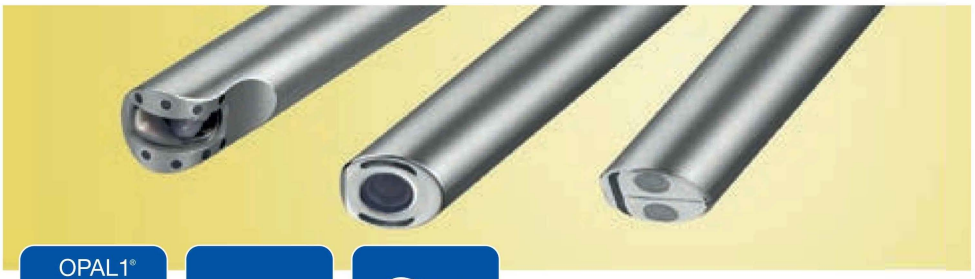
KARL STORZ Telescopes – The Original
mORe to discover

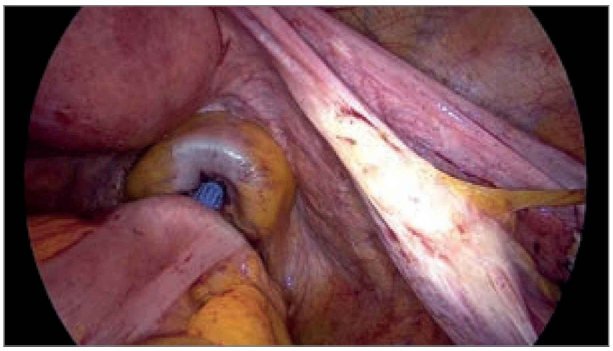


OPAL1®
NIR/ICG
4K
3D

STORZ
KARL STORZ — ENDOSKOPE

Application Images from KARL STORZ HOPKINS® Telescopes

- Illumination and depth of field of an intraabdominal operative field while viewing tissue, e.g., in diagnostic laparoscopy.
- Sharpness of detail while performing anastomoses such as, for example, colonic anastomoses, esophageal anastomoses and gastric bypass anastomoses.



Prof. Dr. Dr. Martin Walz,
Kliniken Essen Mitte, Germany

Prof. Dr. med. Ralf Rothmund,
Lindenhofhospital, Berne,
Switzerland

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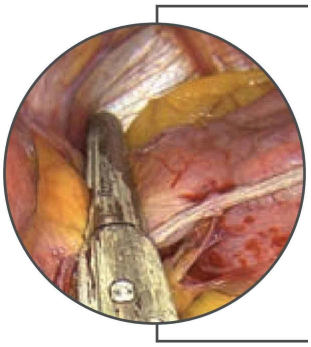
Lindenhofhospital, Berne,
Switzerland

Prof. Dr. Dr. Martin Walz,
Kliniken Essen Mitte, Germany

Application Images General and Visceral Surgery

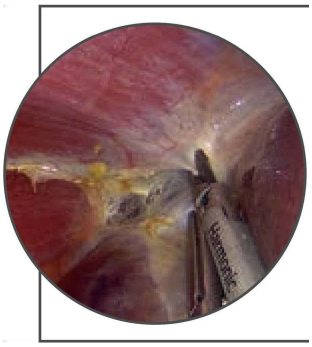


Bariatric Surgery

Sleeve gastrectomy

- Complete visualization of the gastroesophageal junction
- 45° – 90°

Prof. Carus, Germany



Liver Segment Resection

- Better visualization of the postero-superior segments of the liver
- 45°

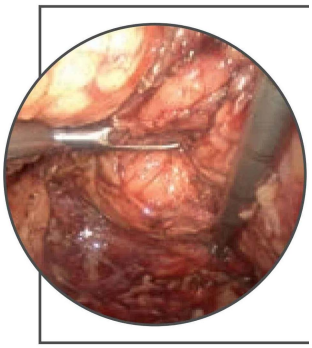
Prof. Abu Hilal, Italy

Hernia Surgery

TEP

- Complete visualization of the hernial sac
- 45°

Prof. Boni, Italy



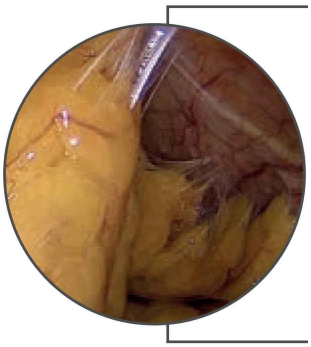
Colorectal Surgery

Rectum resection

- Complete visualization of the anastomosis
- 30° – 90°

Dr. Kanehira, Japan

Gynecology

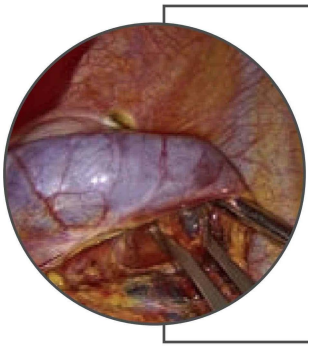


Adnectomy

- Better visualization of various adhesions for easier adhesiolysis
- 90°

Dr. Wojdat, Germany

Thoracic Surgery



VATS Lobectomy

- Better visualization during lymph node resection
- 45°

Dr. Kugler, Germany

HOPKINS® Rubina™ NIR/ICG Telescopes – IMAGE1 S™ 4U Rubina™

The new RUBINA™ NIR/ICG telescopes with the HOPKINS® rod lens system provide very good image quality. Optimized focus of the tissue to be viewed and the illumination of the operative field are the main features of these telescopes. The HOPKINS® RUBINA™ NIR/ICG telescopes were specially designed for use with the new IMAGE1 S™ 4U RUBINA™ camera system. The telescopes form the basis for a high-quality 4K imaging technology which enables fluorescence imaging in the near infrared range via indocyanine green (ICG). The KARL STORZ NIR/ICG imaging chain features three new visualization possibilities: Overlay, Monochromatic and Intensity Map to provide the user with additional information.

The HOPKINS® RUBINA™ NIR/ICG telescopes are also backward compatible with the IMAGE1™ S H3-Z FI camera head and the D-LIGHT P light source for a complete HD imaging chain.

The HOPKINS® RUBINA™ NIR/ICG telescopes are recognizable by the new OPAL1® logo and the NIR/ICG lettering.

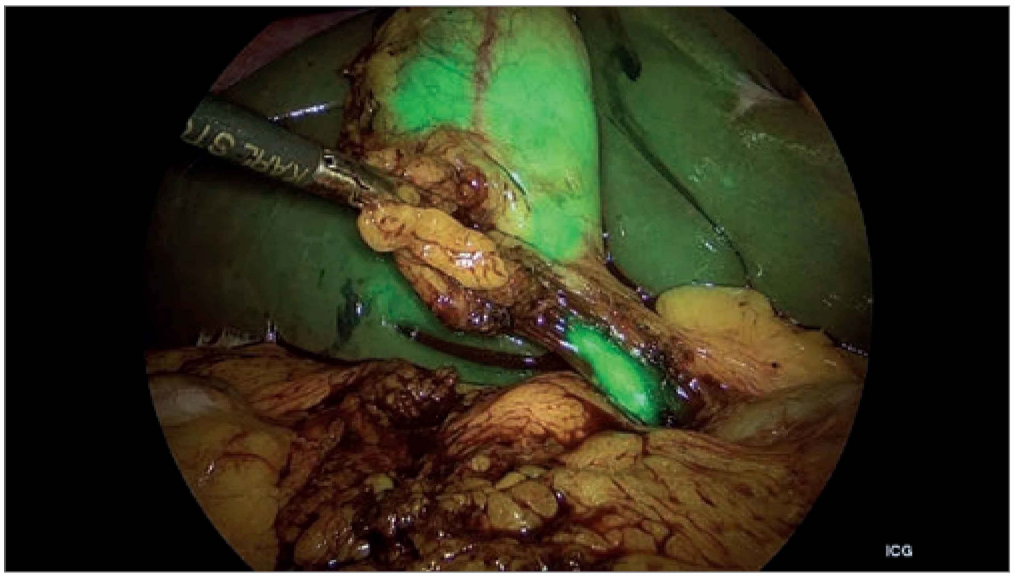
Specially coordinated optical system in combination with IMAGE1 S™ 4U RUBINA™ and the POWER LED RUBINA™ light source.

- Optimized illumination of the operative field
- No refocusing required when switching between the white light and NIR modes
- Selection of different viewing angles, i.e. 0°, 30° and 45°
- Available in diameters 5 mm and 10 mm

Click here to view the application video for the new HOPKINS® RUBINA™ NIR/ICG telescopes.

Fluorescence Imaging with the New HOPKINS® Rubina™ NIR/ICG Telescopes

Visualization of the gallbladder and the bile ducts



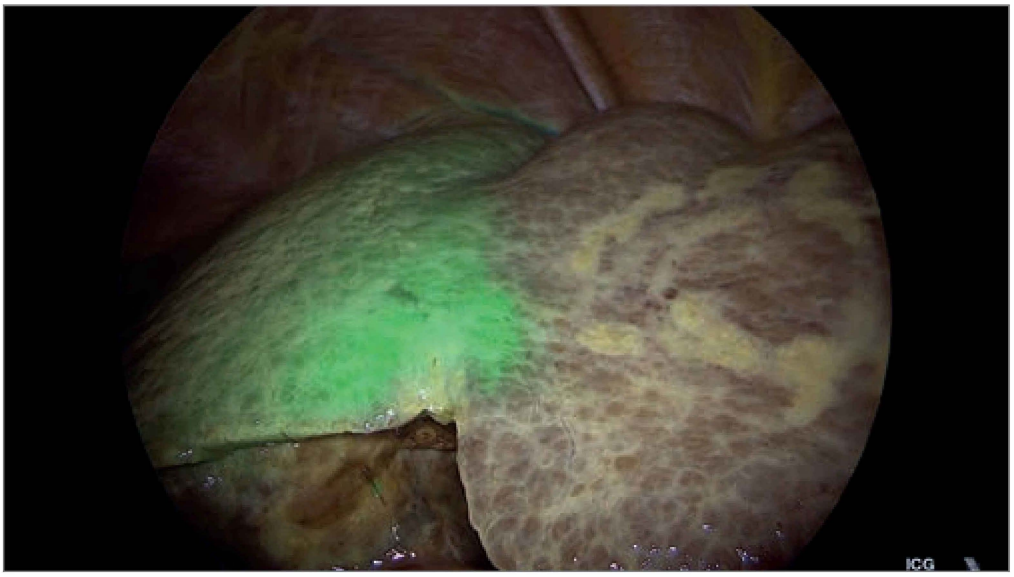
Prof. Luigi Boni, IRCCS - Ca' Granda, Policlinico Hospital, University of Milan, Milan, Italy

- Superimposed NIR/ICG signal in white light image

Prof. Salvador Morales Conde, Quirónsalud Sagrado Corazón Hospital, Seville, Spain

- Near infrared mode in monochromatic color display

Visualization of liver metastases, liver tumors and bile leakage



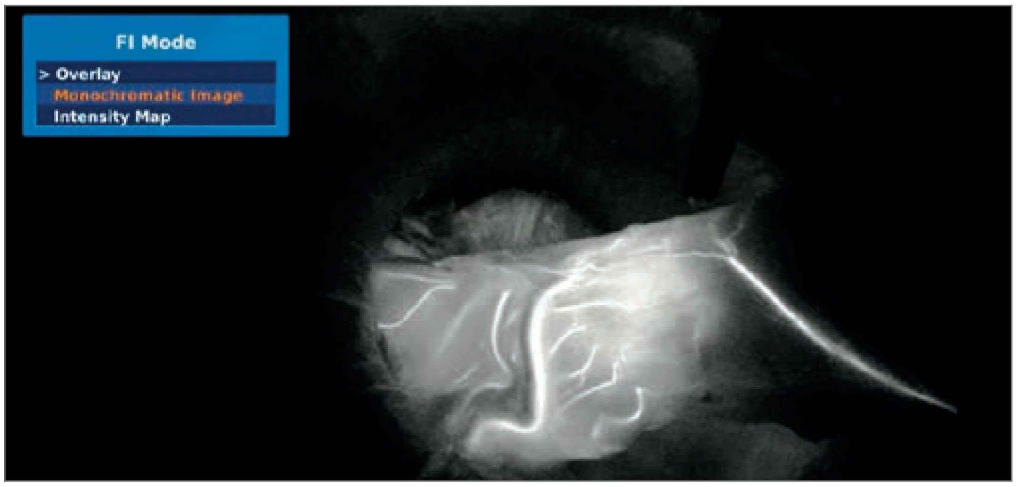
Prof. Go Wakabayashi, Ageo Central General Hospital, Japan

- Superimposed NIR/ICG signal in white light image

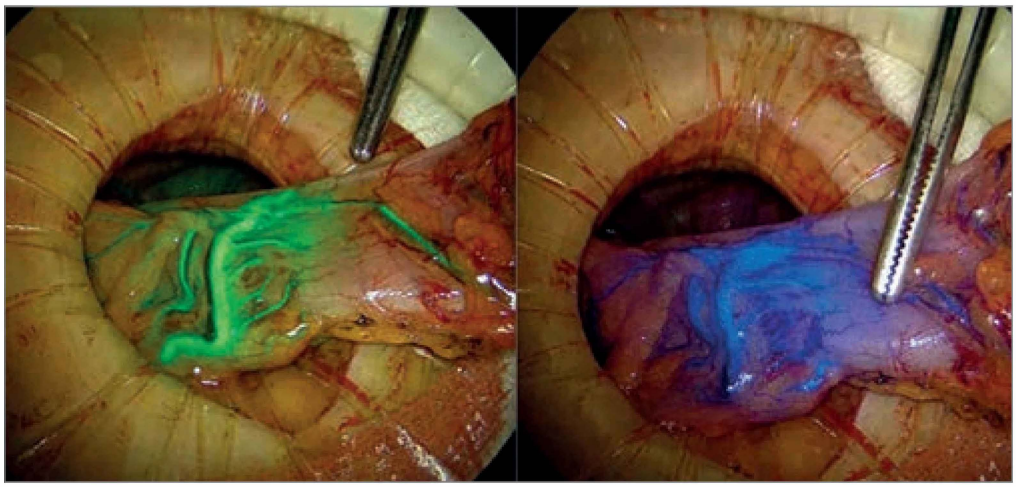
Visualization of perfusion, e.g., colorectal anastomoses

Prof. Salvador Morales Conde, Quirónsalud Sagrado Corazón Hospital, Seville, Spain

- Intensity display of the NIR/ICG signal



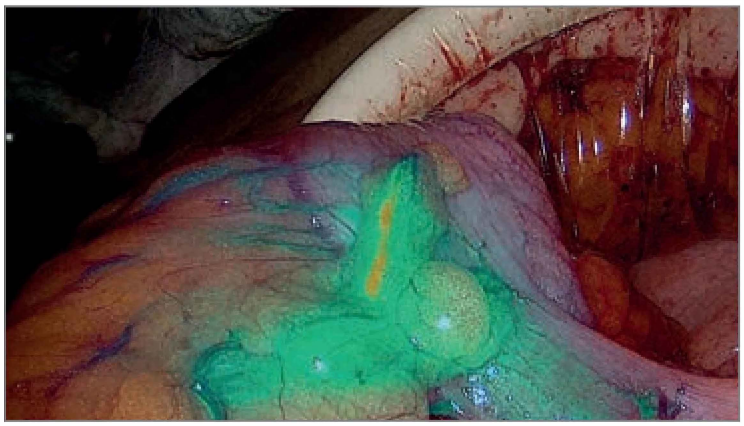
- Near infrared mode in monochromatic color display



Prof. Luigi Boni, IRCCS - Ca' Granda, Policlinico Hospital, University of Milan, Milan, Italy

- Superimposed NIR/ICG signal in white light image

Visualization of the lymphatic system



Michael Zünd, M.D., Kantonsspital Baar, Switzerland

- Intensity display of the NIR/ICG signal

TIPCAM®1 Rubina™ – The New 4K-3D Videoendoscope

TIPCAM®1 RUBINA™ provides surgeons with excellent depth perception. This stereoscopic system offering 3D in 4K quality is particularly helpful when performing activities that require spatial vision.

- 4K imaging chain
- 4K-3D videoendoscope with 10 mm diameter as well as 0° and 30° directions of view
- Easy toggle from 3D to 2D

- Automatic horizon control for better orientation and handling

- Visualization of NIR/ICG
- Easy integration into the IMAGE1 S™ platform

3D in 4K image quality

The new TIPCAM®1 RUBINA™ features two 4K sensors that are integrated into the distal end of the videoendoscope. TIPCAM®1 RUBINA™ can still be used as a 2D or 3D videoendoscope. Image processing takes place in the IMAGE1 S™ camera system.

Automatic horizon control

In order to offer the user a stable image horizon, the new TIPCAM®1 RUBINA™ is equipped with an automatic horizon control function in both the 2D and 3D modes. This function offers the user better orientation and handling and is called “autorotation” if TIPCAM®1 RUBINA™ is used in the 2D mode and “autoswitch” if used in the 3D mode.

NIR/ICG functionalities

The new TIPCAM®1 RUBINA™ will offer the following NIR/ICG modes – in 2D and 3D:

- Overlay: This mode displays the superimposed NIR/ICG signal in the white light image. The background illumination is retained so that structures, tissue etc. remain visible.
- Monochromatic: This mode is a pure near infrared mode in a monochromatic color display.
- Intensity Map: The intensity of the NIR/ICG signal is displayed in the white light image whereby the background illumination is retained.

IMAGE1 S™ RUBINA®
- mORe to discover

White Light Telescopes:

HOPKINS® Telescopes, diameter 3.3 mm, length 25 cm

26007AA **HOPKINS® Straight Forward Telescope 0°,** enlarged view, diameter 3.3 mm, length 25 cm, **autoclavable,** fiber optic light transmission incorporated, color code: green

26007BA **HOPKINS® Forward-Oblique Telescope 30°,** enlarged view, diameter 3.3 mm, length 25 cm, **autoclavable,** fiber optic light transmission incorporated, color code: red

HOPKINS® Telescopes, diameter 5 mm, length 24 cm

26011AA **HOPKINS® Straight Forward Telescope 0°,** enlarged view, diameter 5 mm, length 24 cm, **autoclavable,** fiber optic light transmission incorporated, color code: green

26011BA **HOPKINS® Forward-Oblique Telescope 30°,** enlarged view, diameter 5 mm, length 24 cm, **autoclavable,** fiber optic light transmission incorporated, color code: red

HOPKINS® Telescopes, diameter 5 mm, length 29 cm

26046AA **HOPKINS® Straight Forward Telescope 0°,** enlarged view, diameter 5 mm, length 29 cm, **autoclavable,** fiber optic light transmission incorporated, color code: green

26046BA **HOPKINS® Forward-Oblique Telescope 30°,** diameter 5 mm, length 29 cm, **autoclavable,** fiber optic light transmission incorporated, color code: red

26046FA **HOPKINS® Telescope 45º,** enlarged view, diameter 5 mm, length 29 cm, **autoclavable,** fiber optic light transmission incorporated, color code: black

HOPKINS® Telescopes, diameter 10 mm, length 31 cm

26003AA **HOPKINS® Straight Forward Telescope 0°,** enlarged view, diameter 10 mm, length 31 cm, **autoclavable,** fiber optic light transmission incorporated, color code: green

26003BA **HOPKINS® Forward-Oblique Telescope 30°,** enlarged view, diameter 10 mm, length 31 cm, **autoclavable,** fiber optic light transmission incorporated, color code: red

26003FA **HOPKINS® Telescope 45º,** enlarged view, diameter 10 mm, length 31 cm, **autoclavable,** fiber optic light transmission incorporated, color code: black

HOPKINS® Telescopes, diameter 10 mm, length 42 cm

Recommended for surgery on adipose patients

26003AEA **HOPKINS® Straight Forward Telescope 0°,** enlarged view, diameter 10 mm, length 42 cm, **autoclavable,** fiber optic light transmission incorporated, color code: green

26003BEA **HOPKINS® Forward-Oblique Telescope 30°,** enlarged view, diameter 10 mm, length 42 cm, **autoclavable,** fiber optic light transmission incorporated, color code: red

26003FEA **HOPKINS® Telescope 45°,** enlarged view, diameter 10 mm, length 42 cm, **autoclavable,** fiber optic light transmission incorporated, color code: black

ENDOCAMELEON®:

26003EC **ENDOCAMELEON® HOPKINS® Telescope,** diameter 10 mm, length 31 cm, **autoclavable,** variable direction of view 0°-90°, with adjustment knob with fin for selecting the direction of view, fiber optic light transmission incorporated, color code: gold

NIR/ICG Telescopes:

26003ARA **HOPKINS® RUBINA™ 0°,** NIR/ICG, diameter 10 mm, straight-forward telescope 0°, enlarged view, diameter 10 mm, length 31 cm, **autoclavable,** for indocyanine green (ICG), fiber optic light transmission incorporated, color code: green

26003BRA **HOPKINS® RUBINA™ 30°,** NIR/ICG, diameter 10 mm, forward-oblique telescope 30°, enlarged view, diameter 10 mm, length 31 cm, **autoclavable,** for indocyanine green (ICG), fiber optic light transmission incorporated, color code: red

26003FRA **HOPKINS® RUBINA™ 45°,** NIR/ICG, diameter 10 mm, forward-oblique telescope 45°, enlarged view, diameter 10 mm, length 31 cm, **autoclavable,** for indocyanine green (ICG), fiber optic light transmission incorporated, color code: black

26003FREA **Same,** length 42 cm

26046ARA **HOPKINS® RUBINA™ 0°,** NIR/ICG, diameter 5 mm, straight-forward telescope 0°, enlarged view, diameter 5 mm, length 29 cm, **autoclavable,** for indocyanine green (ICG), fiber optic light transmission incorporated, color code: green

26046BRA **HOPKINS® RUBINA™ 30°,** NIR/ICG, diameter 5 mm, forward-oblique telescope 30°, enlarged view, diameter 5 mm, length 29 cm, **autoclavable,** for indocyanine green (ICG), fiber optic light transmission incorporated, color code: red

26046FRA **HOPKINS® RUBINA™ 45°,** NIR/ICG, diameter 5 mm, forward-oblique telescope 45°, enlarged view, diameter 5 mm, length 29 cm, **autoclavable,** for indocyanine green (ICG), fiber optic light transmission incorporated, color code: black

TIPCAM®1 Rubina™

26606ACA **TIPCAM®1 RUBINA™,** OPAL1® NIR/ICG, 4K/3D, direction of view 0°, diameter 10 mm, length 32 cm, **autoclavable,** including video connecting cable

26606BCA **TIPCAM®1 RUBINA™,** OPAL1® NIR/ICG, 4K/3D, direction of view 30°, diameter 10 mm, length 32 cm, **autoclavable,** including video connecting cable

IMAGE1 S™ 4U Rubina™ System Components

TC201 **IMAGE1 S CONNECT® II,** connect module, for use with up to 3 link modules, 4K technology, resolution 3840 x 2160 and 1920 x 1080 pixels, with integrated KARL STORZ-SCB and digital Image Processing Module, power supply 100-120 VAC/200-240 VAC, 50/60 Hz

TC304 **IMAGE1 S™ 4U-LINK,** link module, for use with IMAGE1 S™ 4U camera heads, power supply 100-240 VAC, 50/60 Hz, for use with IMAGE1 S CONNECT® TC200 or IMAGE1 S CONNECT® II TC201

TH121 **IMAGE1 S™ 4U RUBINA™,** OPAL1® NIR/ICG, S-Technologies available, progressive scan, low-temperature sterilization, 2 freely programmable camera head buttons, for use with IMAGE1 S™ 4U-LINK

TH020 **IMAGE1 S™ 4U RUBINA™, 0PAL 1® NIR/ICG, exoscope for use with TH121 and optional holding system**

TL400 **Cold Light Fountain POWER LED RUBINA™,** with high-performance light unit for perfusion assessment and standard endoscopic diagnosis, including a LED and a KARL STORZ light cable connection, power supply 100-125/220-240 VAC, 50/60 Hz including:

Mains Cord

UF101 **Patch Cable**

Sync Connecting Cable

One-Pedal Footswitch, one-stage

TM343 **32" 4K Monitor,** screen resolution 3840 x 2160, image format 16:9, power supply 100-240 VAC, 50/60 Hz, wall-mounted with VESA 100 and VESA 200 adaptors

TM350 **32" 4K/3D Monitor,** screen resolution 3840 x 2160, image format 16:9, power supply 100-240 VAC, 50/60 Hz, 5V DC output (1 A), wall-mounted with VESA 100 adaptor

TM450 **55" 4K/3D Monitor,** power supply 100-240 VAC, 50/60 Hz, 5V DC output (5V/8W and 12V/20W), wall-mounted with VESA 200/300 adaptors

TM440 **58" 4K Monitor,** screen resolution 3840 x 2160, image format 16:9, power supply 100-240 VAC, 50/60 Hz, wall-mounted with VESA 400 x 400 and VESA 400 x 200 adaptors

Wire Trays

39501B1 **Wire Tray for Cleaning, Sterilization and Storage** of one rigid endoscope, including holder for light post adaptors, silicone telescope holders and lid, external dimensions (w x d x h): 430 x 65 x 52 mm, for rigid endoscopes up to diameter 10 mm and working length 34 cm

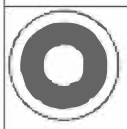
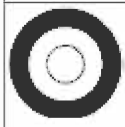
39501B2 **Wire Tray for Cleaning, Sterilization and Storage** of two rigid endoscopes and one light cable, including holder for light post adaptors, silicone telescope holders and lid, external dimensions (w x d x h): 487 x 125 x 54 mm, for rigid endoscopes up to diameter 10 mm and working length 32 cm

39501C **Wire Tray for Cleaning, Sterilization and Storage** of one rigid telescope, with silicone telescope holders and lid, external dimensions (w x d x h): 670 x 80 x 52 mm, for telescopes for bronchoscopy and esophagoscopy

39501BEC **Wire Tray for Cleaning, Sterilization and Storage** of one ENDOCAMELEON®, length 32 cm and one light cable, including holder for light post adaptor, silicone telescope holder and lid, external dimensions (w x d x h): 480 x 125 x 54 mm

39501XTC **Wire Tray for Cleaning, Sterilization and Storage** of TIPCAM®1 S 3D LAP videoendoscopes and one light cable, **autoclavable,** external dimensions (w x d x h): 640 x 150 x 87 mm

Light Cables

	Light cable diameter	Endoscope diameter		NIR/ICG compatibility
	3-3.5 mm	3-6.5 mm	495NL **Fiber Optic Light Cable,** diameter 3.5 mm, length 180 cm	–
			495NA **Fiber Optic Light Cable,** diameter 3.5 mm, length 230 cm	–
			495NAC **Fiber Optic Light Cable,** extremely heat-resistant, with safety lock, enhanced light transmission, can be used for ICG applications, diameter 3.5 mm, length 230 cm	X
			495ND **Fiber Optic Light Cable,** diameter 3.5 mm, length 300 cm	–
	4.8-5 mm	10-11 mm	495NB **Fiber Optic Light Cable,** diameter 4.8 mm, length 180 cm	–
			495NCS **Fiber Optic Light Cable,** extremely heat-resistant, enhanced light transmission, diameter 4.8 mm, length 250 cm	X
			495NCSC **Fiber Optic Light Cable,** extremely heat-resistant, with safety lock, enhanced light transmission, diameter 4.8 mm, length 250 cm	X
			495NE **Fiber Optic Light Cable,** diameter 4.8 mm, length 300 cm	–
			495TIP **Fiber Optic Light Cable,** with straight connector, extremely heat-resistant, enhanced light transmission, diameter 4.8 mm, length 300 cm, for use with TIPCAM®	X

Please inform yourself accordingly in advance for which application the respective preparation is approved in your country.

More than 75 Years

Shaping the Future of Endoscopy with you

KARL STORZ — ENDOSKOPE

THE DIAMOND STANDARD

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