AKTORmed
ROBOTIC SURGERY

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

BENEFITS FOR THE PATIENT

Positive effect on surgical result

Using the ENDOFIX exo 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.[1,3]

Less postoperative risk

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

Reduced waiting times

The ENDOFIX exo 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.[1,2]

BENEFITS FOR THE CLINIC

Better scheduling efficiency

Thanks to the ENDOFIX exo the surgeon guides the scope him/ herself and simple procedures can be performed without further assistance.[1,2]

Since the ENDOFIX exo is always available, it is the ideal partner in case of emergencies or staff shortages.[1]

Maintenance-free and compatible

The ENDOFIX exo 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.[2]

Easy transport and storage

The ENDOFIX exo 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.[3]

Stable positioning, steady image

Thanks to its design, the ENDOFIX exo is stable and vibration-free. It does not shake or tilt the horizon, the image is steady, enabling fatigue-free work.[1,3]

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.[5]
The ENDOFIX exo supports the endoscope from above, leaving ample room for your instruments. There is no need to alter your workflow.[1,3]

Straightforward handling

Working with the ENDOFIX exo 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.[1,2]

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.[1,2]

Bimanual techniques welcome

The ENDOFIX exo 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.[1]

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:10.1097/00000542-199907000-00018

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 exo to perfectly meet these requirements.

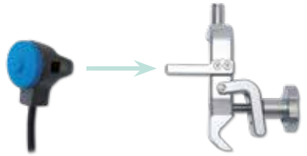
The ENDOFIX exo is equipped with a counter-balance to compensate the weight of the scope and the camera head.

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

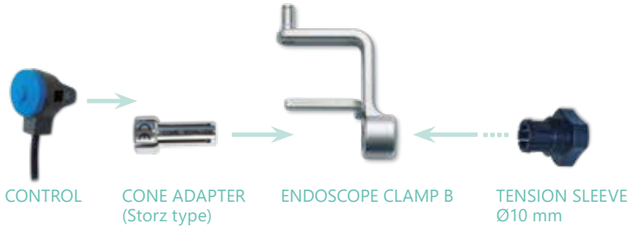
The ENDOFIX exo is supporting the scope from above leaving the surgeon sufficient space for instruments and ergonomic two-handed working. An ideal condition for comfortable surgical work.

ABOUT OUR SYSTEM

Mount setting for scopes with cylindrical eyepiece Ø7-20 mm



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



How to control the ENDOFIX exo ?

The ENDOFIX exo 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 exo is operated with the CONTROL.

The CONTROL is designed for intuitive and ergonomic operation of the ENDOFIX exo. 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.

No true-to-scale representation within the parts. Magnification scale differs greatly.

ABOUT THE ENDOFIX exo

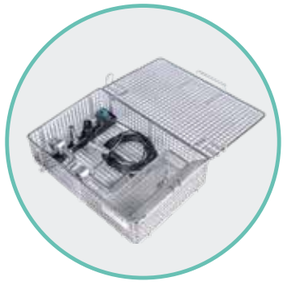
A finely tuned system of components allows the adaptation to most commercially available scopes. The CONTROL and the scopes can be attached to the ENDOFIX exo with the ENDOSCOPE CLAMPS.

The components of the ENDOFIX exo 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 exo is covered by a single-use STERILE COVER.

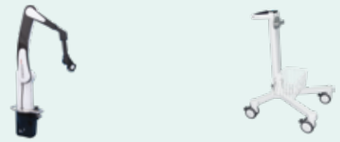
After the surgical procedure, the ENDOFIX exo is hung onto the TROLLEY which is designed for easy and safe transport and storage of our systems.

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



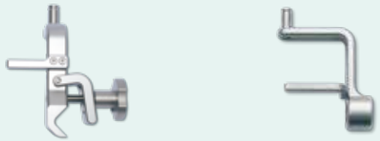
STERILISATION TRAY for reprocessing our autoclavable components

SYSTEM COMPONENTS & ACCESSORIES



ENDOFIX exo Support Arm / TROLLEY
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.

CONTROL *
For controlling and positioning the ENDOFIX exo



ENDOSCOPE CLAMP A * / **ENDOSCOPE CLAMP B** *
For attaching the scope and CONTROL to the **ENDOFIX exo**

TENSION SLEEVE D10 *
For ∅10 mm diameter scopes

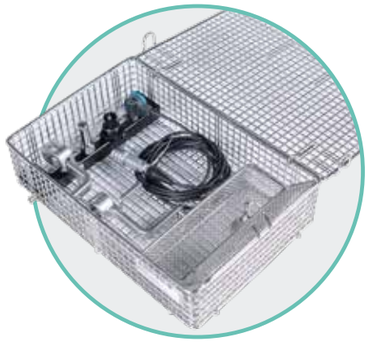
CONE ADAPTER *
For scopes with Storz type cone

STERILISATION TRAY *
Developed for simultaneous autoclaving of all reprocessable components

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

* autoclavable part

ORDERING THE ENDOFIX exo SYSTEM*

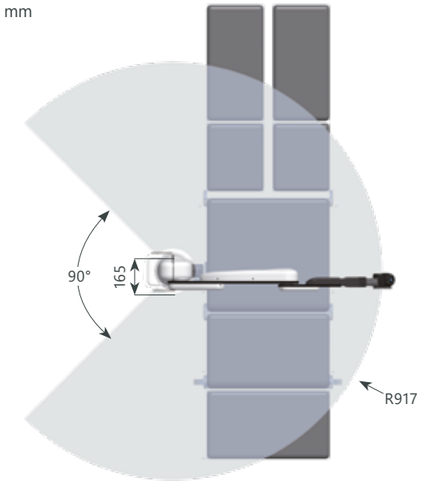


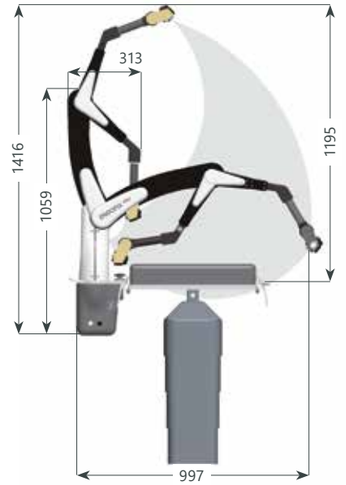
Article number	Designation	Content / Description
171912	ENDOFIX EXO SET	• 1 ENDOFIX exo • 1 TROLLEY
171909	BUNDLE EXO CONTROL	• 1 CONTROL • 3 STERILE COVER PU/ 50 ea.
182233	ENDOSCOPE CLAMP A	For attaching scopes with cylindrical eyepiece Ø7-20 mm
151686	ENDOSCOPE CLAMP B	For attaching scopes with Ø10 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 exo
141527	STERILISATION TRAY	Special STERILISATION TRAY for ENDOFIX exo sterilisable parts including a SMALL PARTS TRAY
171906	CONTROL	For controlling and positioning the ENDOFIX exo

* This list is only an excerpt and not exhaustive.

TECHNICAL SPECIFICATION

All dimensions ± 5 mm





Feature	ENDOFIX exo
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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