

### Remote Visual Inspections



- Videoscopes
- Fiberscopes
- Rigid Borescopes
- Miniboscopes
- Light sources
- Accessories

# Olympus Industrial Endoscopes Satisfy Various Demands for Remote Visual Inspections in Diverse Industries.

Olympus is a world-renowned leader in remote visual inspection technology with a comprehensive portfolio of industrial endoscopes that facilitate accurate inspections of small, enclosed spaces. These endoscopes can be used for a wide range of industries and applications.

## Application examples

### ■ Aerospace

Airframe examinations, inspection of turbine blades and combustion chambers, and research, development and production of rocket engines.

### ■ Power Generation

Maintenance of heat exchanger pipes, condensers, piping and turbines in nuclear/ thermal power generation plants, and gearboxes of wind power generation facilities.

### ■ Oil/Gas/Chemical Plants

Routine and urgent inspection of process piping, pressured storage reservoirs, heat exchangers, boilers, etc.

### ■ Automotive

Quality control examination of engines, hydraulic components, injection nozzles, as well as final inspection of assemblies.

### ■ Defense/Security

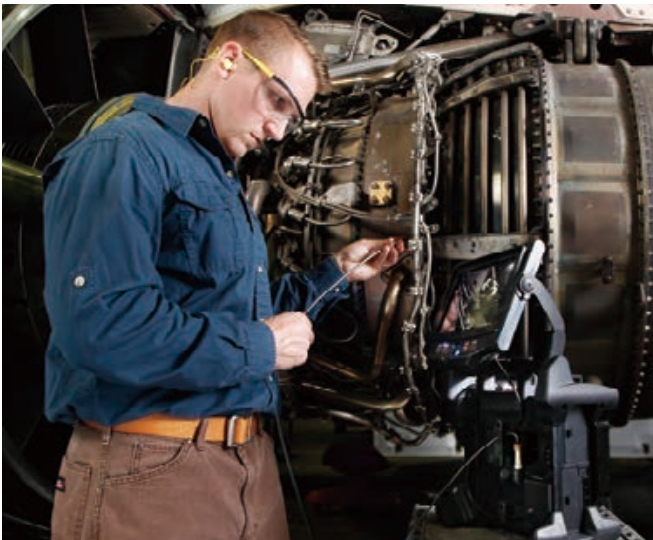
Maintenance of military aircraft, as well as for detection of narcotics and other contraband items, and search of victims who may be trapped as the result of various disasters.

### ■ Architecture/Construction

Examination of walls, ducts, structural joints of bridges and constructions.

### ■ Manufacturing

Monitoring operation of equipment and factory automation through automatic inspection and positioning, as well as R&D applications.



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# A Variety of Lineup to Suit Your Specific Requirements

## Industrial Videoscopes

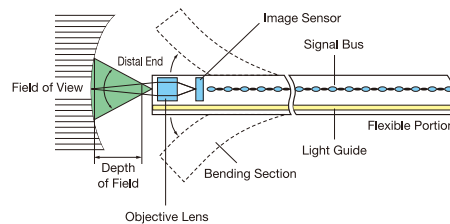
Compact endoscope systems with exceptional functionality, simple operation, and proven durability.

Industrial endoscopes feature a high-resolution image sensor positioned at the objective end, and matched to our precision lenses to deliver bright, colour-rich images. Advanced LED or laser diode illuminations provide optimum brightness to the inspection area. The compact and lightweight videoscopes achieve high quality inspections at any site, featuring versatile functionality and proven reliability under demanding circumstances.

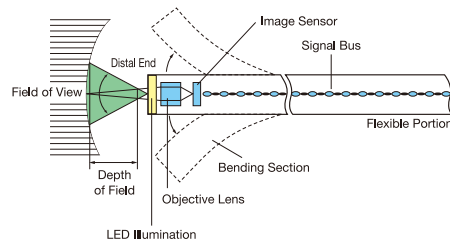


### Structural Drawing

#### ► IPLEX NX/ IPLEX RX/ IPLEX RT/ IPLEX YS/ IPLEX TX



#### ► IPLEX UltraLite/ Series C

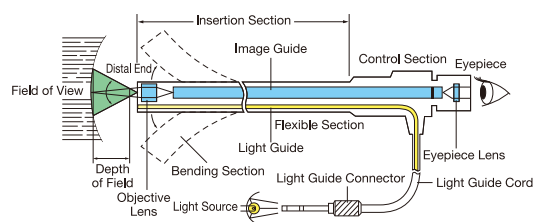


## Industrial Fiberscopes

Flexible endoscopes for simple observations through an eye piece. Observation on a monitor is available by connecting to a CCD camera.

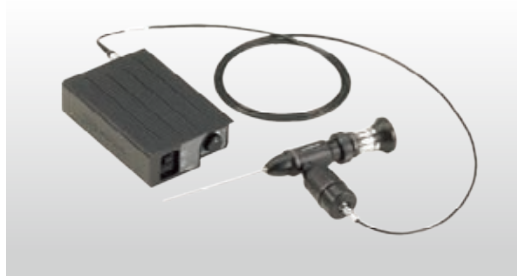


#### ► Industrial Fiberscopes

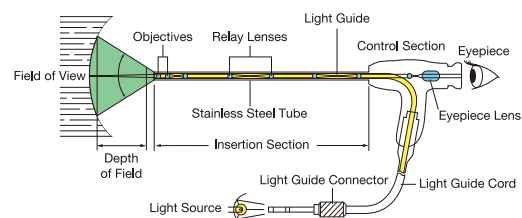


## Industrial Rigid Borescopes

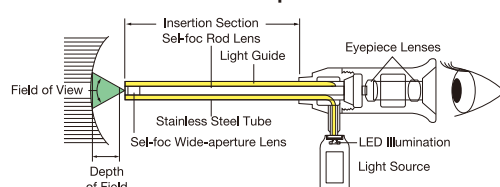
Where straight-line access to the inspection area is possible, providing effective and cost-efficient inspections.



#### ► Standard Rigid Borescopes/ Swing-prism Borescopes/ Zoom Swing-prism Borescopes/ Engine Borescopes



#### ► MK Modular Mini-Scopes





# Industrial Videoscope Series

## Flagship of Industrial Videoscopes

### IPLEX NX

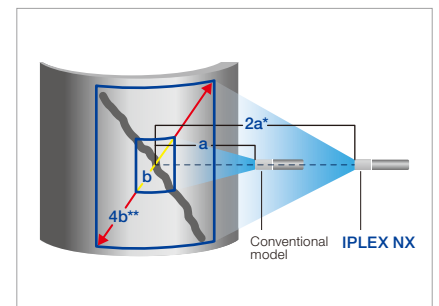
φ4.0、6.0 L=3,500 to 7,500 mm

Allows for precise inspection with clear and fine view Upgraded Stereo measurement capability.



## Features

- Multi position design for various usage environments
- Touch screen allows for quick operation
- Super wide field stereo measurement



\* Even if the measurement is performed from two times further away, IPLEX NX is as precise as a conventional model. According to OLYMPUS internal survey.

\*\* When using a 6.0 mm scope with direct-viewing stereo optical adaptor, the diagonal length of the inspection area of IPLEX NX is almost 4times of the conventional model.

## IPLEX NX Specifications

### Scope Unit

Model No.		IV9435N	IV9450N	IV9635N	IV9650N	IV9675N
Insertion tube	Scope diameter	ø4.0 mm		ø6.0 mm		
	Scope length	3.5 m	5.0 m	3.5 m	5.0 m	7.5 m
	Exterior	High-durability tungsten braid				
Optical system	Field of view	Selectable by optical adaptor. Adaptor for stereo measurement attachable				
	Direction of view					
Illumination		High-intensity laser diode illumination				
Articulation section	Articulation angle up/ down/ right/ left	130°		180°		150°
	Articulation operation	TrueFeel scope tip articulation with electric power-assistance				

### Base Unit (IV9000N)

Dimensions(W x H x D)		320(W) x 310(H) x 180(D) mm				
Approx. system weight (with battery and SDHC card)		7.1 kg	7.2 kg	7.3 kg	7.4 kg	7.5 kg
Temperature sensor		2-stage indicator for high temperature warning				
LCD monitor		8.4 inch daylight view, touch screen LCD, clear type				
Input/Output terminal		Input terminal: S-video    Output terminal: VGA				
USB connector		Type A connector, Version 2.0 standards				
Image manipulations		5X digital zoom, 10 step brightness control				
Gain control		2 step WIDER brightness level balancing technology				
Power supply		Battery: 14.8 V nominal, approx. 100-minute operating time AC power: 100 V to 240 V, 50/60 Hz (with supplied AC adaptor)				
Recording media		SD/SDHC card and USB flash drive (still image recording only)				
Still image recording	Resolution	H768 x V576 (Pixel)			H1024 x V768 (Pixel)	
	Recording format	Compressed JPEG format				
Movie Recording	Resolution	H768 x V576 (Pixel)			H1024 x V768 (Pixel)	
	Recording format	AVI format   MPEG-4 AVC/H.264 compressed				
Stereo Measurement (Optional)		Distance, Point-to-line, depth and Area/ Lines				

URL: <http://www.olympus-ims.com/en/rvi-products/iplex-nx/>  
For more information: Please see individual product brochure.

## Standard Unit for Comfortable Operation

# IPLEX RX/RT

φ4.0, 6.0 L=2,000 to 7,500 mm

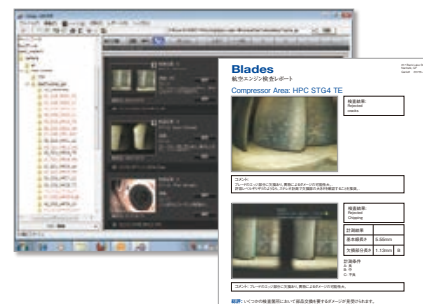


Small and light-weight design for comfortable operation at the site.



## Features

- Compact and portable design
- Comfortable operation with shoulder strap
- InHelp inspection assist software



Wireless LAN capability ready

\*Operation confirmed with TOSHIBA FlashAir wireless LAN SD card.

## IPLEX RX/RT Specifications

### Scope Unit

Model No.	IPLEX RX	IV9420RX	IV9435RX	IV9620RX	IV9635RX	IV9650RX	IV9675RX	IV96100RX
	IPLEX RT	IV9420RT	IV9435RT	IV9620RT	IV9635RT	IV9650RT	IV9675RT	IV96100RT
Insertion tube	Scope diameter	φ4.0 mm		φ6.0 mm				
	Scope length	2.0 m	3.5 m	2.0 m	3.5 m	5.0 m	7.5 m	10.0 m
	Exterior	High durability tungsten braid						
Articulation angle Up/ Down/ Right/ Left		130°		150°	130°	120°	100°	(*)

\* 60 degree as reference value.

### Handheld Control Unit

	IPLEX RX	IPLEX RT
Temperature sensor	2-stage indicator for high temperature warning	—
Illumination	High-intensity LED illumination	
Dimensions	365(W) × 192(H) × 93(D) mm	
Weight	Approx. 1.0 kg	

### Main Unit

Dimensions (W x H x D)		227(W) x 189 (H) x 64(D) mm						
Approx. system weight (with battery)		2.9 kg	3.0 kg	3.1 kg	3.2 kg	3.3 kg	3.5 kg	3.7 kg
LCD monitor		6.5 inch daylight view LCD, anti-reflective type						
Power Supply		Battery: 10.8 V nominal, approx. 120-minute operation time						
		AC power: 100 V to 240 V, 50/60 Hz (with supplied AC adaptor)						
Video output standard		VGA						
USB connector		Type A connector, Version 2.0 standards						
Image manipulations		5X digital zoom, 10 step brightness control						
Gain control		3 step adjustable gain control with exclusive WIDER brightness level balancing technology				—		
Sharpness control		4 step adjustable sharpness control				—		
Saturation control		3 step adjustable control of color saturation				—		
Recording media		USB flash drive (1 GB standard, compatible with recommended USB flash device)						
Still image recording	Resolution	H768 x V576 (Pixel)						
	Recording format	Compressed JPEG format						
	Size of a single image	Approx.300 KB						
Movie Recording	Resolution	H640 x V480 (Pixel)						
	Recording format	AVI format MPEG-4 compression						
	Size of files	Approx. 500 KB per second						
Stereo measurement (Optional)		Distance, Point-to-line, depth and Area/ Lines						

URL: <http://www.olympus-ims.com/en/rvi-products/iplex-rx/>  
For more information: Please see individual product brochure.

# Industrial Videoscope Series

## Multi-function Unit in Compact Body

### IPLEX UltraLite

φ4.0, 6.0 L=2,000, 3,500 mm



#### Features

- Multi-function should be Palm-sized design.
- Stereo measurement available (stereo tip adaptor required).
- Operable in harsh environment.

## IPLEX UltraLite Specifications

### Scope Unit

Model No.		IV8420U	IV8435U	IV8620U	IV8635U
Insertion tube	Scope diameter	ø4.0 mm		ø6.0 mm	
	Scope length	2.0 m	3.5 m	2.0 m	3.5 m
	Exterior	High durability tungsten braid			
Weight		700 g	760 g	800 g	900 g
Articulation section	Articulation angle	130°			120°
	Articulation operation	Joystick controlled			

### Main Unit

Dimensions	120(W) × 190(H) × 190(D) mm
Temperature sensor	2-stage indicator for high temperature warning
Illumination	Ultra-high intensity LED illumination
LCD monitor	3.7 inch LCD monitor
Power supply	Battery: 7.2 V approx. 70 minute operating time AC power: 100 V to 240 V, 50/ 60 Hz (with supplied AC adaptor)
USB connector	Type A connector, Version 2.0 standards
Harsh Environment Resistance	Rain and dust proof (compliant with IP55), drop proof
Image Manipulations	5X digital seamless zoom. 10 step digital brightness control
Recording Media	SD/ SDHC card (4 GB standard)
Still Image Recording	Resolution H640 × V480 (Pixel)
	Recording format Compressed JPEG format
	File size Approx. 300 KB
Movie Recording	Resolution H640 × V480 (Pixel)
	Recording format AVI format Xvid MPEG-4 compression
	File size Approx. 600 KB per second

URL: <http://www.olympus-ims.com/en/rvi-products/iplex-ultralite/>

## Ultra-thin Videoscope

### IPLEX TX

φ2.4 L=1,200 mm



#### Features

- The ultra-thin 2.4 mm diameter videoscope with articulation.
- Operable in harsh environment.
- Detachable scope unit.
- Bright and clear images using unique WIDER image processing.

## Optional product

### Protective braid

Special product for IPLEX TX

Covers the IPLEX TX insertion tube providing additional protection when used in very coarse environments.



## IPLEX TX Specifications

### Scope Unit

Model No.	IV8212T
Weight	0.2 kg
Insertion Tube	Scope diameter ø2.4 mm
	Scope length 1.2 m
	Exterior High durability resin tube with special processing
Optical system	Direction of view Direct view
	Field of view 80°
	Depth of view 3 to 70 mm
	Illumination Ultra high intensity LED light
Articulation section	Articulation angle up/ down 135°

### Main Unit

Model No.	IV8200T
Weight	1.7 kg with battery
Dimensions	Body: 227(W) × 189(H) × 64(D) mm Including protrusions: 239(W) × 215(H) × 99(D) mm
Control unit	Weight 0.3kg
	Dimensions 49(W) × 334(H) × 59(D) mm
LCD monitor	6.5 inch VGA daylight view monitor
Power supply	Battery: 10.8 V nominal, Approx. 120 minute operating time AC power: 100 V to 240 V, 50/60 Hz (with supplied AC adaptor)
Video signal output	Composite RCA
USB connector	Type A connector, Version 2.0 standards
Image manipulation	Zoom/ brightness control Digital seamless zoom (x0.5 to x2.0) 8step digital brightness control
	Gain control WIDER
Recording media	USB flash drive
Still image recording	Resolution H640 × V480 (Pixel)
	File format Compressed JPEG format (Exif 2.1 compliant)
	File size Approx. 300 KB
Movie recording	Resolution H640 × V480 (Pixel)
	File format AVI format MPEG-4 compression
	File size Approx. 500 KB per second

URL: <http://www.olympus-ims.com/en/rvi-products/iplex-tx/>  
For more information: Please see individual product brochure.

## Pneumatic Pressure Anguration Control in 30m Working Length

# IPLEX YS

ø8.5 L=30,000 mm



## IPLEX YS Specifications

### Scope unit

Model No.	Scope diameter	Scope length	Scope exterior	Articulation angle
IV88300Y	ø8.5 mm	30 m	High durability tungsten braid	60°
Articulation operation	Pneumatic control			
Illumination	Laser diode illumination			
Gravity sensor	Indicating gravity directions of the scope tip			
Lens cleaning function	Cleaning fine drip and dust on the scope top blowing by air			

### Main Unit

Dimensions	472(W) × 522(H) × 380(D) mm		
Weight	Approx. 26 kg		
LCD monitor	6.5 inch VGA daylight view monitor		
Power supply	Battery: 14.8 V approx. 120 minute operating time. AC power: 100 V to 240 V, 50/ 60 Hz (with supplied AC adaptor)		
Air supply	CO2 cartridge or air compressor		
Input/ Output terminal	Video signal output	BNC × 1, S video terminal × 1	
	Audio signal input	ø3.5 mm monaural mini jack	
	USB connector	Type A connector, version 2.0 standards	
Recording media	CF card: 1 to 4 GB Recommended USB flash drive		
Internal memory	1 GB		
Still image recording	Resolution	H640 × V480 (Pixel)	
	Recording format	Compressed JPEG format Exif 2 compliant TIFF (TIFF-YS)	
Movie recording	Resolution	NTSC: 320 × 240/640 × 480	
	Recording format	AVI format Motion JPEG compression rate fixed	
Voice recording	Recording format	WAV format (maximum 60 second )	

## Features

- Revealing a location of target with gravity sensor



Display gravity direction (Blue color: up side)

- Air jet blows away dust on the scope tip



- Air pressure articulation function



URL: <http://www.olympus-ims.com/en/rvi-products/iplex-ys/>

## IPLEX NX, RX,RT

# Long Scopes

ø6.0 L=5,000 to 10,000 mm

## IPLEX Long Scopes Main Specifications

	IPLEX NX	IPLEX RX	IPLEX RT
Monitor size	8.4 inch	6.5 inch	
Interchangeable scope unit	Available	Not available	
Illumination	Laser diode	LED	
Wider function	Available		Not available
Stereo measurement	Available		Not available
Maximum length of scope	7.5 m	10 m	

## Features

- Maximum 10m scope in portable body.
- Available remote control articulation.
- All weather resistance with rugged body.
- Stereo measurement available. (stereo tip adaptor required )



IPLEX RX/RT

URL: <http://www.olympus-ims.com/en/rvi-products/iplex-long/>  
For more information: Please see individual product brochure.



# Industrial Videoscope Series

## Smarter Insights Entry-level Scope

## Series C

$\phi 6.2$  L=2,000 mm



### Series C Specifications

## Main unit

	Scope diameter	ø6.2 mm
Insertion tube	Articulation angle up/ down/ right/ left	120°
	length	2 m
Control section	Dimensions	98(W) × 209(H) × 89(D) mm (without insertion tube and cable)
Optical system	Field of view	90°
	Depth of view	12 to 150 mm
Weight	Include battery	Approx. 735 g
LCD monitor	3.0 inch touch screen wide LCD monitor	
Zoom and brightness control	3x digital zoom, 8 step digital brightness control	
Recording media	SD/SDHC card (4-32GB)	
	Battery: 7.2 V (approx 120minute operation)	
Power supply	AC power: 100 V to 240 V, 50/60 Hz (with supplied AC adaptor)	
	USB connector	USB MiniB
Input/ Output terminal	Video signal output	HDMI mini (Type C)
	Picture output	720 × 480p (16:9), 60fps
Still image recording	H640 × V360 (Pixel) JPEG compression	
Movie recording	H640 × V360 (Pixel) MP4 format MPEG-4 AVC/H.264compression	

## Features

- Touch screen operation



- Flexible spring neck insertion tube



- Protection hood



URL: <http://www.olympus-ims.com/en/rvi-products/series-c/>

## For Turbine and Generator Inspection

## Internal Working Channel Scope

## Features

- For turbine engine inspection.
- Retrieval tools available.
- Stereo measurement available.
- Wider image function.



Snare MAJ-1353	Alligator MAJ-1354	Basket MAJ-1355	Grasper MAJ-1356	Magnet- MAJ-1357
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IPI FX FX

For more information: Please see individual product brochure.



# Optical Tip Adaptor for IPLEX Series

## IPLEX NX

		Optical tip adaptor for 4.0 mm scopes					Stereo tip adaptors (4.0 mm)		
Optical unit	Field of view	AT80D/FF-IV94N 80°	AT120D/NF-IV94N 120°	AT120D/FF-IV94N 120°	AT100S/NF-IV94N 100°	AT100S/FF-IV94N 100°	AT70D/70D-IV94N 70°/70°	AT50S/50S-IV94N 50°/50°	
	Direction of view	Direct view	Direct view	Direct view	Side view	Side view	Direct view	Side view	
	Depth of field <sup>1</sup>	35 to ∞ mm	2 to 200 mm	17 to ∞ mm	2 to 15 mm	8 to ∞ mm	5 to 200 mm	3 to 150 mm	
Distal end	Outer diameter <sup>2</sup>	ø4.0 mm	ø4.0 mm	ø4.0 mm	ø4.0 mm	ø4.0 mm	ø4.0 mm	ø4.0 mm	
	Rigid distal end length <sup>3</sup>	20.1 mm	20.2 mm	20.1 mm	22.9 mm	22.9 mm	22.3 mm	26.7 mm	
		Optical tip adaptor for 6.0 mm scopes					Stereo tip adaptors (6.0 mm)		
Optical unit	Field of view	AT50D/FF-IV96N 50°	AT80D/FF-IV96N 80°	AT120D/NF-IV96N 120°	AT120D/FF-IV96N 120°	AT120S/NF-IV96N 120°	AT120S/FF-IV96N 120°	AT90D/90D-IV96N 90°/90°	AT70S/70S-IV96N 70°/70°
	Direction of view	Direct view	Direct view	Direct view	Direct view	Side view	Side view	Direct view	Side view
	Depth of field <sup>1</sup>	50 to ∞ mm	20 to ∞ mm	7 to 300 mm	19 to ∞ mm	4 to 150 mm	20 to ∞ mm	5 to 250 mm	4 to 250 mm
Distal end	Outer diameter <sup>2</sup>	ø6.0 mm	ø6.0 mm	ø6.0 mm	ø6.0 mm	ø6.0 mm	ø6.0 mm	ø6.0 mm	ø6.0 mm
	Rigid distal end length <sup>3</sup>	21.3 mm	21.3 mm	21.4 mm	21.4 mm	26.6 mm	26.6 mm	25.0 mm	31.2 mm

\*1. Indicates the range over which the image can be viewed clearly. \*2. The adaptor can be inserted into a 4.0 mm or 6.0 mm hole when it is mounted on the scope. \*3. Indicates the length of the rigid portion at the scope's distal end when mounted.

## IPLEX RX/RT

		Optical tip adaptor for 4.0 mm scopes					Stereo tip adaptors (4.0 mm/ 6.0 mm)			
		AT80D/FF-IV94	AT120D/NF-IV94	AT120D/FF-IV94	AT100S/NF-IV94	AT100S/FF-IV94	AT50D/50D-IV94	AT50S/50S-IV94	AT60D/60D-IV96	AT60S/60S-IV96
Optical unit	Field of view	80°	120°		100°		50°/50°		60°/60°	
	Direction of view	Direct view (Forward view)			Side view		Direct view (Forward view)	Side view	Direct view (Forward view)	Side view
	Depth of field*1	35 to ∞ mm	2 to 200 mm	17 to ∞ mm	2 to 15 mm	8 to ∞ mm	5 to ∞ mm	4 to ∞ mm	5 to ∞ mm	4 to ∞ mm
Distal end	Outer diameter*2	ø4.0 mm					ø4.0 mm		ø6.0 mm	
	Rigid distal end length*3	19.0 mm			21.7 mm		24.3 mm	28.4 mm	24.9 mm	31.3 mm
Optical tip adaptor for 6.0 mm scopes										
		AT40D-IV96	AT80D/NF-IV96	AT80D/FF-IV96	AT120D/NF-IV96	AT120D/FF-IV96	AT80S-IV96	AT120S/NF-IV96	AT120S/FF-IV96	
Optical unit	Field of view	40°	80°		120°		80°	120°		
	Direction of view	Direct view (Forward view)					Side view			
	Depth of field*1	200 to ∞ mm	9 to ∞ mm	35 to ∞ mm	2 to 200 mm	19 to ∞ mm	15 to ∞ mm	1 to 25 mm	3 to ∞ mm	
Distal end	Outer diameter*2	ø6.0 mm								
	Rigid distal end length*3	18.4 mm	18.9 mm	18.8 mm	18.9 mm	18.8 mm	24.2 mm			

\*1. Indicates the range over which the image can be viewed clearly. \*2. The adaptor can be inserted into a 6.0 mm or 4.0 mm hole when it is mounted on the scope. \*3. Indicates the length of the rigid portion at the scope's distal end when mounted.

## IPLEX FX/UltraLite

		Optical tip adaptor for 4.0 mm scopes				Stereo tip adaptors (4.0 mm/ 6.0 mm)			
		AT120D/NF-IV84	AT120D/FF-IV84	AT120S/NF-IV84	AT120S/FF-IV84	AT50D/50D-IV84	AT50S/50S-IV84	AT60D/60D-IV86	AT60S/60S-IV86
Optical unit	Field of view	120°				50°/50°		60°/60°	
	Direction of view	Direct view (Forward view)			Side view	Direct view	Side view	Direct view	Side view
	Depth of field	4 to 190 mm	25 to ∞ mm	1 to 20 mm	6 to ∞ mm	5 to ∞ mm	4 to ∞ mm	5 to ∞ mm	4 to ∞ mm
Distal end	Outer diameter* <sup>1</sup>	ø4.0 mm						ø6.0mm	
	Rigid distal end length* <sup>2</sup>	19.7 mm	19.6 mm	22.2 mm		25.0 mm	28.8 mm	25.9 mm	32.2 mm
Optical tip adaptor for 6.0 mm scopes									
		AT40D-IV86	AT80D/NF-IV86	AT80D/FF-IV86	AT120D/NF-IV86	AT120D/FF-IV86	AT80S-IV86	AT120S/NF-IV86	AT120S/FF-IV86
Optical unit	Field of view	40°	80°		120°		80°	120°	
	Direction of view	Direct view (Forward view)						Side view	
	Depth of field	200 to ∞ mm	8 to ∞ mm	35 to ∞ mm	4 to 190 mm	25 to ∞ mm	18 to ∞ mm	1 to 25 mm	5 to ∞ mm
Distal end	Outer diameter* <sup>1</sup>	ø6.0 mm							
	Rigid distal end length* <sup>2</sup>	19.8 mm					25.2 mm		

\*1.The adaptor can be inserted into a 4.0 mm or 6.0 mm hole when it is mounted on the scope. \*2. Indicates the length of the rigid portion at the scope's distal end when mounted.

## IPLEX YS

		Optical tip adaptor				Stereo tip adaptors	
		AT120D/NF-IV88Y	AT120D/FF-IV88Y	AT120S/NF-IV88Y	AT120S/FF-IV88Y	AT60D/60D-IV88Y	AT60S/60S-IV88Y
Optical unit	Field of view	120°				60°/60°	
	Direction of view	Direct view (Forward view)			Side view	Direct view	Side view
	Depth of field*1	4 to 190 mm	25 to ∞ mm	1 to 25 mm	5 to ∞ mm	5 to ∞ mm	4 to ∞ mm
Distal end	Outer diameter*2	ø8.5 mm					
	Rigid distal end length*3	30.7 mm			35.6 mm	36.9 mm	39.6 mm

\*1. Indicates the range over which the image can be viewed clearly. \*2. The adaptor can be inserted into a 8.5 mm hole when it is mounted on the scope. \*3. Indicates the length of the rigid portion at the scope's distal end when mounted.

## Videoscope operating environment

		IPLEX NX	IPLEX RX	IPLEX RT	IPLEX UL	IPLEX YS	IPLEX TX	Series C	Channel scopes
Temperature	In the air	-25 to 100 ℃		-25 to 80 ℃	-25 to 100 ℃		-25 to 80 ℃		-25 to 100 ℃
	In the water				10 to 30 ℃				Not in use
Operation humidity					15 to 90 %				
Liquid resistance					All parts*				
Water resistance					Water resistance				Not in use

\* Operable when exposed to machine oil, light oil or 5 % saline solution.

# Industrial Fiberscopes

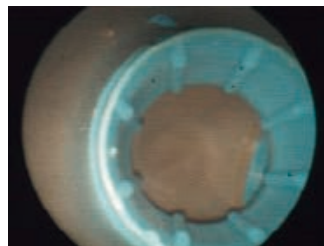
## Traditional General Scopes

## IF Series (Industrial Fiberscopes)

φ0.64~11.3 L=490 to 3,000 mm

### Features

- Minimum φ0.64 mm diameter scope.
- Available image recording with digital camera or CCD video camera.
- Interchangeable optical adaptors are available over 5.0 mm scopes.



### IF series specifications

	IF6PD4	IF2D5	IF4D5 / 4S5	IF5D4X1	IF6C5X1	IF8C5	IF11C5
Outer diameter	ø0.64	ø2.4	ø4.1	ø5.0	ø6.0	ø8.4	ø11.3
Scope length(mm)	490/990	600/1,170	700/1,500	1,200	800/1,300/ 2,000/3,000	1,000/2,000/3,000	
Articulation	—	Up/ Down	Up/ Down	Up/ Down	Up/ Down/ Right/ Left	Up/ Down/ Right/ Left	Up/ Down/ Right/ Left
Articulation angle	—	Up-Down 120°			Up-Down 120°, Right-Left 100°		
Direction of view	Direct view		Direct view/ Side view	Adaptor changeable			
Depth of field	1 to 50 mm	2 to 50 mm	5 to 60 mm 4 to 40 mm	5 to 50 mm	Depends on tip adaptor		

### Optical Adaptor Specifications

Scope	Optical adaptor		Field of view	Direction of view	Depth of field
IF5D4X1-14	Optional	AT50S-IF5D4X1	49°	Side view	5 to 50 mm
		AT60D/FF-IF6C5	60°		11 to ∞ mm
	Optional	AT30D-IF6C5	30°	Direct view	26 to 372 mm
		AT60D/NF-IF6C5	60°		5 to 102 mm
		AT100D-IF6C5	100°		4 to ∞ mm
		AT30S-IF6C5	30°	Side view	21 to 138 mm
		AT60S/NF-IF6C5	60°		4 to 85 mm
		AT60S/FF-IF6C5	60°		9 to ∞ mm
		AT100S-IF6C5	100°		4 to ∞ mm
		AT60D/FF-IF8C5	60°	Direct view	20 to ∞ mm
IF8C5	Optional	AT30D/NF-IF8C5	30°		30 to 70 mm
		AT30D/FF-IF8C5	30°		60 to 250 mm
		AT60D/NF-IF8C5	60°		9 to 50 mm
		AT100D/NF-IF8C5	100°		3 to 200 mm
		AT100D/FF-IF8C5	100°		9 to ∞ mm
		AT30S-IF8C5	30°	Side view	45 to 90 mm
		AT60S/NF-IF8C5	60°		8 to 40 mm
		AT60S/FF-IF8C5	60°		20 to 240 mm
		AT100S/NF-IF8C5	100°		3 to 140 mm
		AT100S/FF-IF8C5	100°		9 to 200 mm
IF11C5	Provided	AT60D/FF-IF11C5	60°	Direct view	27 to 390 mm
		AT30D/NF-IF11C5	30°		38 to 70 mm
	Optional	AT30D/FF-IF11C5	30°		65 to 120 mm
		AT60D/NF-IF11C5	60°		11 to 45 mm
		AT100D/NF-IF11C5	100°		5 to 70 mm
		AT100D/FF-IF11C5	100°		16 to 300 mm
		AT30S-IF11C5	30°	Side view	55 to 100 mm
		AT60S/NF-IF11C5	60°		11 to 40 mm
		AT60S/FF-IF11C5	60°		28 to 440 mm
		AT100S/NF-IF11C5	100°		3 to 22 mm
		AT100S/FF-IF11C5	100°		12 to 250 mm

### Operating Environment

			IF6PD4	IF2D5	IF4D5	IF4S5	IF5D4X1	IF6C5X1	IF8C5	IF11C5
Operating temperatures	Insertion tube	In air	10 to 40 °C		-10 to 80 °C					
		In water	10 to 30 °C	10 to 40 °C	10 to 30 °C		—	10 to 30 °C		
	Other parts than above	In air	10 to 40 °C		-10 to 50 °C					
Liquid resistance (against machine oil, light oil and 5 % saline)					✓	✓		✓	✓	✓
Waterproof	Insertion tube		✓	✓	✓	✓	✓	✓	✓	✓
Drip-proof	Control section				✓	✓	✓	✓	✓	✓

# Industrial Rigid Borescopes

Optical Lens Unit Makes High Resolution Images

Series 5 Rigid Borescopes

φ4.1~16.1 L=210 to 1,430 mm

## Features

- Clear and high resolution images by optical lens system.
- Versatile lineup.
- Still/ movie camera adaptable.



## Swing-prism Borescopes

### Features and Functions

Product code	Outer diameter	Effective length	Direction of view	Field of view	Depth of field
R060-023-045SW115-50	ø6.1 mm	23 cm	45 to 115°	50°	5 to ∞ mm
R060-031-045SW115-50		31 cm			
R060-046-045SW115-50		46 cm			
R080-023-045SW115-50	ø8.1 mm	23 cm	45 to 115°	50°	5 to ∞ mm
R080-033-045SW115-50		33 cm			
R080-043-045SW115-50		43 cm			
R080-044-045SW115-20		44 cm		20°	30 to ∞ mm
R080-053-045SW115-50		53 cm		50°	5 to ∞ mm
R080-063-045SW115-50		63 cm			
R080-064-045SW115-20		64 cm		20°	30 to ∞ mm
R080-083-045SW115-50		83 cm		50°	5 to ∞ mm
R080-103-045SW115-50		103 cm			

## Zoom Swing-prism Borescopes

### Features and Functions

Product code	Outer diameter	Effective length	Direction of view	Field of view	Depth of field
R060-024-045SW115-50ZM25	ø6.1 mm	24 cm	45 to 115°	25 to 50°	5 to ∞ mm
R060-032-045SW115-50ZM25		32 cm			
R060-047-045SW115-50ZM25		47 cm			
R060-062-045SW115-50ZM25		62 cm			
R080-024-045SW115-50ZM25	ø8.1 mm	24 cm	45 to 115°	25 to 50°	5 to ∞ mm
R080-034-045SW115-50ZM25		34 cm			
R080-044-045SW115-50ZM25		44 cm			
R080-054-045SW115-50ZM25		54 cm			
R080-064-045SW115-50ZM25		64 cm			

## Major Engine Range Specifications

The Olympus borescopes are officially approved for the inspections of various military, commercial aero and power generating engines, including the following models.

Engine manufacturer	Engine model
Pratt & Whitney	PW4000/PW2000/JT9D/JT8D/F100
Rolls-royce	RB211/TRENT
GE	GE90/CF34/CFM56/F110

## Operating Environment

			Standard Rigid Borescopes Swing-prism Borescopes Zoom Swing-prism Borescopes
Operating temperatures	Insertion tube	In air	-20 to 150 °C
		In water	10 to 30 °C
	Other parts than above	In air	-20 to 50 °C
Operating atmospheric pressure	Insertion tube	In air	700 to 1,700 hPa
		In water	to 1,700 hPa
	Other parts than above	In air	710 to 1,060 hPa
Liquid resistance			Operable when exposed to machine oil, light oil or 5 % saline solution
Water-proof	Insertion tube		Waterproof construction Can be used underwater
	Other parts than above		Operable in blowing rain conditions Not operable under water

## Standard Rigid Borescopes

### Features and Functions

Product code	Outer diameter	Effective length	Direction of view	Field of view	Depth of field	
R040-021-000-60	ø4.1 mm	21 cm	0°	60°	5 to ∞ mm	
R040-022-045-60		22 cm	45°			
R040-022-090-60			90°			
R040-033-000-60			0°			
R040-033-045-60		33 cm	45°			
R040-033-090-60			90°			
R060-017-000-50	ø6.1 mm	17 cm	0°	50°	5 to ∞ mm	
R060-017-045-50			45°			
R060-017-090-50			90°			
R060-032-000-50		32 cm	0°			
R060-032-045-50			45°			
R060-032-090-50			90°			
R060-047-000-50		47 cm	0°			
R060-047-045-50			45°			
R060-047-090-50			90°			
R060-063-045-50		63 cm	45°			
R060-063-090-50			90°			
R060-078-090-50						
R080-024-000-50		24 cm	0°		50°	5 to ∞ mm
R080-024-045-50			45°			
R080-024-090-50			90°			
R080-024-110-50			110°			
R080-025-090-35		25 cm	90°	35°	10 to ∞ mm	
R080-034-090-50				50°	5 to ∞ mm	
R080-034-110-50		34 cm	110°			
R080-044-000-50		44 cm	0°			
R080-044-090-50			90°			
R080-054-090-50		54 cm	110°			
R080-054-110-50						
R080-064-000-50	ø8.1 mm	64 cm	0°	35°	10 to ∞ mm	
R080-064-090-50			90°			
R080-065-090-35		65 cm	90°		5 to ∞ mm	
R080-084-090-50						
R080-084-110-50		84 cm	110°	50°	5 to ∞ mm	
R080-094-110-50						
R080-104-045-50			45°			
R080-104-090-50		104 cm	90°			
R080-104-110-50			110°			
R080-124-000-50		124 cm	0°			
R080-124-045-50			45°			
R080-125-090-35		125 cm	90°		5 to ∞ mm	
R080-134-090-35						
R080-144-045-50		144 cm	45°	90°	5 to ∞ mm	
R080-144-090-50						
R100-025-090-50	ø10.1 mm	25 cm	90°	50°	5 to ∞ mm	
R100-038-000-50		38 cm	0°			
R100-039-090-50		39 cm	90°		10 to ∞ mm	
R100-039-090-35			110°	35°		
R100-039-110-50				50°		
R100-043-090-10		43 cm	90°	10°	115 to ∞ mm	
R100-053-090-50		53 cm	90°	50°	5 to ∞ mm	
R100-066-000-50		66 cm				
R100-067-090-35		67 cm			35°	10 to ∞ mm
R100-067-090-50		81 cm	90°	50°	5 to ∞ mm	
R100-081-090-35				35°	10 to ∞ mm	
R100-095-045-50		95 cm	45°	50°	5 to ∞ mm	
R100-095-090-50			90°			
R100-099-110-50		99 cm	110°	10°	115 to ∞ mm	
R160-101-000-35 ILG*	ø16.1 mm	101 cm	0°	35°	20 to ∞ mm	
R160-101-090-35 ILG*			90°			

\* Light guide is fixed.

# MK Modular Mini-scopes/ Light Sources

## Ultra Thin Scopes

### MK modular Mini-scopes

φ1.2~2.7 L=96、186 mm

#### Features

- Less than φ2.7 mm diameter.
- Interchangeable scope unit.
- Versatile lineup of viewing directions.
- Still/ movie camera adaptable.



#### MK Modular Mini-scopes

Product code	Outer diameter	Effective length	Direction of view	Field of view	Depth of field
MK012-009-000-45	φ1.2 mm	96 mm	0°	45°	1 to ∞ mm
MK012-009-015-53			15°	53°	
MK017-009-000-62	φ1.7 mm	96 mm	0°	62°	1 to ∞ mm
MK017-018-000-62					
MK017-018-090-62		186 mm	90°		
MK027-018-000-62	φ2.7 mm	186 mm	0°	62°	1 to ∞ mm
MK027-018-090-62			90°		

## Selectable Variation by Operation Purposes Light Sources

#### Compact LED Light Source for MK Modular-mini Scopes

### ILD-3

Not available in China, South Korea with ILD-C version

Both AC/DC power available.

#### ILD-3 Specification

	ILD-3
Power Supply	3VDC single use batteries ILD-C
Dimensions	55 mm long x 30 mm diameter
Weight	65 g without CR123 battery
Run time	1.5 hours per interchangeable battery or 8 hours at full brightness from the ILD-C



#### Compact LED Light Source

### ILD-2

Not available in China, South Korea and (CA and OR in USA)

ILD-C connected LED light source.

#### ILD-2 Specification

	ILD-2
Power Supply	ILD-C or Accessory Desktop PSU
Dimensions	81 mm long x 38 mm diameter
Weight	108 g
Run time	2.5 hours at full brightness from the ILD-C



#### Brightness Control Box for ILD-2/ ILD-3

### ILD-C

Not available in China, South Korea and (CA and OR in USA)

Rechargeable battery driven brightness controller.



#### ILD-C Specification

	ILD-C
Power Supply	9 to 19 VDC
Power Consumption	38 W Max when charging
Dimensions	130 mm x 90 mm x 38 mm
Weight	650 g

## Connecting Scope Adaptors for ILD-2/ ILD-3

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

#### Halogen Light Sources

### ILK-7/ILK-7A/ILK-7B

Not available in South Korea

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



#### Specifications

	ILK-7	ILK-7A	ILK-7B
Voltage	100-120 V 50-60 Hz, 115 V 400 Hz	100-240 V 50-60 Hz, 115 V 400 Hz, 11-15V DC	100-240 V 50-60 Hz, 115 V 400 Hz
Power consumption	280 W	250 W	
Dimensions	178 (W) X 76 (H) X 230 (D) mm		
Weight	2.3 kg		

#### UHP High Intensity Light Source

### ILP-2

Not available in South Korea

Most powerful light source ever produced by Olympus.



#### ILP-2 Specification

	ILP-2
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

Not available for the Small diameter borescopes. In use with the other rigid borescopes, connectable light guides differ depending on the rigid borescope models. Please ask our sales representatives for details.

※UV light source. Please ask to our sales representatives for details.



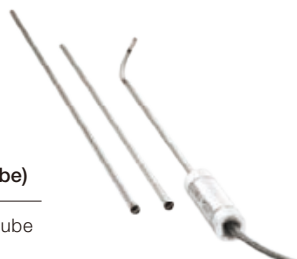
# Accessories

## For Industrial Videoscopes

### Rigid Sleeve

- MAJ-1737  
(For 4.0 mm dia. insertion tube)
- MAJ-1281  
(For 4.4 mm dia. insertion tube)
- MAJ-1253  
(For 6.0/6.2 mm dia. insertion tube)

Rigid sleeve makes flexible insertion tube to semi-rigid operation.



### High Temperature Guide Tube (Built to order)

- MAJ-1867 (For 4.0 mm dia. insertion tube)

The high temperature guide tube is able to operate in up to 250 Celsius degree environment.  
(Requires cool down air supply)



### Flex and Stay\*1

Enable the scope insertion tube to be housed in a Flex and Stay.

\*1 Flex and Stay can be used for the Industrial fiberscopes as well.



### UV Inspection Adaptors

(For IPLEX UltraLite, Built to order)

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



Image with a standard tip adaptor.



Image with an UV tip adaptor.

### Multi-purpose Sleeve

Useful to provide a constant insertion depth of rigid Borescopes.



## For Industrial Fiberscopes/ Industrial Rigid Borescopes

### C-mount Adaptors

For connection of TV cameras to Fiberscopes and Rigid Borescopes.



AI-3C

Scope	C-mount adaptor	Magnification ratio	Brightness ratio
IF3 Series IF7D3X3-26, 32 IF13D3-60, IF8D3X2-23	MC-04	0.8	1.6
	MC-05	1.0	1.0
IF4D5/4S5, IF6C5, IF6C5X1 IF8C5, IF11C5, IF5D4X1-14	AI-10C	0.8	1.56
	AI-11C	1.0	1.0
	AI-12C	1.51	0.44
	AI-3C	2.0	0.25
IF6PD4, IF2D5 Rigid Borescopes Miniboscopes	AK2-5C	0.75	1.8
	AK2-10C	1.0	1.0
	AK2-20C	1.35	0.55

### OM Adaptors\*2

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

\*2 The optional OM adaptor MF-1 plus MMF-3 is required to connect the OM adaptors listed below to the digital mirrorless cameras.



	AI-3M/AI-4M	SM-R
Compatible scope*3	IF4D5/4S5 IF5D4X1 IF6C5X1 IF8C5 IF11C5	IF6PD4 IF2D5 IF8D4X2/X3 K12/17/27, X09/12/17/25 Miniboscopes Series 5 Rigid Borescopes
Camera connector	MF-1 plus MMF-3 for connection to the mirrorless cameras	

Notes: Magnification of the AI-4M 1.3X larger than the AI-3M.

\*3 Moire may appear if pixel interference occurs in certain inspection environments (such as fibre mesh and image sensor) or in certain output devices (such as LCDs and printers).

### Light Guide Cable

This accessory transmits light from a separate light source.

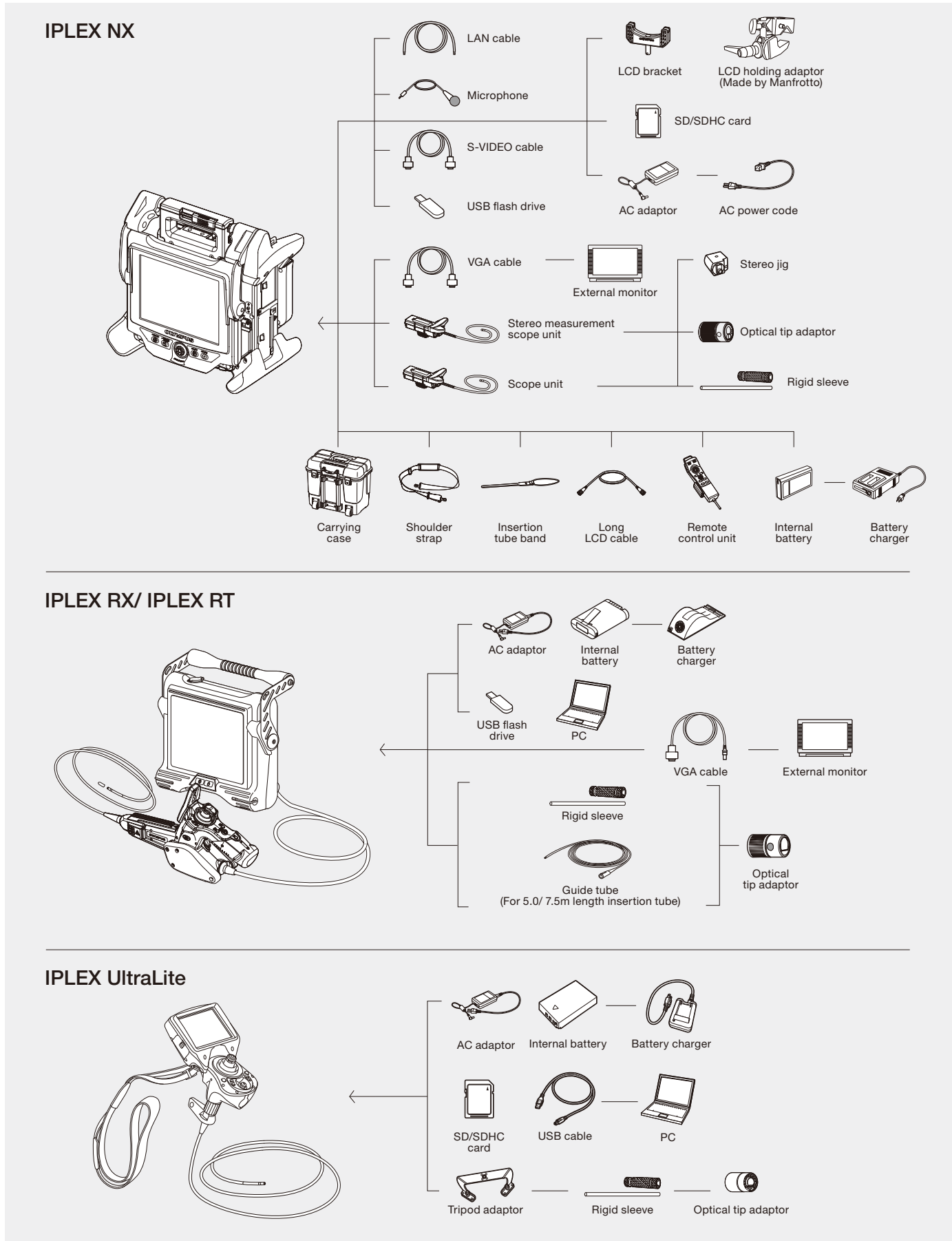


#### Light Guide Cable Variation

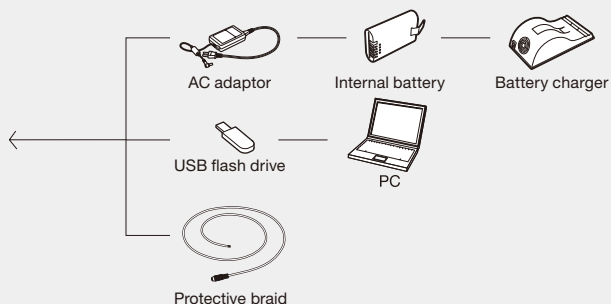
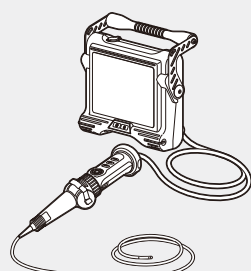
	3mm MK Liquid	3mm Liquid	5mm Liquid	5.5mm Fiber
1.0m				X
1.8m	X	X	X	
2.0m				X
2.5m	X	X	X	
3.0m				X
5.0m	X			X

# System Charts

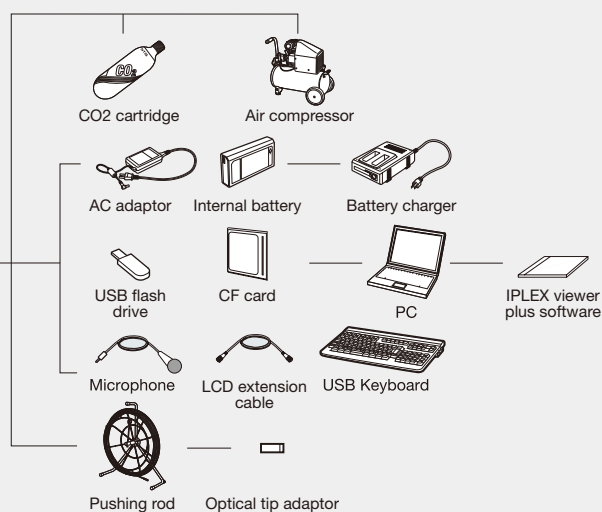
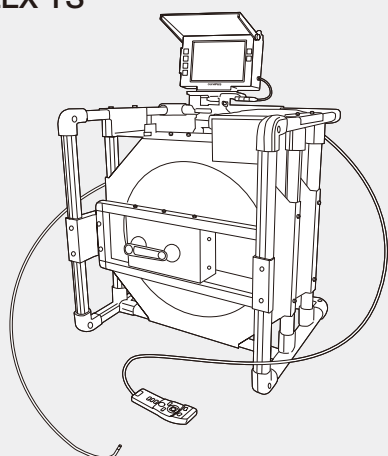
## Videoscopes



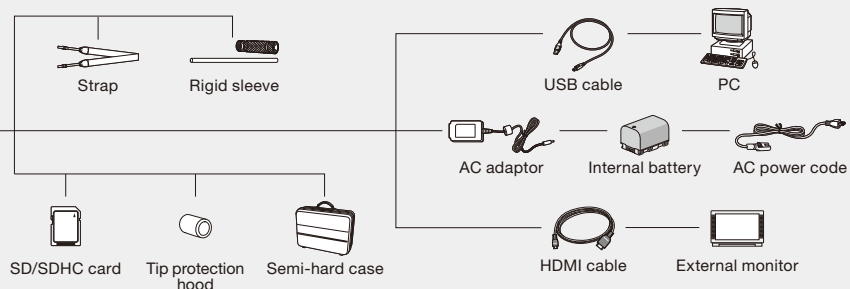
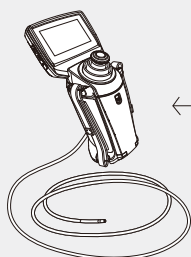
## IPLEX TX



## IPLEX YS

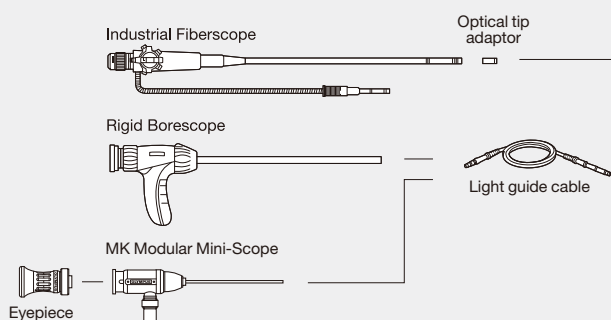


## Series C

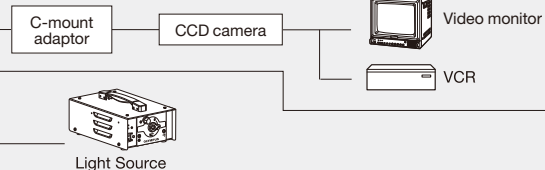


## Fiberscopes and Rigid Borescopes

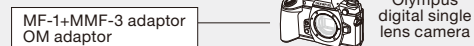
### Eyeball Observation System



### TV Observation System



### Digital Camera System





The IPLEX NX, IPLEX YS industrial videoscope is equipped with the laser illumination.

- OLYMPUS CORPORATION is ISO9001 certified
- OLYMPUS CORPORATION is ISO14001 certified

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**OLYMPUS CORPORATION**  
Shinjuku Monolith, 3-1Nishi-Shinjuku 2-chome, Shinjuku-ku, Tokyo 163-0914,  
Japan Tel: 81(0)3-6901-4090  
**OLYMPUS SCIENTIFIC SOLUTIONS AMERICAS CORP.**  
48 Woerd Avenue, Waltham, MA 02453, USA, Tel.: (1)781-419-3900  
**OLYMPUS EUROPA SE & CO. KG**  
Wendenstrasse 14-18, 20097 Hamburg, Germany, Tel.: (49)40-23773-0  
**OLYMPUS AUSTRALIA PTY. LTD.**  
31 Gilby Road, Mount Waverly, Victoria, 3149, Tel.: (61) 130-013-2992  
**OLYMPUS SINGAPORE PTE LTD.**  
Valley Point Office Tower, 248373, Tel: (65) 68-34-00-10

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