



**Endoscopes of highest standards for ENT-specialists**

The fibre-optic of the sinusscopes enables at small dimensions a high contrast as well as high resolved images for a perfect and patient-friendly diagnosis.

- High performance optic.
- Cold light source or LED illumination.
- High mechanical capacity by application of high-quality materials reduces the risk of damages and repair-services.
- Tested according to medical compatibility and autoclaving.
- HD-Ready.



## Technical data

Art.No. 3904	Diameter: 2.7 mm Working length: 187 mm Viewing direction: 0° Viewing angle: standard
Art.No. 3905	Diameter: 2.7mm Working length: 187 mm Viewing direction: 30° Viewing angle: standard
Art.No. 3906	Diameter: 4.0 mm Working length: 175 mm Viewing direction: 0° Viewing angle: standard
Art.No. 3907	Diameter: 4.0 mm Working length: 175 mm Viewing direction: 30° Viewing angle: standard
Art.No. 3908	Diameter: 4.0 mm Working length: 175 mm Viewing direction: 70° Viewing angle: standard
Adapter types (included):	ACMI, Wolf und Storz
Sterilization:	autoclavable, 134 °C / 273 °F, 18 min.

The otoscope, made for ear-diagnosis, enables by its small dimensions a patient-friendly examination and diagnostic images of highest quality.

- High performance optic.
- Cold light source or LED illumination.
- High mechanical capacity by application of high-quality materials reduces the risk of damages and repair-services.
- Specula holder for Riester L1/L2, 3 mm ear-specula.



## Technical data

Art.No. 3920

Diameter:	2,7 mm
Working length:	34 mm
Viewing direction:	0°
Viewing angle:	wide angle
Specula:	Riester specification L1/L2, 3 mm
Adapter types (included):	ACMI, Wolf and Storz

Disinfection: by liquid disinfectant

## Laryngo-Pharyngoscope

The Laryngo-Pharyngoscope offers detailed pictures with a high contrast and very high optical performance during the examination.

- Excellent images, significant depth of focus
- High performance illumination
- Panoramic view



### Technical data

Art.No. 3931	Working diameter:	10 mm
	Working length:	165 mm fix
	Viewing direction:	90°
	Working distance:	15 mm to infinity
	Adapter types (included):	ACMI, Wolf and Storz

Disinfection/Sterilization:

In liquid disinfectant  
Gas-sterilizable

## Tele-Laryngo-Pharyngoscope

The Tele-Laryngo-Pharyngoscope offers 2 different magnifications and a very high optical performance during the examination.

- Excellent images, significant depth of focus
- High performance illumination
- 2 different magnifications: panoramic view and view of details
- Integrated air channel to avoid condensation (with Luer-Lock connection)



### Technical data

Art.No. 3930	Working diameter:	10 mm
	Working length:	153 mm fix
	Viewing direction:	90°
	Working distance:	15 mm to infinity
Art.No. 3932	Working diameter:	6,0 mm
	Working length:	164 mm, fix
	Viewing direction:	70°
	Working distance:	15 mm to infinity

Adapter types (included): ACMI, Wolf and Storz

Disinfection/Sterilization:

In liquid disinfectant  
Gas-sterilizable

## Flexible precision-endoscope with high performance optic.

Engineered for highest standards and daily requirements. A long life period is guaranteed by the high resolved bundle-light, combined with mechanical components of high precision and a sturdy construction. The highest quality requirements are complied by the bundle-light with 12.000/7000 pixels and the multi-lenses objective.



### Technical data

Art.No. 3900	Image bundle	12.000 pixel Min.
	Working length	300 mm
	Working Diameter	3,8 mm
	Flexibility of distal end	2 x 125°
	Length of bendable distal end	25 mm
	Min. bending-radius	30 mm
	Viewing direction	0°
	Viewing angle	90°
	Depth of focus	5 mm until infinity
	Weight	255 g



### Technical data

Art.No. 3901	Image bundle	7.000 pixel Min.
	Working length	300 mm
	Working Diameter	3,2 mm
	Flexibility of distal end	2 x 140°
	Length of bendable distal end	20 mm
	Min. bending-radius	30 mm
	Viewing direction	0°
	Viewing angle	70°
	Depth of focus	6 mm - 1000 mm
	Weight	260 g

Adapter types (included): ACMI, Wolf and Storz

Disinfection/Sterilization:

In liquid disinfectant  
Gas-sterilizable

Light-intensive LED handles for mobile applications of endoscopes. 3 Watt LED lamps with 5500° Kelvin reference colour temperature and Li-batteries or Li-Ion rechargeable batteries provide a reliable and efficient supply of light without cable or light-conductor.

- With **rheotronic®**: infinitely variable regulation of brightness as well as manual switching on/off possible on the handle.
- Handle diameter:  
Type AA 19 mm.  
Type C 28 mm.
- Easy to charge in the ri-charger® L charging base.
- Without LED-adapter
- Without batteries

Typ C

Nr. 10670 for Li-ion rechargeable battery ri-accu® L  
Nr. 10630 for Li batteries

Typ AA

Nr. 10642 for Li-ion rechargeable battery ri-accu® L  
Nr. 10643 for Li batteries

Li-ion rechargeable battery ri-accu® L

10691 for type C  
10690 for type AA

Li battery (2 pieces)

11287 for type C and AA

LED-adapter type ACMI



12149 for type C and AA



### Lithium-ion battery The power plus.

Memory effect and self-discharge are no match: the light-weight lithium-ion battery used in the ri-scope® L has an unsurpassed lifetime – with higher loading capacity and sustained high-power performance, even after well over 1000 charge cycles.



### LED technology performance for life.

Nearly unlimited lifetime with the highest luminosity: these advantages make the LED technology used with the ri-scope® L so unique. Moreover, the lamp inside the ri-scope® L never gets hot, provides true-color, even illumination of the area under examination and is practically guaranteed never to fail, in contrast to conventional halogen or xenon lamps.



## Charging base

ri-charger® L

is the perfect charging base for all rechargeable battery handles, Type C/AA.

- Table or wall model.
- Practical storage container for two replacement lamps and ear specula.
- Charging status displayed on the device:  
Yellow: charging in progress.  
Green: charging completed.

Nr. 10705 230 V  
Nr. 10706 120 V



## Light sources

**Xenon cold-light devices for endoscopes with fibre optic - light conductor.**

**Technical data: XL 24:**

- Dimensions: W 175 x H 82.5 x D 202 mm.
- Protective class BF.
- Weight 2.5 kg.
- Light conductor connection: Standard type Storz, interchangeable.
- Lamp: 24 watt xenon short arc lamp with cold-light reflector, (service life approx. 500 hours).
- Colour temperature: 5500° K.
- Light control: Infinitely variable via dimmer at constant colour temperature and even fibre illumination.
- Power consumption: 50 W.

Xenon Cold-light Projector XL 24

Nr. 6301 230 V  
Nr. 6306 120 V

**Technical data: XL 100:**

- Dimensions: W 355 x H 110 x D 347 mm.
- Protective class BF.
- Weight 9.5 kg.
- Light conductor connection: Standard type Storz, interchangeable.
- Lamp: 100 watt xenon short arc lamp with elliptical cold-light reflector, (service life approx. 500 hours).
- Colour temperature: 5600° K.
- Light control: Electrical, precise via membrane keyboard at constant colour temperature and even fibre illumination.
- Power connection: alterable 230 V/120 V.
- Power consumption: 185 W.

Xenon Cold-light Projector XL 100

Nr. 6302 230 V/120V



### Disinfection

#### Caution: Pull out the mains plug before cleaning!

All external surfaces of the instrument (casing, front plate, rear panel) are non-reactive to all common cleaning and disinfecting agents, so that these may be used without restriction. A soft cloth or absorbent paper should be used to apply cleaning or disinfecting liquids, in order to avoid scratching the surface and to dose and spread out the liquid better.

Do not simply pour and then spread out the cleaning and disinfecting agents on the casing. Especially liquids which are inflammable, such as alcohol, should be measured out using a cloth. Do not allow any liquid to run inside the device. After cleaning with an inflammable liquid, allow the device to dry for at least 1 hour before it is switched on again. Otherwise there is a danger of an explosive mixture of air and cleaning agent igniting when switching the instrument on.

## Accessories

### Light conductor

No. 12147	Ø 4.8 mm	Working length 1800 mm	connectors standard type Storz
No. 12199	Ø 3,5 mm	Working length 1800 mm	connectors standard type Storz

### Adapters

No. 12126	Adapter type Storz, for CL-cable projector side.		
No. 12127	Adapter type Wolf, for CL-cable projector side.		
No. 12128	Adapter type Olympus New, for CL-cable projector side.		
No. 12129	Adapter type ACM British, for CL-cable projector side.		
No. 12130	Adapter type Pentax, for CL-cable projector side.		
No. 12131	Adapter type Fuji, for CL-cable projector side.		

### Replacement lamps

No. 12133	xenon 24 W	1 item
No. 12134	xenon 100 W	1 item

### Replacement fuses

No. 12140	Precision fuse, slow-blow 5 x 20 mm for XL 24, 230 V, 1 AT		
No. 12141	Precision fuse, slow-blow 5 x 20 mm for XL 24, 120 V, 2 AT		
No. 12142	Precision fuse, slow-blow 5 x 20 mm for XL 100, 230 V, 2.5 AT		
No. 12143	Precision fuse, slow-blow 5 x 20 mm for XL 100, 120 V, 5 AT		



**Ergonomic and Compact**

Compact, easy-to-handle 1CCD camera system. The integrated electronic of the camera head provides an outstanding image quality. The ergonomic camera head and TV adapter have been designed to be used with sterile sheaths and gloves.

**Anti-Moiré Version (optional)**

Recommendable for the use with the flexible naso-pharyngoscope. With opto-electronic anti-Moiré filter.

**Data transfer**

The ri-cam in connection with the ri-capture grabbing-box and a digital USB 2.0 interface a high image quality. This connection to a PC\* provides the user the unlimited possibilities of the digital image and video processing at a fair price.

\* MDD (Medical Device Directive) compatible PC with Windows 2000 (SP 4), Windows XP (SP 1) and USB 2.0/1.0 Interface, 2 GHz or more.

**ri-cam**



**Technical Data**

- Operation control
- Camera head

Hand piece: White balance/window function, function key  
Image sensor: 1/3" CCD  
Image resolution (lines): 470 (H) x 420 (V) PAL  
470 (H) x 350 (V) NTSC  
Image resolution (pixels): 440.000 (PAL)/380.000 (NTSC)  
Light sensitivity: 2 Lx/f = 1.4  
Endoscope coupler: Standard eye piece, C-mount, detachable  
Focal length TV adapter: f = 23 mm

- System

Acc. guideline Med. Prod. 93/42 EWG Class 1  
Electromagn. compatibility: EN 60601-1  
Classification: BF/CE mark  
Power connection: 100-240 V AC, 50/60 Hz  
Power consumption: 2 VA  
Separate power supply

- Dimensions/Weight

Camera head: 135 x 50 mm (L x ø)  
Camera cable: 3 m  
Weight camera head: 300 g

- Disinfection

by liquid disinfectant

**Anti-Moiré function**

The anti-Moiré filter provides optimization of image quality for the use of image bundle endoscopes to reduce artefacts significantly.

## ri-cam PAL + ri-capture + ri-view

The ri-capture video grabbing system provides image processing of ri-cam. The smartbox can be connected with the PC (USB 2.0) or alternatively with a conventional video system (FBAS) and the camera. The ri-view software delivers live images which can be stored as single images by pressing the function key. Thus this combination offers an easy upgrade of an analogue camera to a digital image processing system.

- Conversion of an analogue video signal into a digitized USB 2.0 signal.
- "Plug and Play" without assembly.
- Easiest installation even for non PC specialists.
- Use of complete ri-view software functional range.
- Compatible to MS-Windows image processing Software via TWAIN and DirectX interface.
- PAL/NTSC compatible.

### ri-capture



#### Delivery

- ri-view software cd with drivers
- Smartbox (video grabber) W x H x D: 80 x 35 x 170 mm
- (Outputs: 1 x USB 2.0, 1 x Video (FBAS))
- USB cable
- Instruction manual

#### Requirements

- PC or notebook with at least 512 MB RAM; USB 2.0 interface and > 2 GHz processor
- Windows 2000 (SP4 oder höher)  
Windows XP  
Windows Vista  
Windows 7
- ri-cam

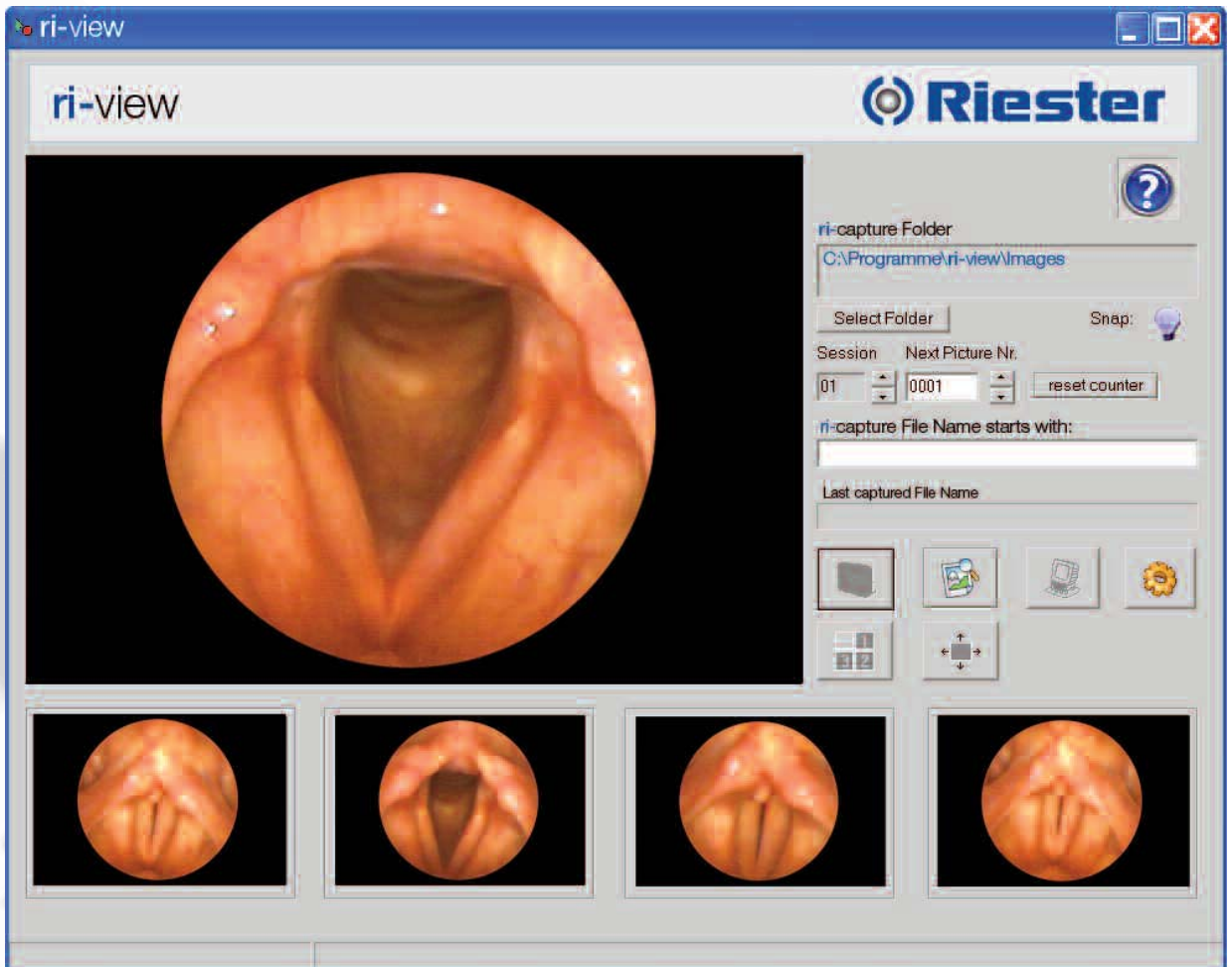
## ri-cam PAL + ri-capture + ri-view

Easy processing of images

Accessory for ri-capture with digital USB 2.0 interface to display and to store endoscopic images. User friendly software and simple installation.

Main-display:

ri-view



### Benefits

- Viewing of pictures by available software.
- Standard version is included by the delivery of ri-capture with USB 2.0 interface.
- DirectX/DirectShow compatible.
- Compatible with WIN 2000 ( SP4) and XP ( SP1).
- Telecontrol by camera-function key (in combination with ri-cam, ri-capture and PC 2 GHz or higher )

ri-cam PAL + ri-capture + ri-view

ri-cam PAL anti-Moiré + ri-capture + ri-view

Nr. 3940

Nr. 3941

NTSC -versions on demand.

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