters per hour
- Available with Vario pedal or on/off pedal
- Very fast and easy fixing of the tubing set
- Easy cleaning of the device due to smooth-edged design



TWIST 1940 nm

Specification

Power supply

Power supply	110-230V~ 50Hz-60Hz
Maximum power consumption	500 VA

Safety

Class	I
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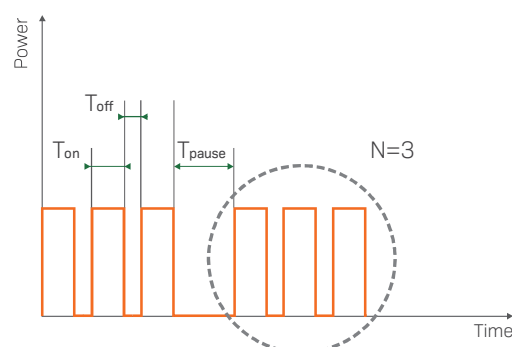
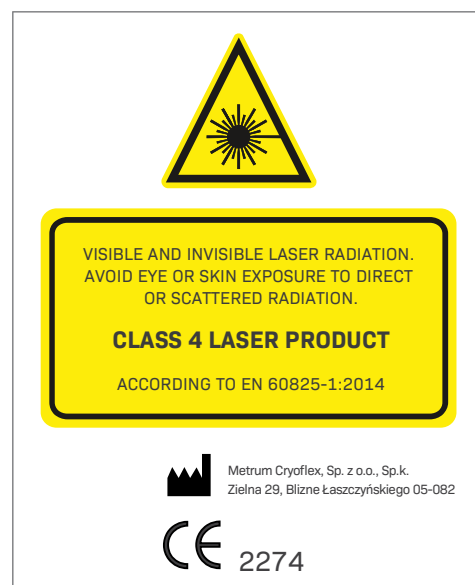
Laser

Laser class	4
Wavelength	1940 nm
Max. laser power (ver. dependent)	10W
Operation mode:	Continuous (CW) Quasi continuous (QCW) Pulse (REPEAT)

Dimensions:	41/42/19 cm
Weight:	13 kg

Treatment parameters

Ton	Laser pulse time [μ s, ms]	200 μ s ÷ 100s
Toff	Pulse interval value [μ s, ms]	200 μ s ÷ 100s
N	Pulse number in "package"	1 ÷ 100, and ∞
Tpause	Interval between pulse "packages"	200 μ s ÷ 100s





METRUM CRYOFLEX

Manufacture

ul. Zielna 29
05-082 Blizne Łaszczyńskiego
POLAND, EU

Headoffice

ul. Kolejowa 16A
05-092 Łomianki
POLAND, EU

Tel: +48 22 33 13 750
+48 22 33 13 830
Fax: +48 22 33 13 766

laser@metrum.com.pl
www.metrum.com.pl