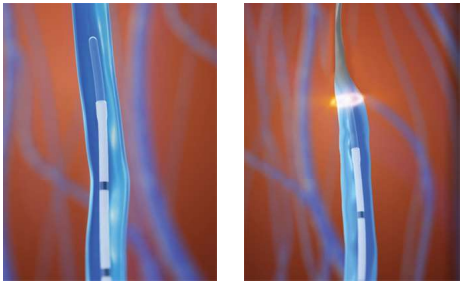


Phlebology laser
for Varicose Veins - EVLT

TWIST 1940 nm

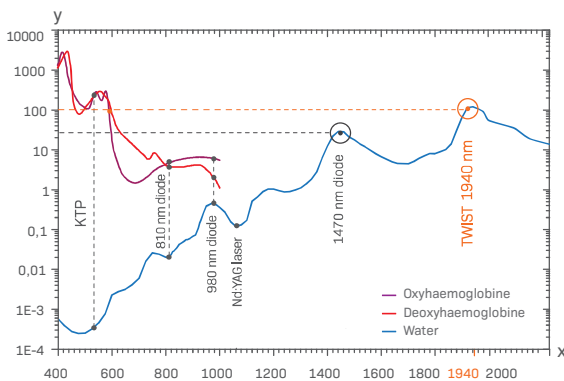
Redefining minimally invasive treatments





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. Query, "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.

EVLT - EndoVenous Laser Treatment

EndoVenous Laser Treatment (EVLT) was first used in the USA. Since then, the unique advantages of this method have made it increasingly popular. It is now the global 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.

EVLT - 1940nm

Why 1940nm?

- Superior outcomes compared to the 1470 nm wavelength using a smaller dose of energy (47 J/cm on average between 4 - 6 W)
- Decreased pain
- No risk of burns
- Less skin discolouration
- No residual tissue carbonisation ensuring homogeneous energy transfer along the entire vein. As a result, 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.
- Positive clinical outcomes - 95% post op success rate in year 1, 93% in year 3¹
- No aneurysmal dilatation of the GSV stump (laser crosssectomy)

1940 nm vs 1470 nm

- Water absorption is 4.8x higher using a 1940 nm wavelength compared to 1470 nm
- Optical penetration depth is 0.1 mm as opposed to 0.4 mm for the 1470 nm, minimising the risk of damaging surrounding tissue.
- Similar occlusion rates
- No significant difference in post procedural pain and complication rates
- Lower power: 6 W instead of 10 W
- Lower energy: 47 J/cm instead of 70 J/cm
- No risk of fibre carbonisation
- Better and faster resorption of vein segments

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 4.9 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, Query 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

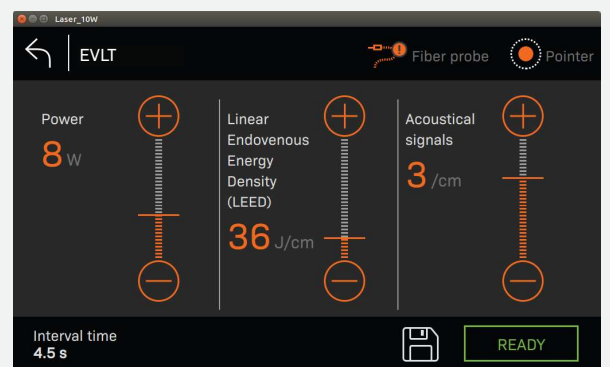
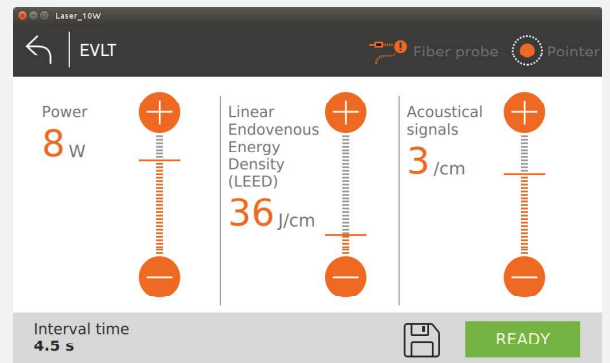
User friendly software

The SWING DIODE laser is controlled using a 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 on the device, allowing for the quick and easy selection of treatment parameters. Additionally, the device has several convenient modes for EVLT.

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

The device's software includes a mode of operation (EVL) enabling control of the vein ablation process. The device will audibly inform the operator about delivering a 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 user can fully concentrate on tracking the ultrasound image without the need to operate the laser.

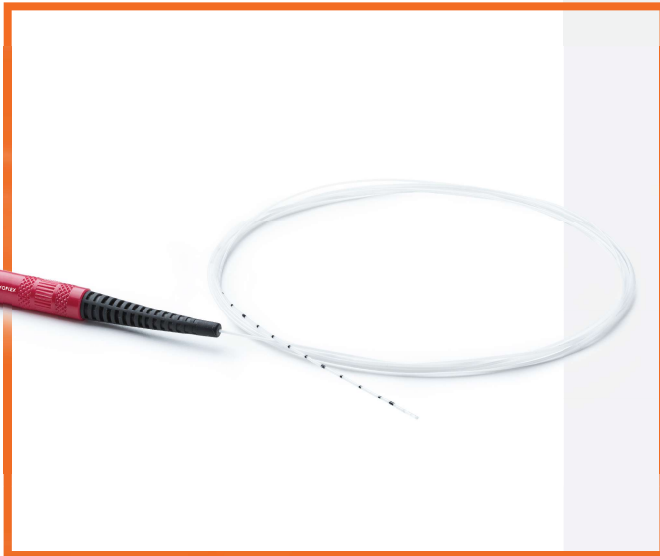
The use of additional equipment such as "optical fibre retractors" are unnecessary, which reduces costs and also increases the quality and safety of the procedure.



Advantages of TWIST 1940 nm

- Audible feedback during fibre retraction
- No need for optical fibre retractors
- Cost effective solution
- Pre-programmed modes of operation including EVLT, continuous mode, impulse & quasi CW
- Ability to save customised parameters
- Automatic signals for optical fibre relocation
- High quality radial fibre
- Nominal laser energy available at the optical fibre tip





Optical Fibre

Radial fibre 360°

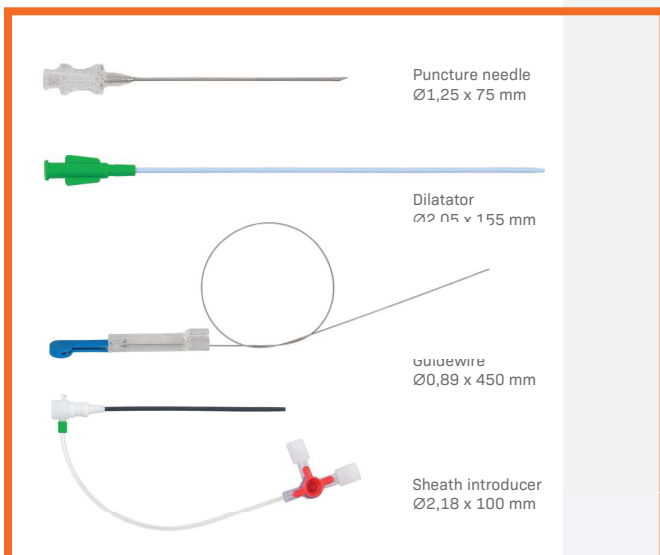
EVLT procedures should be performed using a combination of the TWIST DIODE 1940 nm laser and our unique radial optical fibre (ring emission).



This combination ensures the concentration of the laser energy on the vein wall is highly efficient. Radial fibres come with a choice of two diameters:

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

The use of radial fibres together with the TWIST 1940 nm guarantees full compatibility of the set and thus effective energy transfer into the treatment field. Nominal laser energy, as declared by the manufacturer, is fully available at the optical fibre tip and equal to that delivered to the tissue. Many other lasers and optical fibres experience energy losses of up to 20%, which can cause vein recanalisation due to the uneven energy density. Consumables are double sterile packed with sterility of up to 5 years.



Additional extras

Tumescence pump, dispenser for varicose vein laser treatment

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

- Cost effective solution
- User friendly equipment
- Adjustable and precise infiltration performance
- Delivery of tumescence liquid of up to 27 litres per hour
- Available with Vario pedal or on/off pedal
- Efficient fixation of the tubing set
- Cylindrical design promotes safe and easy cleaning



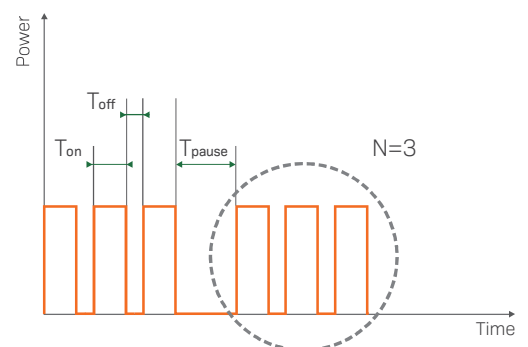
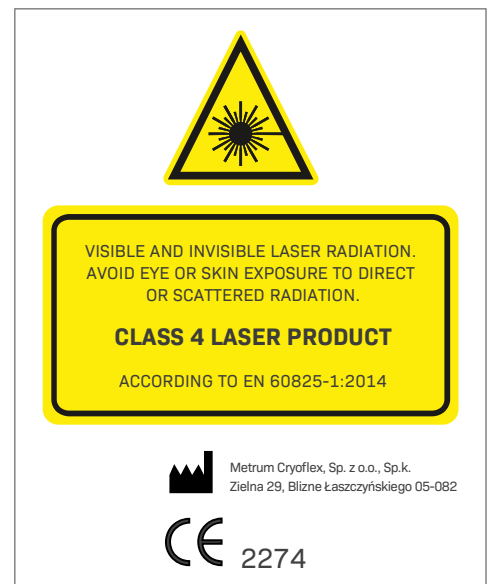


CE 2274

TWIST 1940 nm

Specification

Power supply		
Power supply		110-230 V~ 50 Hz-60 Hz
Maximum power consumption		500 VA
Safety		
Class		I
Laser		
Laser class		4
Wavelength		1940 nm
Max. laser power (ver. dependent)		10 W
Operation mode:		Continuous (CW) Quasi continuous (QCW) Pulse (REPEAT)
Ton	Laser pulse time [μ s, ms]	200 μ s ÷ 100 s
Toff	Pulse interval value [μ s, ms]	200 μ s ÷ 100 s
N	Pulse number in "package"	1 ÷ 100, and ∞
Tpause	Interval between pulse "packages"	200 μ s ÷ 100 s
Dimensions:		41/42/19 cm
Weight:		13 kg





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