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HIROX LENS COLLECTION

A Guide to New Discoveries

In order to see things as they are, the first and most important element is the lens. As a lens maker since several generations, HIROX has always been a leader in optical innovation.

Constantly improving the original HIROX lenses, we make sure to deliver the highest quality while keeping the same mounting system to insure a lifelong use and compatibility.

We are proud to have invented some of the most revolutionary optical design, such as the patented 3D Rotary Head or the Variable Light Angle Adapter: the diversity of our unique lenses illustrates HIROX's responses to the highest expectations for countless applications.

HIROX will continue to focus on developing high quality optics that can only be produced by a true lens maker.



SYSTEM CONFIGURATION

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ADAPTER EFFECT

ADAPTER EFFECT P06

MX-MOUNT LENS



MX MOUNT LENS
ACS Function (Auto Calivration Select) P08

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STAND&STAGE/UNIT

Stand/Stage/Unit P23

MAIN UNIT

Main Unit P26



Patent No. 3113375, Patent No. 3119455, Patent No. 2512300,
Patent No. 2512299, Patent No. 1750384

※The color may slightly differ from the actual products.

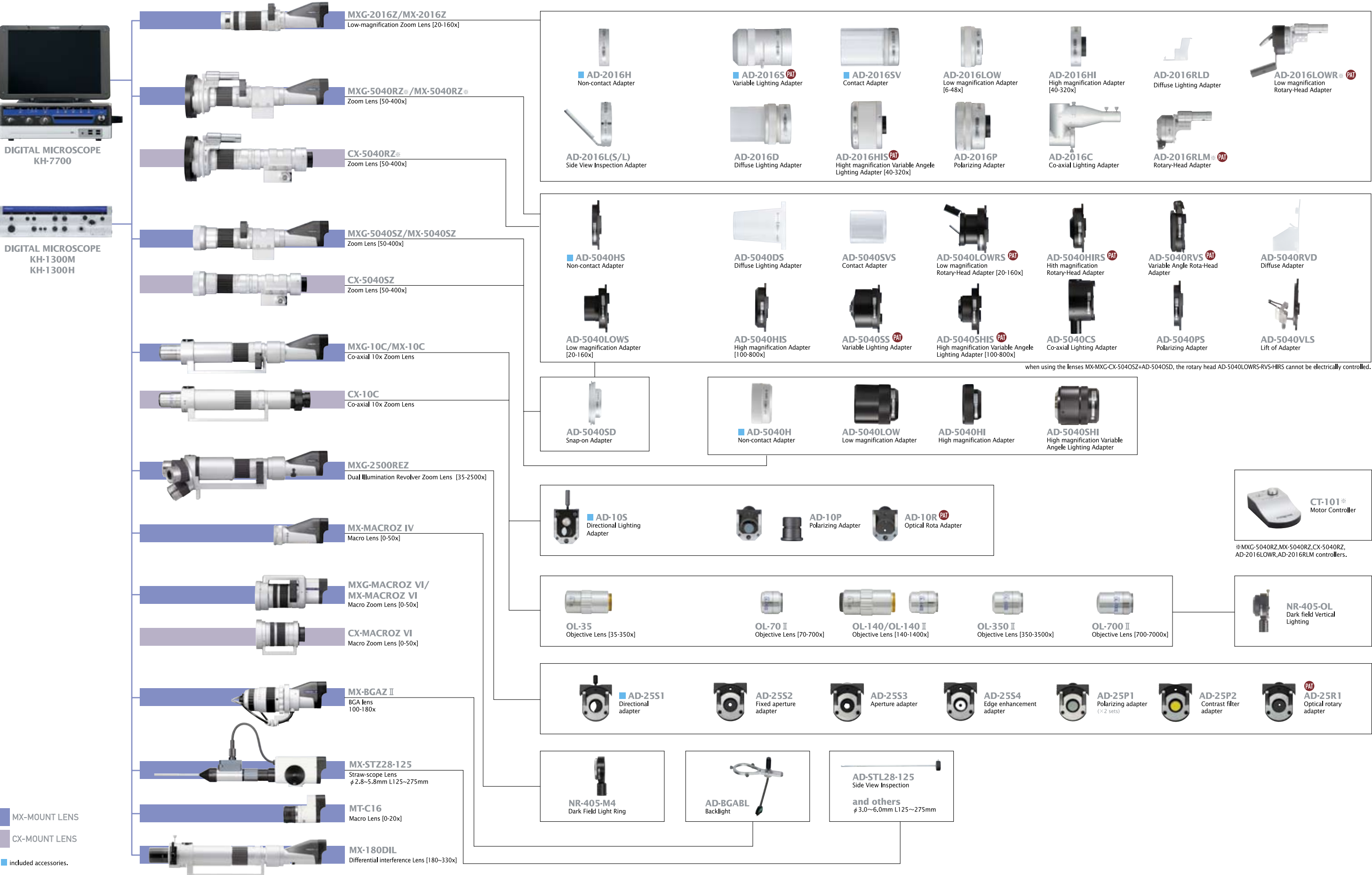
[Environment Protection Measures in Compliance with RoHS Directive]

Since October 2006, all the HIROX products are complying with the RoHS directive, regulating harmful substances that are feared to damage the environment and human bodies. Based on our principles and policies, we do our best to protect the environment.

■Basic Principle: HIROX recognizes that protecting the environment is the most important task of human beings across the globe and intends to give its full efforts to reduce environment burdens.
■Policy: HIROX promotes environment management activities in order to reduce the environment impact of digital microscope system manufacturing, sales and all related production and consumer activities as well as the impact of our future products and services so that we can coexist with the environment.

RoHS Directive: Formally called Restriction Of the use of certain Hazardous Substances in electrical and electronic equipment, the directive is implemented in the EU area. It regulates the amounts of Pb(lead), Cd(cadmium), Hg(mercury), hexavalent chrome, PBB(polybrominated biphenyls) and PBDE(polybrominated biphenyl ethers) used in electrical and electronic equipment.

SYSTEM CONFIGURATION



ADAPTER EFFECT

Adapter Effect

An Eye-Opening Experience

In order to respond to user's demands for more precision and details, we have created unique optical adapters. By mounting these products, the capabilities of our lenses expand infinitely. Together, we make possible what's usually impossible.



Variable Angle Rotary-Head Adapter PAT

This adapter enables observations of objects with a 360 degrees rotational inspection. The rotating prism also enables viewing angle adjustments in four stages (25·35·45·55 degrees) with no blind corners. This is an original HIROX design.



connector 50x
[angle: 25 degrees]



[angle: 55 degrees]

Rotary-Head Adapter PAT

This adapter enables observations of objects with a 360 degrees rotational inspection, with a fixed 45 degrees viewing angle. Through the observation of moving images, it helps to understand shapes. This is an original HIROX design.



Legs soldering inspection of QFP substrates at 60x magnification.

Low magnification Adapter

This adapter reduces the lens magnification while increasing the working distance enabling the inspection of bigger objects/area.



The tip of ball-pointed pen at 50x magnification.



4x

High magnification Adapter

This adapter doubles the lens magnification, enabling the inspection of smaller objects/area.



The tip of ball-pointed pen at 400x magnification.



800x

Variable Lighting Adapter PAT

This adapter allows the illumination angles to change freely from epi-illumination to side illumination. It helps to find the optimal illumination angle for the best observation. This is an original HIROX design.



500yen Coin 30x
[Side Lighting(75 degrees)]



[Epi-Illumination (12 degrees)].

Co-axial Lighting Adapter

This adapter allows observations under regular reflections (whereby light that is projected parallel to the optical axis of a lens are reflected vertically). It is designed for the observation of mirror-finished surfaces, ground surfaces and other surfaces that are flat and highly reflective.



Surface of metal chip at 1700x magnification (side lighting).



Co-axial Lighting

Polarizing Adapter

This adapter helps to reduce the reflection of the surface from the observed objects through polarizing filters. It is particularly effective for printed matters, substrates, coatings and other objects that are highly reflective.



Pigmented skin spots at 50x magnification [Epi-Illumination]



[Polarizing filter Lighting]

Directional Lighting Adapter

This adapter helps to highlight microscopic surface shapes that cannot be detected even under the same-axis epi-illumination. By fine-tuning the lever, it helps to accurately grasp fine edges.



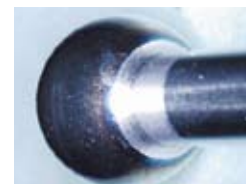
Surface of metal chips at 1700x magnification.



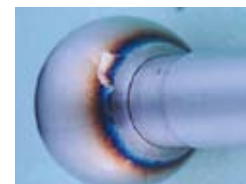
[Directional Lighting]

Diffuse Lighting Adapter

This adapter diffuses the light in all directions and creates soft illumination. Thanks to the multi directional lighting, the light is evenly distributed on the objects, reducing strong reflections. It is suitable for observing metal surfaces for example.



Ball joint at 40x magnification [Epi-Illumination].



[Diffuse lighting]

Optical Rotary-Adapter PAT

This adapter allows observation angles to change freely without moving the lens. By rotating the dial, observation angles change and allow observations that are 3-dimensional and full of data. This is an original HIROX design.



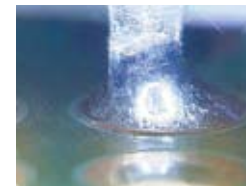
BGA 100x
[Points of contact for BGA upper parts]



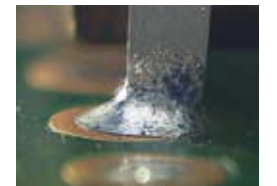
[Points of contact for BGA lower parts]

Lift off Adapter

This adapter helps observations using near-horizontal viewing angle through the use of a mirror. It is optimal for observing the lift-off phenomenon in lead-free solders, the peel-off phenomenon, and other instances needing observations from the side.



Lift-off phenomenon at 150x magnification.



Peel-off phenomenon at 150x magnification.

Side View Inspection

This adapter allows observations of objects using a 90 degrees angle view with the use of a mirror. It helps inspecting narrow spots on the side of objects that are otherwise unreachable. It is suitable for the observation of cylinder inner walls for example.



Inner side of a can at 5x magnification.



80x

Contact Adapter

This adapter is designed to come in contact with objects for observations. It is suitable for big sized objects or for non destructive inspection.



Observation of painted surfaces.

Non-contact Adapter

This adapter enables observations without touching the objects. It is suitable for living organisms and liquids for example.



MX-MOUNT LENS

MX-MOUNT LENS



Evolving to Grasp Things As They Are

"MX mount" is HIROX's originally designed optical lens mounting since over 20 years. It has been developed to integrate simultaneously a high quality video CCD and a high level illumination technology to get the best from the Hirox optics. This series is optimized for the Hirox Digital Video microscopes, allowing the user to benefit from decades of research resulting in the most comfortable and powerful observation environment.



Unique Functions To Avoid Erroneous Selections

The MXG series is combining the Hirox MX Mount with the newly developed ACS function: Automatic Calibration Select. This original Hirox function detects and sends the magnification data to the main unit by using one of the smallest high-sensitivity sensors embedded into the lens. The ACS function make sure that calibration values are accurately selected in real time. It allows high-level reproduction while producing efficient and accurate measurement operations. It frees users from mistakes and troublesome operations.

Lighting method
—

magnification
20~160x

View
15.4~2.0mm(H)

Working distance
44mm

Depth of Field
13.3~0.25mm

ACS
○

Weight
350g
(MX-2016Z:322g)

[Lens Holder]

HS-CH (V7)
Lens holder

[Holder Mounted]

HS-CH (V4)
Lens holder

[Holder Mounted]

※ The photo shows AD-2016H being mounted.

By using a lens holder, the lens can be stably fixed onto the stand.

MxG-2016Z
(MX-2016Z)

Low-magnification Zoom Lens with ACS Function [20-160x]

Automatic Calibration Select. Evolution of Standard Lens.

This zoom lens features a compact body enabling hand-held operations and can be used for various purposes using the different available screw type adapters. By applying ACS functions, it prevents erroneous calibration selections. By using low or high magnification adapters, the lens covers a magnification range from 6x up to 320x.

ADAPTER					
	AD-2016H Non-Contact Adapter	AD-2016S Variable Lighting Adapter	AD-2016SV Contact Adapter	AD-2016LOW Low-magnification Adapter [6-48x]	AD-2016HI High-magnification Adapter [40-320x]
	Dark field vertical lighting	Variable lighting	Dark field vertical lighting	Dark field vertical lighting	Dark field vertical lighting
	44mm	0mm	0mm	132mm	20mm
Weight	8g	49g	17g	29g	9g

ADAPTER					
	AD-2016P Polarizing Adapter	AD-2016LOWR Low-magnification Rotary-Head Adapter [6-48x]	AD-2016L(S/L) Side View Inspection	AD-2016D Diffuse Lighting Adapter	AD-2016HIS High-magnification Variable Angle Lighting Adapter [40-320x]
	Polarizing filter lighting	Dark field vertical lighting	Dark field vertical lighting	Diffuse Lighting	Variable Angle Lighting
	31mm	27mm	10.5~15.5mm	0~4mm	1mm
Weight	22g	288g	36g (S) , 41g (L)	26g	53g

ADAPTER			
	AD-2016C Co-axial Lighting Adapter	AD-2016RLM Rotary-Head Adapter	AD-2016RLD Diffuse Lighting Adapter
	Co-axial lighting	Dark field vertical lighting	Diffuse Lighting
	10.5mm	12mm	AD-2016RLM Working distance -1mm
Weight	253	237g	2g

※1 adapter is mounted on AD-2016RLM

OPTION



CT-101
Motor Controller

Rotational speed control
Rotational direction control
Weight 185g

※Controllers for AD-2016RLM, AD-2016 LOWR.

Lighting Method
—

Magnification
50~400x


View
6.1~0.78mm(H)


Working Distance
54mm

Depth of Field
2.7~0.08mm

ACS
○

Weight
735g
(MX-5040RZ:710g)




ACS FUNCTION

※The photo shows AD-5040HS being mounted.











MXG-5040RZ











(MX-5040RZ)

Zoom Lens with ACS Function [50-400x]

Evolving All-Purpose Lens To Achieve Further Accuracy, Efficiency

This multi function zoom lens is equipped with many different optical adapters. By mounting a rotary head, it enables 3-dimensional observations of images using a 360 degrees rotational view. To improve the operational efficiency, each optical adapter uses a "snap-on" system and can be replaced in one-touch. This lens covers a magnification range from 20x up to 800x. By using the ACS functions, the operational efficiency is further enhanced.

ADAPTER	 AD-5040HS Non-contact Adapter  [included]	 AD-5040DS Diffuse Lighting Adapter  ※1	 AD-5040SVS Contact Adapter  ※1	 AD-5040LOWRS Low-magnification Rotary-Head Adapter [20-160x] 	 AD-5040HIRS High-magnification Rotary-Head Adapter [100-800x] 
	Dark field vertical lighting	Diffuse lighting	Dark field vertical lighting	Dark field vertical lighting	Dark field vertical lighting
Lighting Method	Dark field vertical lighting	Diffuse lighting	Dark field vertical lighting	Dark field vertical lighting	Dark field vertical lighting
Working Distance	54mm	4mm	0~1.5mm	28.5mm	3.5mm
Weight	68g	36g	100g	266g	173g

ADAPTER	 AD-5040RVS Variable Angle Rota-Head Adapter 	 AD-5040RVD Diffuse Lighting Adapter  ※2	 AD-5040LOWS Low-magnification Adapter [20-160x] 	 AD-5040HIS High-magnification Adapter [100-800x] 	 AD-5040SS Variable Lighting Adapter 
	Dark field vertical lighting	Diffuse lighting	Dark field vertical lighting	Dark field vertical lighting	Variable lighting
Lighting Method	Dark field vertical lighting	Diffuse lighting	Dark field vertical lighting	Dark field vertical lighting	Variable lighting
Working Distance	25mm (25°), 19mm (35°), 14mm (45°), 9mm (55°)	AD-5040RVS Working distance <1mm	80mm	20mm	6~21 mm
Weight	124g	2g	180g	108g	285g

ADAPTER	 AD-5040SHIS High-magnification Variable Angle Lighting Adapter[100-800x] 	 AD-5040CS Co-axial Lighting Adapter 	 AD-5040PS Polarizing Adapter 	 AD-5040VLS Lift of Adapter 
	Dark field vertical lighting	Co-axial lighting	Polarizing filter lighting	Dark field vertical lighting
Lighting Method	Dark field vertical lighting	Co-axial lighting	Polarizing filter lighting	Dark field vertical lighting
Working Distance	1.6mm	21 mm	54mm	3mm
Weight	176g	325g	87g	100g

※1 The lens is mounted on AD-5040HS ※2 Mounting on AD-5040RVS.

OPTION



CT-101
Motor Controller

Rotational speed control
Rotational direction control
Weight 185g

※Controllers for AD-5040LOWRS, AD-5040HIRS, AD-5040RVS.

Lighting Method
—

Magnification
50~400x

View
6.1~0.78mm(H)

Working Distance
63mm

Depth of Field
2.7~0.08mm

ACS
○

Weight
540g
(MX-5040SZ:525g)




ACS FUNCTION

※The photo shows AD-5040H being mounted.

MXG-5040SZ


(MX-5040SZ)

Zoom Lens with ACS Function [50-400x]

Adding ACS Functions to Designs We Pride In

This zoom lens has a compact design and allows hand-held operations. By mounting the snap-on switching adapter, it enables most of MX-5040RZ adapters to be used (except for the motorized rotary head), responding to various inspection purposes. This lens covers a magnification range from 20x up to 800x. ACS functions allow more accurate observations.

ADAPTER	 AD-5040H Non-contact Adapter  [included]	 AD-5040LOW Low-magnification Adapter [20-160x] 	 AD-5040HI High-magnification Adapter [100-800x] 	 AD-5040SHI High-magnification Variable Angle Lighting Adapter[100-800x] 
	Dark field vertical lighting	Dark field vertical lighting	Dark field vertical lighting	Variable lighting
Lighting Method	Dark field vertical lighting	Dark field vertical lighting	Dark field vertical lighting	Variable lighting
Working Distance	63mm	80mm	29mm	1.6mm
Weight	32g	180g	100g	138g

ADAPTER	 AD-5040SD Snap-on adapter
	Counting on Snap-Type Adapters
Lighting Method	Counting on Snap-Type Adapters
Working Distance	Counting on Snap-Type Adapters
Weight	48g

※By attaching the snap-type switching adapter, MX-5040RZ-adapters can be applied.

MX-5040RZ ADAPTER

AD-5040HS

AD-5040DS

AD-5040SVS

AD-5040LOWS

AD-5040HIS

AD-5040SS

AD-5040SHIS

AD-5040CS

AD-5040PS

AD-5040SLS

AD-5040VLS

※Please refer to the MX-5040RZ pages for details of the adapter.

Lighting method
Co-axial lighting

Magnification
※Magnification, field of view, working distance and depth of field depend on the selected objective lens.


View

Working Distance

Depth of Field

ACS
○

Weight
670g
(MX-10C:655g)




ACS
FUNCTION

※This photo shows OL-700 II being mounted.

[Contrast Switch]

Solves image contrast issues of low reflective surface observation.



MXG-10C

(MX-10C)

Co-axial 10x Zoom Lens with ACS Function


ACS Functions Support High-Level Optical Observations

This highly scalable zoom lens is based on the same-axis epi-illumination and uses replaceable objective lenses, covering magnification ranges from 35x up to 7000x. Our unique optical design allows the use of side-lighting adapters (rotary angle lighting, directional lighting adapter or polarizer) for the finest detailed observations. ACS functions support high-level observations.

ADAPTER	 AD-10S Directional Lighting Adapter	 AD-10P Polarizing Adapter	 AD-10R Optical Rota Adapter
	 [Included]		
Weight	10g	11g	8g


LENS						
	OL-35	OL-70 II	OL-140	OL-140 II	OL-350 II	OL-700 II
Lighting Method	Co-axial lighting	Co-axial lighting	Co-axial lighting	Co-axial lighting	Co-axial lighting	Co-axial lighting
Magnification	35~350x	70~700x	140~1400x	140~1400x	350~3500x	700~7000x
View	9.83~1.05mm (H)	4.42~0.47mm (H)	2.46~0.26mm (H)	2.21~0.23mm (H)	0.88~0.09mm (H)	0.44~0.04mm (H)
Working Distance	34mm	21mm	30.5mm	12mm	10.6mm	3.4mm
Depth of Field	0.92~0.1mm	0.44~0.024mm	0.114~0.012mm	0.09~0.0076mm	0.041~0.0024mm	0.01~0.0007mm
Weight	230g	89.5g	257.2g	117.5g	125.4g	145.9g

OPTION


NR-405-OL
Ring illumination for OL series

Lighting method	Ring Lighting
Main Unit	Compatible with KH-3000・1300・7700 main bodies
Weight	108g

※Compatible with OL-35、-70 II、-140、-140 II、-350 II Lens.


[Ring Mounted]

OPTION


R-OL-D
NR-405-OL用ディフューザー

照明方式	NR-405-OL照明方式に依存
光源口	NR-405-OL照明方式に依存
重量	2g

※リング照明 (NR-405-OL) に装着します。
※OL-35、-70 II、-140、-140 II、-350 II レンズに対応です。

Lighting Method
Dark field vertical lighting

Magnification
∞~5x、5~50x

View
∞~6.1~61mm(H)

Working Distance
∞~90mm

Depth of Field
—

ACS
○

Weight
440g
(MX-MACROZ VI:393g)



[Newly Developed Macro Switch]



By pushing the switch, it allows switching between macro and zoom.

MXG-MACROZ VI

(MX-MACROZ VI)

Macro Zoom Lens [0-50x]

Automatic Calibration Select, Macro Zoom Lens

0x-50x, now with integrated Auto Calibration Select (ACS) maintains the magnification calibration while zooming. Constant focus from 5x-50x zoom range and built-in lighting.

Lighting method Co-Axial, Ring and Mixed	Magnification Low Range : 35~250x Mid Range : 140~1000x High Range : 350~2500x	View (H) Low Range : 8.71~1.22mm Mid Range : 2.18~0.31mm High Range : 0.87~0.12mm	WD 10.0mm	ACS ○	Weight 1290g
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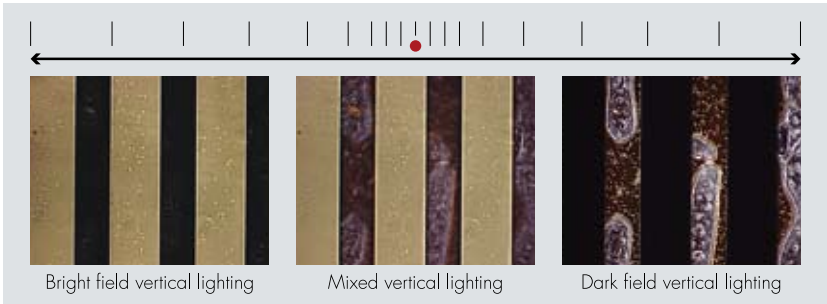
MXG-2500REZ

Dual Illumination Revolver Zoom Lens [35-2500x]

[Dual Illumination]

Selectable New Lighting System

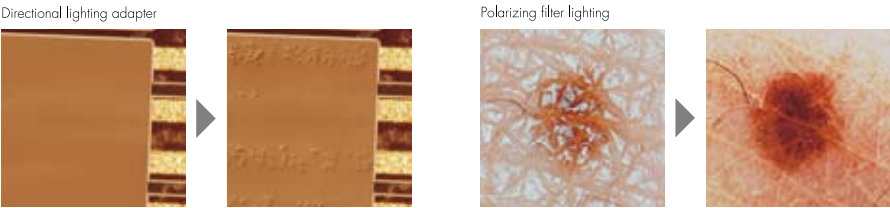
The dual illumination mechanism provides both co-axial and ring lighting. The operator is free to choose either setting or a mix of both in order to cover a multitude of applications. The lighting system is integrated into the lens and no additional cables are required.



[Adapters]


Control Image Quality Optically

Eliminate the need for post image processing software. 7 different adapters provide a variety of optical techniques to re-create images that cannot be expressed only with co-axial and ring lighting.



ADAPTER							
	AD-25S1 Directional adapter 【付属品】	AD-25S2 Fixed aperture adapter	AD-25S3 Aperture adapter	AD-25S4 Edge enhancement adapter	AD-25P1 Polarizing adapter 【2個1組】	AD-25P2 Contrast filter adapter	AD-25R1 Optical rotary adapter
重量	14g	13g	14g	13g	14g・13g	13g	14g

Prism chip structure Soft spring structure for protecting substrates	Prism adaptation width 0.9mm	Observation angle 90 degrees or higher	Illumination methods Optical multi illumination	magnification 100-180 power※1	Operational distance 0.9-8.0mm ※2	Weight 695g
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※1: Mode Switch Ring set to 'Normal' magnification.
※2: Distance from the Prism tip to the BGA ball.

MX-BGAZ II

BGA Lens [100-180x]

An Ultimate Shape That Makes What's Invisible Visible

This BGA lens enables non destructive observation of BGA ball connection parts. With a built-in 3D optical rotary ring, it allows 3D observations with angle changes. It combines several illumination sources (prism chips and light fibers), spring structures and other technologies for comfortable observations.

It corresponds to the substrate with a big rotating lens.

When the mounting substrate to which parts are overcrowded remains, too the lens of 270° rotatable is not and catches. Move it a difficult, large-scale BGA mounting substrate also rotates the lens, and it is possible to observe it easily.



Optical rotary Ring

Rotating the ring changes observation angles. Without moving the lens and substrates, it enables detailed analysis of upper and lower joint parts of the BGA ball.



Points of contact for BGA upper parts.



Points of contact for BGA lower parts.

Focus Ring

Rotating the ring facilitates focusing on the BGA.

Mode Switch Ring

Rotating the ring switches the observation range without changing the distance from the lens to BGA and allows confirmation of parts warpage and uplift on mounting substrates.



Illumination-attached prism chips

A 45° prism mirror helps view the BGA ball from the side. This prism tip serves the role of a light guide, and enables bright, high-resolution observation even on a concentrated substrate.



OPTION



AD-BGABL
Backlight



[Ring Mounted]
Lighting Method Backlight
Weight 50g(The AC adapter is excluded.)

OPTION

AD-BGAPC2
Prism Tip

5 pieces per Pack

Lighting Method Option	Magnification 0~50x	View ∞~6.1mm(H)	Working Distance ∞~21.4mm(0~50x) / 202.8mm(5x) / 97.5mm(10x) / 49.2mm(20x) / 35.9mm(30x) / 26.8mm(40x) / 21.0mm(50x)	Depth of Field —	ACS —	Weight 129g
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[Lens Holder]



HS-CH (V7)
Lens holder

By using a lens holder, the lens can be stably fixed onto the stand.


MX-MACROZ IV

Macro Lens [0-50x]

Simple Structure, Suitable for a Wide Field of View


This macro lens can cover a magnification range from 0x up to 50x by changing the working distance. It is simply built, excels in operational efficiency and is perfect for wide field of view. It is also compatible with ring light illumination (NR-405-M4).

OPTION



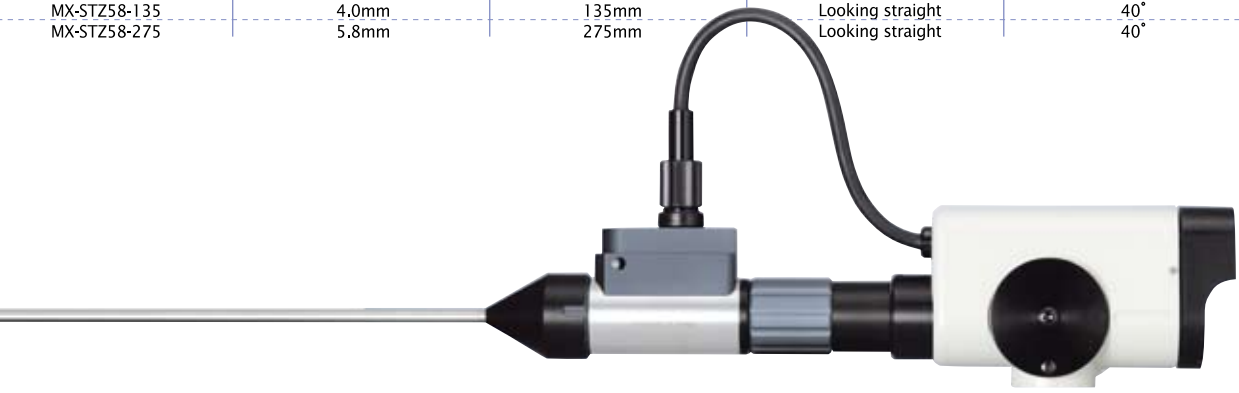
NR-405-M4
MX-MACROZ IV-Use Ring Illumination

Lighting Method	Ring Lighting
Main Unit	Compatible with KH-3000~1300~7700 main bodies
Weight	104g



[Time of attachment]

Lens Number	Outer Diameter	Effective Length	View Direction	View Angle
MX-STZ28-125	2.8mm	125mm	Looking straight	40°
MX-STZ40-120	4.0mm	120mm	Looking straight	40°
MX-STZ40-245	4.0mm	245mm	Looking straight	40°
MX-STZ58-135	4.0mm	135mm	Looking straight	40°
MX-STZ58-275	5.8mm	275mm	Looking straight	40°




※The photo shows MX-STZ5-128.

MX-STZ

Straw-scope Lens [φ 2.8~5.8mm L125~275mm]

Observing Places Only Reachable by Straw Scope

This is a straw-scope lens that allows observations of narrow places and machine interiors. We have designed independent optics and illumination systems for the sleeve part and realized superior resolution that cannot be attained by fiber scopes. The sleeve part excels in water proof capability and is applicable to engine interiors and other various environments.

ADAPTER	Side View Inspection 				
	AD-STL28-125	AD-STL40-120	AD-STL40-245	AD-STL58-135	AD-STL58-275
Outer Diameter	3.05mm	4.5mm	4.5mm	6.3mm	6.3mm
Effective Length	125mm	120mm	245mm	135mm	275mm
View Direction	90°	90°	90°	90°	90°
Acceptable lens	MX-STZ28-125	MX-STZ40-120	MX-STZ40-245	MX-STZ58-135	MX-STZ58-275

Lighting Method Co-axial lighting	Magnification 180~330x	View 1.74~0.87mm(H)	Working Distance 21.5mm	Depth of Field —	ACS —	Weight 970g
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※The photo shows OLD-1833 being mounted.


MX-180DIL

Differential interference Lens [180-330x]

Designs That Allow Free Maneuvering of Lights

This differential interference lens is specialized in illumination attached with polarizing adapters and differential interference sliders. The polarization adapter controls the reflection of the observed object and is thus suitable for highly reflective objects. The differential interference slider with adjustable angles facilitates observations of differential interference images.



OPTION



OLD-7013

Magnification	700~1300x
View	0.44~0.21 mm
Working Distance	11 mm
Weight	145.6g

By changing the objective lens, it allows the magnification ranges to be set according to the size of observed objects.



Differential Interference Slider Differential Interference Slider 94 g

By adjusting the angles of the prism-embedded differential interference slider, it allows observations of surface shapes.

Lighting Method —	Magnification 0-20x	View —	Working Distance —	Depth of Field —	ACS —	Weight 85.4g
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MT-C16

Macro Lens [0-20x]

Responding to Wide Field of View with Highly Scalable Designs

This is a macro lens that covers magnification ranges of 0 to 20 times by changing the working distance. With an aperture diaphragm, it excels in operational efficiency and responds smoothly to wide field of view. It creates high-level images and excels in the cost performance at the same time.



CX-MOUNT LENS

CX-Mount Lens

CX-MOUNT LENS

HIROX Lens For Various Observation Situations

CX Mount Lens is a lens series compatible with the standard C-mount cameras. HIROX has created an optical design that is in unity with illumination. This lens series delivers the same quality Hirox is famous for, while making it available for various settings. Welcome to the world of HIROX.

Lighting Method —	Magnification 50~400x	View 6.1~0.78mm(H)	Working Distance 54mm	Depth of Field 2.7~0.08mm	ACS —	Weight 695g
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[AD-C]

CX→MX Mount Replacement
By replacing the mount, it can be connected to the main unit of the KH series.

※The photo shows AD-5040HS being mounted.

cx-5040RZ

Zoom Lens [50-400x]

A Full Range Of Adapters To Suit Every Purpose

This multi function zoom lens is equipped with many different optical adapters. By mounting a rotary head, it enables 3-dimensional observations of images using a 360 degrees rotational view. To improve the operational efficiency, each optical adapter uses a "snap-on" system and can be replaced in one-touch. This lens covers a magnification range from 20x up to 800x.

ADAPTER	 AD-5040HS Non-contact Adapter [Accompaniments]	 AD-5040DS Diffuse Lighting Adapter ※1	 AD-5040SVS Contact Adapter ※1	 AD-5040LOWRS Low-magnification Rotary-Head Adapter [20-160x] PAT	 AD-5040HIRS High-magnification Rotary-Head Adapter [100-800x] PAT
	Dark field vertical lighting	Diffuse Lighting	Dark field vertical lighting	Dark field vertical lighting	Dark field vertical lighting
Lighting Method	Dark field vertical lighting	Diffuse Lighting	Dark field vertical lighting	Dark field vertical lighting	Dark field vertical lighting
Working Distance	54mm	4mm	0~1.5mm	28.5mm	3.5mm
Weight	68g	36g	100g	266g	173g

ADAPTER	 AD-5040RVS Variable Angle Rota-Head Adapter PAT	 AD-5040RVD Diffuse Lighting Adapter ※2	 AD-5040LWS Low-magnification Adapter [20-160x] 	 AD-5040HIS High-magnification Adapter [100-800x] PAT	 AD-5040SS Variable Lighting Adapter
	Dark field vertical lighting	Diffuse Lighting	Dark field vertical lighting	Dark field vertical lighting	Variable lighting
Lighting Method	Dark field vertical lighting	Diffuse Lighting	Dark field vertical lighting	Dark field vertical lighting	Variable lighting
Working Distance	25mm(25°), 19mm(35°), 14mm(45°), 9mm(55°)	AD-5040RVS Working distance-1 mm	80mm	20mm	6~21 mm
Weight	124g	2g	180g	108g	285g

ADAPTER	 AD-5040SHIS High-magnification Variable Angle Lighting Adapter[100-800x] PAT	 AD-5040CS Co-axial Lighting Adapter 	 AD-5040PS Polarizing Adapter 	 AD-5040VLS Lift off Adapter
	Dark field vertical lighting	Co-axial lighting	Polarizing filter lighting	Dark field vertical lighting
Lighting Method	Dark field vertical lighting	Co-axial lighting	Polarizing filter lighting	Dark field vertical lighting
Working Distance	1.6mm	21mm	54mm	3mm
Weight	176g	325g	87g	100g

※1 The lens is mounted on AD-5040HS ※2 Mounting on AD-5040RVS.

OPTION

CT-101
Motor Controller

Rotational speed control
Rotational direction control

Weight 185g

OPTION

R-476
Light Guide

Main unit KMH-24
Compatible with Metal Halide Lamps

Weight 450g

OPTION

KMH-24W
Metal Halide Lamp

Lamp Metal Halide Lamp
Main unit Compatible with R-476

Weight 685g

※Controllers for AD-5040LOWRS, AD-5040HIRS, AD-5040RVS.

※Please make inquiries when using other lighting sources.

Lighting Method	Magnification	View	Working Distance	Depth of Field	ACS	Weight
—	50~400x	6.1~0.78mm(H)	63mm	2.7~0.08mm	—	510g

[AD-C]

CX→MX Mount Replacement
By replacing the mount, it can be connected to the main unit of the KH series.

※The photo shows AD-5040H being mounted.

cx-5040SZ

Zoom Lens [50-400x]

Flexible Optical Designs That Help Expand The World

This zoom lens has a compact design and allows hand-held operations. By mounting the snap-on switching adapter, it enables most of MX-5040RZ adapters to be used (except for the motorized rotary head), responding to various inspection purposes. This lens covers a magnification range from 20x up to 800x.

Lighting Method	Magnification	View	Working Distance	Depth of Field	ACS	Weight
Co-axial lighting	※Magnification, field of view, working distance and depth of field depend on the selected objective lens.				—	645g

[AD-C]

CX→MX Mount Replacement
By replacing the mount, it can be connected to the main unit of the KH series.

※This photo shows OL-700Ⅱ being mounted.

cx-10C

Co-axial 10x Zoom Lens

By Changing The Objective, 6 Magnification Ranges Are Enabled.

This highly scalable zoom lens is based on the same-axis epi-illumination and uses 6 replaceable objective lenses, covering magnification ranges from 35x up to 7000x. Our unique optical design allows the use of side-lighting adapters (rotary angle lighting, directional lighting adapter or polarizer) for the finest detailed observations.

ADAPTER	<p>AD-5040H Non-contact Adapter</p>	<p>AD-5040LOW Low-magnification Adapter [20-160x]</p>	<p>AD-5040HI High-magnification Adapter [100-800x]</p>	<p>AD-5040SHI High-magnification Variable Angle Lighting Adapter[100-800x]</p>
	[included]			
Lighting Method	Dark field vertical lighting	Dark field vertical lighting	Dark field vertical lighting	Variable lighting
Working Distance	63mm	80mm	29mm	1.6mm
Weight	32g	180g	100g	138g

ADAPTER	<p>AD-5040SD Snap-on adapter</p>
Lighting Method	Counting on Snap-Type Adapters
Working Distance	Counting on Snap-Type Adapters
Weight	48g

※By attaching the snap-type switching adapter, MX-5040RZ-use adapters can be applied.

MX-5040RZ ADAPTER

AD-5040HS

AD-5040DS

AD-5040SVS

AD-5040LWS

AD-5040HIS

AD-5040SS

AD-5040SHIS

AD-5040CS

AD-5040PS

AD-5040SLS

AD-5040VLS

※Please refer to the MX-5040RZ pages for details of the adapter.

R-476
Light Guide

OPTION

Main unit **KMH-24**
Compatible with Metal Halide Lamps

Weight 450g

KMH-24
Metal Halide Lamp

OPTION

Lamp Metal Halide Lamp

Main unit Compatible with R-476

Weight 685g

※Please make inquiries when using other lighting sources.

ADAPTER	<p>AD-10S Directional Lighting Adapter</p>	<p>AD-10P Polarizing Adapter</p>	<p>AD-10R Optical Rota Adapter</p>
	[included]		
Weight	10g	11g	8g

LENS	<p>OL-35</p>	<p>OL-70Ⅱ</p>	<p>OL-140</p>	<p>OL-140Ⅱ</p>	<p>OL-350Ⅱ</p>	<p>OL-700Ⅱ</p>
Lighting Method	Co-axial lighting	Co-axial lighting	Co-axial lighting	Co-axial lighting	Co-axial lighting	Co-axial lighting
Magnification	35~350x	70~700x	140~1400x	140~1400x	350~3500x	700~7000x
View	9.83~1.05mm (H)	4.42~0.47mm (H)	2.46~0.26mm (H)	2.21~0.23mm (H)	0.88~0.09mm (H)	0.44~0.04mm (H)
Working Distance	34mm	21mm	30.5mm	12mm	10.6mm	3.4mm
Depth of Field	0.92~0.1mm	0.44~0.024mm	0.114~0.012mm	0.09~0.0076mm	0.041~0.0024mm	0.01~0.0007mm
Weight	230g	89.5g	257.2g	117.5g	125.4g	145.9g

R-576
Light Guide

OPTION

Main unit **KMH-24**
Compatible with Metal Halide Lamps

Weight 218g

KMH-24
Metal Halide Lamp

OPTION

Lamp Metal Halide Lamp

Main unit R-576 Compatible

Weight 685g

※Please make inquiries when using other lighting sources.

NR-405-OL
Ring illumination for OL series

OPTION

Lighting method Ring Lighting

Main unit Compatible with KH-3000・1300・7700 main bodies

Weight 108g

[Light Ring Mounted]

※Compatible with OL-35、-70Ⅱ、-140、-140Ⅱ、-350Ⅱ Lens.

R-OL-D
NR-405-OL用ディフューザー

OPTION

照明方式 NR-405-OL照明方式に依存

光源口 NR-405-OL照明方式に依存

重量 2g

※リング照明 (NR-405-OL) に装着します。
※OL-35、-70Ⅱ、-140、-140Ⅱ、-350Ⅱレンズに対応です。

Lighting Method Dark field vertical lighting	Magnification $\infty\sim 5\times$, $5\sim 50\times$	View $\infty\sim 6.1\sim 61\text{ mm(H)}$	Working Distance $\infty\sim 96\text{ mm}$	Depth of Field —	ACS —	Weight 286g
				<p>[AD-C]</p>  <p>CX→MX Mount Replacement By replacing the mount, it can be connected to the main unit of the KH series.</p> <p>[Newly Developed Macro Switch]</p>  <p>By pushing the switch, it allows switching between macro and zoom.</p>		

cx-MACROZ VI

Macro Zoom Lens [0-50x]

A New Development For Free Macro and Zoom Operations

This newly developed macro zoom lens covers magnification ranges from 0x up to 50x. By changing the macro switch, the lens can be used as a macro lens under the range of $\infty\sim 5\times$ and as a zoom lens under $5\sim 50\times$ thanks to our unique lens design.



Stand,Stage,Unit

STAND&STAGE/UNIT

Connecting Lens to Human Hands

No matter how high performance a lens might be, it does not exhibit its power until it is operated by a person's hand. It is the stand that links the lens to a person's hand. This means that a stand must have a high level of precision and be easy to use. At HIROX we have confidence in our lenses. Therefore, we also have confidence in our stands.

ST-G Stand Series

High Precision Free Angle Stand
ST-GA, XY-G, FB-M

180 Degree (+-90 Degree) inclination movement and a 360 degree rotational stage.

Working Range	85mm
Size	320X320X36・487・φ32
Weight	13.7kg
Angle View	+・90



Motorized Z-Axis Free Angle Stand
ST-GA, XY-G, FB-E

Motorized Z-axis creates 3D profiles and measurements on the free angle observation.

Working Range	Step motor range 30mm / FFB working range / 85mm
Size	320X320X36・487・φ32
Weight	14.7kg
Angle View	+・90



High Precision Straight Stand
ST-G, FB-M

85 mm (3.35") travel range focus block with 2um precision.

Working Range	85mm
Size	200X270X46・446・φ32
Weight	10.0kg



Motorized Z-Axis Straight Stand
ST-G, FB-E

Motorized Z-axis provides accurate height measurement within the micron level

Working Range	Step motor range 30mm / FFB working range / 85mm
Size	200X270X46・446・φ32
Weight	11.0kg



XY Stage Unit
XY-G, XY-C

Large working area supports multiple applications and 360° rotation reaches unattainable angles.

Working Range	X-axis ±38mm (1.5") / Y-axis+28mm -23mm
Size	201X140X74 (XY-G 7.91mmX5.51mmX1.34mm(without dial)) (XY-C 48・φ100)
Weight	2.0kg (XY-G 1.2kg) (XY-C 750g)



Transmit Lighting XY Stage Unit
XY-GB, XY-CB, R-578

This XY stage unit is for transmit lighting applications.

Working Range	X-axis ±38mm / Y-axis+28mm -23mm
Size	201X140X74 (XY-GB 7.91mmX5.51mmX1.34mm(without dial)) (XY-CB 48・φ100)
Weight	2.1kg (XY-GB 1.2kg) (XY-CB 785g)



STAND・STAGE

ST-HE

Standard light-weight stand

This stand is suitable for low-magnification inspection. It is light and easy to carry.

Size	150X230X34・444(mm)・φ20
Weight	2.4kg

※Compatible with XY Stage (AS-XY). Separately sold



AS-XY

XY Stage

This stage enables objects to be fixed for observations. It helps improve operational efficiency by facilitating the fixing and removing of objects.

Working Range	X-axis ±39mm/Y-axis+58mm
Size	175X144(mm)
Weight	0.86kg



ST-HL

Large Size Stand

This stand is suitable for observing large objects. With a stable arm, it facilitates observations of large-size objects.

Size	500X640X37・657(mm)・φ29
Weight	12.0kg

※Compatible with the large XY push table (AS-XYL). Sold separately



AS-XYL

Large XY Stage

This large stage enables users to slide its upper part to easily observe large-sized objects.

Working Range	X-axis ±155mm/Y-axis+257mm
Size	390X390(mm)
Weight	7.85kg



CT-701

Motor Controller

This controller controls electrically operated stages. It allows various setups and operations to suit the purposes.

Size	210X164X62(mm)
Weight	1.355kg



AS-BH

BGA Substrate holder

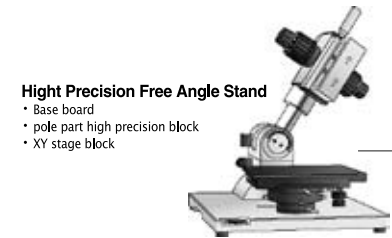
This PCB holder helps to stably fix double-face packaging substrates. It is suitable for various substrates including BGA.

Size	175X144(mm)
Weight	2.71 kg



STAND & STAGE/UNIT

STAND & STAGE/UNIT



High Precision Free Angle Stand

- Base board
- pole part high precision block
- XY stage block



Motorized Z-Axis Free Angle Stand

- Base board
- pole part Electrically operated block
- XY stage block



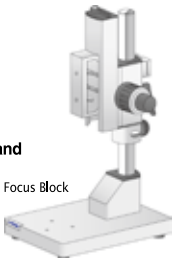
High Precision Straight Stand

- High precision vibration free stand
- High Precision Focus Block



XY Stage Unit

- XY Stage
- Rotary XY Stage Base



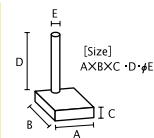
Motorized Z-Axis Straight Stand

- High precision vibration free stand
- Motorize Z-Axis with High Precision Focus Block



Transmit Lighting XY Stage Unit

- XY Stage with Glass Plate
- Transmit Lighting XY Stage Base
- Light Source Guide for XY-CB





MAIN UNIT

Main Unit

Maximizing Lens Capabilities

HIROX is not only a lens maker but also a pioneer in video microscopy. HIROX's digital microscopes enhance our lens in the best possible way. Our microscopes are equipped with highly advanced functions based on unique optical designs. They allow everyone to make the most optimal observations by maximizing the capability of a lens, while keeping in mind the ease of use. The possibility of our lens thus expands almost infinitely with our digital microscopes, combining the best light sources, the highest quality CCD cameras and much more in a compact system.



KH-7700

The KH-7700 is an all-purpose digital microscope that brings together various functions from observation on a high resolution display to measurement, analysis, recording, management and outputs (6x USB, DVD burner, 160Go Hard Drive, Print, Network Connection,...). With its 3D measurement functions, it helps accurately grasp the 3-dimensional expressions of the observed objects. Easy to carry and delivered with a complete software package, it is probably the most evolved video microscope.



KH-1300

The KH-1300 digital microscope is specialized for high-resolution images and videos, displayed on external screen or connected to a PC. It is equipped with a Firewire port in an industry's first allowing high-speed transmissions. It can be customized by adding functions as necessary so that observation environments are created freely to suit every purpose.