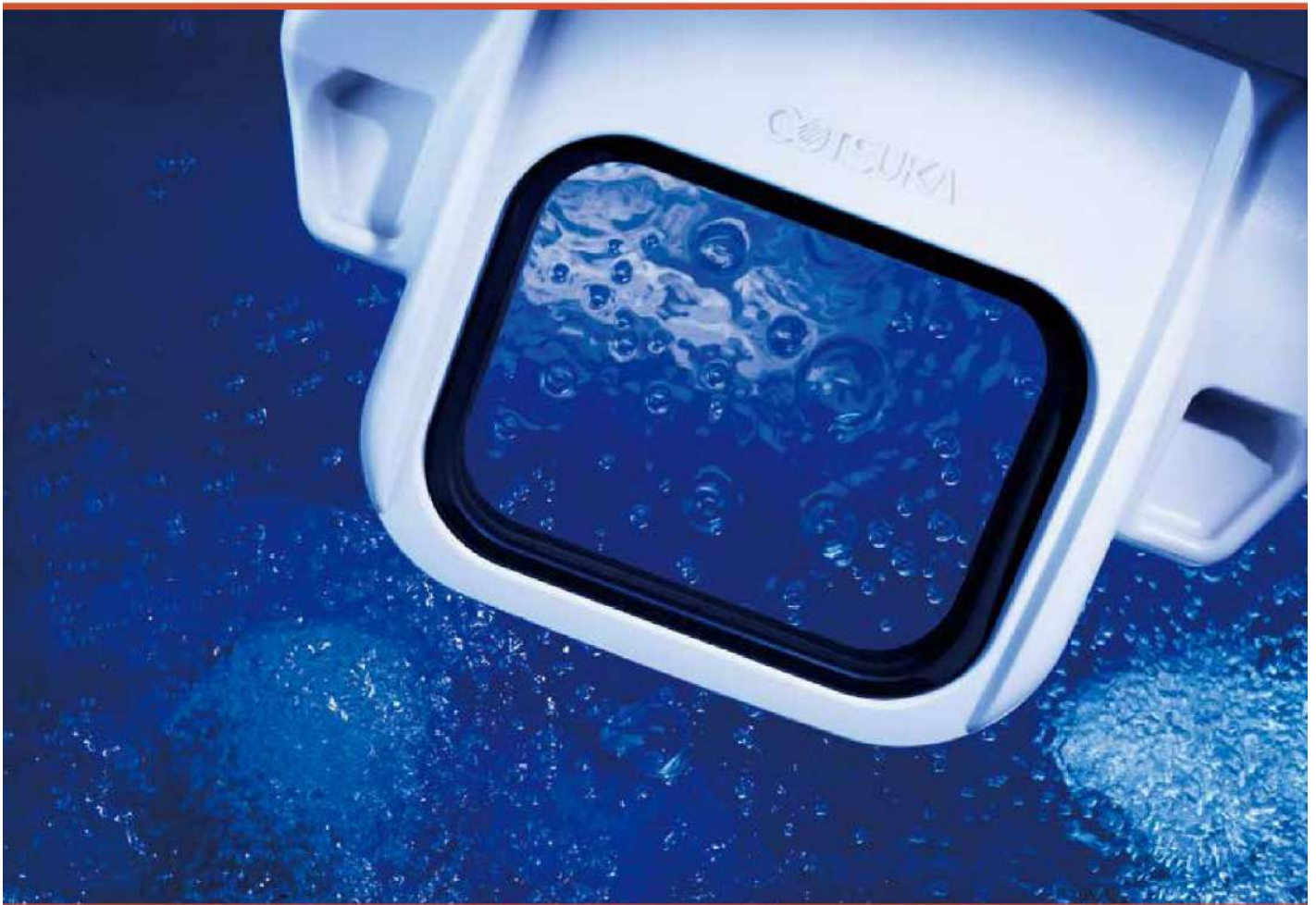


OTSUKA

# ILLUMINATED MAGNIFIER

It is our mission to provide the supreme technology  
in the worldwide visual inspection market.



OTSUKA

We strongly support users' visual inspection  
with our reliable technology.

株式会社 オーツカ光学

# OTSUJKA

## Introduction of illuminated magnifier

LED illuminated magnifier, with dimmer		
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We strongly support users' visual inspection  
with our reliable technology.



LED illuminated magnifier, with dimmer


# O-LIGHT III-L Series

Since O-LIGHT III-LED use DC lighting system, it lights flicker a little.

## O-LIGHT III L-FD

RECTA SYSTEM Interchangeable Lens

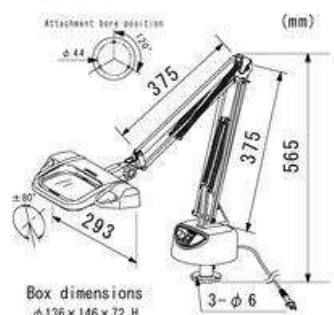
2X	3.5X	2X AR	3.5X AR
----	------	-------	---------



Flange base dimension  $\phi 59 \times 35H$

Attachment hole position  $\phi 44$

Box dimensions  $\phi 136 \times 146 \times 72 H$




- Free arm and Fixed, desk holder type
- Lens: 2X 3.5X rectangular lenses
- Material of lens: optical glass (144X108mm)
- Light source: LED light panel
- Input voltage range : AC100V ~ 240V $\approx$ 50/60Hz  
( $\approx$ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption : 9W
- Light with dimmer (100 ~ 50%)
- Weight : (O-LIGHT III-L 2X) 2.5Kg  
(O-LIGHT III-L 3.5X) 2.6Kg
- Standby power : 0W

Attention: This product does not become independent for a type to fix by a screw


## O-LIGHT III-L

RECTA SYSTEM Interchangeable Lens

2X	3.5X	2X AR	3.5X AR
----	------	-------	---------



Box dimensions  $\phi 136 \times 146 \times 72 H$



Clampable range 15~60

**Rectangular lens**  
Distorted peripheral area of the rectangular lens is cut away, and it makes observation easier. An optical lens is used. RECTA-SYSTEM is suitable for only O-light III. We supply four types of lens magnification, which are 2X, 3.5X, 2XAR and 3.5XAR.

- Free arm and clamp type
- Lens: 2X 3.5X rectangular lenses
- Material of lens : optical glass (144X108 mm)
- Light source: LED light panel
- Input voltage range : AC100 ~ 240V $\approx$  50/60 HZ  
( $\approx$ 125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 9W
- Light with dimmer (100% ~ 50%)
- Weight: (O-LIGHT III-L 2X) 2.8kg  
(O-LIGHT III-L 3.5X) 2.9kg
- Stand by power: 0W

## RECTA-SYSTEM

LENS

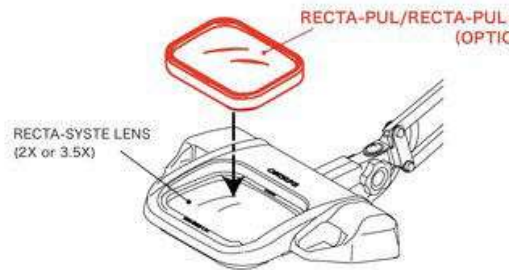


a rectangular interchangeable lens system requested by many customer is employed!

Type of lens: 2X, 2XAR, 3.5X, 3.5XAR, RECTA-PUL, RECTA-PUL AR

## RECTA-PUL/RECTA-PUL AR

POWER UP LENS



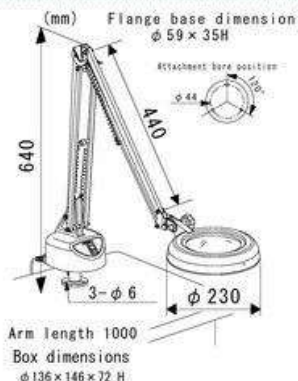
- RECTA-SYSTEM 2X + RECTA-PUL/RECTA-PUL AR = **4X**
- RECTA-SYSTEM 3.5X + RECTA-PUL/RECTA-PUL AR = **5X**

LED illuminated magnifier without dimmer

# SKKL Series

We replaced the light source of the SKK series with LED, and released it as SKKL. The concept of development is to pursue the equivalent performance of the conventional fluorescent light, and to adopt the fluorescent light type LED. The electric power consumption is reduced to about 65%. The cost for 40,000 hours of operation is reduced to 1/3, and it is an Eco-friendly product suitable for growing calls of power shortage.

## SKKL-FD

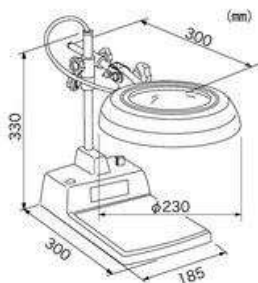


### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- Free arm and Fixed, desk holder type
- Weight : 2.4kg(Excluding lens)
- Input voltage range : AC100V ~ 240V※50/60Hz (※AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption : 10W
- Standby power : 0W
- Attention: This product does not become independent for a type to fix by a screw

## SKKL-A

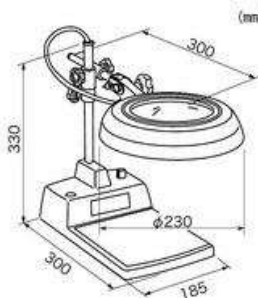


### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- With table stand and microscope
- Weight: 2.4kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Magnification of microscope: 20X/40X/60X/100X
- Standby power: 0w

## SKKL-B



### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- With table stand
- Weight: 2.1kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Standby power: 0w

### How to exchange lens

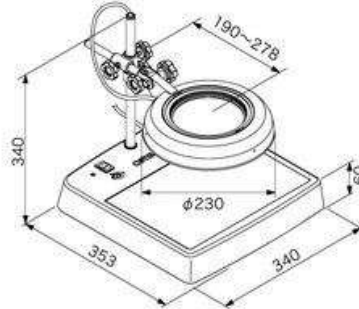
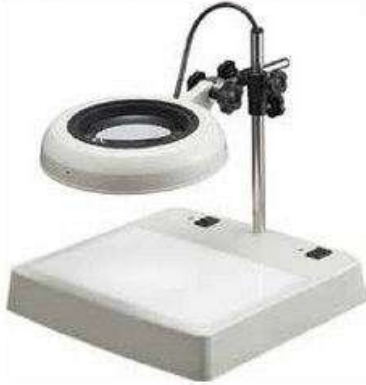
All models of the SKKL can accommodate all the magnifications of the Round series interchangeable lens system. The magnification can be easily changed by exchanging the lens and rubber frame together without using tool.



■ Round Series interchangeable lens system

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

## SKKL-CL

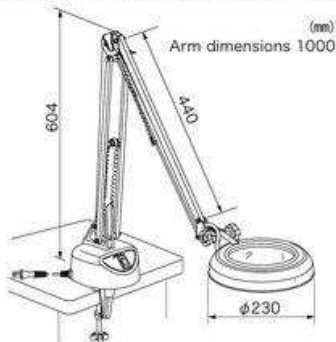


### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- Light box with transmission illumination
- Weight: 3.2kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W +5W
- Standby power: 0w

## SKKL-F



Box dimensions φ136×146×72H  
Clampable range:15~60

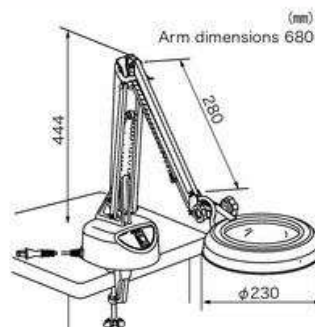


### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- Free arm and clamp type
- Free-type and versatile for inspection, designing, crafting, etc.
- Weight: 2.7kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Standby power: 0w

## SKKL-CF



Box dimensions φ136×146×72H  
Clampable range:15~60

### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- Compact free arm and clamp type
- Free-type and versatile for inspection, designing, crafting, etc.
- Weight: 2.5kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Standby power: 0w

LED illuminated magnifier without dimmer

# SKKL Series

We replaced the light source of the SKK series with LED, and released it as SKKL. The concept of development is to pursue the equivalent performance of the conventional fluorescent light, and to adopt the fluorescent light type LED. The electric power consumption is reduced to about 65%. The cost for 40,000 hours of operation is reduced to 1/3, and it is an Eco-friendly product suitable for growing calls of power shortage.

## SKKL-FL

Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

Arm dimensions 1000 (mm)  
Box dimensions φ136×146×72H

電源コード長 : 1800

- Free arm with casters stand
- Moveable in the reach of the power cord
- Weight: 12.8kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Standby power: 0w

## SKKL-MS

Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

Box dimensions 160×112×85H (mm)

Magnet 50×77×55H

Lamp cord length 1000

- Magnet stand type
- Weight: 2.6kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Standby power: 0w

## SKKL-D

Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

Fixed, desk holder type

Flange base dimension φ59×35H  
Attachment hole position φ44

Lamp cable length 1000

- Fixed, desk holder type
- Weight: 1.5kg (Excluding lens)
- Input voltage range : AC100V ~ 240V※50/60Hz (※AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption : 10W
- Standby power : 0W
- Attention: This product does not become independent for a type to fix by a screw

## SKKL-ST

Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

Long bar type

Lamp cord length 1000  
Clampable range: 15~60

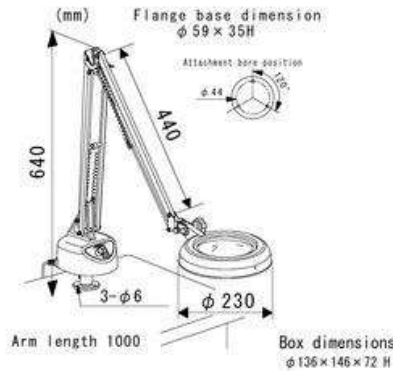
- Long bar type
- Weight: 1.6kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Standby power: 0w

LED illuminated magnifier with dimmer

# ENVL Series

ENVL series is the LED illuminated magnifier as succession series of dimmable ENV Series that was equipped with electronic ballast. The electric power consumption is reduced to about 55%. The cost for 40,000 hours of operation is reduced to 1/3, and it is an Eco-friendly product suitable for growing calls of power shortage.

## ENVL-FD

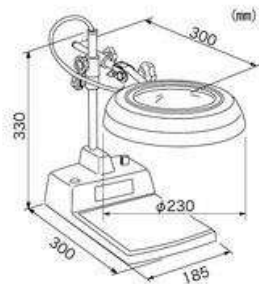


### Interchangeable Lens

2X ( $\phi 130$ )	3X ( $\phi 130$ )	4X ( $\phi 130$ )	6X ( $\phi 105$ )
8X ( $\phi 90$ )	10X ( $\phi 90$ )	12X ( $\phi 90$ )	15X ( $\phi 90$ )

- Free arm and Fixed, desk holder type
  - Weight: 2.4kg (Excluding lens)
  - Input voltage range : AC100V ~ 240V※50/60Hz (※AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
  - Power consumption : 10W
  - Light with dimmer(100 ~ 50%)
  - Standby power : 0W
- Attention: This product does not become independent for a type to fix by a screw

## ENVL-A

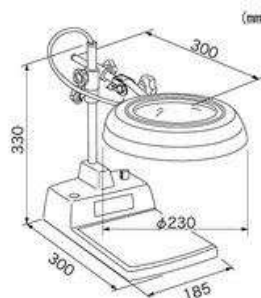


### Interchangeable Lens

2X ( $\phi 130$ )	3X ( $\phi 130$ )	4X ( $\phi 130$ )	6X ( $\phi 105$ )
8X ( $\phi 90$ )	10X ( $\phi 90$ )	12X ( $\phi 90$ )	15X ( $\phi 90$ )

- With table stand and microscope
- Weight: 2.5kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Magnification of microscope: 20X/40X/60X/100X
- Light with dimmer(100~50%)
- Standby power: 0w

## ENVL-B



### Interchangeable Lens

2X ( $\phi 130$ )	3X ( $\phi 130$ )	4X ( $\phi 130$ )	6X ( $\phi 105$ )
8X ( $\phi 90$ )	10X ( $\phi 90$ )	12X ( $\phi 90$ )	15X ( $\phi 90$ )

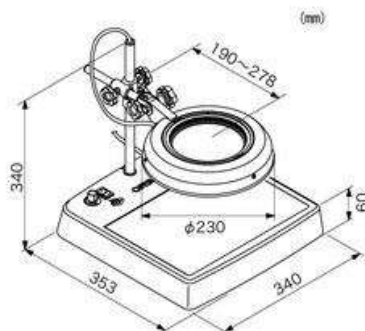
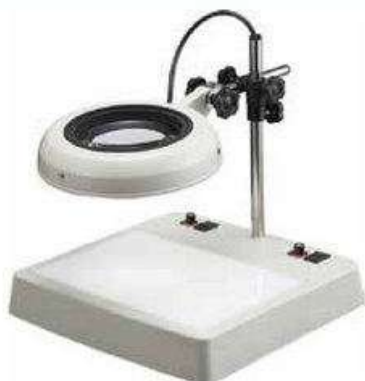
- With table stand
- Weight: 2.2kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Light with dimmer(100~50%)
- Standby power: 0w

LED illuminated magnifier with dimmer

# ENVL Series

ENVL series is the LED illuminated magnifier as succession series of dimmable ENV Series that was equipped with electronic ballast. The electric power consumption is reduced to about 55%. The cost for 40,000 hours of operation is reduced to 1/3, and it is an Eco-friendly product suitable for growing calls of power shortage.

## ENVL-CL

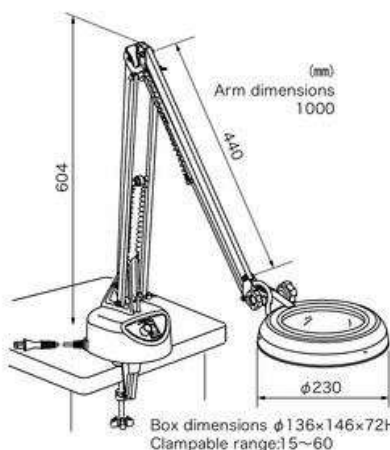


### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- Light box with transmission illumination
- Weight: 3.2kg (Excluding lens)
- Input voltage range:  
AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W+9W
- Light with dimmer(100~50%)
- Standby power: 0w

## ENVL-F

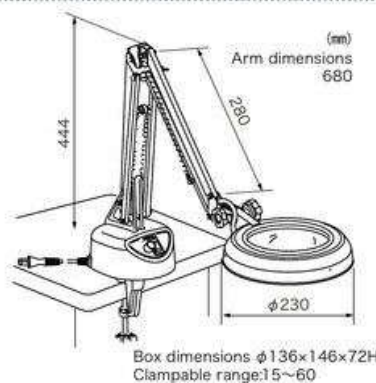


### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- Free arm and clamp type
- Free-type and versatile for inspection, designing, crafting, etc
- Weight: 2.8kg (Excluding lens)
- Input voltage range:  
AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Light with dimmer(100~50%)
- Standby power: 0w

## ENVL-CF



### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- Compact free arm and clamp type
- Free-type and versatile for inspection, designing, crafting, etc
- Weight: 2.5kg (Excluding lens)
- Input voltage range:  
AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- Light with dimmer(100~50%)
- Standby power: 0w



### How to exchange lens

All models of the ENVL can accommodate all the magnifications of the Round series interchangeable lens system. The magnification can be easily changed by exchanging the lens and rubber frame together without using tool.



■ Round Series interchangeable lens system

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

## ENVL-FL

### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)



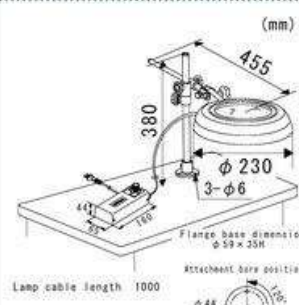
- Free arm with casters stand
- Moveable in the reach of the power cord
- Weight: 12.8kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- light with dimmer(100~50%)
- Standby power: 0w

Box dimensions  
φ136×146×72H

## ENVL-D

### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)



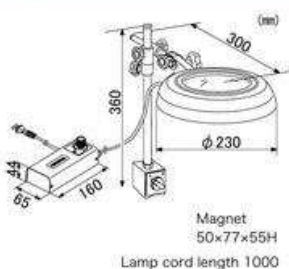
- Fixed desk holder type
- Weight: 1.6kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- light with dimmer(100 ~ 50%)
- Standby power: 0W
- Attention: This product does not become independent for a type to fix by a screw



## ENVL-MS

### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)



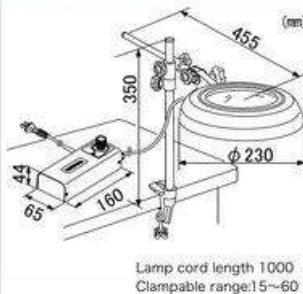
- Magnet stand type
- Weight: 2.7kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- light with dimmer(100~50%)
- Standby power: 0w



## ENVL-ST

### Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)



- Long bar type
- Weight: 1.7kg (Excluding lens)
- Input voltage range: AC100 ~ 240V※  
50/60 Hz (※125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 10W
- light with dimmer(100~50%)
- Standby power: 0w



# LEKs WIDE Series

We employed fluorescent lamp-type LED of high quality. We want to contribute to reduction of lighting power by having LED illuminated magnifiers used by more customers.

## LEKs WIDE-FD

Interchangeable Lens

WIDE 2X φ150	WIDE 3X φ150	WIDE 4X φ150
-----------------	-----------------	-----------------

- Free arm and Fixed, desk holder type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.7kg (Excluding lens)
- Input voltage range: AC100V ~ 240V ※ 50/60Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W
- Attention: This product does not become independent for a type to fix by a screw

## LEKs WIDE-B

Interchangeable Lens

WIDE 2X φ150	WIDE 3X φ150	WIDE 4X φ150
-----------------	-----------------	-----------------

- With table stand
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.4kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W

## LEKs WIDE-CL

Interchangeable Lens

WIDE 2X φ150	WIDE 3X φ150	WIDE 4X φ150
-----------------	-----------------	-----------------

- Light box With transmission illumination
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 3.3kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W+7W
- Standby power: 0W

## LEKs WIDE-F

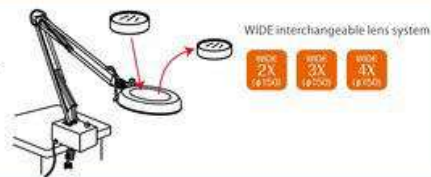
Interchangeable Lens

WIDE 2X φ150	WIDE 3X φ150	WIDE 4X φ150
-----------------	-----------------	-----------------

- Free arm and clamp type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.9kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W

### How to exchange lens

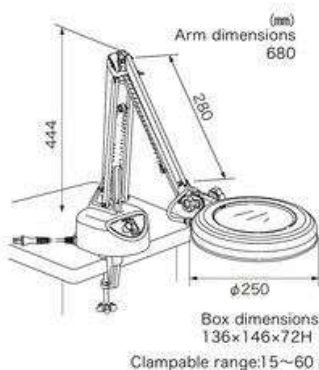
All models of LEKs and LEK can accommodate WIDE interchangeable lens system by exchanging lens and rubber frame without using tool.



## LEKs WIDE-CF

Interchangeable Lens

WIDE 2X (φ150) WIDE 3X (φ150) WIDE 4X (φ150)



- Compact free arm and clamp type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.7kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W



## LEKs WIDE-D

Interchangeable Lens

WIDE 2X (φ150) WIDE 3X (φ150) WIDE 4X (φ150)



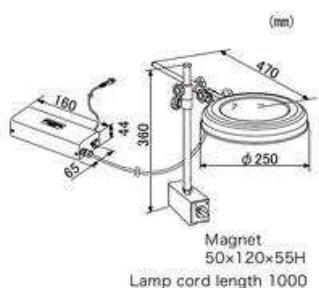
- Fixed, desk holder type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 1.8kg (Excluding lens)
- Input voltage range: AC100V ~ 240V ※ 50/60Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W
- Attention: This product does not become independent for a type to fix by a screw



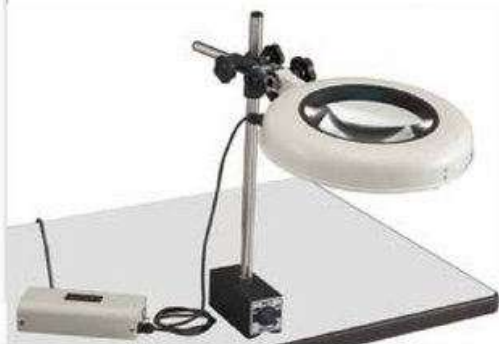
## LEKs WIDE-MS

Interchangeable Lens

WIDE 2X (φ150) WIDE 3X (φ150) WIDE 4X (φ150)



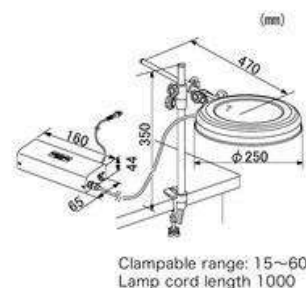
- Magnet stand type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 3.1kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W



## LEKs WIDE-ST

Interchangeable Lens

WIDE 2X (φ150) WIDE 3X (φ150) WIDE 4X (φ150)



- Long bar type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 1.9kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W



WIDE Series with dimmer

# LEK WIDE Series

We employed fluorescent lamp-type LED of high quality. We want to contribute to reduction of lighting power by having LED illuminated magnifiers used by more customers.

## LEK WIDE-FD

Interchangeable Lens

WIDE 2X (φ150)	WIDE 3X (φ150)	WIDE 4X (φ150)
----------------	----------------	----------------

- Free arm and Fixed, desk holder type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.7kg (Excluding lens)
- Input voltage range: AC100V ~ 240V ※ 50/60Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W
- Light with dimmer (100 ~ 50%)

Attention: This product does not become independent for a type to fix by a screw

## LEK WIDE-B

Interchangeable Lens

WIDE 2X (φ150)	WIDE 3X (φ150)	WIDE 4X (φ150)
----------------	----------------	----------------

- With table stand
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.4kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W
- Light with dimmer (100 ~ 50%)

## LEK WIDE-CL

Interchangeable Lens

WIDE 2X (φ150)	WIDE 3X (φ150)	WIDE 4X (φ150)
----------------	----------------	----------------

- Light box With transmission illumination
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 3.3kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W+9W
- Standby power: 0W
- Light with dimmer (100 ~ 50%)

## LEK WIDE-F

Interchangeable Lens

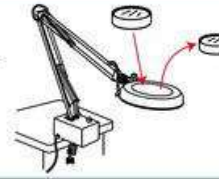
WIDE 2X (φ150)	WIDE 3X (φ150)	WIDE 4X (φ150)
----------------	----------------	----------------

- Free arm and clamp type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.9kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W
- Light with dimmer (100 ~ 50%)

Clampable range 15 ~ 60

### How to exchange lens

All models of LEKs and LEK can accommodate WIDE interchangeable lens system by exchanging lens and rubber frame without using tool.

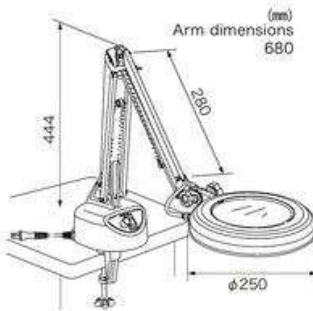


WIDE interchangeable lens system



## LEK WIDE-CF

Interchangeable Lens



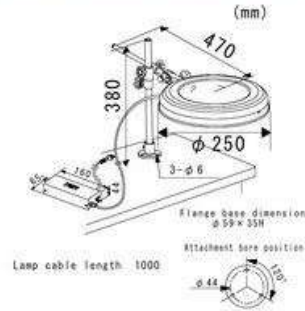
Clampable range: 15~60

- Compact free arm and clamp type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.7kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W
- Light with dimmer (100~50%)



## LEK WIDE-D

Interchangeable Lens



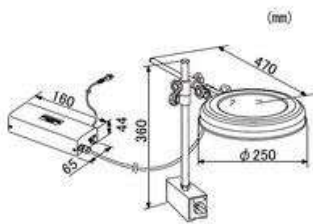
Lamp cable length 1000

- Fixed, desk holder type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 1.8kg (Excluding lens)
- Input voltage range: AC100V ~ 240V ※ 50/60Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W
- Attention: This product does not become independent for a type to fix by a screw



## LEK WIDE-MS

Interchangeable Lens



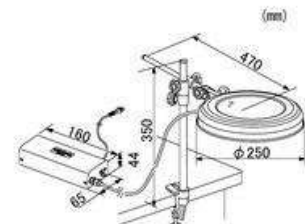
Magnet  
50×120×55H  
Lamp cord length 1000

- Magnet stand type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 3.7kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W
- Light with dimmer (100~50%)



## LEK WIDE-ST

Interchangeable Lens



Clampable range: 15~60  
Lamp cord length 1000

- Long bar type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 1.9kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 14W
- Standby power: 0W
- Light with dimmer (100~50%)



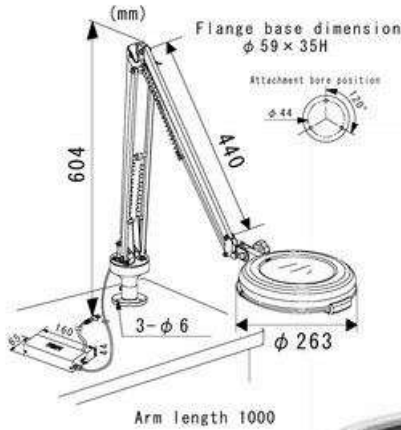
LED illuminated magnifier

# LSKs Series

LSKs / LSK Series have the High quality LED illumination, long service life, and excellent environment performance. We will strongly support the customer's visual inspection processes with less facility investment, more high optical quality, and excellent energy saving performance.

LSKs Series *without dimmer*

## LSKs-FD

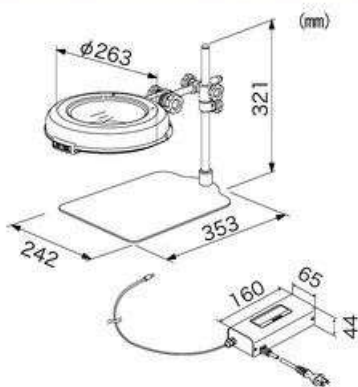


Interchangeable Lens

2X ( $\phi 130$ )	3X ( $\phi 130$ )	4X ( $\phi 130$ )	6X ( $\phi 105$ )
WIDE 2X ( $\phi 150$ )	WIDE 3X ( $\phi 150$ )	WIDE 4X ( $\phi 150$ )	

- Free arm and Fixed, desk holder type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 3.3kg (Excluding lens)
- Input voltage range: AC100V ~ 240V ※ 50/60Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 13W
- Standby power: 0W
- Attention: This product does not become independent for a type to fix by a screw

## LSKs-B



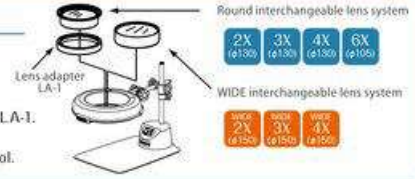
Interchangeable Lens

2X ( $\phi 130$ )	3X ( $\phi 130$ )	4X ( $\phi 130$ )	6X ( $\phi 105$ )
WIDE 2X ( $\phi 150$ )	WIDE 3X ( $\phi 150$ )	WIDE 4X ( $\phi 150$ )	

- With table stand
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 3.2kg (Excluding lens)
- Special power supply: PS15C is attached.
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 13W

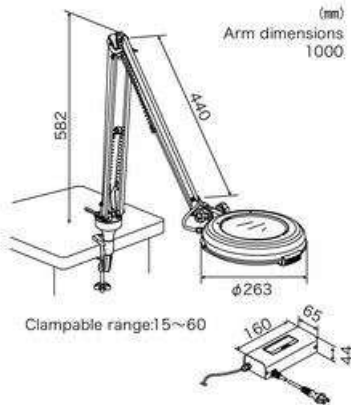
### How to exchange lens

All models of LSKs and LSK can accommodate from 2X to 6X magnifications of the Round series interchangeable lens system and WIDE interchangeable lens system by using lens adapter LA-1. The magnification can be easily changed by exchanging lens and rubber frame without using tool.



## LSKs Series without dimmer

### LSKs-F

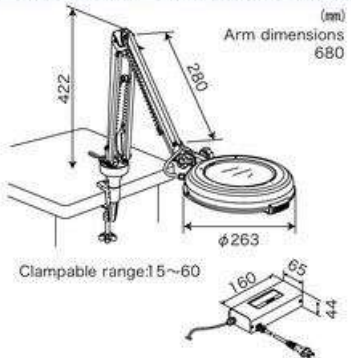


#### Interchangeable Lens



- Free arm and clamp type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 3.2kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 13W

### LSKs-CF

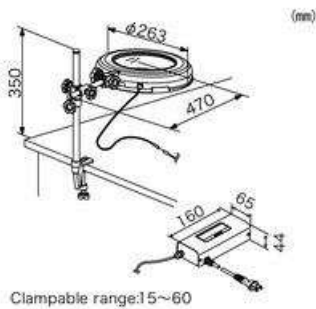


#### Interchangeable Lens



- Compact free arm and clamp type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 3.0kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 13W

### LSKs-ST



#### Interchangeable Lens



- Long bar type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.1kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 13W

LED illuminated magnifier

# LSK Series

LSKs / LSK Series have the High quality LED illumination, long service life, and excellent environment performance. We will strongly support the customer's visual inspection processes with less facility investment, more high optical quality, and excellent energy saving performance.

LSK Series with dimmer

## LSK-FD

Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
WIDE 2X (φ150)	WIDE 3X (φ150)	WIDE 4X (φ150)	

- Free arm and Fixed, desk holder type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.9kg (Excluding lens)
- Input voltage range: AC100V ~ 240V ※ 50/60Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 13W
- Standby power: 0W
- Light with dimmer (100 ~ 50%)

Attention: This product does not become independent for a type to fix by a screw

## LSK-B

Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
WIDE 2X (φ150)	WIDE 3X (φ150)	WIDE 4X (φ150)	

- With table stand
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 4.4kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 13W
- Light with dimmer (100 ~ 50%)
- Standby power: 0W

## LSK-F

Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
WIDE 2X (φ150)	WIDE 3X (φ150)	WIDE 4X (φ150)	

- Free arm and clamp type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.9kg (Excluding lens)
- Input voltage range: AC 100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 13W
- Light with dimmer (100 ~ 50%)
- Standby power: 0W

## LSK-CF

Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
WIDE 2X (φ150)	WIDE 3X (φ150)	WIDE 4X (φ150)	

- Compact free arm and clamp type
- Light source: LED (estimated life time: 40,000 hours)
- Weight of unit: 2.6kg (Excluding lens)
- Input voltage range: AC100 ~ 240V ※ 50/60 Hz (※ AC125 ~ 240V is applicable by replacing the input plug. A kind of input plug consult your distributor.)
- Power consumption: 13W
- Light with dimmer (100 ~ 50%)
- Standby power: 0W



LED illuminated Loupe for checking the holes, grooves, and inside walls.

# BORELOUPE Series

It is suitable for simple check holes or deep grooves in mass production workshops.

A bright white LED is used at the light source and the line magnification of the loupe lens can be switched between 2X and 3X. The dust prevention cover is installed to the objective lens end and the protection cover is installed to the upper lens.

## BORELOUPE-F

- Free arm and clamp type
- Lens magnification: Switchable between 2X and 3X (Line magnification)
- Effective diameter of lens:  $\phi 40$
- Weight: 2.0kg
- Light source: LED light (estimated life time: 40,000hours)
- Input voltage range: AC100 ~ 240V 50/60 Hz
- Power consumption: 1.2W

Clampable range: 15~60

## BORELOUPE-ST

- Long bar type
- Lens magnification: Switchable between 2X and 3X (Line magnification)
- Effective diameter of lens:  $\phi 40$
- Weight: 1.3kg
- Light source: LED light (estimated life time: 40,000hours)
- Input voltage range: AC100 ~ 240V 50/60 Hz
- Power consumption : 1.2W

Clampable range: 15~60

### Comparison of between BORELOUPE and nearby lighting method

	Inside of pen cap	Burrs in horizontal hole	Deep hole made by die casting
Object			
Field of view of BORELOUPE			
Field of view of nearby lighting			

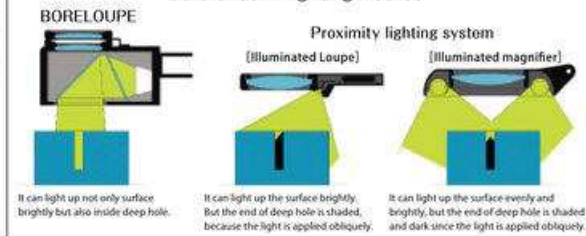
### Out line

- BORELOUPE is an illuminated loupe consisting of two lenses.
- Since the coaxial lighting optical system is employed, Bore loupe can light up parts which cannot be lit up and are difficult to check with an ordinary illuminated magnifier or an illuminated loupe.
- A bright white LED is used at the light source and the line magnification of the loupe lens can be switched between 2X and 3X. The dust prevention cover is installed to the objective lens end and the protection cover is installed to the upper lens.
- There are two types of the stand: model F of free arm type and Model ST in which the crossbar is jointed to the stand pole.

Conventional microscope or bore scope of incident illumination type of endoscope have been used for checking the parts mentioned above, but they are not easy to use in mass production workshops for various reasons, BORELOUPE is suitable for all check of stop holes or deep grooves in mass production workshops.

Try BORELOUPE to reduce the time and cost, and to improve the quality.

### Deference in lighting method



### The polarizing filter for BORELOUPE (Exclusive use for 3X lens)

The polarizing filter has a characteristic of transmitting only the light wave components in one oscillating direction among components in random oscillating directions.

Using this characteristic, unnecessary surface reflecting light from a specimen can be estimated to improved observation and inspection efficiency, and reduce fatigue. This filter also has dimming effect and can reduce the intensity of light from a fluorescent lamp.



### The Power up lens for BORELOUPE (Exclusive use for 3X lens)

When 3x are large magnification is necessary, you can increase the magnification to 3.3x by simply mounting this lens onto the upper lens. If this option is used, the working distance (the distance between the bottom of the BORELOUPE and the specimen) becomes very short. Take care not to hit the specimen against the glass parts in the BORELOUPE.



### The Extender of working distance for BORELOUPE (Exclusive use for 3X lens)

Mounting it on 3X lens could make working distance 3 times (not changing magnification, normally working distance is 55mm). If you use the power up lens for BORELOUPE with it, magnification could become 3.8X and working distance could become 38mm.

illuminated magnifier without dimmer

# O-LIGHT Series

Since both O-LIGHT used inverter-type electronic ballast, their lights flicker a little.

## O-LIGHT III - FD

Flange base dimension  
φ 59 × 35H

Attachment Body position

Box dimensions  
φ 136 × 146 × 72 H

RECTA SYSTEM Interchangeable Lens

2X	3.5X	2X AR	3.5X AR
----	------	-------	---------

- Free arm and Fixed, desk holder type
- Lens: 2X, 3.5X rectangular lenses
- Material of lens: optical glass (144 × 108mm)
- Light source: FPL27AX
- Input voltage range: AC100V 50-60 Hz only
- Power consumption: 27W
- Weight: (O-LIGHT III - FD 2X) 2.4Kg  
(O-LIGHT III - FD 3.5X) 2.5Kg
- Plug with earth and plug adapter.
- Standby power: 0W
- Attention: This product does not become independent for a type to fix by a screw

## O-LIGHT III

Rectangular lens  
Distorted peripheral area of the rectangular lens is cut away, and it makes observation easier. An optical lens is used.  
RECTA-SYSTEM is suitable for only O-light III. We supply four types of lens magnification, which are 2X, 3.5X, 2XAR and 3.5XAR

Box dimensions  
φ 136 × 146 × 72 H

Clampable range: 15~60

RECTA SYSTEM Interchangeable Lens

2X	3.5X	2X AR	3.5X AR
----	------	-------	---------

- Free arm and clamp type
- Lens: 2X rectangular lens and 3.5X rectangular lens
- Lamp: FPL27AX
- Input voltage: AC100V 50-60Hz only
- Power consumption: 27W
- Lighting method: electric ballast.
- Weight: (O-LIGHT III 2X) 3.2kg  
(O-LIGHT III 3.5X) 3.3kg
- Plug with earth and plug adapter.
- Standby power: 0W

## O-LIGHT F

Box dimensions  
φ 136 × 146 × 72 H

Clampable range: 15~60

RECTA SYSTEM Interchangeable Lens

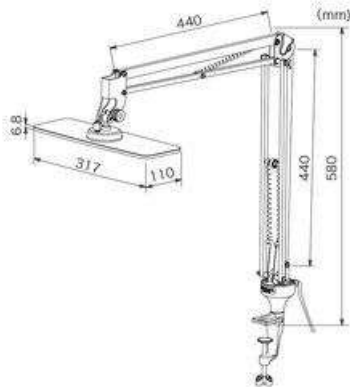
2X	3X	4X	6X
8X	10X	12X	15X

- Free arm and clamp type
- Lamp: FCL20N/18
- Input voltage: AC100V 50-60 Hz only
- Power consumption: 25W
- Lighting method: electric ballast.
- Lens: Round series interchangeable lens system
- Magnification: 2X, 3X, 4X, 6X, 8X, 10X, 12X, 15X
- Plug with earth
- Standby power: 0W
- Weight: 2.5kg

# MODELIGHT EL Series

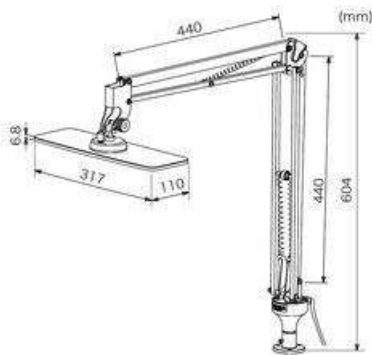
MODELIGHT EL adopted the latest organic EL panel. It is a new work and inspection lighting which Otsuka thinks.

## MODELIGHT EL - F



- Free arm and clamp type
- Light spruce : Organic EL
- Correlated color temperature : Approximate 4700K
- Total lamination flux : 124 lm
- Luminance : 3000cd/ m<sup>2</sup>
- Average of rendering index Ra : Ra:93 (Ra $\geq$ 88)  
R9,R13,R15:90  
(R9,R13,R15 $\geq$ 85)
- Light with dimmer : 100~0%
- Input voltage range and frequency : 100V 50/60Hz
- Power consumption : 6W
- Weight : 2.3kg(Excluding AC adoper)

## MODELIGHT EL - FD



- Free arm and fixed, desk holder type
- Light spruce : Organic EL
- Correlated color temperature : Approximate 4700K
- Total lamination flux : 124 lm
- Luminance : 3000cd/ m<sup>2</sup>
- Average of rendering index Ra : Ra:93 (Ra $\geq$ 88)  
R9,R13,R15:90  
(R9,R13,R15 $\geq$ 85)
- Light with dimmer : 100~0%
- Input voltage range and frequency : 100V 50/60Hz
- Power consumption : 6W
- Weight : 2.2kg(Excluding AC adoper)

# OSL Series

Square series, OSL is a product with a rectangular lens, which uses the area near its optic axis to make wide-field viewing possible. Although the size of the lens is a little smaller than that of Square-series WIDE, we provide 2 kinds of lenses of x2 and x4 magnifications for the use in various scenes.

## OSL-1

Fixed Lens 2X 4X

- Light box With transmission illumination
- Weight: 6.5kg
- Power consumption: 36W
- Lamp: FL6N (four pieces)

## OSL-2

Fixed Lens 2X 4X

- With table stand
- Weight: 6.5kg
- Power consumption: 18W
- Lamp: FL6N (two pieces)

## OSL-3

Fixed Lens 2X 4X

Clampable range 15~60 (mm)

- Clamp stand type
- Weight: 6.0kg
- Power consumption: 18W
- Lamp: FL6N (two pieces)

Box dimensions 150X150X70H

## OSL-4

Fixed Lens 2X 4X

Clampable range 15~60 (mm)

- Free arm and clamp type
- Weight: 5.5kg
- Power consumption: 18W
- Lamp: FL6N (two pieces)

Box dimensions 150X150X70H

# WIDE Series

Square-series WIDE is a product with a highest grade large aperture rectangular lens, which uses the area near to its optic axis to make wide-field viewing possible.

We pursued the user-friendliness by such processes just like finishing a beautiful piece of diamond out of a large piece of diamond raw stone.

**WIDE-1** Fixed Lens  
2X

(mm)

- Light box With transmission illumination
- Weight: 13.7kg
- Power consumption: 44W
- Lamp: FL8N (four pieces)

**WIDE-2** Fixed Lens  
2X

(mm)

- With table stand
- Weight: 13.7kg
- Power consumption: 22W
- Lamp: FL8N (two pieces)

**WIDE-3** Fixed Lens  
2X

(mm)  
Box dimensions  
150X150X80H

- With clamp stand
- Weight: 11.5kg
- Power consumption: 22W
- Lamp: FL8N (two pieces)

Maximum clamping thickness 70

**WIDE-4** Fixed Lens  
2X

(mm)  
Box dimensions  
150X150X80H

- Free arm and clamp type
- Lamp: FL8N (two pieces)
- Weight: 12.5kg
- Power consumption: 22W
- Lamp: FL8N (two pieces)

Maximum clamping thickness 70

LED light for checking the surfaces flaws

# BARLIGHT Series

Inspection of scratches, unevenness and deposits on painted and plated surfaces, debris and scratches on silicon wafers, unevenness of embossments and waviness of panel surfaces.

- Checking glass or plastic plate surfaces for dust
- Checking molded plastic or rubber products of sinks and lighting of mark-off lines for cutting work or jigsaw work.
- Checking painted, plated, ore embossed surfaces for flaws and unevenness.
- Auxiliary lighting for illuminated magnifier ( effective when the work piece is difficult to see because of incident illumination)

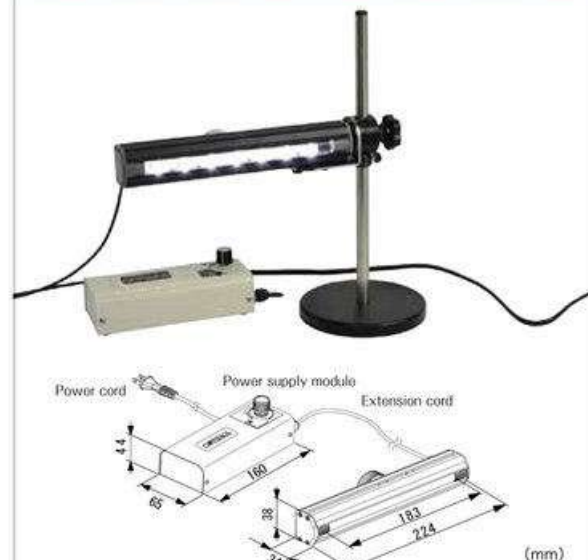
## BARLIGHT II



The power switch  
There is it on the back side of the irradiation head part.

The irradiation data is the value measured at the center of irradiation head in a darkroom. It is the data of one of mass-produced products and is not an assured data.

## BARLIGHT III



The irradiation data is the value measured at the center of irradiation head in a darkroom. It is the data of one of mass-produced products and is not an assured data.

### BARLIGHT II



Irradiation spread angle is not adjustable.

Back of the illumination head

Power supply unit

### BARLIGHT III



Adjustment knob of irradiation spread angle

Irradiation spread angle is adjustable in the range of 6 to 30 degrees



Power supply, Dimmer knob

Light intensity is adjustable with the Dimmer knob.

Proper illumination intensity is obtained and isolation can be prevented.

	BARLIGHT II	BARLIGHT III
Light source	High luminance white LED: 7 bulbs	
Rated input voltage	AC100V 50/60Hz ±1	
Power cable length (unit: mm)	Power cable: 1800	Joint cable: 1600
Power consumption	8 W	9 W
Specification temperature range	0°C~40°C	
Dustproof and waterproof protection grade	IP40	
Illumination intensity #2	Irradiation spread angle of 6 degrees	150mm:15000lx, 200mm:10000lx, 300mm:5800lx, 400mm:3600lx
	Irradiation spread angle of 30 degrees	150mm:10000lx, 200mm:6500lx, 300mm:3300lx, 400mm:2000lx
Dimming function (100% to 50%)	×	○
Irradiation spread angle adjustment function	×	○ (6°~30°)
Weight	370g	945g
	300g	420g

#1 Up to 240V (50/60Hz) can be supported by changing a cable with plug. Please contact our distributors.

#2 Illumination intensity data is measured at the center of the irradiation head in a darkroom. It is data of a unit extracted from mass-produced units, and is not a guaranteed data.

Product name (Set contents)
BARLIGHT II (Main unit only)
BARLIGHT II-G (Set product with BARLIGHT Grip)
BARLIGHT II-F (Set product with BARLIGHT Free-Arm)
BARLIGHT III (Main unit only)
BARLIGHT III-G (Set product with BARLIGHT Grip)
BARLIGHT III-F (Set product with BARLIGHT Free-Arm)

Option name
Tilt stand
Double tilt stand
BARLIGHT grip only
BARLIGHT Free-Arm only

# BARLIGHT II / III - G

# BARLIGHT II / III - F

# OPTION



Optional BARLIGHT grip and BARLIGHT Free-Arm mounting example (Main unit is BARLIGHT III)

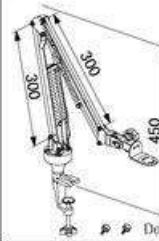
## BARLIGHT GRIP

This grip is attachable to the BARLIGHT with decorative screws. It is most suitable for viewing large works or internal observation of large equipment.



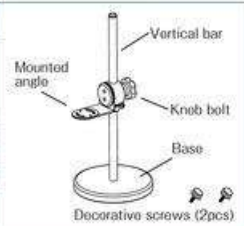
## BARLIGHT FREEARM

It is a free arm type clamp stand. You can adjust the illuminating angle to various works very finely and easily.

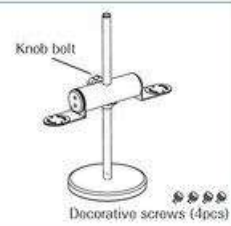


Clampable range: 15~60°  
Decorative screws (2pcs)

TILT STAND (unit: mm)	
Adjusting direction	Z (Height) θ (Angle of elevation and depression) α (Horizontal angle)
Vertical bar	φ13
Dimensions	Base φ129, Height φ307
Weight	1.6kg
Using temperature range	0°C~40°C



DOUBLE TILT STAND (unit: mm)	
Adjusting direction	Z (Height) θ (Angle of elevation and depression) α (Horizontal angle) Horizontal angle is adjustable
Vertical bar	φ13
Dimensions	Base φ129, Height φ307
Weight	2.1kg
Using temperature range	0°C~40°C



## BARLIGHT, an inspection luminaire that Otsuka has developed on the basis of the users' voices

Contrast cannot be obtained if coaxial lighting is used. Scratches on a painted surfaces or dusts before painting are not visible. Due to vast number of inspection for molded articles, oversights occurs. Scratches, etc. become visible by increasing the magnification of a magnifier, but doing so can fatigue workers' eyes.

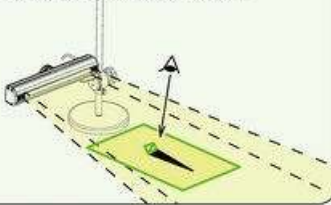


Roughness casts shadows and enhances contrast against surroundings. It emphasizes the detailed roughness and fine deposits on surfaces. The workers do not need to strain their eyes to check for defects, and can work easily. It makes possible to find defects even with lower magnification lenses.

### Two inspection methods that Otsuka proposes.

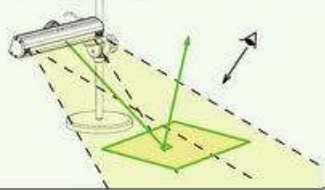
#### Surface irradiation method

A plane light is radiated along the surface to be inspected to emphasize unevenness and detect flaws, dust, or defects.



#### Diffused reflection method

A wide light is radiated over the workpiece at a certain angle to check the reflected light. Unevenness of flow of foreign materials is emphasized by diffusing only the light applied to them.



Comparison of sink marks and roughness on surfaces of plastic injection molded parts. (Surface irradiation method)

Illuminated by BARLIGHT III

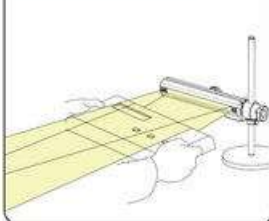


Normal indoor lighting

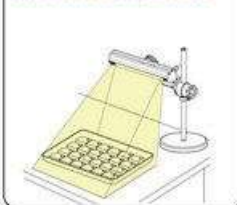


### Usage examples: Tilt Stand, Double Tilt Stand, BARLIGHT Free-arm and BARLIGHT Grip are optional.

#### Surface irradiation method



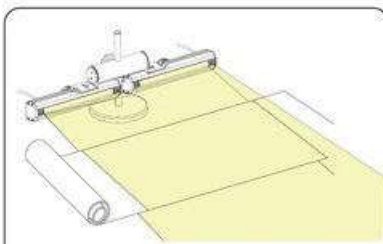
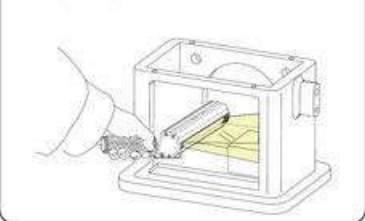
#### Inspection of parts in a tray by diffused reflection method



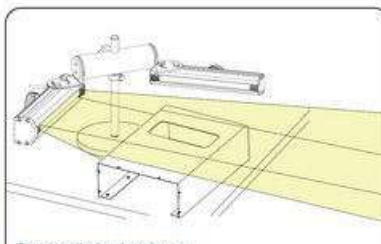
#### Auxiliary lighting for illuminated magnifier



#### Use Light Bar grip at the narrow

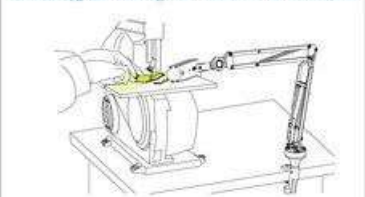


Irradiation of wider area with double tilt stand



Two irradiation heads set at right angles to double tilt stand

The irradiation clearly the scribe line of the complexity curve band saw, jig saw with. Light Bar free arm is the best match!



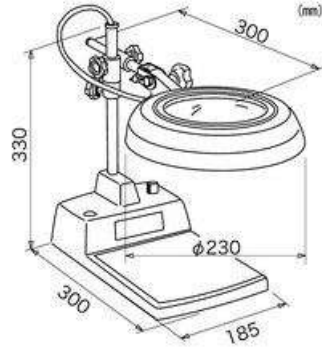
Round Series without dimmer

# SKK Series

Since its first release, for 40 years, the illuminated magnifier SKK series has been supporting improvement of productivity and quality.

Because of the minimized number of parts in it, it is priced low but fails less and realizes high reliability. The durability proved by 40-year achievement in every working environment still supports the inspection process of the users strongly.

## SKK-B

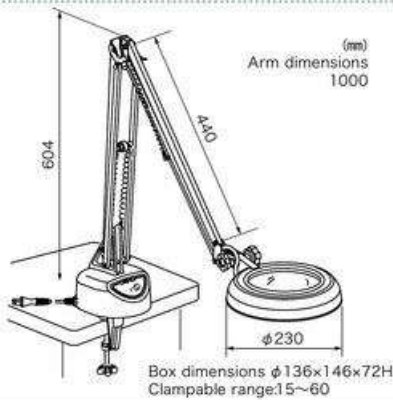


Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- With table stand
- Weight: 2.7kg (Excluding lens)
- Power consumption: 23W
- Lamp: FCL20N/18

## SKK-F

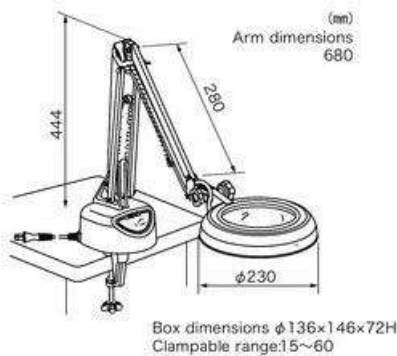


Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- Free arm and clamp type
- Free-type and versatile for inspection, designing, crafting, etc
- Weight: 3.0kg (Excluding lens)
- Power consumption: 23W
- Lamp: FCL20N/18

## SKK-CF



Interchangeable Lens

2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)

- Compact free arm and clamp type
- Free-type and versatile for inspection, designing, crafting, etc
- Weight: 2.7kg (Excluding lens)
- Power consumption: 23W
- Lamp: FCL20N/18



# O-SCOPE Series

## O-SCOPE

### ★High-magnification and long-focus LED-illuminated magnifier



Applicable to every precision work since high magnification and long-focus lenses are employed. The user can easily observe high-quality stereo images having less aberration at the exit pupil. White LED is employed for longer service life of the lighting section.

- Dimensions: A=350 mm~ 750 mm B=170 mm C=500 ~ 700 mm D=75 mm~ 300 mm E=260 mm~ 450 mm F=20° -50°
- Unit Weight: Head 2.6 kg, Stand 3.3 kg
- Weight: Head 4.9 kg, Stand 4.6 kg
- Clampable range: 0 ~ 66mm
- Input voltage for lighting: AC100V 50/60V only, 40 bulbs (white LED), 9500 Lux
- Service life: Min. 10,000 hours
- Option, Accessory: dust cover, lens protection cap, Spare LED array

※The line magnification of the lens can be switched between 2.5X and 5.0X.

Magnification of the lens	Focal length	View rate
2.5X (6.25X)	116mm	48.6mm
5.0X (25.0X)	66mm	23.8mm

## O-SCOPE 2

### ★High quality, unique, compact, fully portable



This microscope boasts the most compact design on the market with its optical performance and resolution matching that of a high quality research compound microscope.

- ★ Monocular, inverted, portable, and biological microscope
- ★ by using adapter, any smart phones can be connected.
- You can capture image in your smart phones

- Focus: fine focus, reciprocating, side mounted knob
- Illumination: bright white LED/ adjustable intensity/ auto power save in battery mode
- Dimensions: size (main body)- length 133mm, width 110mm, height 49mm  
size(max overall)- length 154mm, width 122mm, height 66mm
- Weight: 480g (with 2 objective lenses)
- Power supply: 3xAAA battery pack/ auto power save in battery mode/  
external USB power connectable/  
battery life approximately 1000 hours at minimum continuous power and  
300 hours at maximum continuous power

Part No.	Objective lens	TOTAL MAGNIFICATION	
		With 10X eyepiece	With 16X eyepiece (optional)
On OS1-14	10X&40X	100X&400X	160X&640X
On OS1-146	10X, 40X&60X	100X, 400X&600X	160X, 640X&960X
On OS1-1410	10X, 40x&100X (oil)	100X, 400X&1000X	160X, 640X&1600X

# The list of interchangeable lens system

## Magnification lineup of Round Series interchangeable lens system

\*The photo is composite

Area magnification (approximate)	2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)
Images of models				
Lens diameter (lens composition)	φ130 (single piece lens)	φ130 (single piece lens)	φ130 (doublet lens)	φ105 (doublet lens)
Images of models				
Area magnification (approximate)	8X (φ90)	10X (φ90)	12X (φ90)	15X (φ90)
Images of models				
Lens diameter (lens composition)	φ90 (quadruplet lens)	φ90 (quadruplet lens)	φ90 (3 groups, quintuple lens) with polarizing filter as standard	φ90 (3 groups, sextuplet lens) with polarizing filter as standard
Images of models				

Magnification of our product is expressed in term of area magnification. This is comparison of area magnification and line magnification, expressing in term of line magnification.

Area magnification	Line magnification
2x	1.4x
3x	1.7x
4x	2x
6x	2.4x
8x	2.8x
10x	3.1x
12x	3.4x
15x	3.8x

Lens (area magnification)	Eye point (mm)	Lens diameter (mm)	Working distance (mm)	View (mm)	Weight (g)	Optional multi-coated lens
2x	150	φ130	160	φ170	400	○
3x	150	φ130	130	φ140	500	○
4x	150	φ130	110	φ120	700	○
6x	100	φ105	82	φ70	570	○
8x	105	φ90	54	φ40	1300	×
10x	80	φ90	43	φ40	1350	×
12x	80	φ90	35	φ40	1350	×
15x	65	φ90	30	φ30	1560	×

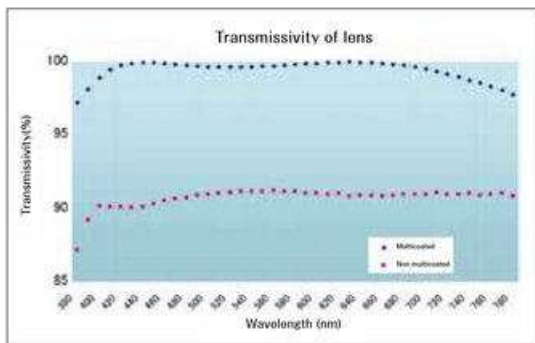
## Magnification lineup of WIDE Series interchangeable lens

Area magnification (approximate)	WIDE 2X (φ150)	WIDE 3X (φ150)	WIDE 4X (φ150)	Lens (area magnification)	Eye point (mm)	Lens diameter (mm)	Working distance (mm)	View (mm)	Weight (g)	Optional multi-coated lens
Images of models				WIDE -2x	150	φ150	150	φ200	700	○
Lens diameter (lens composition)	φ150 (single piece lens)	φ150 (single piece lens)	φ150 (double lens)	WIDE -3x	150	φ150	120	φ180	720	○
				WIDE -4x	150	φ150	100	φ160	1150	○

# Multicoated lens

## Proposal of fatigue reduction

You can reduce workers' "eye fatigue" and "decrease in work efficiency" by mounting the multi-coated interchangeable lens onto an Otsuka Optics Illuminated magnifier which you are using currently.



- Glare of the sunlight or ceiling illumination on lens surfaces, which often occurs on the conventional illuminated magnifier, is prevented and the workers can concentrate on inspection work and other tasks.
- Transmittance ratio is improved about 10% compared to conventional lens (our products comparison), and it is possible to make clear inspection.
- It is possible to improve workability and feel of use by replacing the conventional lens of an illuminated loupe in use with the multi-coated lens.\*

\* (Remarks)

The cause of fatigue while using illuminated loupe is not only originated by lens, but there are many other factors exist. There are cases that fatigue reducing affect by mounting the multi-coated lens may not be observed depending on intensity of illumination, work environment, inspection method or inspection accuracy.

\*The photo is composite

Area magnification (approximate)	2X (φ130)	3X (φ130)	4X (φ130)	6X (φ105)	8X (φ90)	10X (φ90)
Images of models						
Lens diameter (lens composition)	φ 130 (single piece lens)	φ 130 (single piece lens)	φ 130 (doublet lens)	φ 105 (doublet lens)	φ 90 (quadruplet lens)	φ 90 (quadruplet lens)
Images of models						

Area magnification (approximate)	wide 2X (φ150)	wide 3X (φ150)	wide 4X (φ150)
Image of models			
Lens diameter (lens composition)	φ 150 (single piece lens)	φ 150 (single piece lens)	φ 150 (double lens)

## RECTA-SYSTEM

Lens diameter (lens composition)	2X	3.5X	PUL AR
Image of models			
Lens diameter (lens composition)	144×108	144×108	144×108

# OPTION / LOUPE

A polarizing filter has a characteristic of transmitting a component of light wave in only one direction out of random directions.

This eliminates unnecessary light reflected on the surfaces of the observed objects, thus inspection efficiency is improved and the operator is less fatigued.

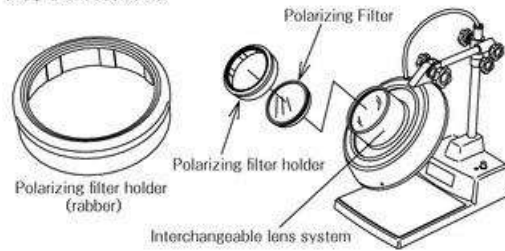
Since this filter has light reduction effect as well, it can reduce the light intensity of the lighting.

- $\phi$ 130 Polarizing filter (for 2X to 6X)
- $\phi$ 90 Polarizing filter (for 8X to 15X)



■ Polarizing filter holder (for 8X to 15X)  
Polarizing filter holder (for 8X to 15X)

The standard polarizing filter (for 8X, 10X, 12X, and 15X) is simply placed on a lens for the normal usage and may fall unexpectedly if the lens is tilted largely. Use of this polarizing filter holder will hold the filter firmly and prevent accidents.



## Wide View Stand loupe

### Feature

Applicable to from outside inspection to magnification observation, and precision work. An ultra wide lens of 2X with high light transmittance and small lenses of 4X and 7X are combined. The hard-coated plastic lenses are not scratched easily and can be folded to the A5 size for easy storage and transportation.

- Wide View Stand Loupe
- Magnification: Rectangular lenses: 2X, segment lens: 4X, 7X
- Weight: 1.9kg



## VITA-LITE

Full-spectrum fluorescent lamp  
Circular fluorescent lamp

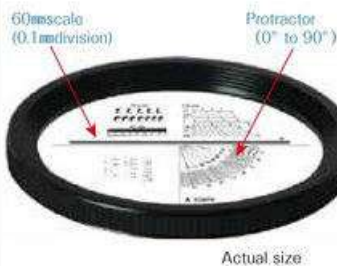
VITA-LITE, the third lamp lights up objects in very natural colors and does not fatigue the user's eyes easily. We recommend this lamp especially when using a high-power magnifier.

- Made in China
- 22W



## Big-diameter Glass Scale

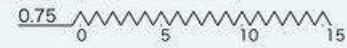
This is precision rulers with divisions and various gauges drawn on the glass surface. Shapes of objects can be directly measured by contacting the magnifying glass, etc. to the objects. In the  $\phi$ 76mm of the field of view, six kinds of scales are drawn. An aluminum frame is used to prevent glass breakage. The periphery is covered with knurled rubber to prevent the hand from slipping during measurement.



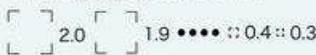
Radius gauge (1.5 to 0.2mm)



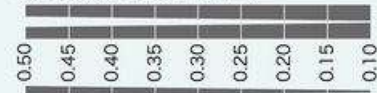
Pitch gauge (0.5 to 1.75mm)



Square gauge (2.0 to 0.3mm)



Taper gauge (0.5 to 0.1mm)



Illuminated magnifiers, microscopes or stand type loupes etc. are suitable as magnifying devices and 10X magnification or higher is recommended when an illuminated magnifier is used. When measuring a thick workpiece such as a screw die-cast part, pressed part, etc., fix the lens position and hold the workpiece with the hand.

Glass Scale GS-A	
Dimension, thickness	$\phi$ 98mm $\times$ 8mm
Effective diameter	$\phi$ 74mm
Material of scale	Optical glass
Scale processing	Cr vapor deposition
Weight	58g
Precision accuracy	$\pm$ 0.005mm
Country of origin	JAPAN

Please use it with such a product.



## Power up lens (PUL)

diameter :  $\phi$  1000  
Lens :  $\phi$  1000

ROUND

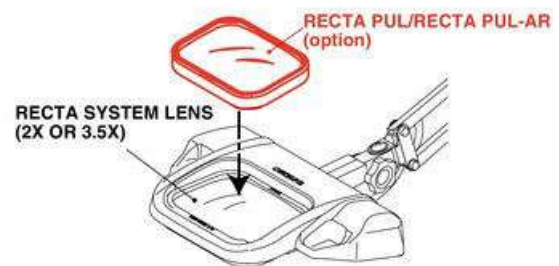
ONLY  
ARILABLE  
for 2X



■ ROUND SEREIS 2X+ PUL=5X

## RECTA-PUL / RECTA-PUL AR

O-LIGHT III POWER UP LENS



■ RECTA-SYSTEM 2X + RECTA-PUL/RECTA-PUL AR = 4X  
■ RECTA-SYSTEM 3.5X + RECTA-PUL/RECTA-PUL AR = 5X

## OSL-PUL POWER UP LENS

ONLY  
ARILABLE  
for 2X



■ Lens size : 50x100mm  
■ OSL 2X + OSL-PUL=4X

## WIDE PUL POWER UP LENS



■ Lens size : 100x180mm  
■ WIDE 2X + WIDE-PUL=4X

# Features of Products

## Features of Products

- |   |  |
|---|--|
| <p><b>A</b> <b>Table stand type</b><br/>This product made by combining a table stand type illuminated magnifier and a monocular microscope.</p> <p><b>CL</b> <b>Light box type</b><br/>This product has two illuminating functions of epi-illumination and trans-illumination.</p> <p><b>CF</b> <b>Compact free-arm type</b><br/>A product having a shorter arm than model F, and handled easier.</p> <p><b>MS</b> <b>Magnet stand type</b><br/>A product attached onto a metal surface by magnetic force of magnets when used.</p> <p><b>FL</b> <b>Free arm type</b><br/>A product made by combining a free-arm type illuminated magnifier and a stand with casters.</p> | <p><b>B</b> <b>Table stand type</b><br/>A product placed and used on a desk, etc..</p> <p><b>F</b> <b>Free arm type</b><br/>It has an arm with high degree of freedom, and is clamped to a desk for use.</p> <p><b>D</b> <b>Fixed, desk holder type</b><br/>A product having a box, the bottom of which is fixed with screws when used.</p> <p><b>ST</b> <b>Long bar type</b><br/>A product consisting of a cross bar, a pillar, and a desk clamp.</p> <p><b>FD</b> <b>Free arm and fixed, desk holder type</b><br/>Desk holder which is fixed with screws and free arm.</p> |
|---|--|

## LINE UP

### LED



SKKL Series

LEK/LEKs Series

ENVL Series

LSK/LSKs Series

O-Light III-L

Otsuka Illuminated Magnifiers can use LEDs or fluorescent tubes as light sources.  
Above models adopt LED illuminations which have advantages of "long service life" and "lower power consumption".  
There are "circular fluorescent lamp" type and "integrated lamp cover" type in LED illuminations.

### Fluorescent Light



O-LIGHT F

OSL Series

WIDE Series

O-Light III

Above products adopt fluorescent lamps as light sources, and the use can replace them by themselves.

The adopted fluorescent tubes are as follows.

O-LIGHT F, Round type 20W(FCL20N/18), OSL Series/Straight type 6W(FL6N),  
WIDE Series/Straight type 8W(FL8N), O-LIGHT III/Compact type 27W(FPL27AX).

## Features of Products

Our products are made for uses outside Japan.  
Please note the following when using outside Japan.

### Matters that needs to be checked

- ◇ Please check the input voltage, frequency, and the type of AC plug.
- ◇ Please look at the product specifications in our catalog.  
Products with a specification: "Input Voltage: 100 - 240 V 50/60 Hz)" cannot be changed to the specification for uses outside Japan.  
Products with a specification: "Input Voltage: Only 100 - 240 V 50/60 Hz)" cannot be changed to the specification for uses outside Japan.  
Please contact us for "products without any input voltage notation."

### Notes for When Placing Orders

- ◇ Please specify the "type of AC plug" of the country in which you will be using the product.

Please refer to the following table if you do not know the type of AC plug.



Type A



Type A with Earth



Type SE with Earth



Type BF with Earth

∞TSUKA

**FOR MORE INFORMATION PLEASE CONTACT :**



**BHAGWATI HARDWARE & MILL STORE**

4769, 1ST Floor, Old Post Office Building,  
Hauz Qazi, Delhi- 110006.

Ph : 011-66405958, 45025958,

Mobile : 9212012856, 9350076343

Website : [www.bhagwathardwaredelhi.in](http://www.bhagwathardwaredelhi.in)

e-mail : [sandeep@bhagwatimail.com](mailto:sandeep@bhagwatimail.com)

**AN ISO 9001 : 2015 CERTIFIED COMPANY**