Remote Visual Inspections

- Videoscopes
- Fiberscopes
- Rigid Borescopes
Olympus Industrial Endoscope of a Variety of Fields, from Maintenance to R&D.

Olympus technology has made it possible to observe a concealed site easily and accurately, without destroying or disturbing its exterior. Olympus delivers increased potential with our comprehensive collection of industrial endoscopes. This unrivaled lineup comprises of videoscopes, fiberscopes, rigid borescopes, miniborescopes, and a variety of ancillary equipment to match your specific requirements. These scopes all offer superior observation capabilities achieved by combining expertise in optics, precision engineering, and electronics gained through years of experience as the world’s leader in medical endoscopes. Take into account the ease of use and durability, and it is clear that Olympus industrial endoscopes are ideal for quality control and maintenance, automatic inspection, R&D, and so much more to help you improve productivity, safety, and reliability.

Sample uses according to industries

**Aerospace**
For airframe examinations, inspection of turbine blades and combustion chambers, and research, development and production of rocket engines.

**Power Generation**
For maintenance of heat exchanger pipes, condensers, piping, and turbines at nuclear, fossil fuel, and hydroelectric power generation facilities.

**Oil/Gas/Chemical Plants**
For routine and urgent inspection of process piping, pressurised storage reservoirs, heat exchangers, boilers, etc.

**Automotive**
For quality control examination of engines, hydraulic components, injection nozzles, as well as final inspection of assemblies.

**Defense/Security**
For maintenance of military aircraft, as well as for detection of narcotics and other contraband items, and for locating those who may be trapped as the result of various disasters.

**Architecture/Construction**
For examination of walls, ducts, structural joints, as well as for viewing inside architectural models.

**Electrical Equipment/Electronics Industries**
For monitoring operation of equipment and factory automation through automatic inspection and positioning, as well as R&D applications.

**Education/Research**
For monitoring animals and insects, root systems of plants, etc. Also for historical and archaeological applications such as internal inspection of statues and tombs.
s Meet the Requirements
A Variety of Lineup to Suit Your Specific Requirements

**Industrial Videoscopes**

- IPLEX FX / IPLEX LX / IPLEX LT / IPLEX UltraLite / IPLEX MX II
- IPLEX YS / IPLEX TX

**Industrial Fiberscopes**

- Structural Drawing
- High-quality glass fibres for image transmission.
- Observation through an eyepiece.

Each Olympus Industrial Fiberscope is comprised of the insertion section (the distal end, bending section, and flexible section), as well as the control and eyepiece section.* Image guide fibres, light guide fibres, and wires for tip angulation are all built in.

* The IF6PD4 does not incorporate bending and control sections.

**Industrial Rigid Borescopes**

- Structural Drawing
- Standard Rigid Borescopes / Swing-prism Borescopes / Zoom Swing-prism Borescopes / Engine Borescopes
- Miniborescopes

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**Light Sources** P.25-26

**Accessories** P.27-30

**Inspection**
### Benefits

**All-in-one package offering simple operation and outstanding performance**
- Bright images with high resolution LCD monitor.
- Fulfilling image recording functions.
- Super stereo measurement modes are available to facilitate high-precision measurement.*
- Extensive scope lineup including ultra-thin, long and working channel types.

* Super stereo measurement modes are not available for IPLEX LX, IPLEX UltraLite and IPLEX MX II.

**Ultra-compact image sensor for image transmission.**

The videoscope captures light reflected from a subject through an objective lens and directs it to the surface on the image sensor. The image sensor then converts the light into electrical signals and transfers this data to the videoscope control unit. The unit then sends video output to the monitor.

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**Benefits**

- The distal end can be controlled in either two or four directions, by handheld controls.
- Easily change the field of view, direction of view and depth of field by switching the optical adaptor.
- Extensive scope lineup including ultra-thin and long types.

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**Benefits**

- Excellent images are delivered by high quality optics inside a rigid stainless tube.
- Extensive scope lineup close to 200 models available featuring various diameters, working lengths, and viewing directions and angles.

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**Benefits**

- High-resolution image transmission in a laser-welded stainless steel insertion tube with light guide fibres for bright illumination. Wide selection available to suit any requirements.

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**Industrial Videoscope**

- IPLEX FX .................................................. P8-9
- IPLEX LX / IPLEX LT .................................. P10-11
- IPLEX UltraLite ......................................... P12-13
- IPLEX TX .................................................. P14
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**Industrial Fiberscopes**

- IF6C5X1/IF8C5/IF11C5 ............................... P20-21
- IF6PD4/IF2D5/IF4D5/IF4S5 .......................... P20-21
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**Standard Rigid Borescopes** .......................... P22-24

**Swing-prism Borescopes** ............................ P22-24

**Zoom Swing-prism Borescopes** ..................... P22-24

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**Miniborescopes** ..................................... P22-24
Industrial Videoscopes—Delivering Comprehensive and Highly Accurate Remote Inspection Capability with Vivid Colour, Clarity, and More.

The videoscope captures every subject brightly and clearly providing unrivaled observation performance and work efficiency for various inspections in the field.

Main Features

Compact and Lightweight System
IPLEX is the all-in-one system that is easy to set up. Power is provided by an internally mounted Lithium-ion battery. The compact size IPLEX makes portable operation a reality.

Bright and High-resolution Images
The bright, high-resolution images captured by the high performance image sensor are larger, clearer, and easier to view with full-screen colour display.

Observation Functions Including Zoom and brightness adjustment
Zoom observation and various image adjustment functions such as brightness and sharpness adjustment are available. To provide high quality, faithfully reproduced images and accurate colour, the IPLEX series carry Olympus’ own WiDER™ image processing technology*2. WiDER™ delivers bright, contrast-balanced images across the entire depth of field.

Digital Image Recording and Voice Annotation recording
Digital image recording allows more flexible and powerful image management. IPLEX videoscopes are equipped with high quality still images and video recording function*3. Voice annotation recording is also possible with the IPLEX FX and IPLEX YS.

All Weather Resistance with Rugged body
The IPLEX FX, IPLEX LX, IPLEX LT, IPLEX UltraLite and IPLEX TX can be used in rain, sand and dust, and withstand physical shocks caused by drops and falls, ensured by IP65 or MIL-STD. The superb capability will support your tough inspection environments.

Tapered Flex™ Tube with Superb Insertability
The insertion tube design provides superior crush resistance and abrasion resistance. The IPLEX series are designed with the Olympus’ own Tapered Flex™ graduated stiffness design for maximum scope flexibility towards the scope end. Additionally, the 4-way articulation function will support the basic requirement of accessing the inspection area and frequency navigating through narrow and intricate paths with abrasive and rough surface.

Interchangeable Optical Adaptors
You can easily change optical adaptors** to suit your observation requirements such as direction of view, angle of view, and depth of field.

Super Stereo Measurement Capability
Various stereo measurement modes*** are available to facilitate high-precision measurement, including distance, height, and depth. The unique Spot-Ranging™ feature provides live confirmation of the tip-to-target distance to aid measurement accuracy.

*2: Not available with the IPLEX LT, IPLEX UltraLite and IPLEX MX II.

*3: Video recording function is not available with the IPLEX MX II.

Main Applications

Multi-language Display
All IPLEX videoscopes have a multi-language display allowing users to choose from one of several different languages for the interface.

Ideal when image adjustment, recording and measurement function are required as well as observation with high-resolution and bright images. Available for various inspection fields.

For Inspecting:
- Inside engines of vehicles, aircraft, and gearboxes
- Inside piping, such as heat exchangers, steel pipes, and drainage pipes
- Inside long pipes, such as plant piping, condensers, and welds
- For wide cavities, such as interiors of tanks, pressure vessels, and wind turbine blades
- Inside precision machinery, such as automotive parts and copiers

Interchangeable Optical Adaptors
You can easily change optical adaptors** to suit your observation requirements such as direction of view, angle of view, and depth of field.

Super Stereo Measurement Capability
Various stereo measurement modes*** are available to facilitate high-precision measurement, including distance, height, and depth. The unique Spot-Ranging™ feature provides live confirmation of the tip-to-target distance to aid measurement accuracy.

*4: Not available for the IPLEX TX and IPLEX MX II.

**4: Not available for the IPLEX TX and IPLEX MX II.

***5: Equipped on the IPLEX FX, IPLEX LX, IPLEX UltraLite and IPLEX YS only.
The IPLEX Series Satisfies All Your Inspection Needs.

**iPLEX FX**
This high-end industrial videoscope system combines portability with performance; modularity with reliability; simplicity with advanced functionality; and ease of use with durability. From high image quality inspection to retrieval operation, the versatility of the IPLEX FX achieves various benefits beyond your experience.

**iPLEX UltraLite**
The palm-sized IPLEX UltraLite industrial videoscope, weighing just 700 g, delivers high quality images. Its compact, durable body enables inspections in tough and confined areas.

**iPLEX YS**
Extra-long 30 m scope is equipped with innovative laser illumination and scope articulation technologies. It delivers unprecedented image quality and manoeuvrability.

**iPLEX TX**
The ultra-thin 2.4 mm diameter videoscope with articulation reaches inside almost any narrow or winding area, clearly bringing out tiny defects.

**iPLEX LX/LT**
Weighing only 2.7 kg, the industrial videoscope IPLEX LX/LT combines overwhelming portability and reliability with advanced features—achieves best balance between ease-of-use and performance.

**iPLEX MX II**
With a simple design dedicated for direct-view inspections, the IPLEX MX II is a basic inspection tool for entry level users.

**Inspection Assist Software InHelp**
The inspection data management and reporting software for the IPLEX videoscopes streamlines all aspects of on-site inspections.

**MIL-STD**
MIL-STD (The United States Defense Standard) is used to help achieve standardisation objective by the U.S. Department of Defense. Note: The MIL-STD mark is originally designed by Olympus.

**WIDER™**
The WIDER™ image processing algorithm greatly expands the dynamic range to bring out details in shadows and highlights and allow much more accurate inspection.

**RoHS**
The European RoHS Directive. No lead, mercury, cadmium, hexavalent chromium, PBBs or PBDEs are used. Note: The RoHS mark is originally designed by Olympus.
Introducing a videoscope system that combines portability with performance; modularity with reliability; simplicity with advanced functionality; ease of use with durability. Only one product does this — the iPLEX FX.

Temperature Resistance

The iPLEX FX scope units are resistant to insertion in higher temperature environments — now 100°C meaning that inspections can take place sooner as you won’t need to wait as long for the area to cool. Additionally, a temperature sensor provides a two-stage visual warning in order to prevent overheating.

Resistance to Harsh Environments

iPLEX FX complies with internationally recognised Military Standards. This compliance assures a greater level of environmental performance than regular industry standards and provides increased reliability against dust and fluid as well as physical shocks such as fall and drop.

Abrasion Resistant Insertion Tube

The crush-proof insertion tube of the iPLEX FX is equipped with an innovative fine mesh tungsten outer braid that results in outstanding abrasion resistance. The tube’s strength combined with its flexibility allows operation in the most difficult and hazardous inspection areas. As with all of our iPLEX products, the iPLEX FX is designed with the Olympus Tapered Flex™ graduated stiffness design for maximum scope flexibility towards the scope end.

Optimised Images with Interchangeable LED Tip Adaptors

To provide high quality, faithfully reproduced images and accurate colour, the iPLEX FX features an outstanding optical system, new noise reduction and our own WIDER™ (Wide Dynamic Extended Range) image processing technology. WIDER™ delivers bright, contrast-balanced images across the entire depth of field.

New LED Illumination with SmartTip™ Optical Adaptors

For optimum magnification and direction suitable for a variety of inspection environments, the iPLEX FX offers a comprehensive range of interchangeable optical adaptors. The integrated LED illumination system brightly lights targets. Fitted within the scope tip, it delivers vivid illumination regardless of scope length and eliminates the need for a fibre light guide. Hi-beam mode boosts illumination up to 2X for expanded inspection capability. In addition, our unique SmartTip™ feature equipped with optical adaptors permits recording of the adaptor information, along with captured images for inspection traceability.

Daylight-view High Resolution LCD Monitor

Clear observation in direct sunlight is made possible with the new 6.5 in. daylight-view LCD monitor — the large screen for comfortable and reliable observation of fine detail. Colour reproduction and contrast are maintained, ensuring inspections are not compromised when working outdoors.

Rugged and Durable
Inspection

Light Sources

Accessories

forward and rewind. The IPLEX FX’s movie viewing functions now include pause, fast-forward, and rewind. The software design ensures that valuable information is immediately accessible as part of each image when inspection data is transferred to a computer.

Interchangeable Scopes

The IPLEX FX offers a range of interchangeable scopes, allowing you to choose the right one to fit the job. This means a single IPLEX FX can be configured for a variety of inspections. Scopes are available in diameters of 4.0 mm, 6.0 mm and 6.2 mm, and in various lengths ranging from 2 m to 18 m. A 7.5 m scope with a smooth outer coating is also offered. This scope is ideally suited to nuclear and pharmaceutical plant inspections where ease of cleaning and decontamination are priorities.

Foreign Object Retrieval

Adding to the array of versatile IPLEX FX benefits is a 6.2 mm diameter scope featuring an internal working channel. Six retrieval tools allow you to remove foreign objects from inside inspection areas — ideal for helping avoid costly overhauls — and perform hook and drag inspections in engines.

Versatile Image Management

Inspection Recording Options

Archiving, sharing and reporting inspection results are made simple with the IPLEX FX. It features still image and movie recording to internal memory, removable compact flash cards or USB flash drives. Due to the rigours of the industrial inspection workplace, the IPLEX FX is designed to store images on solid-state media devices, ensuring that valuable data is not lost due to the instability of storage media with movable parts. The IPLEX FX’s movie viewing functions now include pause, fast-forward and rewind.
Combining superb ease of use with outstanding functionality, the iPLEX LX and LT provide accurate and advanced inspections, allowing smooth operation regardless of the user’s experience level.

**Convenient Portability**

**Compact and Lightweight**

The iPLEX LX and LT weigh just 2.7 kg, including the two-hour running time Li-ion battery. They can be worn or carried with ease and set up almost instantly.

**Small Size, Large Monitor**

Despite being only 227 mm wide and 189 mm tall, the iPLEX LX and LT integrate a surprisingly large 6.5 in. monitor for exceptional visibility, whether at arm’s length or across a workbench. At less than 100 mm thick including the pivoting handle/stand, the iPLEX LX and LT can be worn, stand upright, or be fastened to a tripod or mounting arm for operation in practically any environments.

**Unsurpassed Ease of Use**

**Choice of Connection and Positioning**

The handheld controller can be operated either independently or attached to the main unit during inspections, offering a versatile choice of operation. The stand-alone monitor can always be positioned for optimum viewing and is also convenient for group inspections and training.

**Innovative Features at Operator Fingertips**

The ergonomic lightweight handset with TrueFeel™ articulation control has been engineered for comfortable operation even during prolonged inspections. The user can operate diverse functions and scope tip articulations easily, quickly, and precisely. The controller maximises the use of buttons, levers, and joystick for quick access to all essential menu functions.

**Intuitive Icon-based Menus**

The iPLEX LX and LT feature a simple menu, utilising intuitive, internationally recognised icons that make it easy for the operator to quickly choose the right menu option. Navigation is simplified by a dedicated joystick, which functions independently from the scope tip articulation.

**Rugged Durability**

**All Weather Resistance**

You can confidently bring the iPLEX LX and LT to almost any difficult environment. They can be used in rain, sand, and dust, and withstand physical shocks caused by drops and falls, ensured by IP55 and MIL-STD compliance. With its low-reflection display, the daylight-view monitor reproduces clear, vivid images even under the brightest sunlight.

**Resistance to High Temperatures and Abrasion**

The insertion tubes of the iPLEX LX withstand temperatures up to 100°C. A high-temperature sensor cautions an audible beep and displays a visual warning if the scope is in danger of becoming overheated.

The crush-proof insertion tubes of the iPLEX LX and LT are equipped with an innovative fine mesh tungsten outer braid that results in outstanding abrasion resistance. The tube’s strength combined with its flexibility allows operation in the most difficult and hazardous inspection areas. The iPLEX LX and LT are designed with the unique Tapered Flex™ achieving superb scope manoeuvrability with optimised stiffness and flexibility.

In addition, the increased stiffness of the new 8.5 mm scope allows it to be easily pushed deep into an inspection area without the use of a guide tube, making it ideal for long pipe inspections.
Exceptional Functionality – Viewing Capability

Excellent Colour Reproduction and Superb Clarity
The industry-leading 6.5 in. daylight-view monitor is larger than comparable videoscopes on the market, always allowing for a comfortable viewing position and convenience for group viewing. Superb image clarity permits the accurate detection of very small defects.

Clear, Crisp Images
The iPLEX LX features our unique image processing capability, WiDER™ (Wide Dynamic Extended Range). This innovative technology brings out detail in shadowed and highlighted areas to produce bright, contrast-balanced images across the entire depth of field.

Ultra-bright, Interchangeable LED Tip Adaptors
For optimum magnification and direction suitable for a variety of inspection environments, the iPLEX LX and LT offer a comprehensive range of interchangeable optical adaptors. The integrated LED illumination system brightly lights targets. For inspection of large voids where plenty of light is required, the 8.5mm scope is an ideal solution. Fitted within the scope tip, it delivers vivid illumination regardless of scope length and eliminates the need for a fibre light guide. In addition, the iPLEX LX is equipped with Hi-beam mode boosting illumination up to 2X for expanded inspection capability, and the SmartTip™ automatic recognition function. Our unique SmartTip™ feature installed in optical adaptors permits recording of the adaptor information, along with captured images for inspection traceability.

Exceptional Functionality – Image Management

High-quality Images and Movies
The iPLEX LX and LT feature high-quality JPEG still images and MPEG-4 movies that record into a removable USB flash drive. Saving or retrieving images only requires a single button press, and the thumbnail view makes it easy to instantly review the inspection results.

Title Input Function
For off-site inspection efficiency and report generation, the iPLEX LX and LT let you quickly and easily input titles in captured images. You can quickly identify the inspection location or result through the title to assist in archiving images.

InHelp™ Inspection Assist Software
InHelp, the optional inspection data management and reporting software streamlines many aspects of remote visual inspections with the iPLEX LX and LT. The software greatly improves work efficiency and simplifies inspections by organising stored images on the iPLEX LX and LT, generating detailed inspection reports on a PC with simple click-operation.

Protection for Interior Components
The main unit’s removable USB flash drive and Li-ion battery are contained inside a latched, sealed compartment for protection against environmental hazards and rough treatment.

Proven Stereo Measurement
Our advanced Stereo Measurement technology offers outstanding reliability and accuracy for your inspections. By capturing image information through two parallax lenses, the iPLEX LX permits accurate measurement of almost any object from any angle.

Accurate Measurement on the First Try
The measurement accuracy of a videoscope is greatly affected by the scope’s tip-to-target distance. Our unique Spot-Ranging™ feature on the iPLEX LX, the industry’s only real-time tip-to-target distance measurement tool, navigates the scope tip to the optimum distance from a target. The operator can then easily determine whether the tip is close enough to calculate the most accurate measurement on the first try.
Dramatically improve your field inspection efficiency with a palm-sized, ultralight videoscope. With its durable body and superb image quality, the new iPLEX UltraLite delivers high quality and reliable inspections in tough and confined spaces.

**Outstanding Mobility**

Surprisingly compact and lightweight

The iPLEX UltraLite weighs only 700 g with its lithium-ion battery. This easy-to-use videoscope is so small and light that it is the perfect companion for the inspector who works in areas with limited access or in cramped spaces or has to navigate narrow stair cases or steep ladders.

Palm-sized ergonomic design

The ergonomic iPLEX UltraLite fits snugly into the palm of your hand, and provides speedy, fatigue-free operation even during prolonged inspections.

Quick, precise scope articulation

The iPLEX UltraLite features quick, precise articulation. The scope tip instantly and accurately responds to the articulation control and approaches targets precisely, enabling fast, efficient inspections.

**Outstanding Quality**

Durable chassis withstands drops and falls

The iPLEX UltraLite’s durability has been thoroughly proven. It passes our 1.2 m drop test, and withstands inspection-site drops and falls. The LCD monitor is equipped with the very strong Gorilla Glass, passing a steel-ball drop test compliant with the international standard, IEC-61010.

Insertion tube resists crushing and abrasion

The iPLEX UltraLite’s insertion tube is both crush- and abrasion-resistant. It is also designed with unique Olympus Tapered Flex™ technology for outstanding scope maneuverability. With its durability and graduated flexibility, the iPLEX UltraLite insertion tube enables you to inspect objects inside winding and rough paths.

**Outstanding Usability**

Icon-based menus for instant recognition and intuitive operations

iPLEX UltraLite menus feature simple, intuitive icons that let you quickly identify and activate the desired functions.

Quick-access hot buttons

iPLEX UltraLite eliminates complicated menu settings. The iPLEX UltraLite functions can be easily operated with just one hand. By pressing dedicated, direct-access keys, you can quickly articulate scope tip, record images, adjust brightness, and input text.
Rugged design for reliable operation in harsh environments
Operators are often called on to conduct inspections in difficult environments. The iPLEX UltraLite stands up to rain, sand and dust, and compliant with IP65. Ideal for outdoor inspections, the iPLEX UltraLite faithfully produces brilliant images, under sunlight.

Sharp live-image and clear movies for reliable observation and analysis
When it comes to remote visual inspections, image quality is one of the highest priorities. The iPLEX UltraLite is equipped with our unique Olympus image processor, and produces sharp and clear images. Along with its superb colour-reproducing capability, the iPLEX UltraLite enables you to accurately detect even small defects. Observed images can be stored in a connected SD or SDHC card as high-quality JPEG still images and MPEG-4 movies.

Extra-bright illumination with versatile optical adaptors
For optimal direction and magnification covering various types of objects, the iPLEX UltraLite offers a comprehensive range of interchangeable optical tip adaptors. The bright LED mounted on the tip adaptors clearly illuminates targets. In addition, Hi-Beam mode is newly equipped on the iPLEX UltraLite, which boosts illumination up to 2X for expanded inspection capability.

OutHelp™ Inspection Assist Software
InHelp, the optional inspection data management and reporting software streamlines many aspects of remote visual inspections with the iPLEX UltraLite. The software greatly improves work efficiency and simplifies inspections by organising stored images on the iPLEX UltraLite and generating detailed inspection reports on a PC with simple click-operation.

Proven Stereo Measurement*
Our advanced Stereo Measurement technology offers outstanding reliability and accuracy for your inspections. By capturing image information through two parallax lenses, the iPLEX UltraLite permits accurate measurement of almost any object from any angle. Additionally, our unique Spot-Ranging™ feature on the iPLEX UltraLite, the industry’s only real-time tip-to-target distance measurement tool, navigates the scope tip to the optimum distance from a target for the most precise measurement on the first try.

*Available on the Stereo Measurement model.
Ultra-thin, 2.4 mm diameter

At just 2.4 mm diameter, the flexible insertion tube reaches inside almost any narrow or difficult to reach area that requires visual inspection of defects. The iPLEX TX ensures uncompromised inspections.

Quick and accurate articulation

The iPLEX TX is a videoscope with the world’s smallest diameter* and is equipped with an ergonomic, user-friendly scope articulation controller. The controller features excellent responsiveness and quickly and accurately navigates the scope tip inside narrow and intricate objects.

Unsurpassed abrasion resistance

The iPLEX TX insertion tube is protected with a special resin tube that features 200 times greater abrasion resistance than our conventional extra-thin fiberscopes. The durable insertion tube enables reliable inspections of casting and other metals that have rough surfaces.

Ensured dust resistance

The iPLEX TX is both dust and drip proof, and is designed to comply with IP55. This durable unit can perform reliable inspections even in harsh manufacturing environments.

Interchangeable scope system

The iPLEX TX has an insertion tube that can be easily interchanged in the field.

Great advance in image quality

Exceptionally bright and clear images

Compared to conventional very small-diameter fiberscopes, the iPLEX TX delivers superior image quality. The videoscope’s vivid and clear images increase the detection of abnormalities and ensure improved and efficient inspections.

Precise image reproduction without halation

The unique image processing capability WIDER™ limits the halation effect that often occurs during inspections of metal objects. WIDER™ brings out details in shadow areas and produces much clearer, crisper images.

Large monitor, small body

The iPLEX TX is equipped with a 6.5 in. LCD monitor to clearly display tiny defects such as burrs and scratches. The compact and portable body with an integrated Lithium-ion battery allows you to make inspections at any sites.

Efficient image management

High-quality images and movies

Observed images can be recorded onto a removable USB flash drive as high-quality JPEG still images and MPEG-4 movies. The provided 1 GB USB flash drive can store approximately 3,400 still images or a 30-minute movie.

Title input function

For efficient image diagnosis and report generation, the iPLEX TX enables you to insert titles as well as date and time overlay.
**iPLEX YS**

Being equipped with an extra-long 30 m scope and various innovative technologies, the iPLEX YS delivers unprecedented brightness and maneuverability, and dramatically improves your inspection quality.

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**Outstanding Operability**

**Air Articulation Offers Unparalleled Flexibility at Any Length**

The versatile iPLEX YS features innovative air articulation technology, letting you freely manipulate scope articulation with the compact palm-held controller. Since the insertion tube need not be fully extended, you can unroll only the length which is needed for the inspection and leave the rest neatly and safely coiled on the internal storage drum.

**Direction and Location of Target are Accurately Revealed**

The iPLEX YS features an integrated gravity sensor that provides an on-screen orientation of the inspected image, clearly differentiating up from down. An optional length indicator can display the scope length inserted into an object on the screen. Utilizing these functions, you can confidently proceed with inspections knowing they will be able to clearly identify inspected positions.

**Operates Efficiently Even in Hostile Environments**

The iPLEX YS insertion tube is engineered for high resistance to abrasion and can be inserted into a wide range of objects, even those with rough surfaces. The lens cleaning system blows away fine dust and drip residue on the scope tip, ensuring efficient inspections that produce clear images.

**All-in-one Package Permits Easy Portability**

Not only can the iPLEX YS handle complete inspections, its all-in-one design lets you conduct them almost anywhere. At sites lacking an AC power supply, it can be powered by a lithium-ion battery. The scope articulation is operable with a small CO₂ cartridge; no bulky air compressor is needed.

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**Unsurpassed Image Quality**

**Pioneering Laser Illumination Technology**

The iPLEX YS is the first industrial videoscope to incorporate laser illumination, 2X brighter than a conventional long-length videoscope, featuring low power consumption. It offers a comprehensive range of interchangeable optical adaptors for optimal magnification and direction. You can easily view a wide variety of inspection environments.

**Clear, Crisp Images in Every Environment**

The 6.5 in. daylight-view monitor delivers vivid images both indoor and outdoors. Our unique image processing capability, WIDER™ (Wide Dynamic Extended Range), brings out detail in shadowed and highlighted areas to produce bright, contrast-balanced images across the entire depth of field.

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**Precise Diagnosis**

**Accurate Post-inspection Analysis**

You can record JPEG still images and AVI movies into a removable Compact Flash card or USB flash drive, and use the ImageNotepad™ to enter extended descriptions on recorded images. Your descriptions are immediately accessible as part of each image when inspected data is transferred to a computer.

**Convenient Image Data Management**

Available free from our website, iPLEX Viewer Plus is ideal for remote users to re-measure or validate saved-measurement results. In addition, iPLEX Viewer PRO is now available as an option. This advanced software features information editing and report generation, enabling you to efficiently prepare inspection reports.

**Reliable Defect Detection with Stereo Measurement**

Stereo Measurement technology permits accurate, three-dimensional defect measurement at any target angle. You can easily measure size, depth, and area of erosion, corrosion, and waste during inspection. Quantitatively measured calculations of a defect ensure inspection reliability.
The IPLEX MX II delivers the same quality and reliability as our other IPLEX models, letting users of every skill level carry out inspections simply, conveniently, and accurately.

Reliability

Decades of Experience Plus Quality Control
At the core of the IPLEX MX II are decades of Olympus endoscope experience and strict quality control. The IPLEX MX II shrugs off tough environmental conditions, letting you inspect with confidence in tight areas where bumps can occur.

Tough Insertion Tube ... Easy Scope Insertability
The improved insertion tube of the IPLEX MX II has four layers, combining rugged durability and unsurpassed scope insertability. The tube is both exceptionally abrasion resistant and highly crush resistant. The unique IPLEX Tapered Flex™ feature provides graduated flexibility for easy scope insertability.

Image Quality

Large Monitor for Detecting Small Defects
The IPLEX MX II is equipped with a large 6.5 in. monitor that reveals small defects clearly and accurately. The monitor features a low-reflection display and produces vivid images both indoors and outdoors.

Exceptionally Bright LED Illumination
The LED illumination system of the IPLEX MX II delivers brilliant illumination to deep and dark areas that require inspection. The scope tip’s LED array ensures that objects are evenly illuminated.

Ease of Use

TrueFeel™ Controller for Precise Articulation and Quick Menu Access
You can intuitively manipulate the IPLEX MX II with menu buttons efficiently organised on the handheld controller. TrueFeel™ scope tip articulation enables power-assisted articulation and precise control. Just a light touch of the joystick moves the scope tip in any direction.

Easy Access to Multiple Object Types

Versatile System Design Offers Choice of Operation
The compact IPLEX MX II weighs just 2.5 kg, and is easy to transport and operate. Just turn it on and you’re ready to go! This versatile design offers a choice of operation. You can operate the IPLEX MX II either mounted on your body or placed wherever else it is convenient, and the handheld controller can be manipulated either independently or attached to the main unit.

Efficient Recording and Post-inspection Work
The IPLEX MX II records high-quality JPEG still images to a USB flash device with a single click. You can make reports by connecting the PC-friendly recording medium to your computer. Title can be easily saved on an image in order to assure the streamlined post-inspection work.
**Features**

Fast and organised inspection process management

InHelp can store images in folders dedicated to a section of your inspection. Navigation from one inspection section to the next is a one-touch operation. This provides a fast and effective way to manage images and increase workflow. To further increase efficiency, a screen prompt enables you to add comments and defect diagnoses to each image.

Easy and efficient inspection data management

InHelp can display recorded images based on the section of your inspection or defect level on a PC. InHelp also enables you to instantly review images with diagnoses information. Furthermore, comments, annotations, and stereo measurements of recorded images are also available.

**Automatic report generation**

InHelp can create a detailed inspection report by just selecting images with one-click operation. Olympus can prepare customised report templates satisfying each customer demand. You can use optimal templates for your needs and incorporate your own information such as an inspection manual.

**Applicable industrial Videoscopes**

- IPLEX FX (IV8000-2 type)
- IPLEX LX
- IPLEX LT
- IPLEX UltraLite

**System requirements**

- Windows XP (SP3), Vista (SP2) or 7 (32-bit or 64-bit versions SP1*)
- Microsoft Word 2003 (SP3), Microsoft Word 2007 (SP3) or Microsoft Word 2010 (SP1*)
- RAM: 512 MB or more (when the OS is Windows XP) 1 GB or more (when the OS is Windows Vista or 7) 512 MB of available hard-disk space or more
- USB Port
- XGA (1024 H x 768 V pixels) or a larger display

*Apply the latest service pack.
### Specifications

#### Industrial Videoscopes

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Power Supply</strong></td>
<td>AC 14.8 V 10.8 V 12.0 V 10.8 V 14.5 V 10.8 V 14.5 V 10.8 V 14.5 V 10.8 V 14.5 V 10.8 V 14.5 V</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>Base unit: 250 (W) x 160 (D) x 285 (H) mm Control unit: 239 (W) x 99 (D) x 215 (H) mm</td>
</tr>
<tr>
<td><strong>Weight (approx.)</strong></td>
<td>6.6 kg with battery (IV8410) 2.7 kg with battery (IV8420L) 0.7 kg with battery (IV8420U) 1.7 kg with battery 26 kg with battery 2.5 kg with battery (IV8415M)</td>
</tr>
<tr>
<td><strong>CCU Functions</strong></td>
<td>Menu Language selection: English, German, French, Spanish, Italian, Russian, Korean, Simplified Chinese, Traditional Chinese, Japanese</td>
</tr>
<tr>
<td><strong>Recording Management functions</strong></td>
<td>Still image recording file format: AVI M-JPEG Audio recording file format: AVI M-JPEG</td>
</tr>
<tr>
<td><strong>Image Comparison</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Input/Output Terminal</strong></td>
<td>Audio Signal Input: 6.35 mm mono and rear jack</td>
</tr>
<tr>
<td><strong>Measurement functions</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Digital zoom</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Terminal</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Audio recording file format</strong></td>
<td>WAV</td>
</tr>
<tr>
<td><strong>Clear search</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Terminal</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>USB terminal</strong></td>
<td>USB version 1.1</td>
</tr>
<tr>
<td><strong>Recording medium/format/standard</strong></td>
<td>1 GB CF card</td>
</tr>
<tr>
<td><strong>Sticker measurement</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Distance)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Point-to-Line)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Depth)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Line)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Area)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Offset)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Multi)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Multi)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Area)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Distance)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Point-to-Line)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Depth)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Line)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Area)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Stereo measurement</strong> (Offset)**</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Zoom</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Exposure control</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Grid display</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Shutter</strong></td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Spot-Ranging</strong></td>
<td>N/A</td>
</tr>
</tbody>
</table>

*IV8412T can be upgraded to IV8420. *IV8430, IV8435, IV8435L1 and IV8435L2 are not compatible with Tapered Flex technology. *This digital and optical adaptor is optional. *The function on the IPLEX UltraLite and IV8640 series of the IPLEX UltraLite LT is limited to recognition of the tip adaptor attachment to the scope only. *9 IV86 series are not compliant with Military Standard. *Available only for IV86120. *Optional stereo adaptors are needed. *Available only for IVLEX UltraLite Stereo Measurement models.
**Optical Adaptor Specifications**

<table>
<thead>
<tr>
<th>Model</th>
<th>Scope</th>
<th>Optical Adaptor</th>
<th>Outer diameter</th>
<th>Optical System</th>
<th>Field of view</th>
<th>Direction of view</th>
<th>Depth of field*</th>
</tr>
</thead>
<tbody>
<tr>
<td>86/84</td>
<td>AT120D/NF-IV84</td>
<td></td>
<td>ø4.0 mm</td>
<td>40°</td>
<td>Forward</td>
<td>6 to 25 mm</td>
<td>1 to 10 mm</td>
</tr>
<tr>
<td></td>
<td>AT120D/FF-IV84</td>
<td></td>
<td></td>
<td>40°</td>
<td>Side</td>
<td>6 to 10 mm</td>
<td>1 to 5 mm</td>
</tr>
<tr>
<td></td>
<td>AT120S/IV84</td>
<td></td>
<td></td>
<td>40°</td>
<td>Side</td>
<td>6 to 10 mm</td>
<td>1 to 5 mm</td>
</tr>
<tr>
<td>86/96</td>
<td>AT140D-IV86</td>
<td></td>
<td>ø5.0 mm</td>
<td>60°</td>
<td>Forward</td>
<td>20 to 65 mm</td>
<td>20 to 5 mm</td>
</tr>
<tr>
<td></td>
<td>AT140D/FF-IV86</td>
<td></td>
<td></td>
<td>60°</td>
<td>Side</td>
<td>20 to 40 mm</td>
<td>10 to 20 mm</td>
</tr>
<tr>
<td></td>
<td>AT140S-IV86</td>
<td></td>
<td></td>
<td>60°</td>
<td>Side</td>
<td>20 to 40 mm</td>
<td>10 to 20 mm</td>
</tr>
<tr>
<td>86/850X1</td>
<td>AT120D/NF-IV88X1</td>
<td></td>
<td>ø5.0 mm</td>
<td>120°</td>
<td>Forward</td>
<td>6 to 100 mm</td>
<td>5 to 20 mm</td>
</tr>
<tr>
<td></td>
<td>AT120D/FF-IV88X1</td>
<td></td>
<td></td>
<td>120°</td>
<td>Side</td>
<td>6 to 100 mm</td>
<td>5 to 20 mm</td>
</tr>
<tr>
<td></td>
<td>AT120S-IV88X1</td>
<td></td>
<td></td>
<td>120°</td>
<td>Side</td>
<td>6 to 100 mm</td>
<td>5 to 20 mm</td>
</tr>
<tr>
<td>86/8650L1</td>
<td>AT120D/FF-IV86L1</td>
<td></td>
<td>ø5.0 mm</td>
<td>40°</td>
<td>Forward</td>
<td>6 to 25 mm</td>
<td>1 to 10 mm</td>
</tr>
<tr>
<td></td>
<td>AT120S/IV86L1</td>
<td></td>
<td></td>
<td>40°</td>
<td>Side</td>
<td>6 to 10 mm</td>
<td>1 to 5 mm</td>
</tr>
<tr>
<td></td>
<td>AT120D/FF-IV86L2</td>
<td></td>
<td></td>
<td>40°</td>
<td>Side</td>
<td>6 to 10 mm</td>
<td>1 to 5 mm</td>
</tr>
</tbody>
</table>

**Operating Environment**

- **IPLEX FX**
- **IPLEX LX**
- **IPLEX UltraLite**
- **IPLEX LT**
- **IPLEX MX II**

<table>
<thead>
<tr>
<th>Operating temperature</th>
<th>IPLEX FX</th>
<th>IPLEX LX</th>
<th>IPLEX UltraLite</th>
<th>IPLEX TX</th>
<th>IPLEX YS</th>
<th>IPLEX MX II</th>
</tr>
</thead>
<tbody>
<tr>
<td>In air</td>
<td>-25 to 100°C</td>
<td>-25 to 100°C</td>
<td>0 to 40°C</td>
<td>-25 to 100°C</td>
<td>-25 to 100°C</td>
<td>-25 to 100°C</td>
</tr>
<tr>
<td>Underwater</td>
<td>10 to 30°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Liquid resistance**

- No trouble even when machine oil, light oil or 5% saline is attached.

**Waterproof**

- Rain-proof: can be used in rain as long as the battery compartment cover is closed but cannot be used underwater.
- Neither waterproof nor rain-proof.

*Tapped Flex® tube: Insertion tube with flexibility gradually increasing toward the distal end.

**Note**

- *Excluding IV8635X1. Not operable underwater with stereo measurement adaptors.
- *2 Available only for IPLEX UltraLite Stereo Measurement models.
- *1 Indicates the viewing distance with optimal focus.
Industrial Fiberscopes—Slim Diameters, Superior Optics and Maximum Flexibility for Ultimate Control in Industrial Inspection.

**Main Features**

**High Resolution**
Original Olympus high-performance optics technology, such as high-density glass fibre bundles, offers the world’s highest level of fibrescopic resolution and bright, sharp images.

**Tapered Flex™ Tube with Superior Insertability**
IFS Series scope (except IF2D5) employ the Tapered Flex™ tube. Ideal for insertion into multiple-bend pipes, the insertion tube’s flexibility changes continuously—being highly flexible at the tip and rigid at the control section. As a result, IFS Series scopes can easily be passed through bends and elbows. At the same time, the gradually increasing rigidity of tube as it approaches the control section assures easier transmission of pushing/twisting strength after the first bend.

**Tip Angulation**
The distal end can be angled in either two or four directions, by handheld controls (except IF6PD4).

**Interchangeable Optical Adaptors**
Facilitate a wide variety of viewing angles and directions in just one scope (most models).

**Fully Waterproof Insertion Section**

**Photo and Video Documentation**
Video recording and photography are available by connecting a CCD camera or the Olympus digital camera.

Note: Fibres may be broken when purchased due to normal product characteristics. The more the insertion tube is more, the more likely the angulation is to decrease.

**Main Applications**
Ideally for internal inspection of piping, machinery, structural members, etc. Highly flexible for versatility and multi-purpose applications.

- Inside water supply/drainage pipes and plant piping
- Inside engines of vehicles, aircraft, etc.
- Inside machines such as motors and boilers
- Inaccessible areas within steel towers, buildings, etc.

### Product Lineup

**Industrial Fiberscopes**

**IF6C5X1/IF8C5/IF11C5**

**Standard Fiberscopes with Excellent Views**
- The distal end can be bent in four directions by handheld operation.
- The Tapered Flex™ tube designed for easy passages through bends and elbows.
- You can change the field of view, direction of view and depth of field by switching the optical adaptor.

**IF6PD4/IF2D5/IF4D5/IF4S5**

**Ultra-thin Diameters**
- The ultra-thin flexible fiberscopes (0.64 mm diameter in minimum) allow you to inspect inside narrow-diameter hole with 1 mm or more diameter.

**IF5D4X1-14**

**Specifically for PT-6 Engine Inspection**
- Easily change the direction of view by switching the optical adaptor.
- Most suitable for airframe examinations and inspection of turbine blade.
- Authorised by Pratt & Whitney as the fiberscope for PT-6 and ST-6 engines maintenance.
### Specifications

#### Operating temperatures

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Operating Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>In air</td>
<td>FI6PD4</td>
</tr>
<tr>
<td>10 to 40°C</td>
<td>✓</td>
</tr>
<tr>
<td>10°C to 30°C</td>
<td>✓</td>
</tr>
<tr>
<td>-10°C to 50°C</td>
<td>✓</td>
</tr>
</tbody>
</table>

#### Liquid resistance (against machine oil, light oil and 5% saline)

- Insertion tube: ✓
- Control section: ✓

#### Waterproof

- Insertion tube: ✓
- Control section: ✓

#### Drip-proof

- Insertion tube: ✓
- Control section: ✓
Industrial Rigid Borescopes—Ultimate image clarity and enhanced brightness combining with a comprehensive lineup to provide real choice for Industrial inspections.

**Main Features**

- **Clear, High-resolution Images**
  Excellent detail reproductions. Sharp image is easy on the eyes, helping reduce inspector fatigue.

- **Focus Adjustment Mechanism**
  Easy-to-use focus control.

- **370° Rotation**
  Upward pointer keeps you oriented when using the rotation function (not all models).

- **Increased Field of View**
  32% larger field of view in R040 models and 96% larger field of view in R060 models.

- **Accurate Image Reproduction**
  Distortion at image edges has been dramatically reduced.

- **Even Illumination**
  New tip design ensures more even illumination even when viewing close-range subjects (not available in direct-viewing scopes and R160 models).

- **Outstanding Durability**
  Stainless steel insertion tube usable at temperatures between –20°C and 150°C as well as under pressure of up to 1.7 atmospheres (except Miniborescopes and Small Diameter Borescopes).

- **Ergonomic Control Section**
  Fits snugly in your hand.

- **Versatile Lineup**
  Close to 200 models available featuring various diameters, working lengths, and viewing directions and angles.

- **Ideal for inspections on a video display**
  The bright images on a video display are effective for inspections in production lines.

**Main Applications**

Ideal for inspection of sites that can be accessed head-on with relatively shallow insertion. Excellent images are delivered when a video camera is mounted.

For inspecting:
- Inside narrow-diameter holes and pipes
- Inside cast and hydraulic parts and honing-processed holes
- The side wall of a hole with 1mm or more diameter
- Inside aircraft engines, hollow walls or buildings, machinery, structures, etc.
Product Lineup

Standard Rigid Borescopes
The stainless steel insertion tube usable at temperature between –20°C and 150°C. Close to 200 models available featuring various diameters, working length, and viewing directions and angles.

Swing-prism Borescopes
The scope’s direction of view can be adjusted continuously from fore-oblique to retro viewing—coupled with the field of view, this allows a total viewing arc of 120° to 140°.

Zoom Swing-prism Borescopes
The Zoom swing prism incorporates the same characteristics as the standard swing prism, but with the added feature of 2X optical zoom. This allows the user to zoom onto an object of interest, providing a magnified view.

Engine Borescopes
The Engine borescopes have been designed to meet manufacturer and user specification requirements specifically for a number of key military and commercial aero engines.

Small Diameter Borescopes
Raise your productivity with easy-to-use, highly durable, small diameter borescopes.
- Small diameter (down to 0.9 mm) and wide field of view (up to 70°).
- Clear image transmission via latest fibre technology.
- Separate fibre bundle for illumination of inspection area.

MK Modular Mini-scopes
1.2 mm, 1.7 mm, and 2.7 mm ultra-thin borescopes for extremely tight spaces. Interchangeable eyepiece and body assembly will reduce the risk of damage and need for repair.

Operating Environment

<table>
<thead>
<tr>
<th>Operating Environment</th>
<th>Standard Rigid Borescope</th>
<th>Swing-prism Borescope</th>
<th>Zoom Swing-prism Borescope</th>
<th>MK Modular Mini-scope</th>
<th>Small Diameter Borescope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperatures</td>
<td>Insertion tube</td>
<td>-20 to 150°C</td>
<td>10 to 30°C</td>
<td>10 to 50°C</td>
<td>710 to 1000 hPa</td>
</tr>
<tr>
<td>Underwater</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>710 to 1060 hPa</td>
</tr>
<tr>
<td>Other parts than above</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>710 to 1000 hPa</td>
</tr>
<tr>
<td>Operating atmospheric pressure</td>
<td>Insertion tube</td>
<td>-20 to 50°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Underwater</td>
<td></td>
<td>Up to 1700 hPa</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other parts than above</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Up to 1970 hPa</td>
</tr>
<tr>
<td>Liquid resistance</td>
<td>No trouble even when machine oil, light oil or 5% saline is attached.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterproofing</td>
<td>Insertion tube</td>
<td>Waterproof: can be used underwater.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other parts than above</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Drip-proof</td>
</tr>
</tbody>
</table>

Connectable light sources and light guides differ depending on the rigid borescope models. Please ask our sales representatives for details.
## Industrial Rigid Borescopes

### Specifications

#### Standard Rigid Borescopes

<table>
<thead>
<tr>
<th>Product code</th>
<th>Outer diameter</th>
<th>Effective length</th>
<th>Direction of view</th>
<th>Field of view</th>
<th>Depth of field</th>
</tr>
</thead>
<tbody>
<tr>
<td>R040-021-000-50</td>
<td>ø4.1 mm</td>
<td>21 cm</td>
<td>0°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
<tr>
<td>R040-022-000-50</td>
<td>ø4.1 mm</td>
<td>22 cm</td>
<td>90°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
<tr>
<td>R040-023-000-50</td>
<td>ø4.1 mm</td>
<td>33 cm</td>
<td>45°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
<tr>
<td>R040-033-000-50</td>
<td>ø4.1 mm</td>
<td>32 cm</td>
<td>90°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
<tr>
<td>R160-101-090-35 ILG*</td>
<td>ø4.1 mm</td>
<td>17 cm</td>
<td>45°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
<tr>
<td>R160-101-000-35 ILG*</td>
<td>ø4.1 mm</td>
<td>32 cm</td>
<td>90°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
<tr>
<td>R160-059-000-35 ILG*</td>
<td>ø4.1 mm</td>
<td>47 cm</td>
<td>45°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
<tr>
<td>R120-039-090-35 ILG*</td>
<td>ø4.1 mm</td>
<td>63 cm</td>
<td>45°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
</tbody>
</table>

#### Swing-prism Borescopes

<table>
<thead>
<tr>
<th>Product code</th>
<th>Outer diameter</th>
<th>Effective length</th>
<th>Direction of view</th>
<th>Field of view</th>
<th>Depth of field</th>
</tr>
</thead>
<tbody>
<tr>
<td>R060-047-090-50</td>
<td>ø4.1 mm</td>
<td>120 cm</td>
<td>90°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
</tbody>
</table>

#### Zoom Swing-prism Borescopes

<table>
<thead>
<tr>
<th>Product code</th>
<th>Outer diameter</th>
<th>Effective length</th>
<th>Direction of view</th>
<th>Field of view</th>
<th>Depth of field</th>
</tr>
</thead>
<tbody>
<tr>
<td>R080-084-000-50</td>
<td>ø4.1 mm</td>
<td>22 cm</td>
<td>15°</td>
<td>5° to ∞ mm</td>
<td></td>
</tr>
</tbody>
</table>

#### Major Engine Range Specifications

- **Rolls-royce RB211/TRENT**
- **GE GE90/CF34/CFM56/F110**

### Small Diameter Borescopes

<table>
<thead>
<tr>
<th>Product code</th>
<th>Outer diameter</th>
<th>Effective length</th>
<th>Direction of view</th>
<th>Field of view</th>
<th>Depth of field</th>
</tr>
</thead>
<tbody>
<tr>
<td>X009-000-000-70</td>
<td>ø0.9 mm</td>
<td>6 cm</td>
<td>0°</td>
<td>7.0 to ∞ mm</td>
<td></td>
</tr>
<tr>
<td>X009-000-050-70</td>
<td>ø0.9 mm</td>
<td>15 cm</td>
<td>0°</td>
<td>5.0 to 1.6 mm</td>
<td></td>
</tr>
<tr>
<td>X009-015-000-70</td>
<td>ø0.9 mm</td>
<td>25 cm</td>
<td>0°</td>
<td>2.0 to 7.0 mm</td>
<td></td>
</tr>
<tr>
<td>X009-015-050-70</td>
<td>ø0.9 mm</td>
<td>15 cm</td>
<td>0°</td>
<td>1.2 to 1.6 mm</td>
<td></td>
</tr>
<tr>
<td>X015-015-000-70</td>
<td>ø0.9 mm</td>
<td>30 cm</td>
<td>15°</td>
<td>0.8 to 1.6 mm</td>
<td></td>
</tr>
<tr>
<td>X015-015-050-70</td>
<td>ø0.9 mm</td>
<td>15 cm</td>
<td>15°</td>
<td>0.8 to 1.6 mm</td>
<td></td>
</tr>
<tr>
<td>X015-015-100-70</td>
<td>ø0.9 mm</td>
<td>25 cm</td>
<td>15°</td>
<td>2.0 to 7.0 mm</td>
<td></td>
</tr>
</tbody>
</table>

### MK Modular Mini-scopes / Features and Functions

<table>
<thead>
<tr>
<th>Product code</th>
<th>Outer diameter</th>
<th>Effective length</th>
<th>Direction of view</th>
<th>Field of view</th>
<th>Depth of field</th>
</tr>
</thead>
<tbody>
<tr>
<td>MK012-038-000-45</td>
<td>ø1.2 mm</td>
<td>9 cm</td>
<td>0°</td>
<td>45°</td>
<td>1 to ∞ mm</td>
</tr>
<tr>
<td>MK012-038-015-63</td>
<td>ø1.2 mm</td>
<td>9 cm</td>
<td>15°</td>
<td>55°</td>
<td>1 to ∞ mm</td>
</tr>
<tr>
<td>MK017-038-000-62</td>
<td>ø1.7 mm</td>
<td>9 cm</td>
<td>0°</td>
<td>62°</td>
<td>1 to ∞ mm</td>
</tr>
<tr>
<td>MK017-038-015-62</td>
<td>ø1.7 mm</td>
<td>9 cm</td>
<td>15°</td>
<td>62°</td>
<td>1 to ∞ mm</td>
</tr>
<tr>
<td>MK017-038-015-90</td>
<td>ø1.7 mm</td>
<td>9 cm</td>
<td>15°</td>
<td>90°</td>
<td>1 to ∞ mm</td>
</tr>
<tr>
<td>MK017-038-015-115</td>
<td>ø1.7 mm</td>
<td>9 cm</td>
<td>15°</td>
<td>115°</td>
<td>1 to ∞ mm</td>
</tr>
<tr>
<td>MK017-038-015-200</td>
<td>ø1.7 mm</td>
<td>15 cm</td>
<td>15°</td>
<td>200°</td>
<td>1 to ∞ mm</td>
</tr>
<tr>
<td>MK017-038-015-300</td>
<td>ø1.7 mm</td>
<td>15 cm</td>
<td>15°</td>
<td>300°</td>
<td>1 to ∞ mm</td>
</tr>
<tr>
<td>MK017-038-015-500</td>
<td>ø1.7 mm</td>
<td>15 cm</td>
<td>15°</td>
<td>500°</td>
<td>1 to ∞ mm</td>
</tr>
</tbody>
</table>

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*Light guide is twice.*

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24
Long-life Halogen Light Source
ILK-7C (Not Available in All Areas)
Refined for environmental resistance and long life, this model is suitable for use on production lines.

- **Specifications**
  - **Voltage**: 100-120 V 50-60 Hz, 115 V 400 Hz
  - **Power consumption**: 280 W
  - **Dimensions**: 178 (W) x 76 (H) x 230 (D) mm
  - **Weight**: 2.3 kg

- **Significantly longer life**
The life of the light source has been dramatically extended to an average 500 hours when 15 V 150 W lamps are used.

- **Improved environmental resistance**
The circuit board is insulated with a silicon rubber coating that reduces the possibility of short-circuiting and improves atmospheric resistance at the site.

Halogen Light Source
ILK-7/ILK-7A/ILK-7B
The ILK-7 range of light sources incorporates a 150 W tungsten-halogen lamp offering features necessary to meet most industrial needs.

- **Specifications**
  - **Voltage**: 100-120 V 50-60 Hz, 115 V 400 Hz
  - **Power consumption**: 280 W
  - **Dimensions**: 178 (W) x 76 (H) x 230 (D) mm
  - **Weight**: 2.3 kg

Metal-halide High Intensity Light Source
ILH-2A/ILH-2B
With three times the intensity of its predecessor, this high-output light source is ideal for observation inside large spaces.

- **Specifications**
  - **Voltage**: 100-240 V AC, 10-15 V DC
  - **Power consumption**: 100W
  - **Dimensions**: 173 (W) x 86 (H) x 235 (D) mm
  - **Weight**: 3.0 kg

UHP High Intensity Light Source
ILP-2
Bright and compact—the ILP-2 light source has been specifically designed for large void inspections. Incorporating the latest UHP lamp technology it is now the brightest, most powerful light source ever produced by Olympus.

- **Specifications**
  - **Voltage**: 100–240 V AC, 10–15 V DC
  - **Power consumption**: 100 W
  - **Dimensions**: 166 (W) x 109 (H) x 261 (D) mm
  - **Weight**: 2.9 kg

Portable Halogen Light Source
ILK-D1/ILK-D2
The compact, portable light sources are operated from 12 V DC supply. They can be mounted on a belt or jacket pocket using a spring clip.

- **Specifications**
  - **Voltage**: 12 V DC
  - **Power consumption**: 80 W
  - **Dimensions**: 147 (W) x 75 (H) x 168 (D) mm
  - **Weight**: 0.6 kg

Portable Halogen Light Source
KLS-131
The KLS-131 light source can be used as a stand alone system or as part of the modular borescope system. It is available with either XLR connector or crocodile clips for car battery use.

- **Specifications**
  - **Voltage**: 12 V DC
  - **Power consumption**: 80 W
  - **Dimensions**: 137 X 53 mm
  - **Weight**: 0.6 kg

UV Light Source
(Recommended Models are Available from our Sales Representatives)
Olympus offers high power UV light sources compatible with all the light guide cables and fiberscopes for fluorescent testing.
Compact LED Light Source

**LED Light Source ILD-3**

The LED light source designed for the MK Modular Mini-scope gives superior brightness at reduced power consumption, and the greatly increased LED life offers lower long term cost and reduced environmental impact. With the use of adaptors it can be fitted to a range of scopes, giving our rigid borescopes or fiberscopes a unique portability.

<table>
<thead>
<tr>
<th>Specifications</th>
<th>ILD-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>3 VDC rechargeable batteries, ILD-C or Accessory Desktop PSU</td>
</tr>
<tr>
<td>Dimensions</td>
<td>55mm long x 30mm diameter</td>
</tr>
<tr>
<td>Weight</td>
<td>65 g without CR123 battery</td>
</tr>
<tr>
<td>Run time</td>
<td>7.5 hours per interchangeable battery or 8 hours at full brightness from the ILD-C</td>
</tr>
<tr>
<td>Colour Temperature</td>
<td>6350 K</td>
</tr>
</tbody>
</table>

**Battery Control Unit for Compact LED Light Source ILD-C**

The ILD-C offers brightness control and prolonged run time from its rechargeable internal battery in use with the ILD-2 or ILD-3, negating the need for external power and providing a completely portable light source. The provided desktop power supply will charge the ILD-C at the same time as running the attached ILD-2 or ILD-3, offering continuous use.

<table>
<thead>
<tr>
<th>Specifications</th>
<th>ILD-C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>9 to 19 VDC</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>38 W Max when charging</td>
</tr>
<tr>
<td>Dimensions</td>
<td>130mm x 90mm x 38mm</td>
</tr>
<tr>
<td>Weight</td>
<td>650 g</td>
</tr>
</tbody>
</table>

**Compact LED Light Source ILD-2**

Directly competing with the high power halogen units in terms of brightness, but only using a fraction of the power – this light source provides a freedom of portability that only LED technology can offer. Coupled with the comprehensive range of scope adaptors available, this lightsource is the most versatile we have ever offered.

<table>
<thead>
<tr>
<th>Specifications</th>
<th>ILD-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>ILD-C or Accessory Desktop PSU</td>
</tr>
<tr>
<td>Dimensions</td>
<td>81mm long x 38mm diameter</td>
</tr>
<tr>
<td>Weight</td>
<td>108 g</td>
</tr>
<tr>
<td>Run time</td>
<td>2.5 hours at full brightness from the ILD-C</td>
</tr>
<tr>
<td>Colour Temperature</td>
<td>5500 K</td>
</tr>
</tbody>
</table>

**Belt Clip and ILD-2 Holster**

Available as accessories converting the ILD-C and ILD-2 into a portable light source system for our rigid borescopes and fiberscopes.

**Connecting Scope Adaptors for ILD-2 and ILD-3**

A range of adaptors to connect the compact light sources to our various rigid borescopes and fiberscopes.

<table>
<thead>
<tr>
<th>Adapted Scopes via Connecting Scope Adaptors</th>
<th>ILD-2</th>
<th>ILD-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Rigid Borescopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swing-Prism Borescopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard Rigid Borescopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Diameter Borescopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Small Diameter Borescopes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiberscopes with Olympus Light Guides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiberscopes with Olympus Light Guides</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiberscopes with Olympus Medical Fiberoptic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiberscopes with Olympus Medical Fiberoptic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: Adaptors connecting ILD-2 to rigid borescopes from other companies are also available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note: MK Modular MM-scopes are directly connectable to ILD-3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
For Industrial Videoscopes IPLEX series

Rigid Sleeve
MAJ-1737 (for ø4.0 mm dia. insertion tube)
MAJ-1281 (for ø4.4 mm dia. insertion tube)
MAJ-1253 (for ø6.0/ø6.2 mm dia. insertion tube)
Useful as an auxiliary insertion tool and also makes the scope easier to handle. Simply fit and lock the sleeve onto the tip of the insertion tube.

Battery and Charger (for IPLEX LX / IPLEX LT / IPLEX TX / IPLEX MX II)
NC2040OL24 (Lithium-ion battery)
CH5000C (Charger, USA type)
CH5000X (Charger, European type)
The battery provides 2 hours of operating time.
Note: Over 100-minute operating time for the IV88 series.

Retrieval Tools (for IPLEX FX / IPLEX SX II R)
Various retrieval tools are available depending on objects.

Battery and Charger (for IPLEX UltraLite)
IB-1 (Lithium-ion battery)
IC-1 (Charger)
The battery provides approximately 90 minutes of operating time.

Handheld Controller Holder (for IPLEX FX / IPLEX LX / IPLEX LT)
MB-937
Allows the handheld controller to be affixed to a tripod, making it useful for prolonged inspections.

Battery and Charger (for IPLEX FX / IPLEX YS)
NP-L7S (Lithium-ion battery)
JL-2PLUS/OL-0 (Charger, 115 V type)
JL-2PLUS/OL-1 (Charger, 220 V type)
The battery provides over 2 hours of operating time.

LCD Monitor Extension Cable (for IPLEX FX)
SU492400 Length: 2 m
The 2 m length cable allows you to operate the main unit while moving freely around a expanded area.
Note: The LCD monitor shown in this photo does not come with this cable.
Accessories

UV Inspection Adaptors* (for IPLEX FX)
Enable the UV inspections by being attached onto the IPLEX FX scope tip.

Guide Tube with Articulation for Inspection of JT8D Engines*
(for IPLEX FX / IPLEX LX / IPLEX LT / IPLEX II R / IPLEX SA II R)
Provides a second movable joint for incredibly flexible control, which is ideal for inspecting the combustion chamber of JT8D engines. Available on IV8620, IV8635, IV7635, and IV7650 series.
Note: Pratt & Whitney approved for JT8D engine inspection.

Durable Carrying Case (for IPLEX UltraLite)
MAJ-2019
This optional durable case fully protects the instrument from damage during shipment. It is small enough to fit in the overhead compartment of most aircraft, making it ideal for frequent transport.

High Temperature Guide Tube*
MAJ-1867 (for 4 mm insertion tube)
The High Temperature Guide Tube is able to operate at temperatures up to 250°C which makes it ideally suited for inspections of hot aircraft engines, boilers, and furnaces. The benefit of utilizing this guide tube is that inspections can start at a higher temperature, thereby reducing the waiting time for the inspected area to cool down.

Tripod Adaptor (for IPLEX UltraLite)
MAJ-2017
Makes it possible to mount the IPLEX UltraLite on a tripod for increased stability during prolonged inspections.

Centring Device Set (for 8.5mm insertion tube)
MAJ-1935
Allows you to centre the scope inside a pipe by attaching it to the scope distal end. The set consists of two devices in 75 mm and 140 mm finger lengths.

Guide Tube for Long Scope
(for IPLEX FX / IPLEX LX / IPLEX LT)
MAJ-1824-50 (for IV8650)
MAJ-1824-75 (for IV8675 series)
MAJ-1824-120 (for IV86120)
MAJ-1824-180 (for IV86180)
Protects the scope and assists in smooth entry when inserting it into a wide pipe.

Protects the scope and assists in smooth entry when inserting it into a wide pipe.

Enable the UV inspections by being attached onto the IPLEX FX scope tip.

Provides a second movable joint for incredibly flexible control, which is ideal for inspecting the combustion chamber of JT8D engines. Available on IV8620, IV8635, IV7635, and IV7650 series.
Note: Pratt & Whitney approved for JT8D engine inspection.

This optional durable case fully protects the instrument from damage during shipment. It is small enough to fit in the overhead compartment of most aircraft, making it ideal for frequent transport.

The High Temperature Guide Tube is able to operate at temperatures up to 250°C which makes it ideally suited for inspections of hot aircraft engines, boilers, and furnaces. The benefit of utilizing this guide tube is that inspections can start at a higher temperature, thereby reducing the waiting time for the inspected area to cool down.

Makes it possible to mount the IPLEX UltraLite on a tripod for increased stability during prolonged inspections.

Allows you to centre the scope inside a pipe by attaching it to the scope distal end. The set consists of two devices in 75 mm and 140 mm finger lengths.
Flex and Stay Adaptor (for IPLEX series)
Enables the videoscope and fiberscope to be housed in a semi-flexible tube supporting the scope insertion to difficult areas.
Note: This adaptor can be used for the industrial fiberscopes as well.

Pushing Rod (for IPLEX YS)
Provides support for inserting the scope tip into a deep area.

Protective Braid (for IPLEX TX)
Covers the IPLEX TX insertion tube providing additional protection when used in very coarse environments.

Remote Controller Extension Cable
MAJ-1091 (for IPLEX YS)
Extends the remote control cable by 4 m, permitting free movement during operation.

Side View Rigid Sleeve (for IPLEX MX II)
MAJ-1730 (for ø4.4 mm)
MAJ-1731 (for ø6.0 mm)
Side view rigid sleeve with prism-style LED illumination enables effective inspection of small gas turbine engines.

CO₂ Cartridge (for IPLEX YS)
The portable CO₂ cartridge can be fixed onto the IPLEX YS, letting you manipulate scope articulation without a bulky compressor.
Note: Please consult a sales representative for the recommended model.

Length Indicator (for IPLEX YS)
Indicates how far the insertion tube is inserted into an object.
**Accessories**

**Side View Mirror Adaptor** (for IPLEX MX II)

You can change the direction of view by mounting the side viewing tip adaptor. The diameter of the side viewing tip adaptor is ø7.4 mm

*Exclusively for use on WBR30M.

**High Magnification Adaptor***(for IPLEX MX II)

MAJ-1566

Provides approx. 20X high magnification observation on the IPLEX MX II monitor by being attached onto the insertion tube.

**OM Adaptors**

Allow you to connect industrial fiberscopes or rigid borescopes to selected Olympus digital SLR cameras or mirrorless ones.

1 The optional OM adaptor MF-1 or MF-2 is required to connect the OM adaptors listed below to the digital SLR cameras or mirrorless ones.

**C-mount Adaptors**

For connection of TV cameras to Fiberscopes and Rigid Borescopes.

<table>
<thead>
<tr>
<th>Scope</th>
<th>C-mount adaptor</th>
<th>Magnification ratio</th>
<th>Brightness ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>IF3 Series</td>
<td>IF250S-36, 32</td>
<td>0.8</td>
<td>1.6</td>
</tr>
<tr>
<td>IF150D-03, IF150D-03-23 Image Camera</td>
<td>IF250S</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>IF4S/4S, IF6D4, IF8D5</td>
<td>AI-10C</td>
<td>0.8</td>
<td>1.56</td>
</tr>
<tr>
<td>IF6D4, IF8D4, IF11D4</td>
<td>AI-11C</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>IF4S/4S, IF6D4, IF8D5, IF8D5</td>
<td>AI-10C</td>
<td>1.51</td>
<td>0.44</td>
</tr>
<tr>
<td>IF8D4, IF11D4</td>
<td>AI-10C</td>
<td>1.0</td>
<td>0.25</td>
</tr>
<tr>
<td>IF2D4, IF2D5</td>
<td>AI-3C</td>
<td>0.75</td>
<td>1.8</td>
</tr>
<tr>
<td>IF8D4, IF2D4, IF2D5</td>
<td>AI-15C</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Rigid Borescopes</td>
<td>AI-3C</td>
<td>1.56</td>
<td>0.63</td>
</tr>
<tr>
<td>Miniborescopes</td>
<td>AI-3C</td>
<td>1.56</td>
<td>0.63</td>
</tr>
<tr>
<td>Microscope</td>
<td>AI-R5M</td>
<td>2.4</td>
<td>0.17</td>
</tr>
</tbody>
</table>

**Light Guide Cable**

This accessory transmits light from a separate light source.

**Multi-purpose Sleeve**

Useful to provide a constant insertion depth of rigid Borescopes.
Magnification Ratio of IPLEX-series Monitors

Note: The magnification chart of the IPLEX MX II in 6.0 mm dia. is approximately same as that of AT120D/FF-IV84.

Far focus adaptor
- IPLEX FX / IPLEX LX / IPLEX LT / IPLEX YS

Near focus adaptor
- IPLEX FX / IPLEX LX / IPLEX LT / IPLEX YS
**Magnification Ratio of IPLEX-series Monitors**

Note: The magnification chart of the IPLEX MX II in 6.0 mm dia. is approximately same as that of AT120D/FF-IV84.

远焦适配器
- **IPLEX UltraLite**

近焦适配器
- **IPLEX UltraLite**

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**Far focus adaptor**

- **IPLEX UltraLite**

**Near focus adaptor**

- **IPLEX UltraLite**

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**IPLEX TX**

---

Distance from distal end to object (mm)
**Range of Magnification Ratios During Inspection**

**Fiberscopes**

- Magnification ratio ($\times$)

![](fiberscopes_chart)

**Small Diameter Borescopes**

- Magnification ratio ($\times$)

![](borescopes_chart)

**Rigid Borescopes (larger than ø4 mm)**

- Magnification ratio ($\times$)

![](rigid_borescopes_chart)

**MK Modular Mini-Scopes**

- Magnification ratio ($\times$)

![](mk_modular_chart)
System Charts

Videoscopes

IPELEX FX

IPELEX LX / IPELEX LT

IPELEX UltraLite
The iPLEX YS industrial videoscope is equipped with the laser illumination.