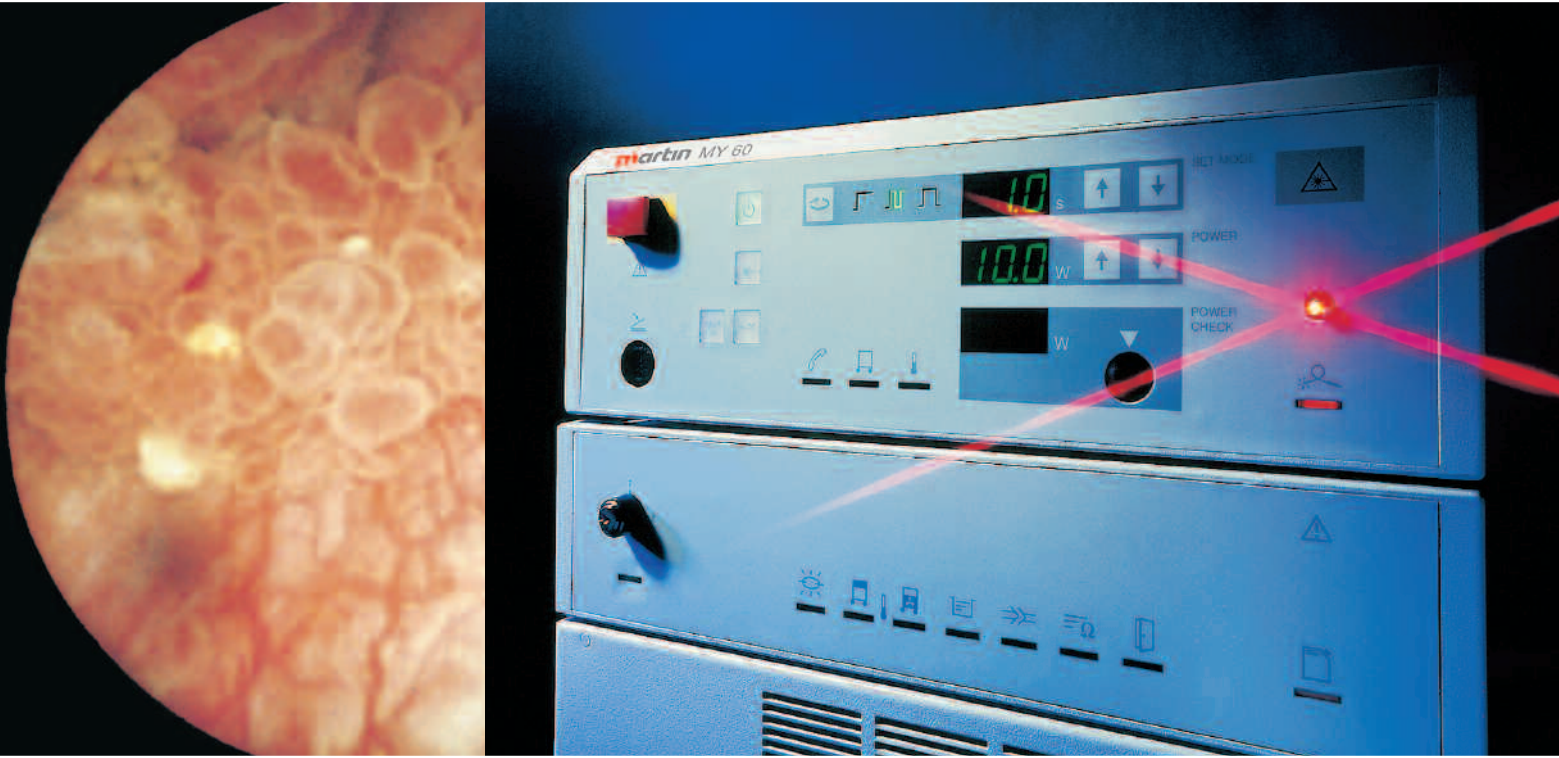


Laser



*KLS Martin Laser Nd:YAG MY60
and Accessories*

NEW DIMENSIONS IN LASER MEDICINE

KLS martin
GROUP

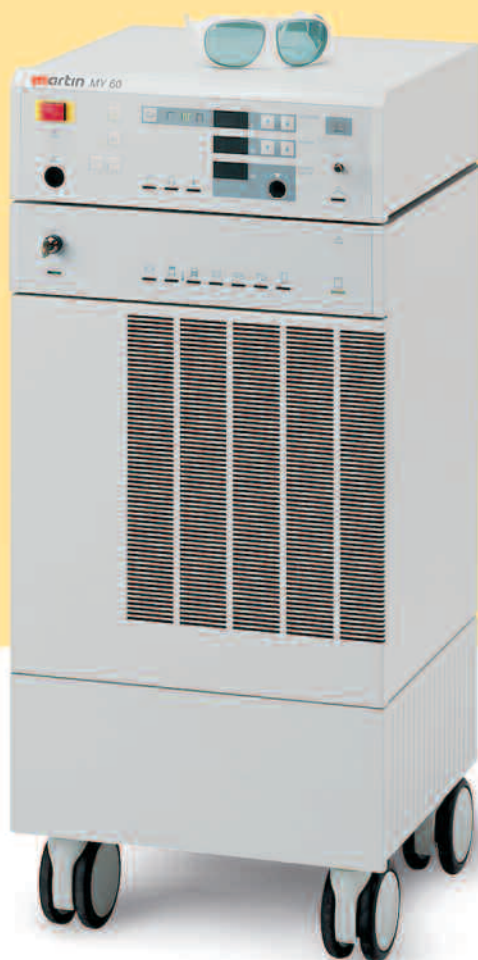
KLS Martin Laser Nd:YAG MY 60

New Dimensions in Laser Medicine

The KLS Martin Laser MY60 is a compact, microprocessor-controlled, continuous-wave solid-state laser. Its excellent, thought-out design provides for highest levels of safety and operating efficiency.

The advantages at a glance

- The laser head and supply unit have been separated for the first time.
- Advanced solid-state laser technology with solid quartz cavity.
- Top irradiation quality – in addition to 600- μm and 400- μm fibers, super-thin 300- μm fibers are available for superior power density across the entire power range.
- Cross-system use due to SMA-905 fiber connection.
- Multiple protection of SMA fiber connector and the focusing lenses by heat sensor, integrated protective glass and protective cover.
- Excellent power stability over the whole power range thanks to online power control.
- Integration of optomechanical components into a rugged, torsionally rigid, hermetically sealed laser block ensures:
 - that no user readjustments are necessary
 - permanent availability of the laser.
- A highly sophisticated design shows in utmost user-friendliness and easiness of use: just a few buttons give the user full control over a powerful and intelligent device.
- Special function display (total energy applied, stop watch and pulse counter).
- High level of operating and functional safety with microprocessor-controlled multiple monitoring of all operating functions.
- The electronically controlled coupling-in system guarantees troublefree laser transmission through the fiber.
- Minimum space requirements (W x D = 405 x 380 mm).



KLS Martin Laser MY 60
Stand-alone version

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Medical Application Areas

The excellent beam quality provided by the KLS Martin Laser MY60 allows transmission through thin 260 µm fibers. This means that lasers application through microendoscopes and guidable catheters is possible at a minimum working channel diameter of 500 µm. The use of 260 µm fibers results in very high power densities even to low power levels. This allows high-precision tissue preparation while thermal damage is kept at a minimum - a fact that provides new application opportunities, e.g. in the intraluminal or microsurgical fields. The guaranteed power stability – lower power range included – is an essential prerequisite for a controlled application of laser energy.

Application Areas

The following list gives some examples of application fields where the KLS Martin Laser MY60 can be used for soft tissue coagulation, vaporization or cutting, either on an endoscopic or open-surgery basis using a contact or non-contact technique.

Respiratory tract

- Nasal polyps
- Tonsils
- Tracheal and bronchial stenoses
- Tracheal and bronchial fistulas
- Fistulas
- Sinuses
- Epistaxis
- Nasal turbinates

Oral cavity

- Tumors of the tongue
- Partial Velumremoval

Gastrointestinal tract

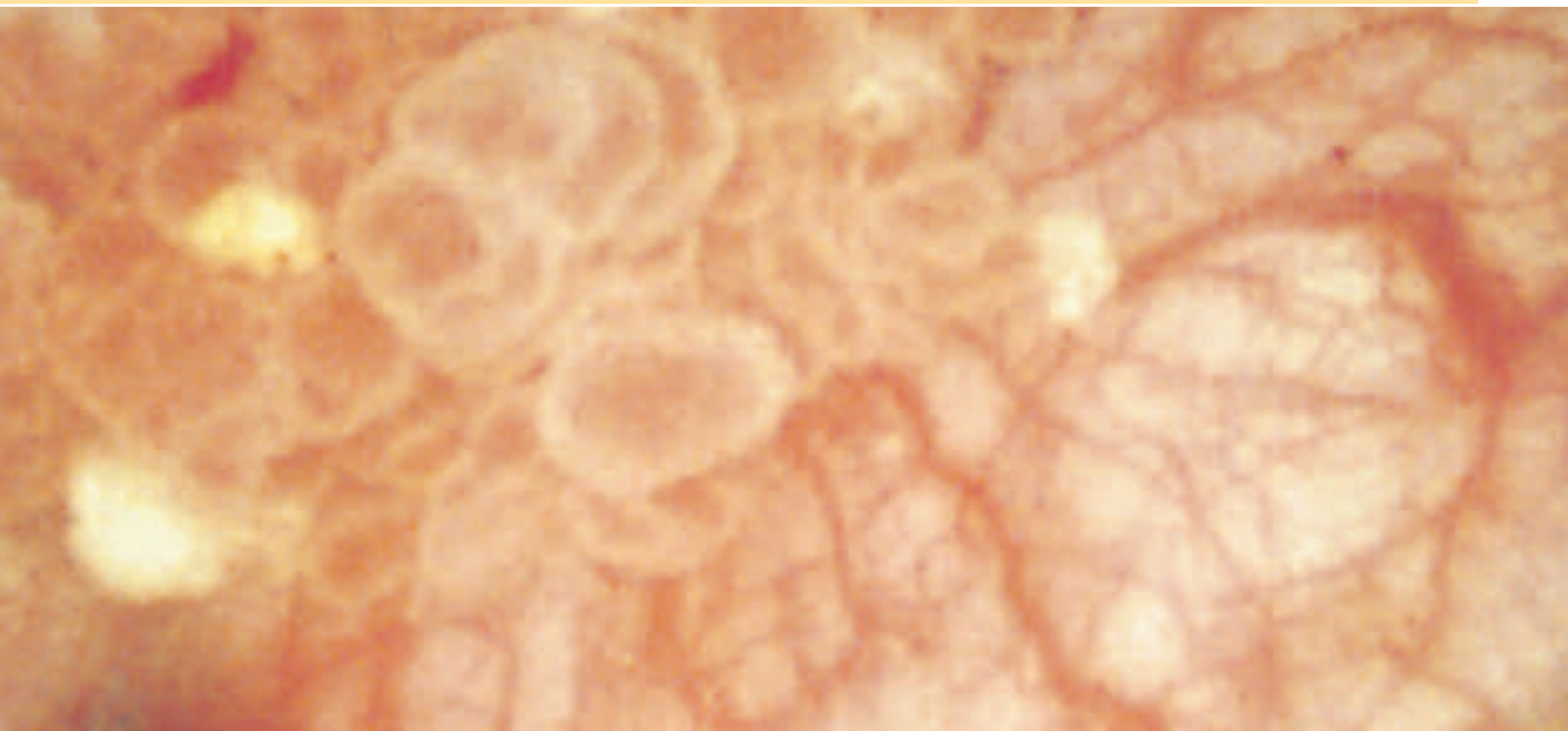
- Oesophageal stenoses and strictures
- Oesophagotracheal fistulas
- Hemorrhages
- Polyps

Abdominal cavity/laparoscopy

- Cholecystectomy
- Appendectomy
- Adhesiolysis
- Abscess cavities
- Loop abscesses
- Retroperitoneal lymphadenectomy
- Lymph nodes resection
- Vagotomy

Urogenital tract

- Condylomata acuminata
- Stenosis of urethra
- Bladder tumors
- Prostate adenoma
- Penile carcinoma
- Tumor-nephrectomy



Gynecology

- Endometriosis
- Benign endometrial polyps
- Submucous fibroids
- Uterine septum
- Polycystic ovary disease (PCOD)
- Tubes
- Refertilization
- Hysterectomy

Proctology

- Anal stenoses
- Marisques
- Fistulas
- Hemorrhoids
- Anal fissures
- Condylomata acuminata
- Polyps
- Colorectal carcinoma

Oncology

- Recanalization
- Tumor resection

Dermal and integumentary systems

- Verrucae
- Benign tumors of the skin
- Cutaneous/subcutaneous secondaries of malignancies
- Inoperable basal cell carcinoma
- Recurrences

Vascular system

- Vascular malformations
- Haemangioma
- Varices
- Teleangiectasis

Wide range of individual setup and configuration opportunities thanks to the separation of laser head from the supply unit



Stand-alone version

Due to its compact design, the stand-alone version requires only minimum space and is easily transportable, especially so since it comes equipped with large, smooth-running castors.

Accessories are easily accessible in the roomy, integrated drawer element.

The apparatus has a removable flyer unit to provide a safe place for the laser applicators when not in use. The flyer can be autoclaved at 134°C.



Separate version

KLS Martin Laser MY60 with separate installation of laser head and supply unit

The compact laser head can be used very efficiently when installed on a ceiling mount. This ensures constant availability in the course of an operation with minimum space requirements.

By this separation of the laser head from the supply unit, even the strictest hygiene requirements are fulfilled.

The noise-free operation of the laser unit will be highly appreciated by surgical teams.

Less cleaning needed in operation-rooms.

Technical Data

KLS Martin Laser MY60

Type of laser

Nd:YAG laser, 1064 nm, continuous-wave (cw)

Protection Class I

Laser protection class IV

Power applied to the tissue

0.5 - 60 W

Modes of operation

• Continuous-wave (cw)

• Pulse mode

- Single pulse

- Pulse repetition

Time increments:

0.1 s between 0.1 and 1.0 s

1 s between 1 and 10 s

- Pulse repetition:

ON/OFF time options: 1/1, 1/2, 1/3

Pilot laser

1 mW, cw, red

5 mW, cw, red

Wavelength 670 ± 10 nm

Control

Microprocessor

Values displayed

Operating mode, laser power, pulse duration, pilot laser stage, special values (total energy applied, pulse rate, irradiation time)

Cooling

Air-cooled system with closed water circulation system

Optical fiber connector

Numerical aperture of coupler: NA < 0.2

SMA-905 connector, suitable for fibers with 260, 400, 600 µm core diameter and NA > 0.2

Integrated automatic fiber tester

Dimensions (W x D x H) and weights

Laser head: 405 x 380 x 135 mm

Weight: 12 kg (excl. supply line)

Supply unit with drawer: 405 x 380 x 775 mm

Weight: 61 kg

Electrical connection

208 - 240 V AC, 50/60 Hz, 16 A

CE marking conform with 93/42/EEC

Ordering Data

79-060-10 KLS Martin Laser Nd:YAG MY60
Stand-alone version

Ordering Data

Scope of Delivery KLS Martin Laser MY60

	Stand-alone Version	Separate unit
Laser head	✓	✓
Supply unit	✓	✓
Foot switch, two-step	✓	✓
Umbilical cord	–	to be ordered separately
Drawer element	✓	–
Flyer and support bracket	✓	–
Deionization cartridge	✓	✓
Cover	✓	✓
Fiber test adapter	✓	✓
Rollers	✓	✓
Potential equalization lead	✓	✓
Two laser warning signs	✓	✓
User manual	✓	✓

Accessories

79-100-50	Anti-laser goggles** ①
79-100-51	Anti-laser goggles for users wearing glasses* ②
79-100-80	Laser protective filter for all Kls Martin endoscopes* ③
79-111-00	Fiber preparation set, autoclavable
79-210-00	Protective glass for fiber tester
79-220-00	Silicon pad for flyer and fiber preparation set
79-240-00	Replacement filter mat for fan
79-245-00	Deionization cartridge
79-200-01	Foot switch, two-step
79-210-01	SMA connector cover
79-120-00	Flyer
79-121-00	Supporting bracket
79-101-00	Umbilical cord, 12 m length

* D 1060 L6 RH DIN CE acc. to 89/686/EEC (PSA)

** D 1060 L7 RH DIN CE acc. to 89/686/EEC (PSA)



Focusing Handpieces

Gas Flow Controller MY GAS 2

KLS Martin Optical Fibers

Laser Cystoscope acc. to Aaikens

Fiber holder

see pages 8 – 9

see page 10

see page 11

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see page 15

Extremely high power density

The KLS Martin Laser MY60 Makes it Possible:

Effective cutting, vaporization, coagulation and sealing on a non-contact basis and without any need to exchange instruments. To make use of different focal distances, you simply need to exchange the front lens.

Thanks to the high-transmitting laser fibers and one of the best laser focusing handpieces available on the market, extremely high power densities can be achieved in the focus of the beam.



Highly magnified beam image

The power density is extremely uniform across the entire beam focus profile (Ø 0.6 mm)

Features of the KLS Martin Focusing Handpiece for KLS Martin Laser MY60

Using high-quality materials, we have developed a top-notch optical system for optimal application of the Nd:YAG laser light. **The result is an extremely high power density in the focal spot when using KLS Martin Nd:YAG lasers in conjunction with 400-µm fibers.** In physiological terms, this translates into excellent cutting, vaporization and coagulation properties, with the laser beam applied to the target tissue on a non-contact basis.

An optimized gas flow, via the fiber and the handle, ensures a gas irrigation efficiency previously unknown in this product area. The gas flow clears the optical path from light-absorbing particles (plume and tissue debris) that may be present between the laser focusing handpiece and the target tissue. This reliably prevents focusing lens soiling.

Two different focal lengths – 30 mm and 50 mm – are available which, together with a whole range of different front sleeves, provide for optimal adjustment of the laser light to specific surgical tasks. The modular design of the handle ensures that the front lens can be easily exchanged for focal length variation. The exchangeable front sleeves, in turn, provide flexibility in terms of working distance. The beam spot profile exhibits an extremely uniform power density across the entire spot surface.

The front sleeves are available in a threaded version and in a push-on design. The latter is specifically intended for use with sterile drapes. The well-thought-out service concept – with a quick-action connector linking the fiber to the handpiece and easily exchangeable front lenses – increases the instrument's readiness for use in routine clinical practice, especially so because any such adjustments can be easily carried out by the user him-/herself.

Fields of application:

Dermatology and open-surgical applications across all medical specializations

Application field examples:

- oral cavity
- abdominal cavity, thoracic cavity
- external genital
- tumor surgery
- skin and cutaneous appendages

Application examples:

- treatment of warts, acuminate condylomas, leucoplakias
- coagulation of vascular malformations and hemangiomas
- removal of tongue tumors
- endometriosis therapy
- cutting and coagulation of liver, spleen, kidney and pancreatic parenchyma and of brain tumors

Focusing handpiece power densities

Laser fiber Ø (µm)	Front sleeve focal length (mm)	Focus Ø (µm)	Power density kW/cm ² Laser power at 60 W
260	30	380	52.9
260	50	600	21.2
400	30	590	22.0
400	50	900	7.4



Depending on the lens-sleeve combination used (note the color-coding), different working distances are obtained as specified in the table.

Sleeve	Front/focusing lens	Working distance
short, green	30 mm, green	12 mm
long, lilac	50 mm, lilac	12 mm
short, green	50 mm, lilac	35 mm

Focusing handpiece

Item no.	Designation
78-201-00-04	Basic body for threaded sleeves for focusing handpiece
78-201-01-04	Basic body for push-on sleeves for focusing handpiece
78-202-30-09	Front sleeve, short, green, threaded, for 78-201-00-04
78-202-31-04	Front sleeve, short, green, push-on
78-202-50-09	Front sleeve, long, lilac, threaded, for 78-201-00-04
78-202-51-04	Front sleeve, long, lilac, push-on
78-210-30-04	Front lens, green, $f = 30$ mm, for 78-201-00-04 and 78-201-01-04
78-210-50-04	Front lens, lilac, $f = 50$ mm, for 78-201-00-04 and 78-201-01-04
78-222-00-04	Adapter for push-on front sleeves, for retrofitting 78-201-00-04 to 78-201-01-04 (already included in 78-201-01-04)
79-300-26-04	Fibers for Laser focusing handpiece
79-300-40-04	Fibers for Laser focusing handpiece
80-181-90-04	Sterile filter for MY Gas 2

Small yet efficient

KLS Martin MY GAS 2 Gas Flow Controller



CE



By combining the KLS Martin Gas flow Controller MY GAS 2 with the KLS Martin Laser MY60, a steady and economical gas consumption for irrigation is achieved during laser application.

The gas flow can be controlled via a two-step foot switch belonging to the laser unit. Both "active" or working gas flow and "passive" gas flow are adjustable separately.

The MY GAS 2 device is attached to the laser unit with a magnetic foil.

Ordering information

78-231-00 KLS Martin Gas Flow Controller MY GAS 2, incl. cable for connection to KLS Martin Laser MY60 and adapter for gas cylinder equipped with safety valve

83-100-30 Silicone tube (MY GAS to fiber)

Technical Specifications

Power supply	100 – 240 V AC 50 / 60 Hz
Suitable gases	CO ₂ , N ₂ , Ar, pressurized air
Permissible pressure	max. 5 bar
Dimensions	150 x 60 x 131 mm (W x H x D)
Weight	1.47 kg
Gas cylinder connection	G 1/4" thread
Output connector	Luer-Lock connector
Opening pressure	5 bar
CE marking conform with 93/42/EEC	

A flexible pressure tube (78-215-01) is required for operating the Controller on a central gas supply system (max. 5 bar).

When using gas cylinders, a pressure reducer is required (set 79-060-91 incl. connection tubing).

Optional:
Gas cylinder holder for 0.7-l gas cylinders (79-131-00).

KLS Martin Optical Fibers



The KLS Martin optical fibers have been specially designed for use with SMA-905 compatible Nd:YAG and argon laser units. These fibers are suitable for use in the following areas:

- gastro-enterology
- gynaecology
- laparoscopic surgery
- neurosurgery
- open surgery
- urology
- ENT
- pneumonology

The laser fibers are delivered for single use in a sterile, adhesive-free and ultrasound-sealed packing. The plastic tray packing makes it possible for the user to take out the proximal and distal fiber ends separately and under sterile conditions.

For intra-operative preparation of the bare fibers (300 µm, 400 µm and 600 µm) we can recommend using the KLS Martin Fiber Preparation Set (79-111-00).

KLS Martin Optical Fibers					
	Core diameter	Optical material	External diameter	Article/Order number	unit pack
Quartz fibers*	300 µm***	Quartz	0.45 mm	79-700-30	5 pieces
	400 µm	Quartz	0.74 mm	79-700-40	5 pieces
	600 µm	Quartz	1.05 mm	79-700-60	5 pieces
Gas-irrigated fiber*	400 µm*	Quartz	2000 µm	79-345-30	5 pieces
Fibers for focusing handpiece**	260 µm***	Quartz	5.3 mm	79-300-26	1 piece
	400 µm	Quartz	5.3 mm	79-300-40	1 piece
Fiber irrigation tubing for quartz fibers** (disposable product)	–	–	1.7 mm (external) 1.4 mm (internal)	79-300-05	10 pieces

All fibers have a length of 3 m.

* Fibers for single use, suitable for KLS Martin Laser MY60, KLS Martin Laser MY40, diomax®

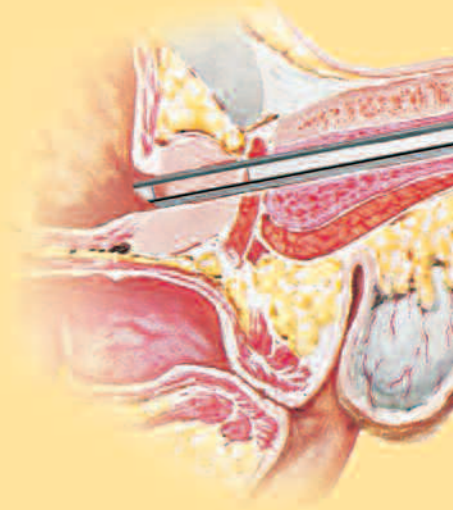
** Reusable fibers, non-sterile packing

*** Only for KLS Martin Laser MY60

Tried and tested

Laser Cystoscope according to Aeikens

The Laser Cystoscope according to Aeikens is used for tissue coagulation and cutting in transurethral urological surgery, particularly in treating benign prostatic hyper-plasia, bladder and urethral tumors, and for removing urethral strictures.



Major fields of application in urology:

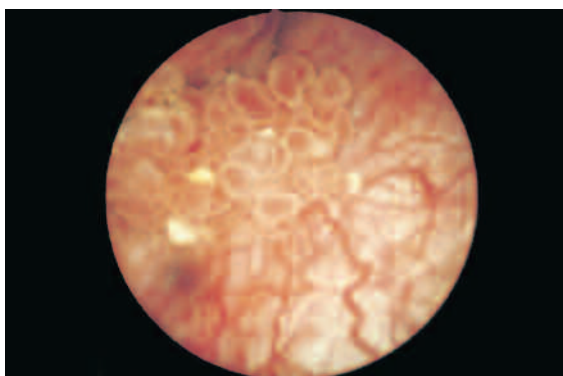
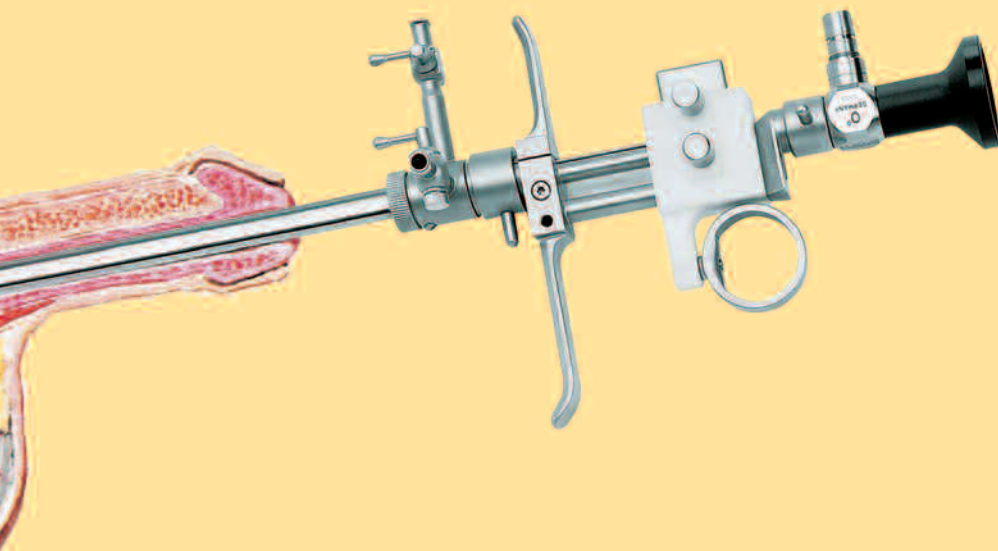
As the Cystoscope is similar in design to a resectoscope, the surgeon will soon get familiar with using and handling the instrument.

In surgical use, the Laser Cystoscope allows utmost precision in controlling and positioning a bare fiber (400 μm), with the further advantages that such a fiber is very inexpensive compared to a sidefiring fiber and easily be reprepared.

This instrument can be easily disassembled into its component parts, which facilitates thorough cleaning and proper preparation for further use. Top-quality materials and state-of-the-art manufacturing methods also guarantee utmost reliability in everyday surgical use.



Hemorrhage-free removal of urethral strictures



Bladder and urethral tumors

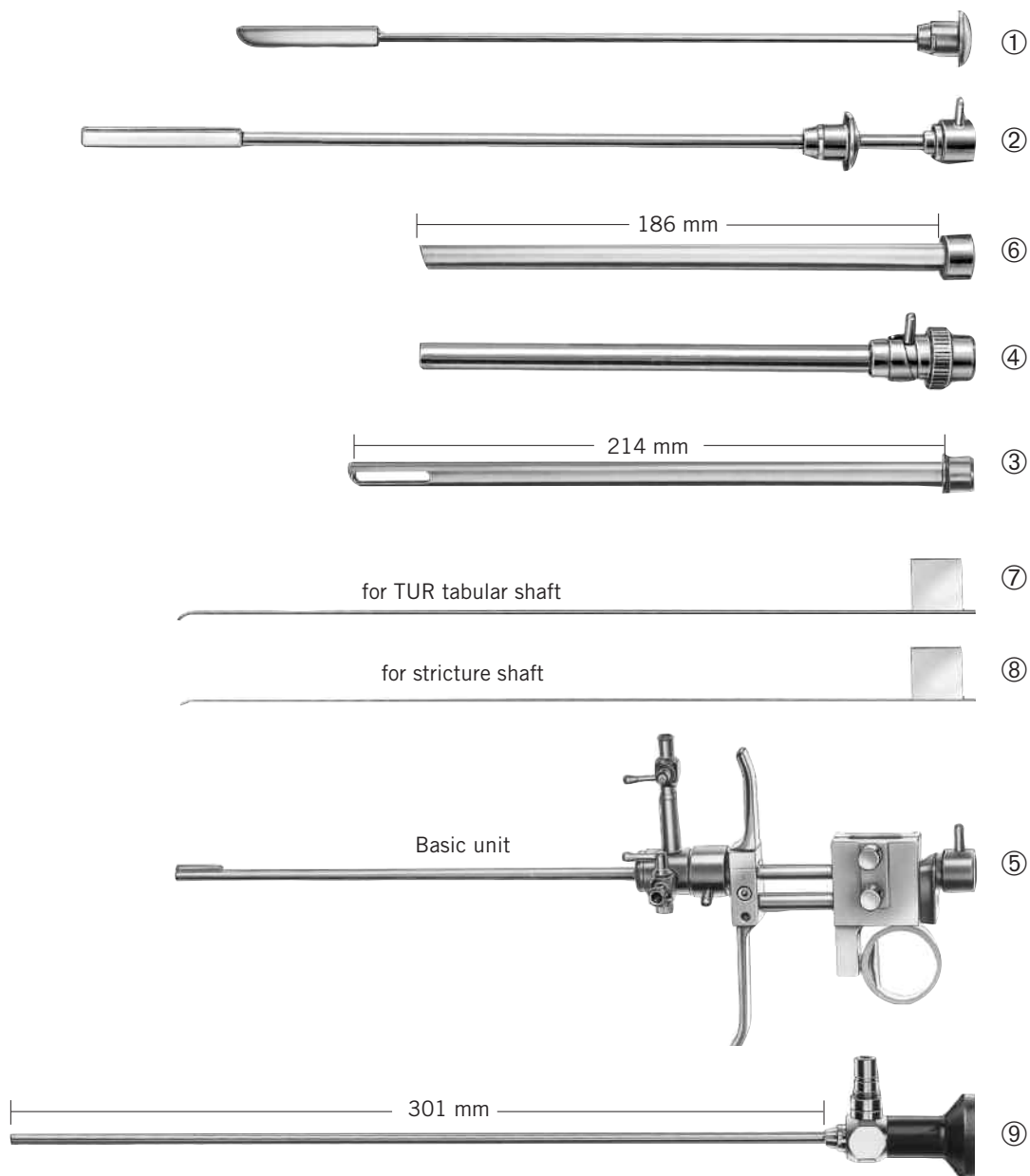
The tumor bed is laser-treated in order to stop bleeding and achieve a thorough, deep-reaching destruction of the tumor tissue. Subsequently, classical resection of the tumor tissue by using a HF loop.



Prostatic adenomas

The Laser Cystoscope was specially developed for laser coagulation in connection with the prostate resection method developed by Prof. Aeikens. By using Nd:YAG laser light, the hitherto "bloody" process of adenoma resection is transformed into an operation that can be performed hemorrhage-free.

Ordering Data Laser Cystoscope acc. to Aeikens



Laser Cystoscope Basic Set

78-400-00 Laser cystoscope basic set
consisting of:

- 1 piece basic unit ⑤
- 1 piece TUR tubular shaft, long, oval ③
- 1 piece obturator ①
- 1 piece fiber tube ⑦

Accessories

- 79-700-40 Bare fiber 400 μm (5 items)
- 79-100-50 Anti-laser goggles
- 79-100-51 Anti-laser goggles for users wearing glasses
- 79-100-80 Laser protective filter for endoscope
- 79-110-00 Fiber preparation set
- 83-204-00 Urological lenses, \varnothing 4 mm, 0°, suitable for autoclaving ⑨

Optional accessories

- 78-400-01 TUR tubular shaft, long, oval, 24 Charr. ③
- 78-400-02 Tubular shaft, short, oval, 24 Charr. ⑥
- 78-400-03 Fiber tube for TUR tubular shaft ⑦
- 78-400-04 Obturator ①
- 78-400-10 Knurled nit
- 78-400-11 Sealing ring (10 pieces)
- 78-400-12 Spare parts set
- 78-400-05 Stricture shaft ④
- 78-401-03 Fiber tube for stricture shaft ⑧
- 78-401-04 Optical opturator ②

CE marking conform with 93/42/EEC

KLS Martin Fiber Holder



The KLS Martin Fiber Holder is modular in design and consists of two elements:

- handpiece
- tip attachment

The replaceable tip attachments are available in different lengths ranging from 5 to 28 cm. This allows ideal "customization" to specific anatomical requirements. To guarantee optimal positioning of the laser fiber at the place of application, the tip attachment tube can be bent / adjusted with the help of the bending mandrel supplied.

To protect the fiber tip when the instrument is temporarily out of use in the course of an operation or when the fiber holder is inserted into the tube, the holder has been equipped with a sliding mechanism.

Thanks to the Luer-Lock connector, the fiber tip as well as the tissue can be cooled by using either a gas or a liquid. To facilitate and ensure proper cleaning, the fiber holder can be completely disassembled and autoclaved at 134°C.

Ordering Data

78-300-10	Handpiece
78-310-05	Tip attachment with bending mandrel, 15 cm
78-310-08	Tip attachment with bending mandrel, 18 cm
78-310-13	Tip attachment with bending mandrel, 13 cm
78-310-18	Tip attachment with bending mandrel, 18 cm
78-310-23	Tip attachment with bending mandrel, 23 cm
78-310-28	Tip attachment with bending mandrel, 28 cm
78-310-01	Tip attachment Luer-Lock connector
78-300-01	Spare parts set for handpiece 78-300-10

CE marking conform with 93/42/EEC

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