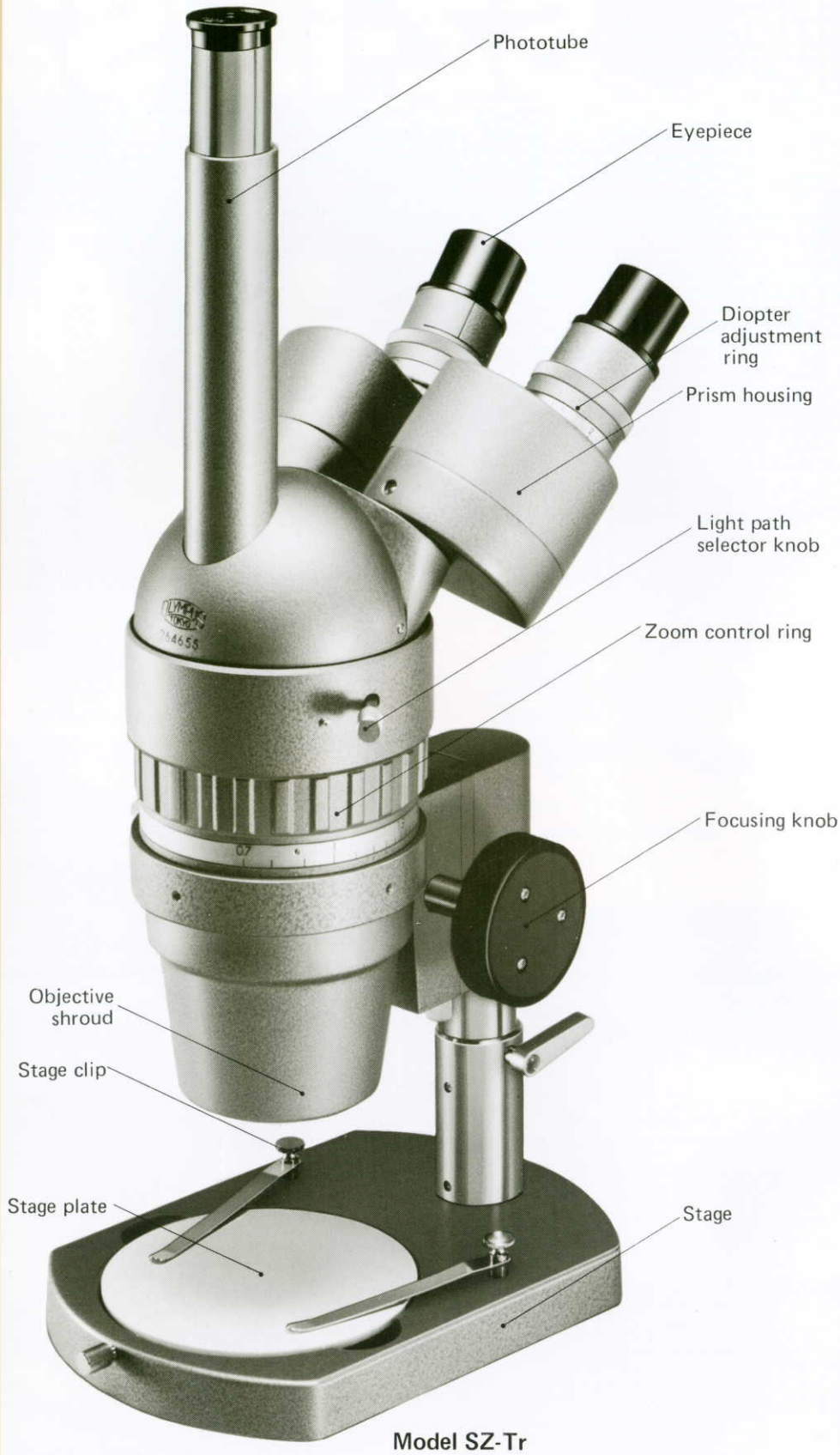
OLYMPUS®

SZ-III/SZ-Tr Zoom-Stereo Microscopes

Zoom-stereo microscopes SZ-III and SZ-Tr are high-performance microscopes having a zoom ratio of 5.7 to 1. Since, as is well known, for a zoom-stereo microscope to continuously change the magnification while observing an object once brought into focus, you may choose the magnification at will to suit the specimen. Both these two SZ's have a 1X objective and a pair of G10X eyepieces as standard equipment, giving a continuously variable magnification range of 7X to 40X. A wider magnification range of 3.5X to 160X can be obtained by using optional eyepieces and auxiliary objectives. In this case, the working distance can be varied from 29mm to 159mm.

The 45° inclined binocular observation tube is rotatable through 360°, and equipped with diopter adjustment. Inter-pupillary distance can be adjusted over a wide range of 53mm to 79mm. The SZ-Tr has an additional phototube for photo-micrography. Olympus furnishes two photomicrographic equipments, the system camera PM-10 and the 35mm camera PM-6. The former comes in two versions, the fully-automatic version PM-10AD and the manual version PM-10M. For color photo-micrography using the manual camera PM-10M or PM-6, it is recommended to use the exposure meter EMM-7 for accurate measurement of color temperature and exposure time.

Stereo microscopes are widely used in electronics and precision machine industries for assembling and inspection of products, and also in schools and hospitals for educational purposes. Because of their ease of operation, they are also popular among amateur collectors of minerals and archaeological specimens.



Model SZ-Tr

SZ-Tr/SZ-III Standard Set

		SZ-Tr	SZ-III
Body	Body with binocular observation tube		1
	Body with triocular observation tube	1	
Stand	Stand & pillar with stage clips, paired	1	1
Eyepiece	GW10X	2	2
Photoeyepiece	P10X	1	
Stage plate	Clear	1	1
	Black and white	1	1
Eyepiece shield		2	2
Vinyl dust cover		1	1

Diopter adjustment
Accomodates individual sight differences up to 5 diopters (±2.5 diopters on each tube)

Interpupillary adjustment
Parfocality in a 53 – 79 mm range, with G10X eyepieces

Observation tube inclined
45°
For most comfortable working position.

Zoom ratio:
5.7

Observation tube rotatable
360°
Free choice of position by rotating observation tube in mounting ring.

Body movement (Vertical)
Coarse adjustment 55 mm, by body movement on diagonal cut rack-and-pinion, plus additional 47 mm movement on pillar slide for focusing.
Pillar permits body rotation through 75°

Working distance:

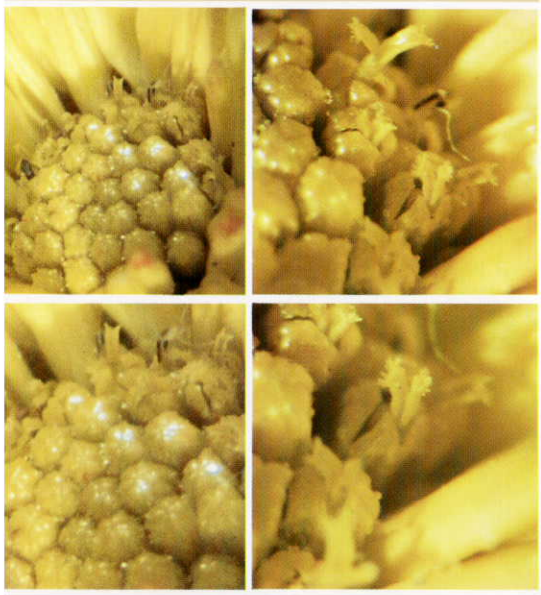
1X	(Standard)	86 mm
0.5X	(Optional)	159 mm
0.75X	(Optional)	105 mm
1.5X	(Optional)	45 mm
2X	(Optional)	29 mm

Convergent angle of visual axes:
12°
For accurate coincidence of left and right images.

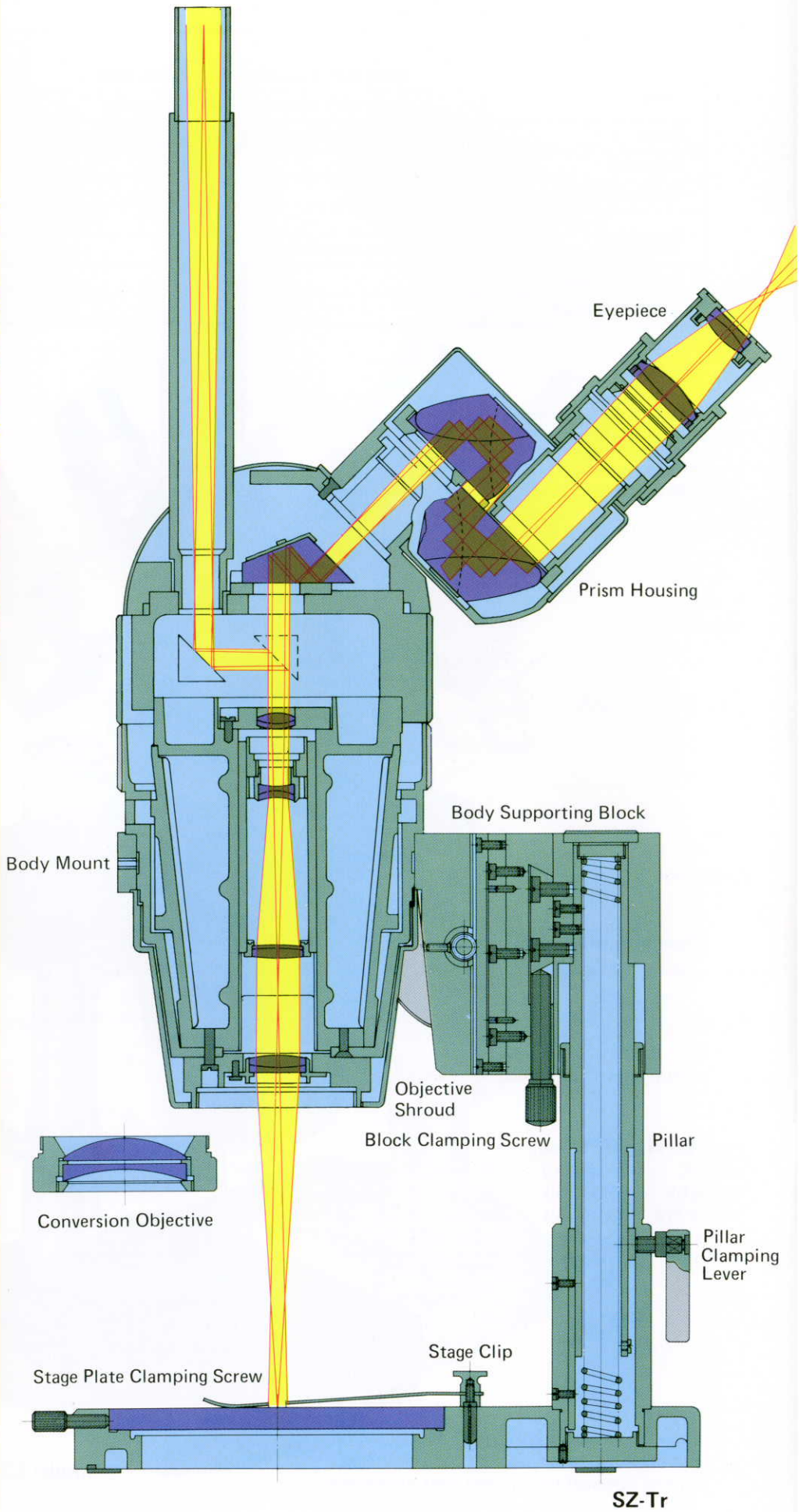
Sturdy stage
Supplied with interchangeable clear, and black/white stage plates and stage clips; accepts optional transmitted light illuminator.

Model SZ-III

Optical System



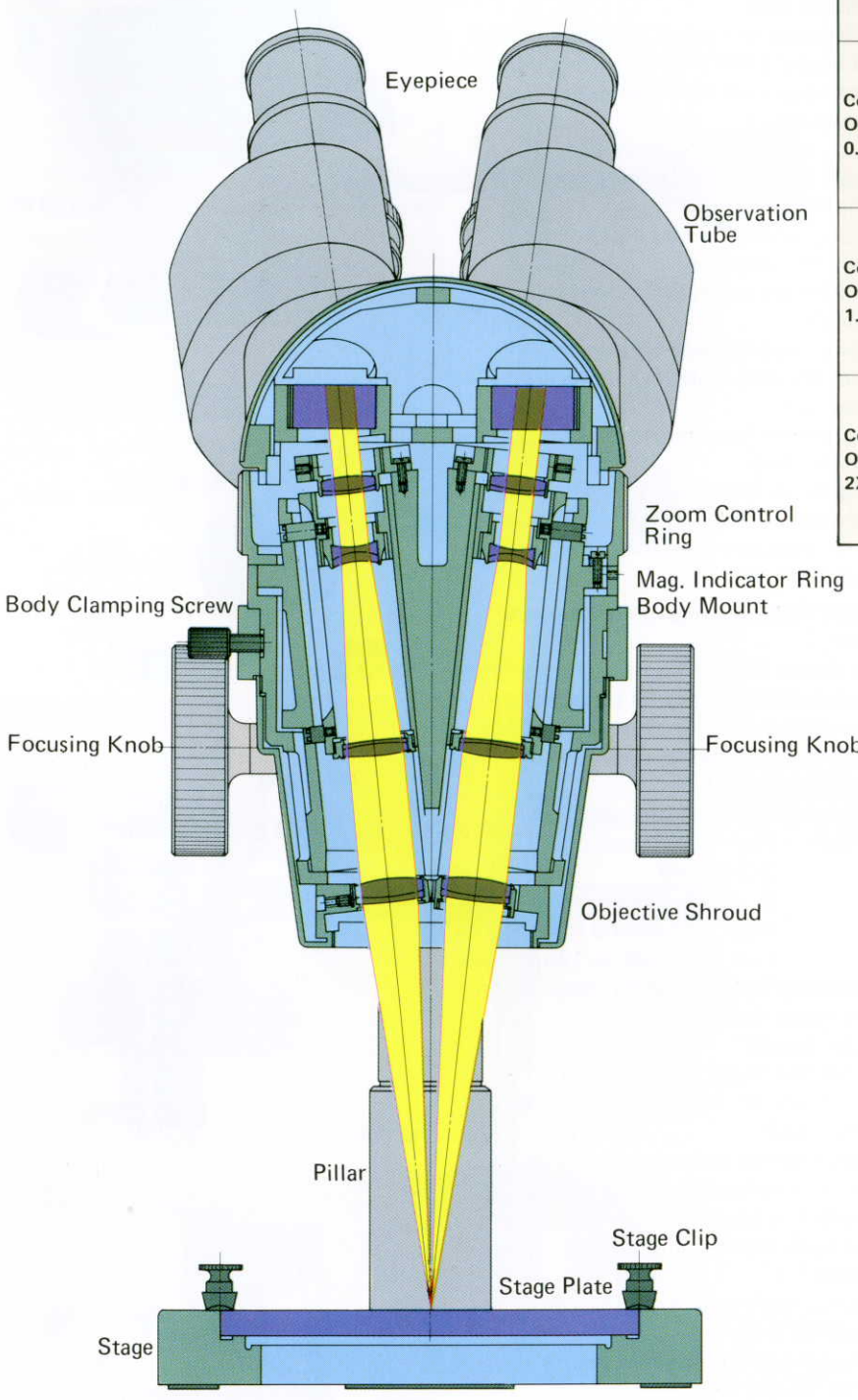
The precise optical system of the SZ comprises objectives, eyepieces and the zoom system.
The optical paths (shown in yellow below) enter from the specimen at a 12° angle of visual axes, are made parallel by the zoom system, resume a 12° convergent angle at the prism and are deflected at 45° through the prism.
Continuous zooming variation is obtained by vertical displacement of the zoom lenses.



SZ-Tr

Lens Characteristics

	Eye-piece	Total Magnifi-cation	Numerical Aperture	Depth of Focus	Field of View Diameter
				mm	mm
Objective 1x (fixed)	G10X	7~40X	0.04~0.08	1.340~0.152	31.5~5.5
	15X	10~60X	0.04~0.08	1.034~0.117	18.5~3.25
	20X	14~80X	0.04~0.08	0.791~0.099	17.4~3.1
Conversion Objective 0.5X	G10X	3.5~20X	0.02~0.04	5.592~0.608	62.9~11.0
	15X	5.25~30X	0.02~0.04	3.985~0.467	37.1~6.50
	20X	7~40X	0.02~0.04	3.163~0.396	34.8~6.1
Conversion Objective 0.75X	G10X	5.25~30X	0.03~0.06	2.485~0.270	41.9~7.8
	15X	7.875~45X	0.03~0.06	1.765~0.207	24.7~4.35
	20X	10.5~60X	0.03~0.06	1.406~0.176	23.2~3.1
Conversion Objective 1.5X	G10X	10.5~60X	0.06~0.12	0.621~0.068	20.95~3.7
	15X	15.75~90X	0.06~0.12	0.444~0.052	12.3~2.16
	20X	21~120X	0.06~0.12	0.351~0.044	11.5~2.0
Conversion Objective 2X	G10X	14~80X	0.08~0.16	0.349~0.038	15.7~2.75
	15X	21~120X	0.08~0.16	0.248~0.029	9.28~1.62
	20X	28~160X	0.08~0.16	0.198~0.025	8.7~1.5



SZ-III

Photomicrographic Equipment

There are three basic systems available depending on exposure regulation and film format.

Model	Exposure Mode		Film Format			
	Auto	Manual	35mm	3¼" x 4¼" Polaroid	4"x 5"	16mm cine and 35mm time lapse
PM-10AD	○	○	○ (35AD-4)	○ (L2AD-2)	○ (L1AD-2)	○
PM-10M		○	○ (35M)	○ (L2M)	○ (L1M)	
PM-6		○	○			

PM-10AD Photo and Cinemicrographic System

- Automatic exposure range
  1/5,000 second (electronic flash) to 2 hours
- Manual exposure
  1 second to 40 minutes plus time exposure
- Range of ISO settings
  35mm: 6–6, 400, L: 12–6, 400, 16mm: 6–5, 400
- Automatic correction for reciprocity failure
- Automatic correction for specimen characteristics (bright/dark field adjustment)
- Precise and durable non-contact electromagnetic shutter
- Automatic film advance in 35mm camera back
- Color temperature regulation
  2,500K° to 10,000 K°
- Automatic exposure lock
- Multiple exposures
- Camera focusing and film format indication
  By either focusing telescope on the exposure body or through focusing eyepiece in binocular tube.
- Orderly arranged controls on slanted panel
- Audible and visible warnings
  Over- and under exposure, end of 35mm film, etc.
- LED displays of exposure time at various stages
  Estimated exposure time. Remaining exposure time. Actual exposure time. Recall of previous actual exposure time

PM-10M Photomicrographic System

- Shutter speed settings
  1/250 second to 1 second in 9 steps plus time exposure
- Shutter on cushioned mount for anti-vibration
- 35mm camera back with manual film advance. Data imprinting device provided.
- Automatic film counter on 35mm camera back
- Light measuring port to accept probes of model EMM-7 for determination of both exposure time and color temperature.
- Easy exchange of camera back

PM-6-8 Photomicrographic Camera

- Shutter speed settings
  1/250 second to 1 second in 9 steps plus time exposure
- Shutter on cushioned mount for anti-vibration
- 35mm camera back with manual film advance. Data imprinting device provided.
- Automatic film counter on 35mm camera back
- Light measuring port to accept probes of model EMM-7 for determination of both exposure time and color temperature.

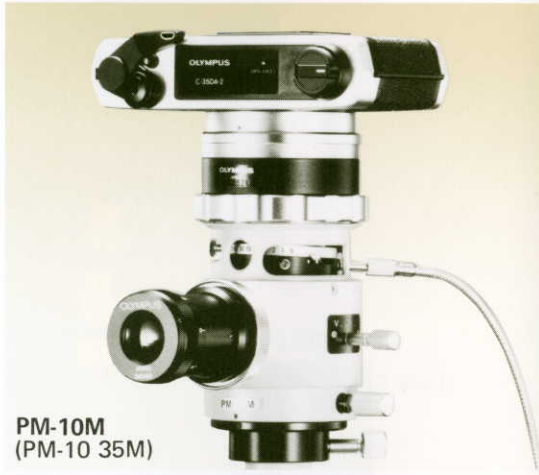
EMM-7 Photomicrographic Exposure Meter

The model EMM-7 assures accurate control of both exposure time and color temperature rating with Olympus photomicrographic cameras such as PM-10M and PM-6-8

- Range of exposure measurement
  35mm – High 1/250 second to 1/2 second
  Low 1/2 second to 32 seconds
  L – High 1/30 second to 4 seconds
  Low 4 seconds to 128 seconds
  Exposure time is directly read out on the meter face.
- Film speeds
  ASA film speed selector knob
  6, 16, 25, 32, 50, 80, 100, 160, 200, 400 (3000).
- Color temperature measurement
  Color temperature regulating knob (with fine adjustment in 4 increments for both daylight and tungsten type films)
- Direct reading with meter – PM-10M and PM-6-8
- Measurement with index charts – PMT-35 and MG

PM-10AD
(PM-10 35AD-4)

PM-CBAD
(Automatic Exposure Control Unit of PM-10AD)



PM-10M
(PM-10 35M)

PM-6-8

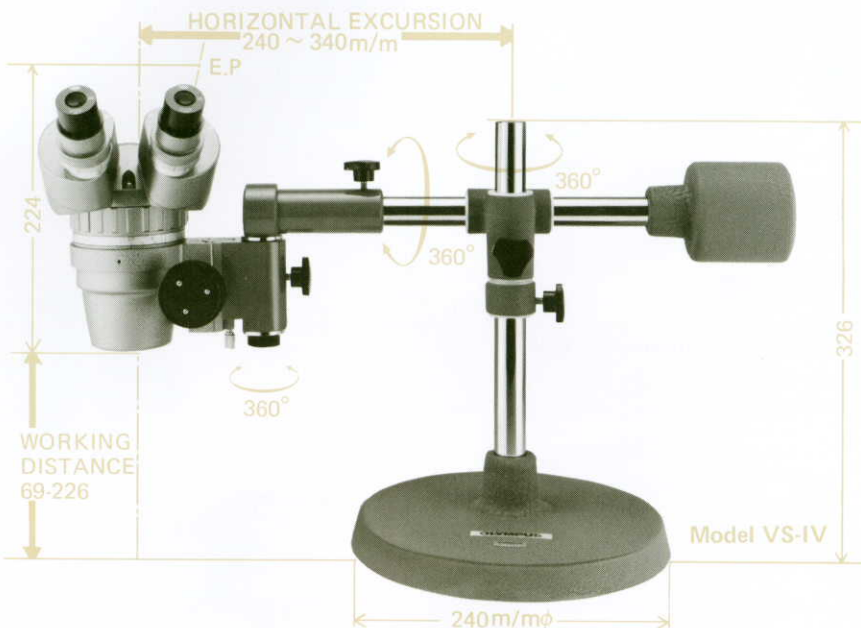
EMM-7

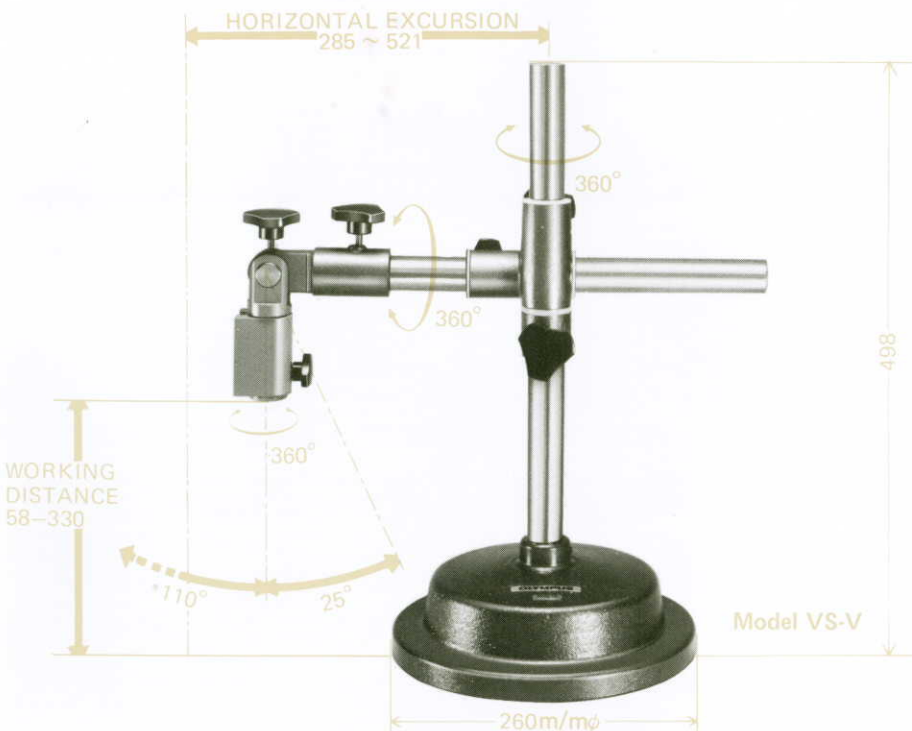
Universal Stand and Microscope

Universal arm stands (Models VS-IV and V)

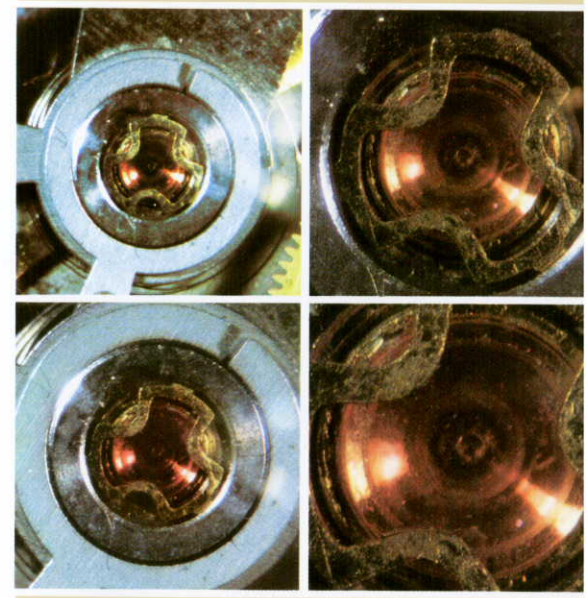
This universal stand may conveniently be used in observing objects which can't be placed on conventional stages, or objects which are fixed on other devices or mounts.

The universal stand has two versions. The Model VS-IV is comparatively small and is suited for use on the desk. The Model VS-V is larger than the VS-IV, and sturdy. The two models are capable of movements as shown in the figure below. Choose a proper one to suit your applications.





Optional Accessories



These optional accessories make the SZ available for a wide range of microscopic work.
Each one is perfectly compatible with the SZ system.

Optional Accessories

G15X & G20X eyepieces
Wide field viewing with full chromatic and distortion correction. G15X with 16.7 mm focal length. Field number 13. G20X with 12.5 mm focal length. Field number 12.2.

0.5X, 0.75X, 1.5X and 2.0X objectives
These are optional accessories for the SZ and can be thread mounted to the buttom of objective shroud.

Polarizing attachment (Model SZ-PO)
Reduces glare in analysis of strains in crystalline or super-cooled liquid substances.

Oc-M eyepiece micrometer
Transparent scale with 10/100mm graduation for measuring specimen details.

Stage micrometer (Model OB)
Fine 1/100mm scale for calibration with zoom microscope.

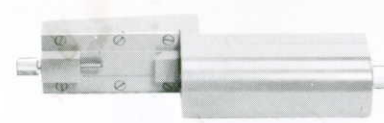
Stand illuminator (Model LSD-W) and transformer (Model TGHM)
For incident illumination condenser on rack-and-pinion travels 18 mm to permit converging, diverging and parallel adjustments of the light beam facilitates Koehler illumination.
Lamp 6V, 5A.

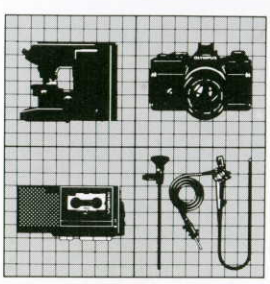
Transmitted light illuminator base
With 20 watt light source and adjustable mirror.

Epi-illuminator (Model LSGB), transformer (Model TL-2) and mounting adapter (Model LSG-AD-SZ-W)
Crisp stereo images of opaque specimens. Holds a 6V 15W halogen lamp with transformer.

Fluorescent illuminator (Model VL-FL) with starter (Model TK)
Special U-shaped illuminator with a fluorescent 6W lamp.

Extension pillar
To facilitate work with the long-distance 0.5X objective





Photographic,
Medical,
Microscopic,
Industrial & Business Equipment

OLYMPUS®

OLYMPUS OPTICAL CO.,LTD.
San-Ei Building, 22-2, Nishi Shinjuku 1-chome, Shinjuku-ku, Tokyo, Japan
OLYMPUS OPTICAL CO.(EUROPA) GMBH
Postfach 104908, Wendenstrasse 14-16, 2000 Hamburg 1, West Germany
OLYMPUS CORPORATION
4 Nevada Drive, Lake Success, N.Y. 11042-1179, U.S.A.
OLYMPUS OPTICAL CO.(U.K.) LTD.
2-8 Honduras Street, London EC1Y0TX

Printed in Japan M48E-0988B