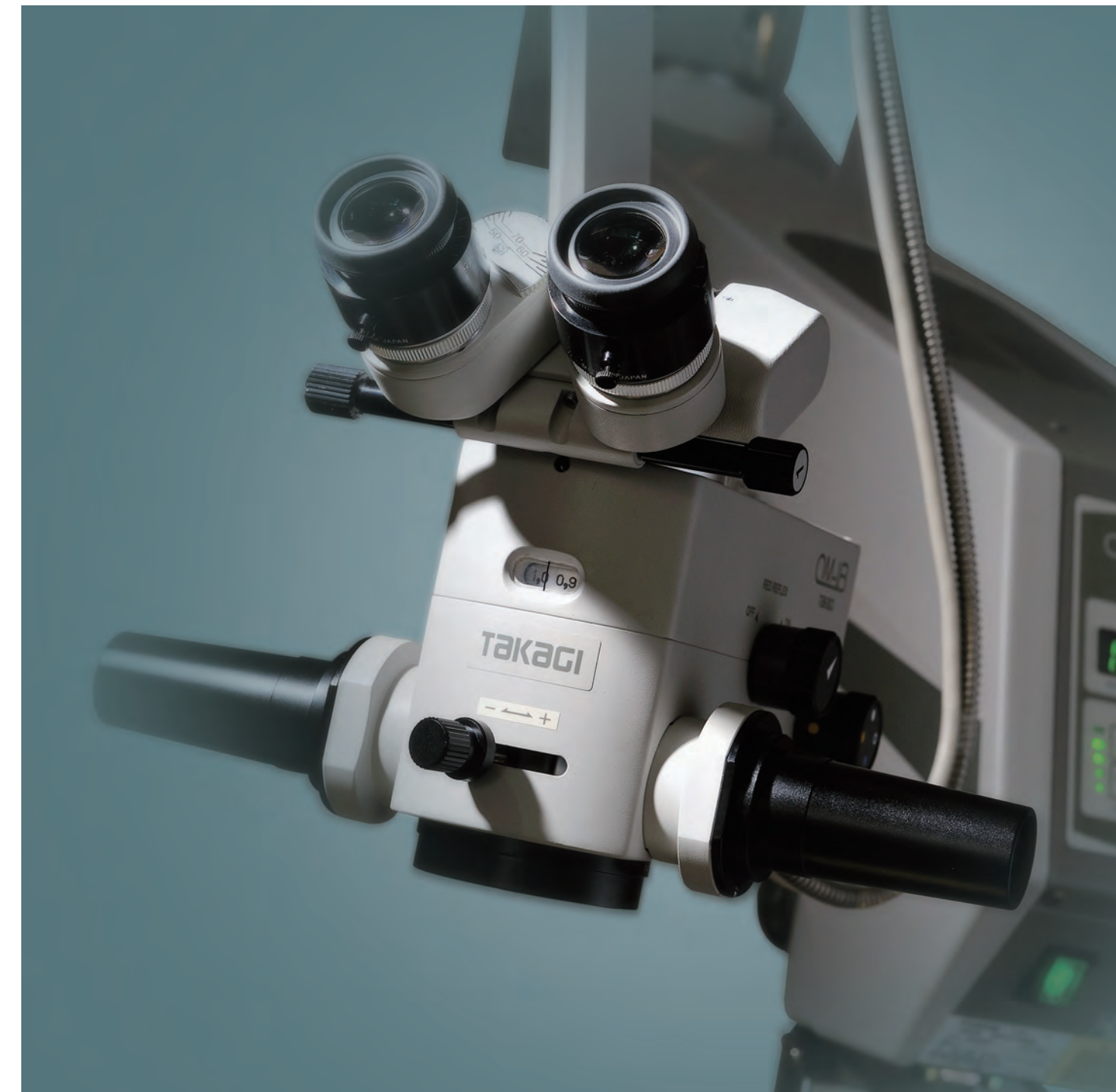


# Operating Microscope OM-18

Aiming at new levels in quality



## 1 Compact Microscope

The suspension arm has been moved to the side of the microscope, opening up the operating surgeon's front field of view.

- The light source is placed away from the microscope section. Cold light coaxial illumination via fiber light guide is used. The fiber light-guide illumination system is particularly low in heat transmission, and reduces the projection of the filament image as hot spots, achieving excellence in safety. By separating the light source from the microscope section, we have not only successfully removed the affect of the heat generated by the light source, but also achieved a compact body.
- The motorized zoom magnification changer used in the OM-18 Operating Microscope, with its diverse magnification ranging from 4.6x to 27.4x, guarantees a strain-free operating environment.
- The newly designed illumination optics provides the  $\phi 55\text{mm}$  illumination field with consistent brightness throughout, from low magnification to high magnification.
- The newly designed tilting mechanism allows for smooth angle adjustment. It is effective in adjusting the irradiation angle of the illumination by changing the angle of the microscope towards the operated eye.

## 2 Diverse illumination optics

With its diverse illumination optics, suitable lighting for the operating environment can be selected.



### Equipped with the Red Reflex Illumination IN/OUT Switching Mechanism

The red reflex is enhanced with the use of the red reflex illumination mechanism that is built into the internal part of the microscope. When this mechanism is used in combination with 6° illumination, an even more comfortable illumination for cataract surgeries is achievable. Furthermore, depending on the eccentricity of the operated eye, adjustment in the range from +2° to -2° can be made, which further improves the illumination environment.



### Equipped with the 6° Illumination IN/OUT Switching Mechanism

By using 6° coaxial illumination, which is also called the stereoscopic illumination, shades that correspond to the convex/concave of the observation field are formed, providing a three-dimensional impression. By adjusting the brightness with the Fade In/Out function in the OM-18, the red reflex becomes easier to see during a cataract surgery.



## 3 Protection against phototoxicity

During a cataract surgery, light that used to be absorbed by the crystalline lens would reach the retina after removal of the crystalline lens, inducing retinal phototoxicity. The OM-18 has built-in filters that shield photodamage-causing wavelengths to protect the patient's retina against phototoxicity.



### UV Filter (Permanent feature built-in)

In order to shield the wavelengths of harmful ultraviolet rays that cause retinal damage, the OM-18 has a built-in UV filter, protecting the patient's eye against the harmful ultraviolet rays.

### Blue-Cut Filter

The blue-cut filter shields visible blue wavelengths in order to protect the patient's eye against the blue-light hazard. This filter can be selected In or Out during an operation. (Also called the yellow filter)

### Heat-Absorbing Filter (Permanent feature built-in)

The OM-18 has a built-in heat-absorbing filter that shields the transmissive infrared rays that affect the retina and the choroid, thus protecting the patient's eye.

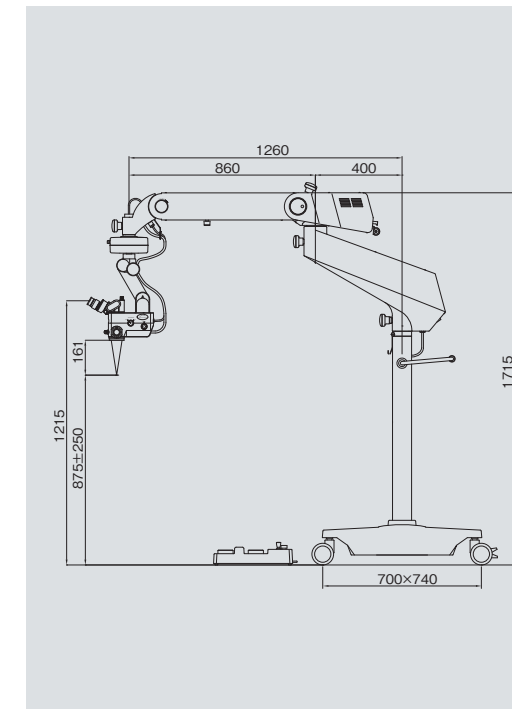
### Retina Shield Filter

The retina shield filter is built-in in order to protect the retina, after crystalline lens' removal, against the intense illumination. This filter can be selected In or Out during an operation.

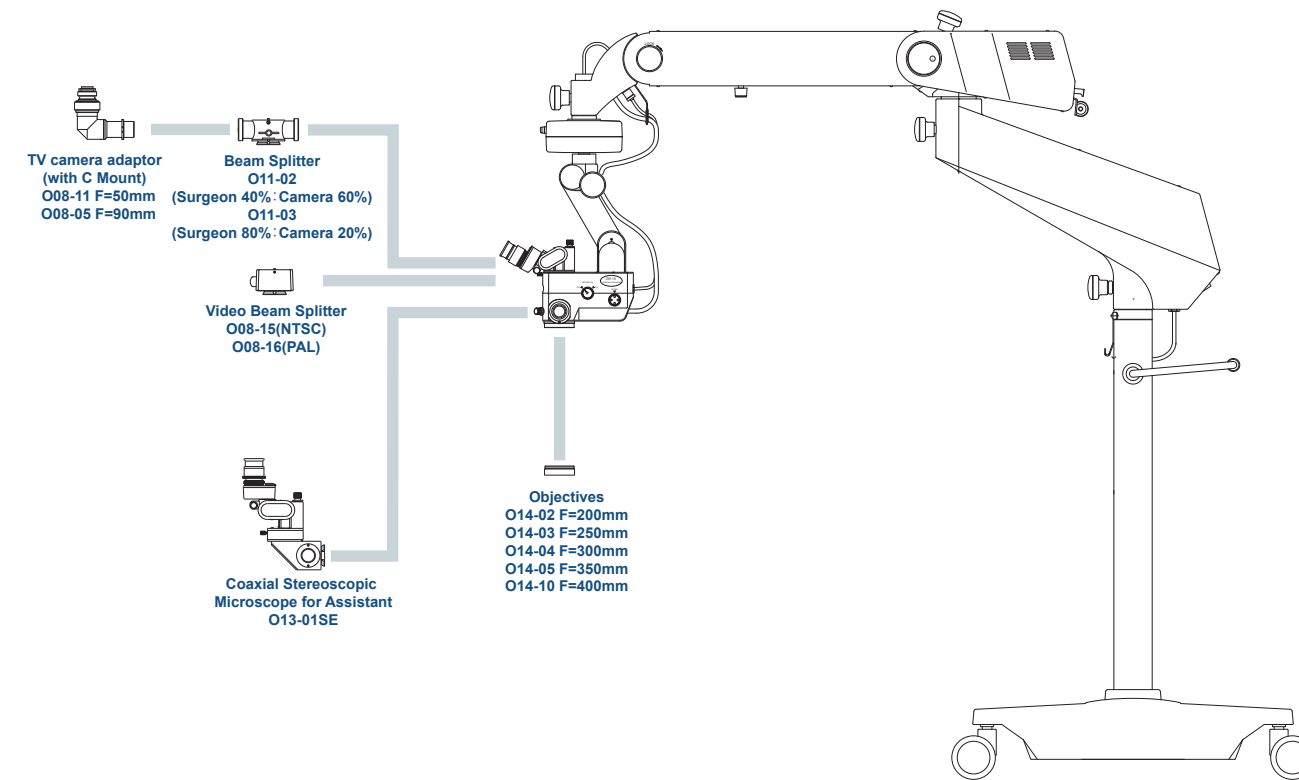
## Major Specifications

<b>Microscope</b>	Magnification changer	Motorized zoom type (zoom ratio 1:6)
	Objective	F=175mm (apochromatic corrected optics)
	Eyepieces	12.5x (high-eyepoint & wide field)
	Binoculars	Tilttable binoculars with converging optics F=160mm
	Total magnifications	4.6x to 27.4x
	Real fields of view	$\phi 49.2\text{mm}$ to $\phi 8.2\text{mm}$
<b>Illumination</b>	Focusing stroke	50mm (with centering function)
	X-Y movement stroke	$\pm 25\text{mm}$ in each direction (with centering function)
	System	Cold light coaxial illumination by fiber light guide
	Light source	15V 150W halogen lamp
	Field of illumination	$\phi 55\text{mm}$
	Field of red reflex illumination	$\phi 15\text{mm}$
<b>Filters</b>	Illumination control	Continuous adjustment
	Filters	Heat-absorbing, UV (permanent feature built-in), Blue-cut, Cobalt Blue, Retina Shield (for protection of the retina)
	Mount	Floor stand
<b>Arm, base</b>	Maximum arm extension	1260mm
	Arm vertical stroke	500mm
	Base size	700mm x 740mm
	Foot controller size	310mm x 200mm x 105mm
	Weight	160kg
<b>Others</b>	Power consumption	400VA
	Power supply	AC120V, AC230V ; 50/60Hz

## Dimensions



## System Chart



● Design and specifications are subject to change as improvements are made to the product.

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# Operating Microscope OM-18



- ★ Compact Microscope
- ★ Diverse illumination optics
- ★ Protection against phototoxicity
- ★ Apochromatic objective

## 4 Newly designed apochromatic objective

In the optics of the microscope, light that has been transmitted through the prism is dispersed into seven colors. This dispersion causes chromatic halos and fringing in images as well as blurred images. Apochromatic correction corrects the wavelengths that cause such aberrations.

- With the apochromatic correction, the OM-18 has reduced chromatic halos and fringing, further improving resolution and contrast. The correction given to indigo (G-line, 435nm), in particular, contributes to clearer images.



## 5 Surgeon-friendly tiltable binocular tubes with converging optics

Visual axes are slanted inward by 6°, which enables easy fusion at a natural eye position. Being equipped with a depth-adjusting diaphragm as a standard feature, fine tuning of the microscope's depth range can be easily performed.

- High-eyepoint eyepieces have enabled a wide visual field. For optics, multi-coated lenses of high grade are used, delivering crisp bright images.
- The angle adjustment is extensive, from upright (straight) to 60° (inclined) depending on the posture and the physique of the operating surgeon, ensuring the optimum position.

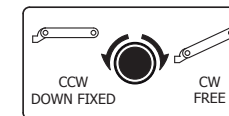


## 6 Improved vibration damping

The counter-balanced arm, a new mechanism, has reduced shaking in the head caused when the arm is moved, to a minimum, particularly in the X-Y direction.

### Safety stopper mechanism

The OM-18 is equipped with a safety stopper mechanism, where the lowest arm position can be easily set according to the height of the operating table.



## 7 Improved transportability and excellent arm storage

### Ease of transportation and secure lock

Large-diameter wheels and a maneuvering handle have further improved its transportability. The OM-18 can be moved across different floor levels with ease. Wheel locks secure the operating microscope when it needs to be fixed after transportation.



### Excellent storage

By folding the counter-balanced arm, the OM-18 can be stored in a limited space.



## 8 Lamp switching at the touch of a lever

With the use of the fiber light-guide system, the dual lamp source is positioned away from the microscope section, allowing lamps to be switched, outside the sterile field, at the touch of a lever even during an operation. Lamp Condition indicators on the control panel show the status of the halogen bulbs stored in the light source section, which can easily be checked prior to an operation.



## 9 Foot controller

The foot controller allows 8-way operations: Main lamp on, Main lamp off, X direction movement, Y direction movement, Focusing up, Focusing down, Zooming up and Zooming down. There is also a water-resistant version of the foot controller where the layout of the focus and zoom pedals can be selected to suit user's performance.



## 10 Diverse options

### Coaxial stereoscopic microscope for assistant

Eyeieces	12.5 x
Objective	F=175mm
Total magnifications	4.1 x、6.8 x、11.4 x
Real fields of view	φ 54.7mm、φ 32.8mm、φ 19.7mm

The OM-18 provides the assistant with a stereoscopic view in the optical path coaxial to that of the operating surgeon. Magnification can be changed manually in three steps. The assistant's microscope can be mounted either side of the operating surgeon's microscope. Visual axes of the binocular tubes are slanted inward by 6°, which allows easy fusion at a natural eye position. Being equipped with a depth-adjusting diaphragm as a standard feature, fine tuning of the microscope's depth range can be easily performed. The angle of the binocular tubes is adjustable extensively from upright (straight) to 60° (inclined) depending on the posture and the physique of the assistant, ensuring the optimum position.



### Beam splitter / TV Camera adaptor

The beam splitter and the camera adaptor are required to install a C-mount CCD camera. The beam splitter is equipped with an In/Out switching lever. The camera adaptor is equipped with a diaphragm mechanism. Images taken during an operation can be recorded in the peripheral equipment connected.

Beam splitter to be used	O11-02(40% to the operating surgeon:60% to the camera)
	O11-03(80% to the operating surgeon:20% to the camera)
TV camera adaptor to be used	O08-11 f=50mm
	O08-05 f=90mm



### Video beam splitter

The single-chip CCD camera module(1/4", 400,000 pixels, Y/C, composite output) and the control unit are built into a single body, achieving a compact and low-priced adaptor. The power source and signal are transmitted on a single cable. Two (2) types of the Video Beam Splitters are available.

O08-15	Compatible with the NTSC system
O08-16	Compatible with the PAL system



Oculus SDI/BIOM 3 and 4 adaptations are available for OM-18