

Rigid Endoscope

Operator's Manual

(M 01030A/M 01000A/M 01030PA/M 01000PA/G 01030A/
G 01000A/G 01030PA/G 01000PA/M 00530A/G 00530A/
M 00500A/G 00500A/M 10530A/G 10530A/M 10500A/
G 10500A/M 00530PA/G 00530PA/M 00500PA/G 00500PA/
M 10530PA/G 10530PA/M 10500PA/G 10500PA)



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- Release time: 2023-5
- Revision: 1.0

NOTE

- "PA" in the model indicates that endoscope of this model is not configured with light cable adapter, Storz.
 - In addition to the difference of basic parameters above, there are differences in some optical parameters between the 10 mm series and 5 mm series.
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2.11 Product Components

Taking M 00500A as an example, this product consists of the following parts:



- (1) Eyepiece
- (2) Main body
- (3) Light cable connector (available for ACMI/Olympus Pro light cables)
- (4) Light cable adapter (available for Mindray/Richard Wolf light cables)
- (5) Light cable adapter (available for STORZ light cables)
- (6) Objective lens

3.5 Inspection Description

Before cleaning, disinfecting, or sterilizing the equipment, check the equipment using the following steps.

3.5.1 Visual Inspection

1. Check whether the sapphire surfaces of the eyepiece and objective lens are damaged, cracked or contaminated. Ensure that they are clean and smooth.
2. Check whether the lens body is bent, sunken, cracked or contaminated, ensuring it is clean and intact.
3. Ensure there is no rough surface, sharp edges or protrusions on the parts that will be put inside the patient.
4. Check whether all moving parts and sealed parts function well.
5. If any damage is detected, refer to **5.1 Common Faults and Solutions** for solutions. If the problem persists, contact your service personnel.

WARNING

- **Using this product with any sharp edges or broken surfaces will put patients at risk. So before each use, check and ensure there are no unintended rough surfaces, sharp edges or protrusions which may cause harm.**
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3.5.2 Inspection of Fiber Optics

1. Put the objective lens of the endoscope in front of the eye.
2. Point the objective lens at a bright light source, such as an indoor lighting source, other than a cold light source, and slightly move the distal end of the endoscope.
3. Observe whether any black dots or distortion exists in your field of view. If yes, do not use the endoscope and contact your service personnel.

NOTE

- Do not use the equipment if surfaces of the fiber optics, sapphire, or lens body have been damaged or if there are stains on the surfaces. For any problem, contact your service personnel.
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3.5.3 Inspection of Image Quality

1. Place a piece of paper with text about 50 mm in front of the objective lens.
2. Observe whether image blurring, loss of focus, or dark area exists in your field of view. If yes, replace the endoscope.

3.6 Device Connection

This equipment can be connected to devices including endoscopic camera system and light source, assisting in endoscopic diagnosis and treatment.

The equipment meets the requirements of type CF applications. Other medical devices used at the same time as this equipment during the surgery should at least meet the requirements for type CF applications.

WARNING

- Before use, the operator must check the equipment, cables and accessories, to ensure they work properly and safely.
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3.7 Connecting the Endoscope

1. Connect the connector (to endoscope) of the light cable to the light cable connector of the endoscope, as shown in the figure below:

- **The product is very sensitive to impacts at high temperature, so avoid impacting and vibrating the product at high temperatures.**

Before sterilization, please place the endoscope in the sterilization tray, and then wrap with two polypropylene sterilization wrap.

Recommended sterilization methods that have been verified:

Sterilization Type	Applicable Model
Autoclave sterilization	M 01030A, M 01000A
Ethylene oxide sterilization	M 01030A, M 01000A, M 01030, M 01000

4.4.1 Autoclave sterilization

For the loading method of autoclave sterilization, please refer to the operating instructions of the corresponding sterilizer. As the sterilizer and its operating conditions may affect sterilization, it is suggested that the sterilization process be reconfirmed and monitored before sterilization in accordance with the international standards (such as ISO 17665), national standards, or hospital sterilization management rules related to autoclave sterilization.

The sterilizer must be certified in accordance with DIN EN 285 and tested in accordance with DIN EN ISO 17665.

Autoclave sterilization parameters are as follows:

Sterilization process	Temperature	Exposure time
Gravity displacement	121°C	30 min
Pre-vacuum	134 °C	5 min

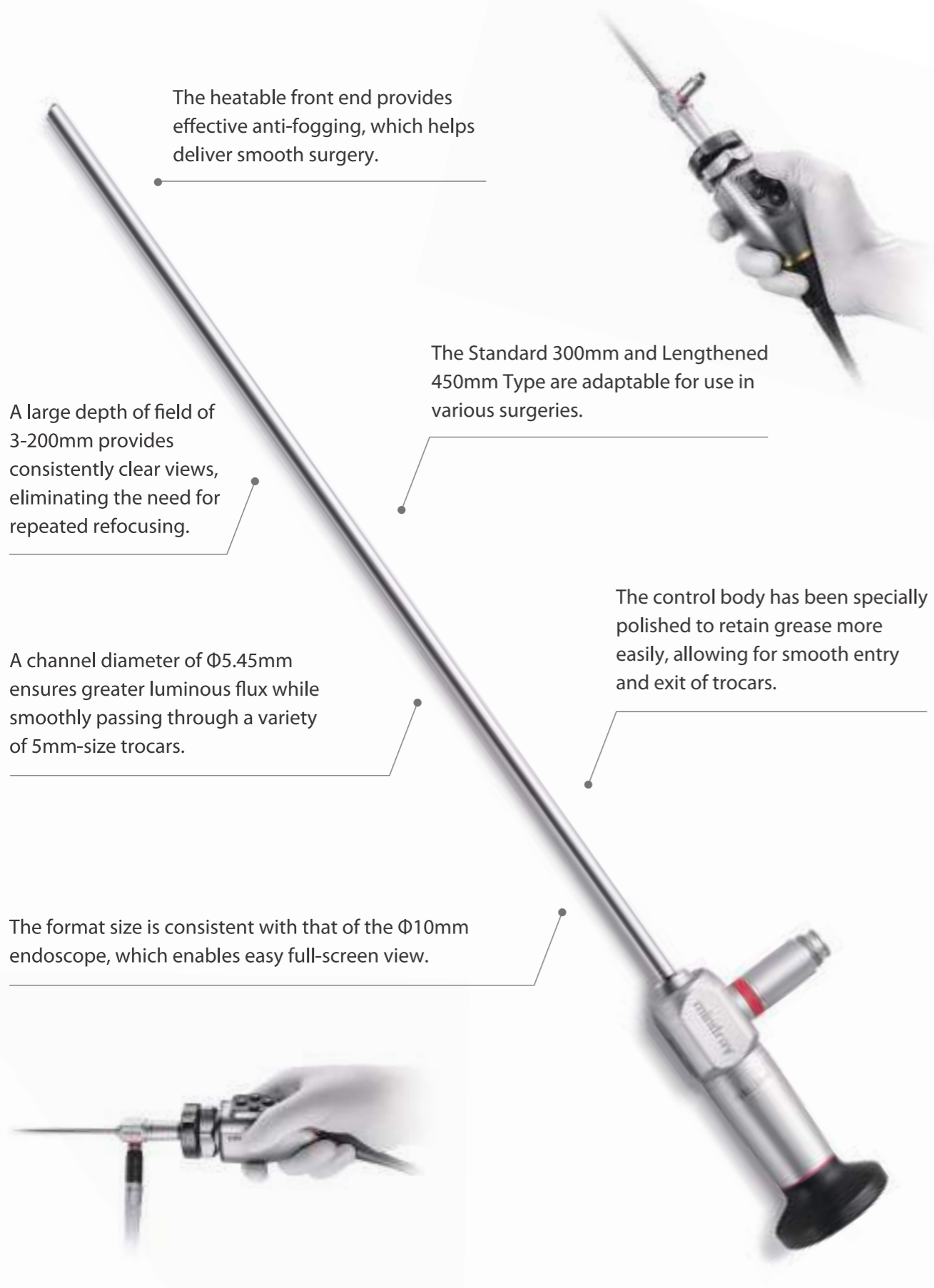
Sterilization tolerance cycle: 500 times.

Rigid Endoscope

Small Diameter, Big Vision



Small Diameter, Big Vision



The heatable front end provides effective anti-fogging, which helps deliver smooth surgery.

A large depth of field of 3-200mm provides consistently clear views, eliminating the need for repeated refocusing.

A channel diameter of $\Phi 5.45\text{mm}$ ensures greater luminous flux while smoothly passing through a variety of 5mm-size trocars.

The format size is consistent with that of the $\Phi 10\text{mm}$ endoscope, which enables easy full-screen view.

The Standard 300mm and Lengthened 450mm Type are adaptable for use in various surgeries.

The control body has been specially polished to retain grease more easily, allowing for smooth entry and exit of trocars.

Rigid Endoscope

Standard 5mm Type

G Series - Compatible with fluorescent & white light

Recommended Surgery: Single-port gynecologic surgery, thoracic surgery

Product	Diameter	Working Length	Field of View	Code
0° →	5.45mm	300mm	85°	G 00500A
30° ↗	5.45mm	300mm	85°	G 00530A

Lengthened 5mm Type

G Series - Compatible with fluorescent & white light

Recommended Surgery: Single-port gynecologic surgery, single-port bariatric surgery, breast and thyroid surgery

Product	Diameter	Working Length	Field of View	Code
0° →	5.45mm	450mm	85°	G 10500A
30° ↗	5.45mm	450mm	85°	G 10530A

Standard 10mm Type

M Series - Applicable with white light

Recommended Surgery: General Surgery

Product	Diameter	Working Length	Field of View	Code
0° →	10mm	321mm	80°	M 01000A / G 01000A
30° ↗	10mm	321mm	80°	M 01030A / G 01030A

Rigid Endoscope Tray



Product Name	Placed Items	Dimensions (mm)	Code
Small Rigid Endoscope Tray	Standard 5 or 10mm Rigid Endoscope	496×90×44	X TR500944
Long Rigid Endoscope Tray	Lengthened 5mm or 3D Electronic Endoscope	643×158×75	X TR641675

10&5mm Rigid Endoscope

Small Diameter, Big Vision



A. Product Models

Series	Models
5mm M series	M 00530A/M 00500A/M 00530PA/M 00500PA M 10530A/M 10500A/M 10530PA/M 10500PA
5mm G series	G 00530A/G 00500A/G 00530PA/G 00500PA G 10530A/G 10500A/G 10530PA/G 10500PA
10mm M series	M 01030A/M 01000A/M 01030PA/M 01000PA
10mm G series	G 01030A/G 01000A/G 01030PA/G 01000PA

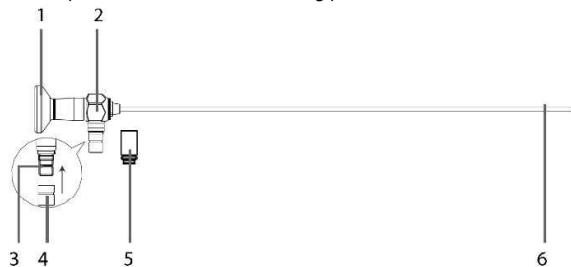
B. Working Mode

A light cable adapter is used to connect the endoscope and light cables with different connectors so that the light cables work together with cold light source to illuminate the observed site. The eyepiece is connected to the camera system so that images of the observed site are transmitted to the monitor for observation. The product provides high transmittance and correction of color distortions in the range of 420 nm to 900 nm.

After the endoscope is connected to light source, its tip is continuously heated, providing an anti-fogging effect.

C. Product Components

this product consists of the following parts:



- (1) Eyepiece
- (2) Main body
- (3) Light cable connector (available for ACMI/Olympus Pro light cables)
- (4) Light cable adapter (available for Mindray/Richard Wolf light cables)
- (5) Light cable adapter (available for STORZ light cables)
- (6) Objective lens

D. Outline Structure Diagram



M series

E. Product Specifications

E.1 Physical Specifications

Model	Weight
M 01000A/ M 01000PA/G 01000A/ G 01000PA M 01030A/ M 01030PA/G 01030A/ G 01030PA	≤ 220g
M 00530A/M 00530PA/G 00530A/G 00530PA M 00500A/M 00500PA/G 00500A/G 00500PA	≤ 130g
M 10530A/M 10530PA/G 10530A/G 10530PA M 10500A/M 10500PA/G 10500A/G 10500PA	≤ 145g

E.2 Basic Parameters

Model	Field of View	Direction of View	Working Length	Max. Width of Insertion Portion
M 01000A/ M 01000PA G 01000A/ G 01000PA	80° ±15%	0° ±10°	321mm ±3%	Φ10mm
M 01030A/ M 01030PA G 01030A/ G 01030PA	80° ±15%	30° ±10°	321mm ±3%	Φ10mm
M 00530A/M 00530PA G 00530A/G 00530PA	85° ±15%	30° ±10°	300mm ±3%	Φ5.45mm
M 00500A/M 00500PA G 00500A/G 00500PA	85° ±15%	0° ±10°	300mm ±3%	Φ5.45mm
M 10530A/M 10530PA G 10530A/G 10530PA	85° ±15%	30° ±10°	450mm ±3%	Φ5.45mm
M 10500A/M 10500PA G 10500A/G 10500PA	85° ±15%	0° ±10°	450mm ±3%	Φ5.45mm

E.3 Optical properties

Model	10mm series	5mm series
Design optical working distance d0	50mm	50mm
Resolution of central angle of field of view	7.0 C/(°), -10%,	8.0 C/(°), -10%,
Depth of View	3~200mm	3~200mm
A Class Color Rendering Index Ra	91	88
D65 Class Color Rendering Index Ra	90	80
Illumination endoscopic light effect ILeR	0.4	0.6
Comprehensive lens light effect SLeR	0.6	0.6
Integrated edge light effect SLe-Z	0.13	0.2
Effective Photometric Rate (cd/ (m ² *lm))	400	600
Unit relative distortion VU-Z (%)	6%	25%