

FENCER: THE COMPLETE LAPAROSCOPIC UNIT



Order-No. 675-11000

FOUR IN ONE

- Gas-Insufflator
- Video-Camera
- Light Source
- Irrigator

FENCER is a complete laparoscopic system. A combination of:

- Insufflator
 - CCD Video-Camera
 - Xenon-Light Source
 - Irrigation
- in one compact unit.

Each function working independently from the other. FENCER allows high performance for laparoscopic applications. Additionally, FENCER is designed for simple and user friendly operation.

Gas-Insufflator

The 30 l-Insufflation part in FENCER is equipped with a precise electronic control for an optimal intra-abdominal working pressure. This allows exact working. Three selectable Flow rates of 1, 5, 8 and 30 l/min are available for the exact control of the Insufflator.



Gas-Insufflator

High Resolution Camera by Digital Controlling

FENCER is based on the latest digital technology. The microprocessor controls brightness through shutter control and white balance that result in clear and sharp images for endoscopy everytime.



Video-Camera

Xenon Light Source with Manual Regulation

The 180 W Xenon Light Source provide illumination. The natural light – composed of the entire spectrum of white light – is the optimum for laparoscopic surgery. Users can replace lamps quickly and easily.



Light Source

Irrigation

The Irrigation part in FENCER has a high pressure Irrigation function. In combination with the MGB-Suction-/Irrigation instruments and easy handling, high flow Irrigation is guaranteed and constant.



Irrigation

GENERAL

Order-No.	FENCER-Versions
675-11000	FENCER (PAL), 200-230 V
675-11001	FENCER (PAL), 100-120 V
675-12000	FENCER (NTSC), 200-230 V
675-12001	FENCER (NTSC), 100-120 V
Main Connection	
Power supply	~100 - 120 VAC/~200 - 230 VAC
Frequency	50/60 Hz
Power consumption	350 VA (max.)
Fuse	2 x T3.15 A (250 V)/2 x 6.3 A (110 V)
Classification	
Safety class	1 Type BF
Type	BF
Approval	CE
Dimension and Weight	
Dimension (w/h/d)	530 x 200 x 440 mm
Weight	18.0 kg
Extent of Delivery	
FENCER (PAL - or NTSC-type)	<ul style="list-style-type: none"> ■ Camera-head, incl. cable ■ Silicon-tube for Insufflator ■ Silicon-tube for Irrigator ■ Regulator with manometer and snap-in-connector ■ Power-supply cable and BNC-cable
Light Source 180 W XENON	
Lamp type	Xenon 180 W
Lamp color temperature	Approx. 6000 K
Lamp replacement	Side door, with cartridge
Life-cycle of lamp	Approx. 500 hours
Manual regulation	
Irrigation	
Pressure	800 mbar
Insufflator 30 l	
Flow rate	<ul style="list-style-type: none"> ■ ~ 30 L/min. (maximum) ■ 1.5 L/min. (minimum)
Insufflation pressure	1-30 mm Hg
Gas connection	MGB snap-in/DIN
Gas input pressure	4-10 bar/high pressure (pressure reducer included)

SPECIFICATION

FENCER Camera Unit	
CCD-Sensor	Size: 1/3"
NTSC (H X V)	768 x 494/410.000 pixels
PAL (H X V)	762 x 582/440.000 pixels
Sensitivity	1.5 Lux
Shutter speed	Automatic control between: 1/60 - 1/100.000 sec. (NTSC), 1/50 - 1/100.000 sec. (PAL)
Waterproof	IP X 7
Horizontal resolution	450 TV-lines
Signal output	Y/C (S-video) x 1 at 75 Ω composite x 1 at 75 Ω
Lens connection	C-mount
Camera-head size (d x l)	38 x 45 mm
Camera-head cable length	2.5 m
Camera-head weight	250 g, incl. cable

Order-No.	Accessories
	Video Camera Zoom Lens
470-28000	ZOOM f = 16 - 34 mm, C-mount
	Video Camera Lens
470-23400	f = 18 mm, C-mount, circular frame picture
470-27400	f = 22 mm, C-mount, limited frame picture
470-24400	f = 25 mm, C-mount, full frame picture
470-25400	f = 30 mm, C-mount, full frame picture
470-26400	f = 40 mm, C-mount, full frame picture
	Urology Video Camera Lens 90°
470-30000	f = 18 mm, C-mount, circular frame picture
402-11300	Light guide (for example): Ø 4.8 mm, length 2.3 m
686-00200	Spare lamp Xenon (180 W)
675-11203	Filter for insufflation, conus 15 mm, 25 pcs.
670-95300	Silicone-tube set for Insufflation
675-95301	Silicone-tube set for Irrigation
675-11202	Adapter for Insufflation

VIDEO LENS

VIDEO CAMERA LENS

Video Camera Zoom Lens

■ f = 16 - 34 mm



HD-Video Camera Zoom Lens

■ f = 18 - 28 mm

Video Camera Lens

- f = 18 mm (used in Endoscopy, Urology, ENT)
- f = 22 mm (used in ENT)
- f = 25 mm (used in Laparoscopy)
- f = 30 mm
- f = 40 mm



HD-Video Camera Lens

■ f = 25 mm

Urology Video Camera Lens 90°

■ f = 18 mm



GENERAL

SPECIFICATION

Order-No.	Video Camera Zoom Lens
470-28000	f = 16-34 mm
Order-No.	HD -Video Camera Zoom Lens
470-29000	f = 18-28 mm

Video Camera Zoom Lens	
f = 16 - 34 mm	<ul style="list-style-type: none"> ■ Zoom ■ C-mount ■ Used in all endoscopic fields (parafocal)
	<ul style="list-style-type: none"> ■ One of the shortest and very light-weight zoom in the market
HD - Video Camera Zoom Lens	
f = 18-28 mm	<ul style="list-style-type: none"> ■ Zoom ■ HD resolution ■ C-mount

Order-No.	Video Camera Lens
470-23400	f = 18 mm
470-27400	f = 22 mm
470-24400	f = 25 mm
470-25400	f = 30 mm
470-26400	f = 40 mm
HD - Video Camera Lens	
470-24450	f = 25 mm

Video Camera Lens	
f = 18 mm f = 22 mm f = 25 mm f = 30 mm f = 40 mm	<ul style="list-style-type: none"> ■ Brilliant optic ■ High translucence ■ Quick endoscope coupling ■ Waterproof ■ C-mount ■ Ergonomic design
HD - Video Camera Lens	
f = 25 mm	<ul style="list-style-type: none"> ■ HD resolution ■ C-mount ■ Full frame picture with HD-Lapalux

Order-No.	Urology Video Camera Lens 90°
470-30000	f = 18 mm

Urology Video Camera Lens 90°	
f = 18 mm	<ul style="list-style-type: none"> ■ Angled video lens with rotatable eyepiece-connector ■ Rotation lockable ■ Focal length f = 18 mm, circular frame picture ■ Connection to camera-head C-mount ■ One-hand operation ■ Air ventilation on ocular window ■ Soakable



Laparoscopy (Full Size)
with 1/3" CCD/f = 25 mm



Limited Size
Sinoscopy Ø 4 mm/f = 22 mm



Arthroscopy/Urology (Circle Size)
Arthroscopy Ø 4 mm/f = 18 mm



Работайте с лучшими,
всё остальное компромисс!

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