RICHARD WOLF

Urology

Instrument Set for GreenLight™ Laser

Laser Resectoscopes
Laser Cystoscopes

GreenLight™
Laser Vaporisation of the Prostate

The GreenLight™ laser is an important innovation in the surgical treatment of benign prostatic hyperplasia. This treatment has become increasingly established in Germany in recent years. The special technical and physical properties of this laser allow treatment of patients with multiple morbidity and those undergoing anticoagulative therapy.

The high energy radiated by the GreenLight™ laser vaporises the benign hyperplastic prostate tissue. A laser fibre of about the same thickness as the refill for a ballpoint pen is inserted through the urethra as far as the prostate under direct vision. The high-energy laser light with a wavelength of 532 nanometres (corresponding to the green portion of the colour spectrum) is transmitted through the fibre to the prostate. The energy of this light beam is absorbed particularly strongly by the red pigment in blood (haemoglobin).

Wherever the laser beam is directed, the prostate tissue is vaporised in a fraction of a second. The vaporised layer of tissue is only one to two millimetres thick. The laser beam cannot penetrate any further because it is practically completely absorbed by the red blood pigment (and the prostate is well supplied with blood) so that the entire energy is expended in the vaporisation. This means that the tissue can be removed layer by layer under optical vision without bleeding or absorption of irrigation fluid. As a result, the surgeon always has a clear view of the operation that takes between 30 and 90 minutes depending on the size of the prostate.

One major challenge was to develop application instruments for this new technology that were suitable for the specific properties of this laser. A good view of the operating site is possible only with optimum irrigation. Previous cystoscopes provided poor guidance for the fibre and caused disturbing vibration of the fibre which, in turn, shortened the working life of the fibre.

Richard Wolf GmbH developed three application instruments at the same time specifically for the GreenLight™ laser and ideal for the individual operating technique of the surgeon. A GreenLight™ laser cystoscope and a GreenLight™ laser resectoscope as well as a universal laser cystoscope were developed specifically for the GreenLight™ fibre. Optimum irrigation conditions with 50 % inlet and 50 % outlet and laser guidance without vibration were achieved in each instrument allowing the retraction of the fibre into the sheath and preventing possible destruction of the telescope and sheath. Handling of the laser resectoscope is reminiscent of TURP and even allows the use of a resectoscope working element. It is only possible to take advantage of this laser technology and to optimise surgical results by using optimised application instruments. Photoselective vaporisation with the GreenLight™ laser is a new and promising operative technique for the treatment of symptomatic benign prostatic hyperplasia.

Above all, Dr. Schiefelbein stresses the excellent intraoperative safety even for patients taking anticoagulants. This laser technique for direct ablation of tissue achieves functional results comparable with the gold standard TURP. The new 120 watt HPS laser reduces treatment time and can improve the efficiency of the therapy.

CA Dr. Frank Schiefelbein
Missionsärztliches Klinikum Würzburg, Germany

The GreenLight™ laser fibre is fixed in place directly with the shifter in which the olive of the fibre is clipped into a special holder. This avoids the fibre being turned or displaced inadvertently. The shifter allows the fibre to be moved in the axial and radial direction while limiting travel. This limitation is intended to prevent the fibre being advanced too far into the bladder or too far into the instrument so that the emitted laser beam does not damage either the sheath or telescope.

Laser cystoscope

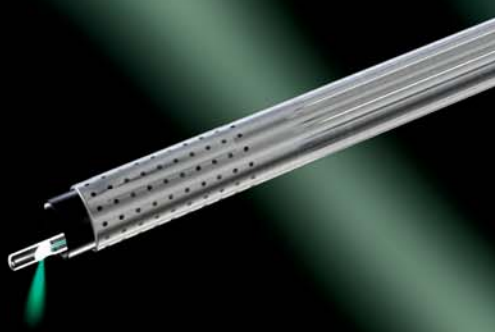
With the laser cystoscope specially designed for the GreenLight™ laser, the laser can be controlled in the axial and radial direction in the instrument using the so-called shifter. The instrument also has a special laser guide that prevents vibration and allows stable positioning of the laser. The fibre is therefore not subjected to mechanical stress.

With the options of combining the laser with a continuous-irrigation cystoscope sheath or a continuous-irrigation resectoscope sheath, users can put together the model they require.

A patented laser guide specially designed for the GreenLight™ laser fibre prevents vibration and oscillation of the tip of the fibre in GreenLight™ laser cystoscopes and GreenLight™ laser resectoscopes. This has considerable advantages since the user always views a steady image. This also ensures that the distance to the tissue remains constant. In turn, this also increases the joule count of the laser.

New

The newly designed GreenLight™ "Freestyle" working insert guarantees complete freedom of movement allowing the user to manoeuvre in both an axial and radial direction without any restriction. The laser fibre is guided freely between thumb and index finger providing the laser fibre guidance that has proved so successful with the special GreenLight™ instrument set. It must, however, be pointed out that the totally free manipulation possible with this working insert means that incorrect handling can lead to thermal damage to instruments.



The laser holder can be both rotated and swivelled. This is especially useful when working with angled lenses and protects the laser fibre from damage.

Laser resectoscope

Experienced resectionists do not need to completely relearn because of the GreenLight™ laser. There is a laser resectoscope working element specially designed for the GreenLight™ laser fibre that fits either an extra thin 24.5 Fr. continuous-irrigation resectoscope sheath or the continuous-irrigation 22.5 Fr. laser cystoscope sheath. The working element can be rotated through 360° in the continuous-irrigation resectoscope sheath and is therefore ideal for laser vaporisation. Movement in the axial direction is achieved with a passive, spring-action working element. The fibre is turned by rotating the working element in the resectoscope sheath.

GreenLight™ Instrument Set

The fibre can be moved extremely precisely and with a high degree of sensitivity. The intuitive handling simplifies the work involved and in doing so also saves time. The laser fibre is fixed in position in the working element by the holder and the pressure button in the carriage. The fibre holder was designed so that the fibre cannot collide with the camera head when using a urological angled lens. A green seal on the working channel allows the operator to work without water fountains.

For advanced GreenLight™ laser users, Richard Wolf offers two different working inserts.
One working insert was designed without any limitation of the swivel angle but with a fibre shifter. Within this shifter, the fibre can be turned through 360°.

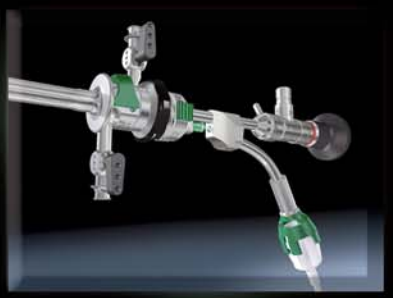
The second working element "Freestyle" was designed without a fibre shifter. This allows the user totally free manipulation of the laser fibre.
Ideally, these working inserts should be used in a straight resectoscope sheath otherwise there is a danger of thermal damage to the sheath and telescope.

For all other laser fibres currently available on the market or for customers who do not require the swivel limitation or the special guide, we also offer a universal adapter for the continuous-irrigation cystoscope sheath. With this, fibres with a greater diameter can also be inserted or the GreenLight™ laser fibre can be used.

Possible combinations

Cystoscope sheath combined with laser resectoscope working element

For users who prefer a fenestrated sheath with a low Fr. calibre. This combination cannot, however, be rotated in the sheath.



Laser cystoscope insert combined with resectoscope sheath

Can be rotated through 360° and fitted with ceramic tip. This provides the user with maximum freedom of movement and ideal irrigation.

Laser resectoscope with bipolar resectoscope working element

Without changing sheaths, the user can vaporise, quickly resect "dry" and then insert the laser fibre again to close the tissue. The sheath remains in the urethra in the meantime and does not need to be exchanged. This saves a considerable amount of time. Since the irrigation fluid does not need to be changed, the method is extremely simple and quick and is particularly suitable for large prostates.

RICHARD WOLF

spirit of excellence

GreenLight™ Technical Data

Laser cystoscope for GreenLight™ laser

Continuous-irrigation outer sheath 22.5 Fr.
for continuous-irrigation urethro-cystoscope, for "GreenLight™ laser" 22.5 Fr., E-line, with autom. snap-lock and irrigation tap 8632.026

Continuous-irrigation inner sheath
for continuous-irrigation urethro-cystoscope.....8632.027

Standard obturator.....8632.126
Viewing obturator 8632.726

Working insert with instrument guide channel for safe guidance of the GreenLight™ laser fibre, no vibration, **with** limitation of the swivel angle of the laser holder for "GreenLight™ laser instrument" 8632.911

Working insert * with instrument guide channel, for safe guidance of the GreenLight™ laser fibre, no vibration, **without** limitation of the swivel angle for "GreenLight™ laser instrument" 8632.912

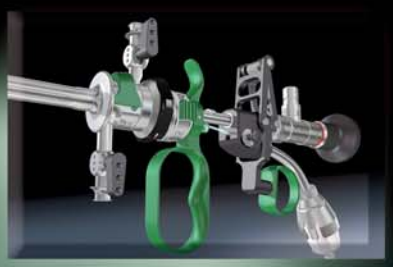
Working insert "Freestyle" with instrument guide channel, for safe guidance of the GreenLight™ laser fibre, no vibration, **without** limitation of the swivel angle for "GreenLight™ laser instrument" 8632914
also **rubber cap** long (orange).....18.01

Universal adapter for all laser fibres currently on the market without fibre guide 8632.264

Rubber cap (green)
for sealing the laser guide channel (pack of 10) 88.08

PANOVIEW telescope 30°
Ø 4 mm, without distortion 8654.422

Laser resectoscope for GreenLight™ laser



Continuous-irrigation outer sheath 24.5 Fr.
for swivel continuous-irrigation resectoscope "E-line" 24.5 Fr., with profiled surface as lubricant reservoir, with autom. locking mechanism 8655.334

Continuous-irrigation inner sheath 22.5 Fr.
for continuous-irrigation double sheath system with automatic locking mechanism; straight sheath tip and distal ceramic insulation; working element can be rotated through 360° in inner sheath 8655.344

Standard obturator.....8654.16
Viewing obturator 8415.11

Working element
with closed handle, passive cutting action and instrument guide channel, for safe guidance of the GreenLight™ laser fibre without vibration, for "GreenLight™ laser instrument" for 4 mm telescopes from 0° to 30° 8632.225

Rubber cap (green)
for sealing the laser guide channel (pack of 10).....88.08

PANOVIEW telescope 30°
Ø 4 mm, without distortion 8654.422

*** Caution: If used incorrectly, the cystoscope sheath can be damaged!**

Combination: Laser resectoscope with bipolar resectoscope working element

Continuous-irrigation outer sheath 24.5 Fr.
for swivel continuous-irrigation resectoscope "E-line" 24.5 Fr., with profiled surface as lubricant reservoir, with automatic locking mechanism.....8655.334

Continuous-irrigation inner sheath 22.5 Fr.
for continuous-irrigation double-sheath system with automatic locking mechanism; straight sheath tip and distal ceramic insulation; working element can be rotated through 360° in the inner sheath 8655.344

Standard obturator 8654.16
Viewing obturator 8415.11

Working element
with closed handle, passive, spring-assisted cutting action and instrument guide channel for safe guidance of the GreenLight™ laser fibre without vibration for "GreenLight™ laser instrument" for 4 mm telescopes from 0° to 30° 8632.225

Rubber cap (green) for sealing the laser guide channel (pack of 10).....88.08

PANOVIEW telescope 30°
Ø 4 mm, without distortion 8654.422

Bipolar working element with closed handle, passive cutting action for telescopes 4 mm from 0° to 30° 8680.225

Bipolar connecting cable
suitable for Erbe-VIO 8108.252

Bipolar cutting electrode
round for 30° telescope.....4622.1333

Bipolar coagulating electrode
for 30° telescope 4623.0243

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