Fujifilm Endoscopy System

State-of-the-art Electronic Video Endoscopy and Endoscopic Ultrasonography
Enhancing the quality of life of people worldwide

Fujifilm is known as the world’s largest photographic and imaging company and is pioneering in diagnostic imaging and information systems for health-care facilities. The current endoscopic equipment provides high-definition video endoscopy and endoscopic ultrasound for gastroenterologists and pulmonologists. The actual range of endoscopes and the EPX-4450HD processor technology come with FICE Dual Mode and DICOM on-board.

We will use leading-edge, proprietary technologies to provide top-quality products and services that contribute to the advancement of culture, science, technology and industry, as well as improved health and environmental protection in society. Our overarching aim is to help enhance the quality of life of people worldwide.

Nowadays Fujifilm entities operate in over 50 group companies in Europe and employ more than 5,000 people engaged in R&D, manufacturing, sales, and service support.

Innovative solutions
As one of the leading companies in the development of endoscope technology, Fujifilm regularly sets new benchmarks in the industry, for example with devices for double balloon endoscopy and transnasal endoscopy. However, the focus at Fujifilm is very much on holistic patient care. Our service portfolio therefore also includes competent technical assistance, a comprehensive range of hygiene products and individual consulting.

New opportunities
Whether it is with the most advanced optical technology, state-of-the-art digital image processing or new examination methods, Fujifilm is always creating new opportunities in the world of endoscopy. In this way, we are making a significant contribution to the early detection of diseases and their successful treatment.

Dedicated research, the continuous enhancement of our technology, the highest quality demands and close working relationships with international specialists set the global standard in Fujifilm endoscopy and endosonography.

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500 series endoscopes & 4450HD system: a solution for improved next generation endoscopy realized by fully digital technology

With advanced total solutions, Fujifilm is ready to fulfill a broad range of diagnostic and therapeutic endoscopic requirements.

500 series endoscopes features leading-edge optical technologies to provide clear, bright endoscopic images for easier and more accurate diagnosis. The ergonomically grip design ensures a smooth and comfortable handling. The fully digital processor EPX-4450HD employs state-of-the-art digital signal processing. This system, compatible with FICE, the image processing function to improve image visibility, takes the fullest advantage of being completely digital. Fujifilm’s endoscopy system is a total solution to support image input, processing and sharing, surely contributing to more efficient endoscopy from now on with its excellent performance.
Fits right. Moves agilely. 
Light-weight grip for high operability

The newly developed grip fits gently into your hand, allowing full use of this high-performance endoscope. Materials, processing and choice of parts have all been reviewed to reduce the grip weight for greater maneuverability. The design is improved also to allow easier cleaning and disinfection. G-5 grip and 500 series endoscope in combination offer you added amenity in routine diagnosis.

Improved operability
New positioning of the functional switches, air/water and suction valve minimize finger travel and improve efficiency.

Water jet function
Main endoscopes for the lower gastrointestinal tract have a water jet nozzle in addition to the forceps channel. The water jet nozzle effectively removes mucus on the surface being examined.

Improved cleaning and disinfection
Cleanliness and safety focused on full defense against contamination. Easily soiled air/water valve is removable and autoclavable. A smoother, flatter surface assures all areas receive optimal contact with cleaning and high-performance disinfecting solutions.

Light-weight connector
The connectors incorporated in the 500 series endoscopes are slim, light-weight, and easy to handle. Procedures are easy when the endoscope has to be removed/attached for cleaning and disinfection on every occasion of endoscopy.

Flexible portion
In upper and lower gastrointestinal endoscopy, the great flexibility of the endoscope allows easy insertability and the comfort of the examinee.
Fujifilm's state-of-the-art technology for endoscopy system: EPX-4450HD video processor

Clear and sharp image quality, advanced image processing features, and interface allow for user-friendly operations and efficient workflows. The high-end EPX-4450HD processor, from Fujifilm’s line-up of endoscopy systems, provides an optimal environment for clinical examinations.

Giving you clear images with advanced imaging technology

Anti-blur function: extracting the best still image from multiple images
The anti-blur function offers sharpest and clearest images for review and documentation in any occasion.

Achieving always optimal illuminated images with automatic control of the photometric mode
The automatic photometric mode optimally adjusts the lighting in accordance with the positioning of the endoscope, providing you with a well-balanced picture from close-up to distant focusing.

Available with the 500 series endoscopes

Interface with excellent usability and safety

The operation screen is easy to use and supports the hospital workflows
Before the examination, view the patient’s information on screen for verification.

Available with the 500 series endoscopes

The new screen layout on the monitor improves examination efficiency
Patient and imaging information are shown at the bottom of the monitor. This user-friendly layout supports an efficient endoscopy examination.
FICE spectral image processing technology widens the potential of endoscopic diagnosis

FICE – “Flexible spectral Imaging Color Enhancement” – in the new EPX-4450HD yields diagnostic results without any need for tissue staining. The procedure digitally limits the wavelengths of the light and displays it in up to ten different color combinations. The endoscope switch allows physicians to switch between the conventional image and the FICE image in a split second, ensuring an uninterrupted examination with the eyes always concentrated on the monitor.

Dual Mode simultaneously display a FICE image and white light image on the same monitor

By having a dual view of a FICE image and white light image on the same monitor, you can collect more information for examination and diagnosis.

Change the FICE preset pattern with the endoscope switch in real-time*

Use the endoscope button to select up to three wavelength patterns from presets. You can switch quickly, moving to the next FICE image with a single push of a button which allows selection of the best pattern for the respective diagnosis.

EPX-4450HD integrates into the hospital network environment with DICOM interfaces

*Only when using the EPX-4450HD
High-quality image endoscope with Super CCD

The Fujifilm Super CCD provides high-resolution image quality and supports the detection of smallest lesions.

Super CCD 590 series endoscope

For the Upper G.I. Tract – Optical Magnification

EG-590ZW

EG-590ZW is a high-quality optical magnifying electronic endoscope for the upper G.I. tract. The optical magnification enhances the images for easier and closer observation. This endoscope has maximum optical magnification levels of up to 135 times when viewed on a 19 inch monitor and also an excellent field of view.

For the Upper G.I. Tract – Standard Type

EG-590WR

This endoscope is reasonably slim with a distal end of 9.6 mm, yet is equipped with adequate functions necessary for routine examinations. This is a high-definition standard endoscope. The air/water nozzle is redesigned to constantly secure a clear field of view, and its water filtering function is significantly improved.

For the Lower G.I. Tract – Optical Magnification

EC-590ZW3/M, EC-590ZW3/L

These optical magnifying endoscopes for the lower G.I. tract have a water jet function which is effective for washing off mucus and securing a better field of view. These endoscopes have a wide variety of functions such as a large 3.8 mm forceps channel, optical magnifying function and water jet function.

For the Lower G.I. Tract – Standard Type

EC-590WM4, EC-590WI4, EC-590WL4

These endoscopes for the lower G.I. tract routine examinations have an ultra-wide 140° field of view, a large 3.8 mm channel and also a water jet function which is effective for washing off mucus.
ColoAssist
Enhanced insertion capability and improved maneuverability

Precision up to the tip
Fujifilm colonoscopes with ColoAssist convince by optimized force and torque transmission.

Endoscopes with ColoAssist
► EC-6902W3/M, EC-5902W3/L
► EC-690WMA/W4/WL4
► EC-690WM3/W3/WL3

Insertion section with gradual stiffness
Newly designed insertion section with gradual flexibility enhances insertion capability.

Improved grip performance with newly-designed surface shape
Newly created ribbed surface prevents slipping and improves handling of the endoscope. Colonoscopy can be performed more easily and comfortably even in long examinations.

The CO₂ insufflator GW-1
Faster resorption of insufflated CO₂ for shorter examinations

Insufflated CO₂ reduces the bloated sensation for patients and the pain in drawn-out procedures.

Water pump JW-2
Specially designed for advanced endoscopic examination

Proprietary piping technology enables water flow to be quickly stopped. One-liter water bottle enables prolonged water use and minimizes the need for constant refilling.
The new high-definition standard in endoscopy

The Fujifilm high-definition system represents the standard in digital endoscopy—in terms of both technology and cost-efficiency. It enables us to provide you with endoscopy equipment that is more affordable than ever before. At the heart of the system is the EPX-2500 video processor, which delivers images in high definition without loss in quality.

The EPX-2500 video processor
High definition in everyday work

The EPX-2500 combines convenient operation with high-resolution images that have optimal illumination. The digital video output (DVI) of the EPX-2500 produces images in high definition without loss of quality. Furthermore, the processor is equipped with a range of functions.

- Two ports for connecting Fujifilm 200 series and 530 series endoscopes
- Integrated xenon light source for bright, uniformly illuminated images
- Quick and simple operation
- Picture-in-picture function with freeze mode for live-display
- Better imaging of blood vessels
- 2x zoom for instant enlargement

High-quality 530 series endoscope
covers screening, diagnosis and treatment

530 series endoscope features high-quality endoscopes which serve various kinds of examination and diagnosis. The entire upper and lower G.I. including ultra-slim endoscopes.
For the Upper G.I. Tract – Transnasal Type
► EG-530NP
EG-530NP slimmed down its endoscope to the utmost and realized a 4.9 mm distal end and 9.1 mm in the flexible portion, immensely improving the transnasal insertion capability. This transnasal endoscope is also equipped with dual light guides and a 2.0 mm forceps channel.

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For the Upper G.I. Tract – Standard Type
► EG-530WR
The ultra-slim gastroscope with a distal end diameter of 5.9 mm is made possible by Fujifilm’s proprietary microfabrication technology and offers a wide field of view with high-resolution imaging similar to that obtainable with transoral gastrosopes. The flexible gastroscope is ideal for transnasal insertion and provides the operator with highly visible endoscopic images while reducing patient discomfort.

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For the Upper G.I. Tract – Slim Type
► EG-530FP
EG-530FP is a slim endoscope for the upper G.I. tract having a forceps channel of 2.8 mm diameter and a distal end of 8.5 mm. Observation capability has been increased with a wide field of view of 140° and Fujifilm’s Super CCD technology.

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<td>Forceps channel diameter</td>
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For the Upper G.I. Tract – Treatment Type
► EG-530CT
With the forceps channel as wide as 3.8 mm, EG-530CT’s distal end is as slim as 10.8 mm in diameter. To support therapeutic interventions, a water jet function is incorporated.

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<td>Forceps channel diameter</td>
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For the Upper G.I. Tract – Treatment Type
► EG-530D
EG-530D is an endoscope for treatment of the upper G.I. tract, having two forceps channels, 3.8 mm and 2.8 mm, and a distal end as slim as 11.5 mm. Water jet function is also incorporated for various treatment methods during endoscopy.

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For the Duodenum
▶ ED-530XT, ED-530XTB
The structure of the distal end, bending portion and flexible portion is changed for improved operability during examination and treatment.

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Improved operability
Easy to catch the papilla
The objective lens arrangement and bending performance have been properly arranged to catch the papilla easily from various endoscope positions.

Improved cleaning and disinfection
Removable distal end cap*
The ED-530XTB is equipped with a disposable distal end cap. It enables brushing at channels and helps to improve the hygienic environment.

*ED-530XTB only

Excellent image quality
Fujifilm’s Super CCD, which has been exclusively developed for the endoscope, is built-in, providing clear images.

Easy operability of the insertion portion
The stiffness of the insertion portion has been improved for easier stomach stretching and insertion capability.

For the Lower G.I. Tract – Standard Type
▶ EC-530WM3, EC-530WI3, EC-530WL3
With a wide field of view of 140°, these lower G.I. tract endoscopes have a greater resolution. The newly ColoAssist design facilitates the insertion capability.

For the Lower G.I. Tract – Treatment Type
▶ EC-530MT, EC-530IT, EC-530LT
With a large channel of 4.2 mm accommodating various treatment accessories, these lower G.I. tract endoscopes are suited for examination and treatment, which also have a rapid suction function.

For the Lower G.I. Tract – Slim Type
▶ EC-530MP, EC-530LP
These are slim-type colonoscopes with the distal end of 11.0 mm. While these slimmed-down endoscopes have improved insertability, they retain a 3.2 mm forceps channel to accommodate various treatment methods.

WIDE VIEW

WATER JET
For the Lower G.I. Tract – Treatment Type
▶ EC-530DM, EC-530DL
These lower G.I. tract endoscopes have two forceps channels (3.8 mm and 2.8 mm), especially useful for treatment such as EMR.

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For the Lower G.I. Tract – Standard Type
▶ EC-530FM, EC-530FI, EC-530FL
These super wide-angle standard colonoscopes offer a large 3.8 mm working channel inside a slim 12.8 mm outside diameter. An ultra-wide 140° field of view enhances the image quality. These colonoscopes also offer a water observation range from 3-100 mm. In addition, an integrated forward water jet allows for lavage in clinical situations.

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For the Lower G.I. Tract – Sigmoidoscope
▶ ES-530WE
ES-530WE is a sigmoidoscope of an effective length of 790 mm. The forceps channel diameter is 3.8 mm, and is equipped with water jet function.

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<td>Total length</td>
<td>1,095 mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forceps channel diameter</td>
<td>3.8 mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

FlushKnife BT/FlushKnife
Aimed at achieving enhanced usability ideal for all physicians from ESD trainees to skilled practitioners.

Water jet system maintains the sharpness of the knife
The water jet system keeps the tip of the knife clean by washing off debris and lesion tissue adhering to the tip, thereby maintaining the sharpness of the knife throughout the treatment.

One knife covers from marking to arrest of bleeding, achieving high versatility
One knife carries out procedures including marking, incision, dissection and arrest of bleeding. The high versatility improves operation and cost efficiencies.

The tip is designed to enhance safety and treatment capability
FlushKnife BT has a ball tip, which produces good traction, enabling the target tissue to be dissected smoothly. The ball tip touches a wider part of the tissue and arrests bleeding more efficiently.

Safer and more efficient treatment is achieved by using the protruding knife length best suited for each treatment area.
EUS Tower – all-in-one stack concept

Years of research and development to reduce patient discomfort and improve operator efficiency during endoscope examinations led to the development of Sonart, the integration of ultrasonographic diagnosis and endoscopy systems.

For a more accurate diagnosis, advanced image processing technology integrates improved endoscope maneuverability and insertion capability. The compact, one-cart system supports various applications.

ZONE Sonography™ technology ensures high-quality images

ZONE Sonography™ technology defines conventional wisdom in ultrasonography. The technology delivers wide ultrasound beams and quickly acquires large amounts of echo data in sizeable zones. Split-second data acquisition allows highly advanced image processing.

Sound Speed Correction technology improves image resolution

Advanced image processing technology estimates the optimal speed of ultrasound traveling through the body (sound speed) and constructs images.

Display quality images in different modes

Technologies developed in the field of ultrasonographic diagnosis improve the quality of ultrasound images. Images created from advanced image processing enable the use of appropriate modes for your setting.

C mode

The Color Doppler function obtains hemodynamic information in disease areas and helps you locate the observation site and vascular structures.

SU-8000 Scanning modes: C mode, Power Doppler, Pulse wave, B mode, M mode

Frequency switching

A wide range of frequencies (5, 7.5, 10, and 12 MHz) helps to delineate clear C mode images of the regions.
Ultrasonic endoscopes

**EG-530UR2, EG-530UT2**
EG-530UR2 and EG-530UT2 endoscopes combine Fujifilm’s high-quality endoscope features with the most advanced ultrasound technology, to create an unsurpassed diagnostic and treatment system.

**Excellent insertion capability**
Newly designed structure of flexible portion improves insertion capability. The tip with a small bending radius allows better observation.

**Consideration of the safety of fine needle aspiration**
Dotted yellow guidelines are visualized on the monitor to ensure the safety of paracentesis.

**High-quality endoscopic image**
Equipped with the Super CCD, this ultrasound endoscope offers bright, vivid, high-resolution image.

**In pursuit of balloon operability**
An air/water and suction button inflates water to the balloon and deflates water from the balloon.

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**Radial Scan Ultrasound Video Endoscope**
**EG-530UR2**
With a slim distal end of 11.4 mm and excellent bending capabilities, the EG-530UR2 allows physicians to perform endoscopic ultrasonography in a similar way to conventional endoscopy.

**Convex Scan Ultrasound Video Endoscope**
**EG-530UT2**
With its forceps channel elevator function, the distal end of EG-530UT2 improves the injection performance of the puncture needle. It also has a large channel which enables various treatment accessories to be inserted. With excellent bending capabilities, the EG-530UT2 provides greater flexibility in treatment.
Two balloons realize better insertability into the depth of digestive tract

The small intestine has long been the most difficult organ to access in gastrointestinal endoscopy; therefore, it has been known as "The Black Box". With new engineering innovation, Fujifilm’s double balloon endoscopic system, designed for the small intestine, is equipped with exclusively developed balloons, overtubes and balloon pump controller. Two balloons improve the insertability of the endoscope into the small intestine.

### Balloon pump controller

**PB-20**

The PB-20 balloon pump controller is designed to simplify operation. Balloons can be easily controlled via a hand-operated remote control or foot switch—whichever is more convenient for the physician.

### Enteroscope – Standard Type

**EN-450P5/20**

EN-450P5/20 is an endoscope for the small intestine examination. The relatively slim overtubes (12.2 mm outer diameter) of the EN-450P5/20 allow for smooth insertion via both the anterograde and transanal routes, depending on the position of lesion.

### Enteroscope – Treatment Type

**EN-450T5**

Treatment capacity has been greatly expanded with the EN-450T5, which is equipped with a 2.8 mm forceps channel that allows the use of almost all general therapeutic accessories and a variety of accessories such as APC probe, clip, diathermic coagulator, and other therapeutic interventions.

### Colonoscope – Standard Type

**EC-450BI5**

Using balloons, the endoscope is stabilized in the intestinal tract, which leads to better observation and treatment of lesions.

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**Overtubes (consumable supplies)**

The exclusively developed specialized balloons and overtubes ensure complete positioning of the endoscope in the small intestine. The distal end of the endoscope can be smoothly inserted to reach the area of diagnosis.

<table>
<thead>
<tr>
<th>Overtube model</th>
<th>Outer diameter</th>
<th>Total length</th>
<th>Applicable endoscope</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS-12140</td>
<td>12.2 mm</td>
<td>1,450 mm</td>
<td>EN-450P5/20</td>
</tr>
<tr>
<td>TS-13140</td>
<td>13.2 mm</td>
<td>1,450 mm</td>
<td>EN-450T5</td>
</tr>
<tr>
<td>TS-13101</td>
<td>13.2 mm</td>
<td>1,450 mm</td>
<td>EC-450BI5</td>
</tr>
</tbody>
</table>

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**Double balloon endoscopy**

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**Balloon BS-1 BS-2**

**Anterograde Insertion**

**Transanal Insertion**
**Technical specifications**

**VP-4450 HD Processor**

- **Digital output**: HD-SDI, HD/SDTV (1080i, 50i, 60i)
- **Analog output**: RGB: 1280 x 1024, S/SD/HD/NTSC, PAL
- **Color adjustment**: Brightness, Red, Green, Blue, R-Hue, Chroma, Skintone, EL color
- **Detail**: HLS, Levels
- **Contrast (gamma)**: 3-stage
- **Open Shutter**: HLS, Levels
- **Color emphasis**: HLS, Levels
- **PICE**: Pseudo-spectral imaging
- **Iris**: Average/Auto
- **Image storage**: CF Card
- **Power rating**: 120 V 60 Hz 3.3 A / 230 V 50 Hz 1.7 A
- **Dimensions (W x D x H)**: 375 x 495 x 190 mm (including projections)
- **Weight**: 17.0 kg

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**XL-4450 Light source**

- **Lamp rated value**: Main Lamp: 300 W Xenon lamp LMP-002, Emergency Lamp: 75 W Halogen lamp
- **Light control**: Automatic Light control
- **Lamp cooling method**: Forced air cooling
- **Air supply pump**: Hi, Med, Lo, Off
- **Power rating**: 120 V 60 Hz 3.3 A / 230 V 50 Hz 1.7 A
- **Dimensions (W x H x D)**: 360 x 155 x 455 mm
- **Weight**: 15 kg

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**Video Processor**

- **EPX-4450HD**

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**Video Processor**

- **EPX-2500**

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**Video Processor**

- **EPX-2500**

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**Ultrasonic Processor**

- **SU-8000**

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**Technical specifications**

- **Power supply**: AC120 V / AC230 V
- **Current consumption (rated)**: 1.8 A / 1.2 A
- **Applicable scopes**: EG-530U series scope
- **Video output terminal**: Video terminal (1 channel)
- **Audio output terminal**: Video terminal (1 channel)
- **Video input terminal**: Video terminal (1 channel)
- **Power rating**: 120 V 60 Hz 3.3 A / 230 V 50 Hz 1.7 A
- **Dimensions (W x H x D)**: 375 x 495 x 190 mm (including projections)
- **Weight**: 17.0 kg

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**Digital output**: DVI (Digital Visual Interface): 1024 x 768

**Analog output**: RGB: 256 x 256 / NTSC, PAL

**Color adjustment**: Brightness, Red, Green, Blue, R-Hue, Chroma, 9 settings

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**Contrast (gamma)**: 3-stage

**Iris**: Average/Auto

**Image storage**: CF Card

**Power rating**: 120 V 60 Hz 3.3 A / 230 V 50 Hz 1.7 A

**Dimensions (W x D x H)**: 375 x 495 x 190 mm (including projections)

**Weight**: 17.0 kg