



# *ENDOFIX*exo

MANUAL SUPPORT ARM





THE EASY TO USE  
SUPPORT ARM FOR  
GUIDING SCOPES



*ENDOFIX* exo

**Steady** field of vision  
**Precise** scope guidance  
**Quick and easy** set up

# HYBRID LAPAROSCOPY

**100% German  
Engineering**

ENT Surgery

STABLE VISION

THORACIC SURGERY

Throat

MANUAL CONTROL

**20 years of experience**

SCULLBASE SURGERY

TREMOR-FREE CAMERA GUIDANCE SYSTEM

Open Surgery

NOSE & EAR

## FIELDS OF APPLICATION

**ENDOFIX<sup>exo</sup>**



### ENT Surgery

Tympanoplasty  
Endoscopic Laryngeal Microdissection  
Functional Endoscopic Sinus Surgery (FESS)  
Endoscopic Thyroplasty  
Endoscopic Removal of Nasal Polyps  
Stapedectomy  
Endoscopic Turbinate Reduction  
Septoplasty  
Endoscopic Vocal Cord Injection



### Scullbase Surgery

Endoscopic Pituitary Tumor Removal /  
Transsphenoidal Surgery  
Endoscopic Removal of Sinonasal Tumor  
Endoscopic Resection of Anterior Skull Base Tumor



### Thoracic Surgery

Wedge Resection  
Esophagectomy  
Lobectomy



### Open Surgery

The ENDOFIX<sup>exo</sup> can be used wherever the use of a scope is indicated.

## BENEFITS FOR THE PATIENT



### Positive effect on surgical result

Using the ENDOFIX<sup>EXO</sup> enables the surgeon to work in an ergonomic and comfortable way. The surgeon can operate with both hands in a relaxed manner, which has a positive effect on the surgical result.<sup>1,3</sup>

### Less postoperative risk

With each 30 minutes operation time the risk of PONV (Postoperative nausea and vomiting) increases by 60 %.<sup>6</sup> The patient benefits from a short operating time.

### Reduced waiting times

The ENDOFIX<sup>EXO</sup> assistance is always available. As our system can be used for procedures without an assistant, waiting times due to staff shortages can be significantly reduced.<sup>1,2</sup>

## BENEFITS FOR THE CLINIC



### Better scheduling efficiency

Thanks to the ENDOFIX<sup>EXO</sup> the surgeon guides the scope him/ herself and simple procedures can be performed without further assistance.<sup>1,2</sup>

Since the ENDOFIX<sup>EXO</sup> is always available, it is the ideal partner in case of emergencies or staff shortages.<sup>1</sup>

### Maintenance-free and compatible

The ENDOFIX<sup>EXO</sup> is maintenance-free. It is also compatible with most commercially available operating tables and endoscopes.

### More efficiency in OR

As efficient working is possible, valuable operating time is saved.<sup>2</sup>

### Easy transport and storage

The ENDOFIX<sup>EXO</sup> TROLLEY allows easy transport between OR and space-saving storage when not in use.

### Enhancing your clinic's image

A modern and positive image is one of the most important competitive advantages. Show your progressiveness by using robotic surgery.

## BENEFITS FOR THE SURGEON



**90 %** of the surveyed surgeons report a significant relief in the OR thanks to robotic assistance.<sup>3</sup>

### Stable positioning, steady image

Thanks to its design, the ENDOFIX<sup>EXO</sup> is stable and vibration-free. It does not shake or tilt the horizon, the image is steady, enabling fatigue-free work.<sup>1,3</sup>

### Better vision

Guiding the scope using the CONTROL is very sensitive and precise. This minimizes soiling of the front lens.

### Ergonomic and relaxed working

Tensions in the neck and back, eye fatigue and the resulting pain and nausea can be significantly reduced.<sup>5</sup>

The ENDOFIX<sup>EXO</sup> supports the endoscope from above, leaving ample room for your instruments. There is no need to alter your workflow.<sup>1,3</sup>

### Straightforward handling

Working with the ENDOFIX<sup>EXO</sup> is very easy and intuitive. It is quickly attached on the operating table and covered with a STERILE COVER while the patient is being prepared for surgery.<sup>1,2</sup>

### Improved process coordination

As the surgeon positions the scope himself, there are no misunderstandings. The assistant can still take over the camera guidance for learning purposes.<sup>1,2</sup>

### Bimanual techniques welcome

The ENDOFIX<sup>EXO</sup> brings all relevant devices within reach of the surgeon's hands, allowing the surgeon to use one- and/ or two-handed techniques, which has a positive effect on the surgical result.<sup>1</sup>

1. Hintschich, C.A., Fischer, R., Seebauer, C. et al. A third hand to the surgeon: the use of an endoscope holding arm in endonasal sinus surgery and well beyond. *Eur Arch Otorhinolaryngol* 279, 1891–1898 (2022). <https://doi.org/10.1007/s00405-021-06935-x>

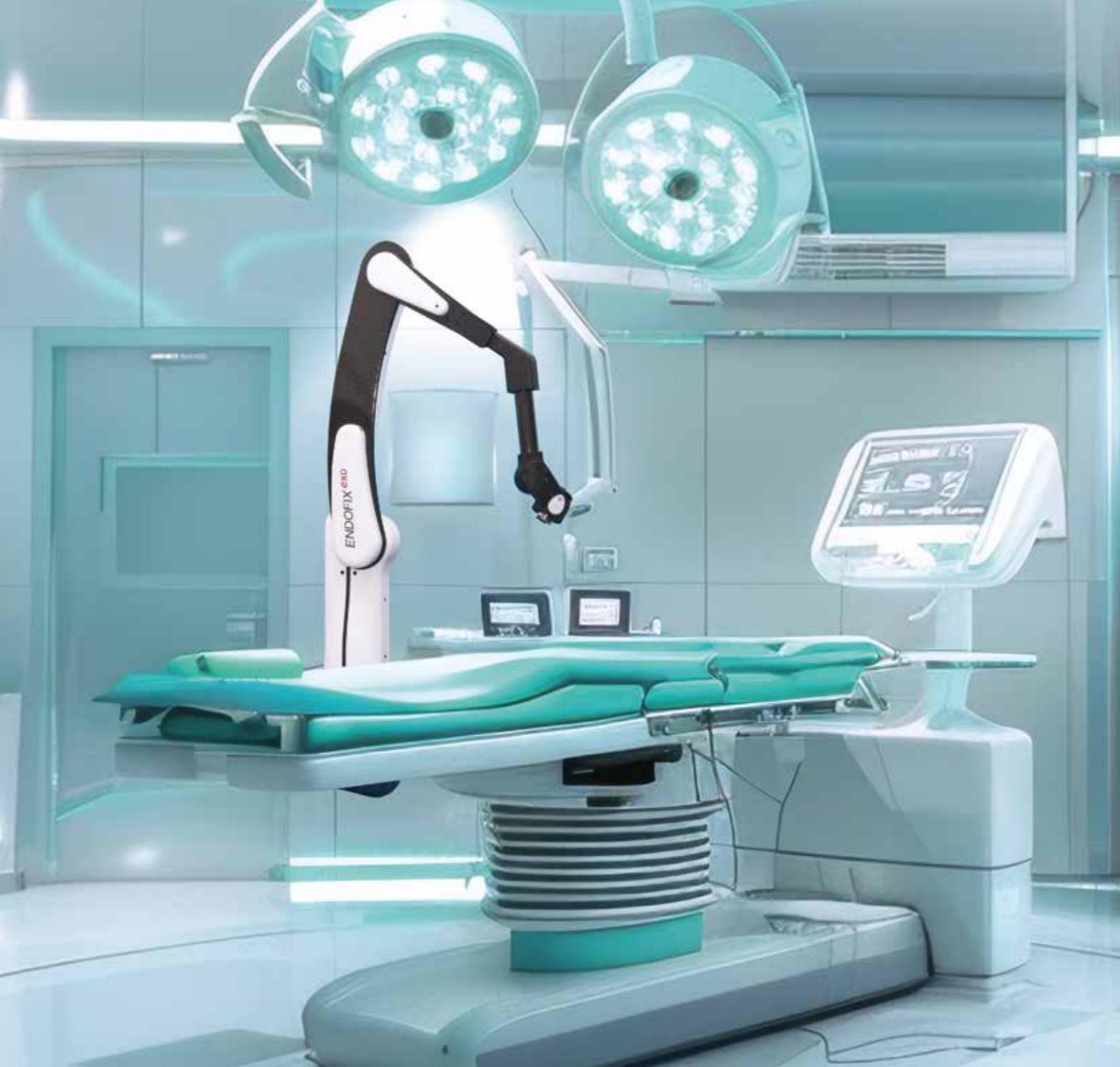
2. Giotakis AI, Giotakis EI, Kyrodimos E. The Value of the Endoscope-Holding Arm in Transoral Pharyngeal Surgery. *Journal of Clinical Medicine*. 2024; 13(2):507. <https://doi.org/10.3390/jcm13020507>

3. Park, J.-O., Kim, M.R., Park, Y.J., et al. Transoral endoscopic thyroid surgery using robotic scope holder: Our initial experiences. *J Minim Access Surg*. 2020 Jul-Sep;16(3):235-238. doi: 10.4103/jmas.JMAS\_12\_19. PMID: 31031326; PMCID: PMC7440021

4. Lin YY, Hsieh MJ, Wu CY, Yang LY, Pan YB, Wu CF, Gonzalez-Rivas D, Chao YK. Comparison of active versus passive robotic-endoscope-holder-assisted unisurgeon uniportal thoracoscopic surgery in terms of surgical efficacy and patient safety. *J Thorac Dis* 2023;15(7):3800-3810. doi: 10.21037/jtd-23-19

5. Dixon F, Vitish-Sharma P, Khanna A, Keeler BD, Work-related musculoskeletal pain and discomfort in laparoscopic surgeons: an international multispecialty survey. *Ann R Coll Surg Engl* 2023; 105: 734–738. <https://doi.org/10.1308/rcsann.2023.0024>

6. Sinclair DR, Chung F, Mezei G: Can Postoperative Nausea and Vomiting Be Predicted? *Anesthesiology*. 1999;91(1):109–18. Doi:10.1097/0000542-199907000-00018



## ABOUT OUR SYSTEM



### *ENDOFIX* **exo**

**Manual, easy to use support arm for holding and guiding scopes**

In modern ENT and Skullbase Surgery, microscopic techniques are increasingly replaced by endoscopic surgery. When working endoscopically, the surgeon's field of vision increases significantly\* and his/ her position becomes more ergonomic.

With the development of the ENDOFIX <sup>exo</sup>, an intuitively movable manual support arm is now available. It ensures the stable and sensitive positioning of the scope and enables the surgeon to use one and/ or two hands techniques, which has a positive effect on the surgical result.

Since the ENDOFIX <sup>exo</sup> can be used with both, endoscope and exoscope, it is also the perfect assistant in Open Surgery.



# ABOUT OUR SYSTEM



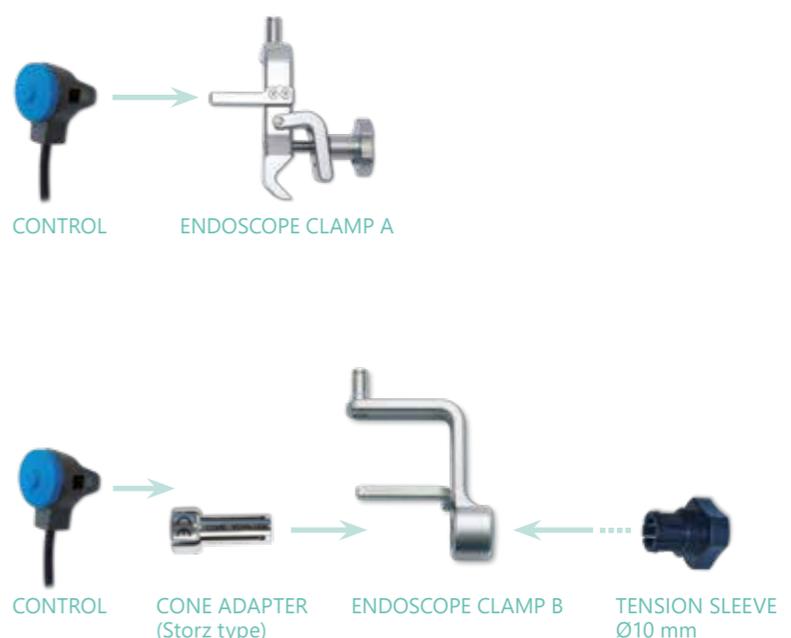
Mount setting for scopes with cylindrical eyepiece Ø7-20 mm



Mount setting for scopes with Ø10 mm or Storz-type cone



# ABOUT OUR SYSTEM



## Optimum usability

In minimally invasive procedures, particularly in ENT and Skullbase Surgery, the surgeon prefers to work alone and with his/ her two hands. We have developed the ENDOFIX<sup>EXO</sup> to perfectly meet these requirements.

The ENDOFIX<sup>EXO</sup> is equipped with a counter-balance to compensate the weight of the scope and the camera head.

Complete weight compensation is achieved in a middle cantilever position. The scope is held seemingly weightless.

The ENDOFIX<sup>EXO</sup> is supporting the scope from above leaving the surgeon sufficient space for instruments and ergonomic two-handed working. An ideal condition for comfortable surgical work.

## How to control the ENDOFIX<sup>EXO</sup> ?

The ENDOFIX<sup>EXO</sup> is ready to operate once the green LED on the DEACTIVATION PUSHBUTTON is lit. Before surgery, the arm is moved and pulled into the required position by pressing the DEACTIVATION PUSHBUTTON. When the button is released, the arm is locked and remains in the set position. During surgery the ENDOFIX<sup>EXO</sup> is operated with the CONTROL.

The CONTROL is designed for intuitive and ergonomic operation of the ENDOFIX<sup>EXO</sup>. Thanks to the CONTROL the scope can be moved very precisely. The CONTROL is connected to the ENDOSCOPE CLAMPS within reach of the surgeon's fingers. Both, CONTROL and ENDOSCOPE CLAMPS are designed to be reprocessed.

# ABOUT THE ENDOFIX<sup>exo</sup>

A finely tuned system of components allows the adaptation to most commercially available scopes. The CONTROL and the scopes can be attached to the ENDOFIX<sup>exo</sup> with the ENDOSCOPE CLAMPS.

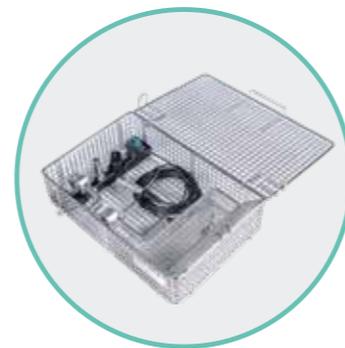
The components of the ENDOFIX<sup>exo</sup> like CONTROL, ENDOSCOPE CLAMP A, ENDOSCOPE CLAMP B, TENSION SLEEVE and CONE ADAPTER are multi-use and can be reprocessed in our STERILISATION TRAY.

Before every intervention the ENDOFIX<sup>exo</sup> is covered by a single-use STERILE COVER.

After the surgical procedure, the ENDOFIX<sup>exo</sup> is hung onto the TROLLEY which is designed for easy and safe transport and storage of our systems.



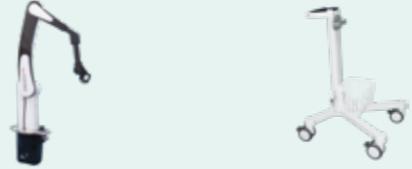
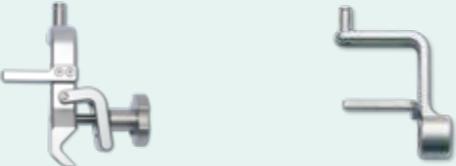
Quick-coupling device for easy mounting to any surgical table with standard rail



STERILISATION TRAY for reprocessing our autoclavable components

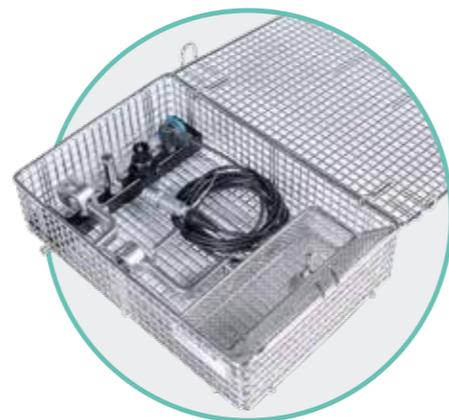


# SYSTEM COMPONENTS & ACCESSORIES

	<p><b>ENDOFIX<sup>exo</sup> Support Arm / TROLLEY</b> Thanks to its quick-coupling device for easy mounting to any surgical table with standard rail. The TROLLEY is designed for safe transport and storage of our robotic arms.</p>
	<p><b>CONTROL*</b> For controlling and positioning the ENDOFIX<sup>exo</sup></p>
	<p><b>ENDOSCOPE CLAMP A* / ENDOSCOPE CLAMP B*</b> For attaching the scope and CONTROL to the ENDOFIX<sup>exo</sup></p>
	<p><b>TENSION SLEEVE D10*</b> For Ø10 mm diameter scopes</p>
	<p><b>CONE ADAPTER*</b> For scopes with Storz type cone</p>
	<p><b>STERILISATION TRAY*</b> Developed for simultaneous autoclaving of all reprocessable components</p>
	<p><b>STERILE COVER</b> Before every intervention the ENDOFIX<sup>exo</sup> is covered by a single-use STERILE COVER.</p>

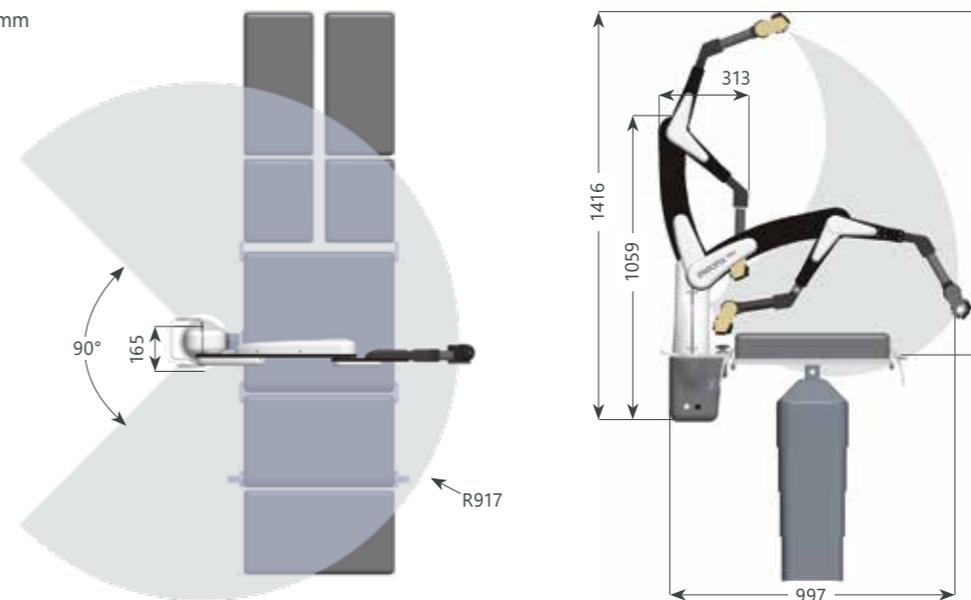
\* autoclavable part

# ORDERING THE ENDOFIX<sup>exo</sup> SYSTEM\*



# TECHNICAL SPECIFICATION

All dimensions ± 5 mm



Article number	Designation	Content / Description
171912	ENDOFIX EXO SET	<ul style="list-style-type: none"> <li>• 1 ENDOFIX<sup>exo</sup></li> <li>• 1 TROLLEY</li> </ul>
171909	BUNDLE EXO CONTROL	<ul style="list-style-type: none"> <li>• 1 CONTROL</li> <li>• 3 STERILE COVER PU/ 50 ea.</li> </ul>
182233	ENDOSCOPE CLAMP A	For attaching scopes with cylindrical eyepiece Ø7-20 mm
151686	ENDOSCOPE CLAMP B	For attaching scopes with Ø10 mm diameter or Storz-type cone
141339	TENSION SLEEVE D10	For connecting scopes with Ø10 mm diameter and for CONE ADAPTER; with ENDOSCOPE CLAMP B
171927	CONE ADAPTER	For attaching scopes with Storz-type cone to TENSION SLEEVE D10
110084	STERILE COVER PU/ 50 ea.	Pack of 50 individually packed STERILE COVER for ENDOFIX <sup>exo</sup>
141527	STERILISATION TRAY	Special STERILISATION TRAY for ENDOFIX <sup>exo</sup> sterilisable parts including a SMALL PARTS TRAY
171906	CONTROL	For controlling and positioning the ENDOFIX <sup>exo</sup>

Feature	ENDOFIX <sup>exo</sup>
Approval	CE (class I), FDA 510 (k)
Supply voltage	100 - 240 Volt, 50 - 60 Hz
Maximum power consumption	60 VA
Size	313 x 165 x 1059 mm
Weight	12.0 kg
Safe working load	1.0 kg
Lockable axis	6
CONTROL & ENDOSCOPE CLAMPS	Multiuse
Endoscope size	7 to 20 mm cylindrical eyepiece, 10 mm or with Storz-type cone
OR table adaption	Quick fastener, suitable for OR tables with European and US size rails, UK rails with additional adapters



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