OLYMPUS®

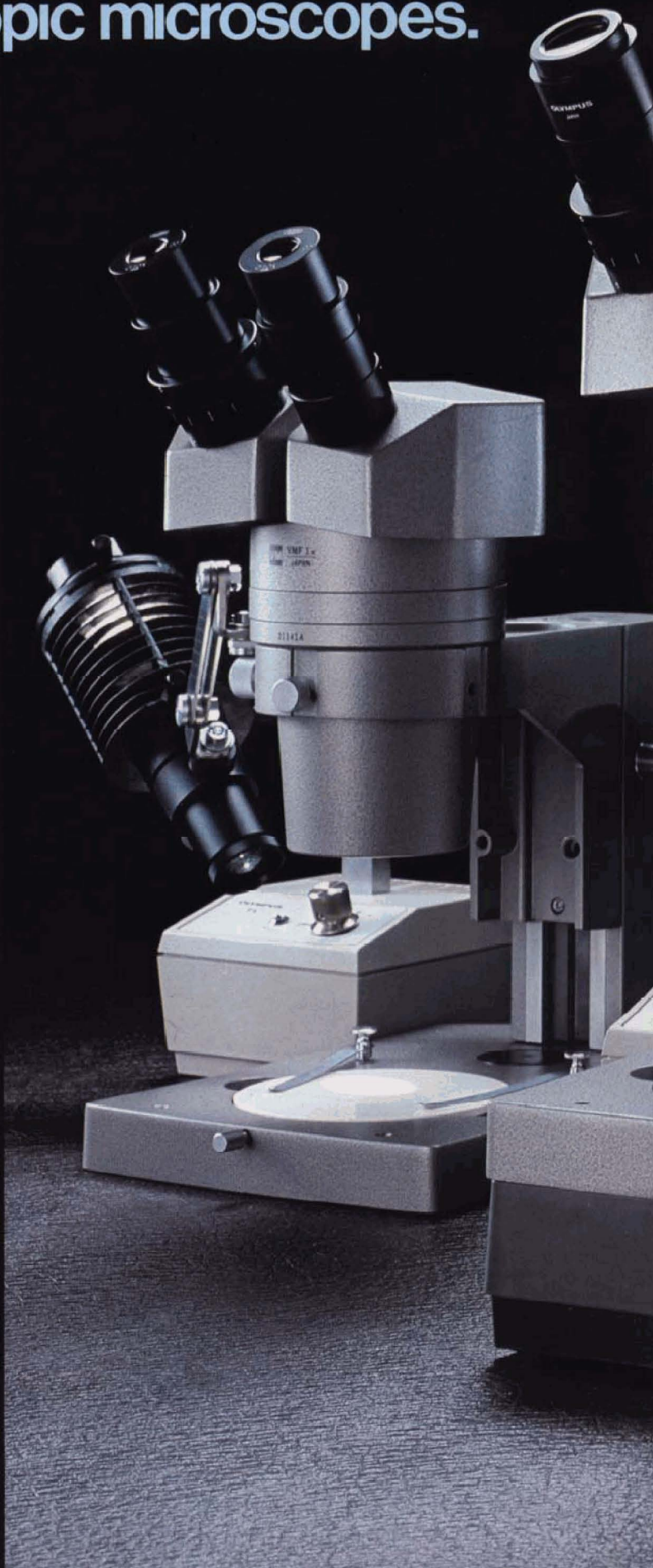
Series **VM** Stereoscopic Microscope

The new, high-precision VM Series of Olympus stereoscopic microscopes.

A new series of stereoscopic microscopes, the VM Series, is added to the line of Olympus microscopes.

Today, stereoscopic microscopes are widely used for various applications, such as assembly and inspection of semiconductor devices, and as an indispensable part in bonding machines and microtomes, as well as for educational, clinical and research purposes.

The VM Series, designed on a modular concept, include six units with three different body types for fixed magnification, for turret magnification change, and for zoom magnification change. A variety of accessories that can be used with all these units are also provided.

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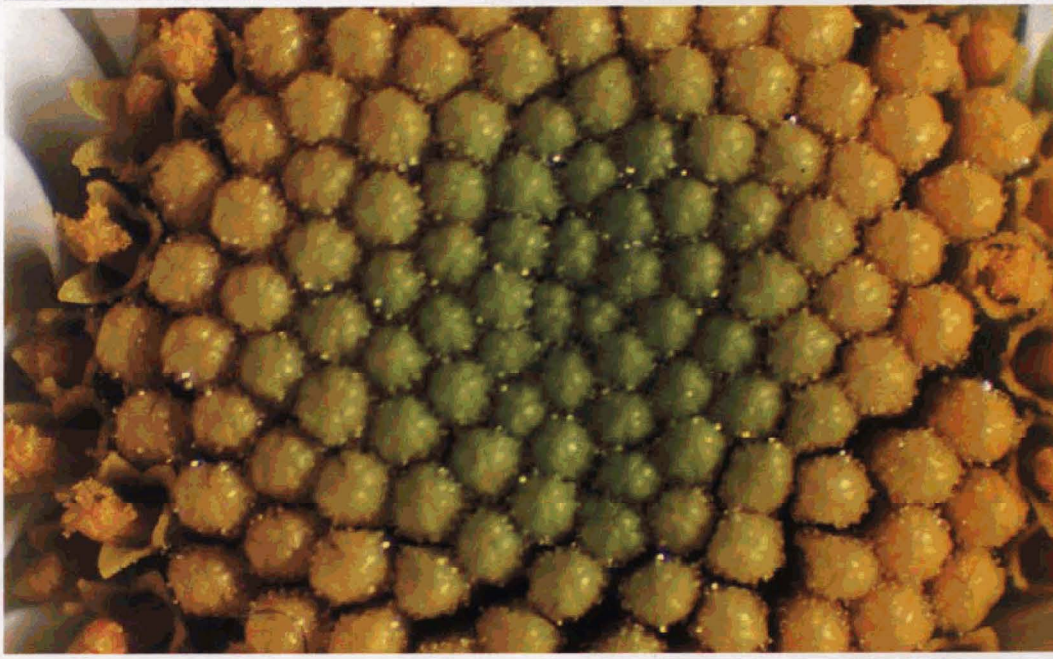
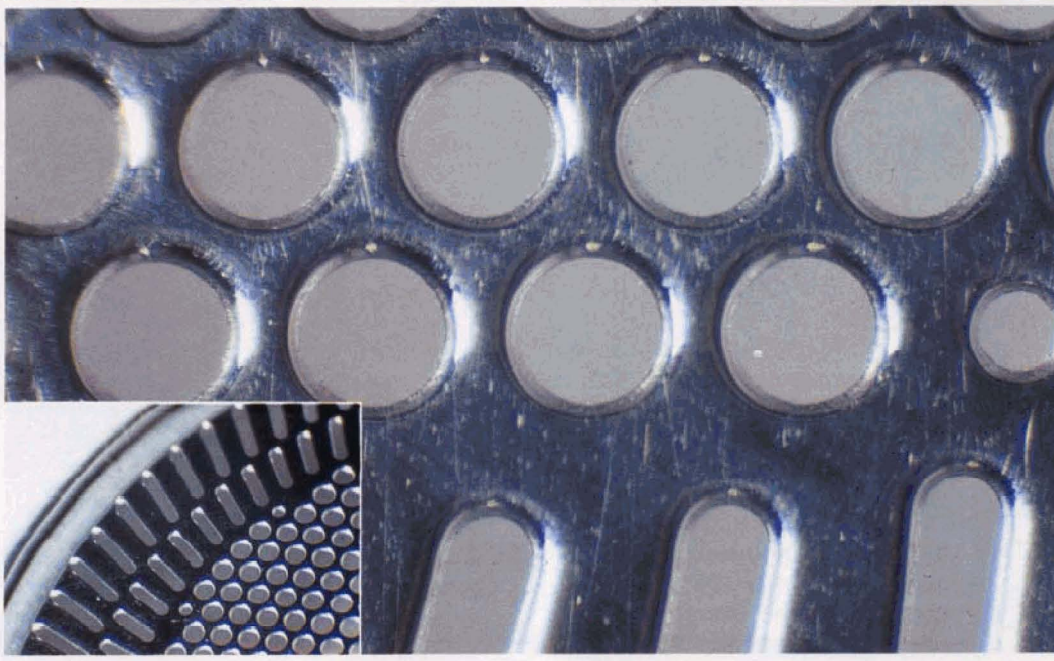
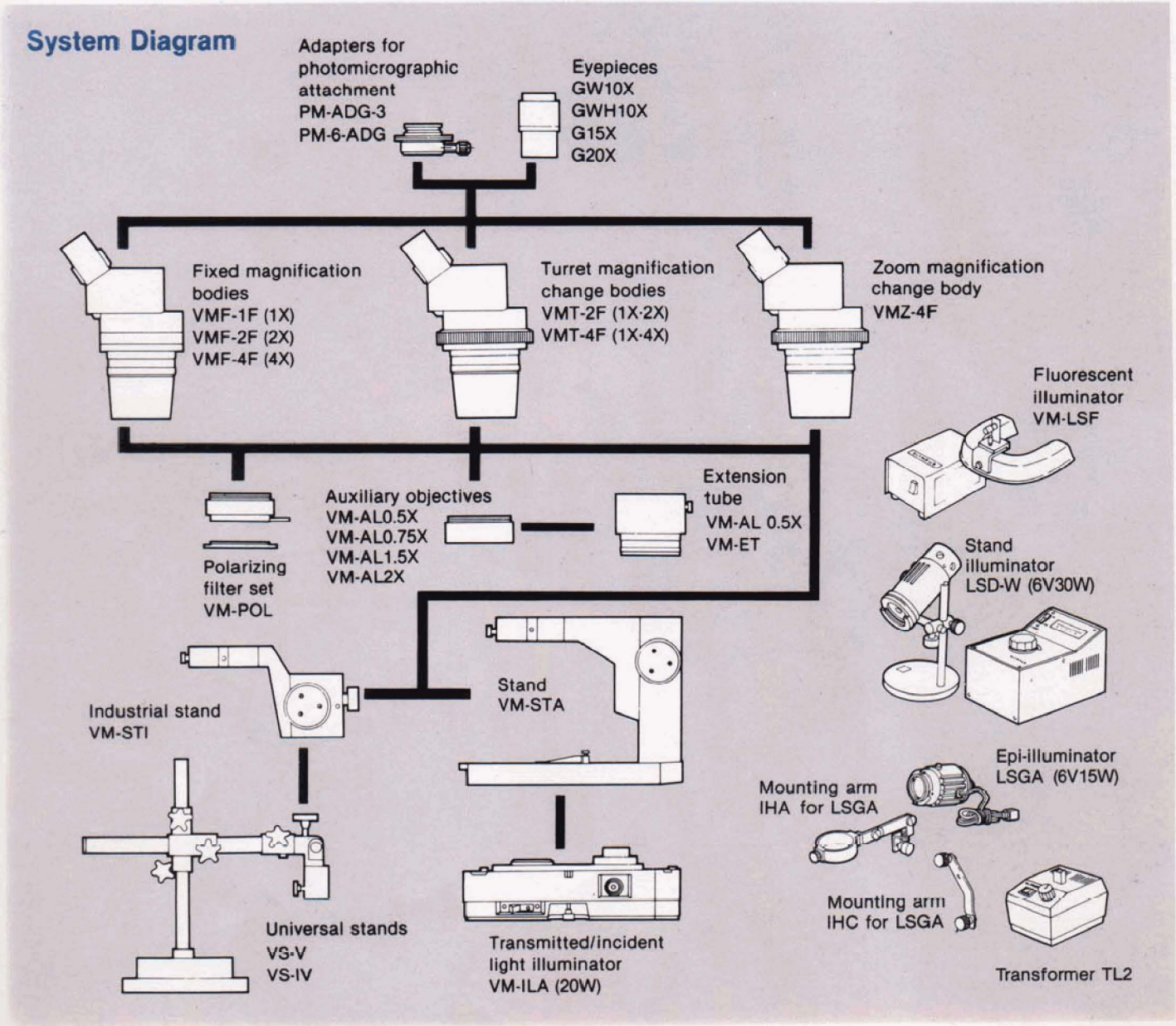




System Diagram



Standard Combinations

Components	Model	VMF						VMT				VMZ	
		1S	2S	4S	1SA	2SA	4SA	2S	4S	2SA	4A	4S	4SA
Bodies	VMF-1F	●			●								
	VMF-2F		●			●							
	VMF-4F			●			●						
	VMT-2F							●		●			
	VMT-4F								●		●		
	VMZ-4F											●	●
Stand	VM-STA	●	●	●	●	●	●	●	●	●	●	●	●
Eyepiece	GW10X, paired	●	●	●	●	●	●	●	●	●	●	●	●
Illuminator	VM-ILA				●	●	●			●	●		●

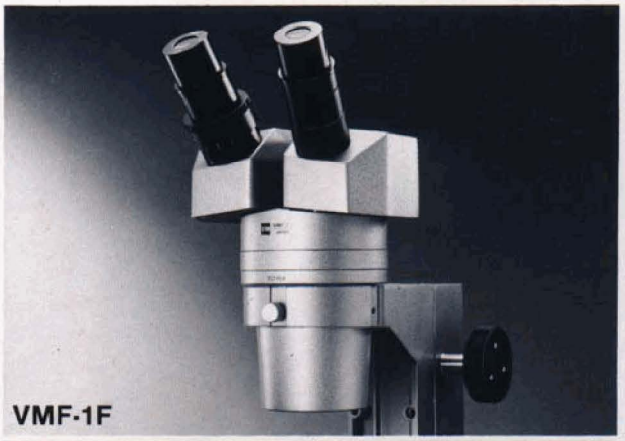
A wide choice of bodies, stands

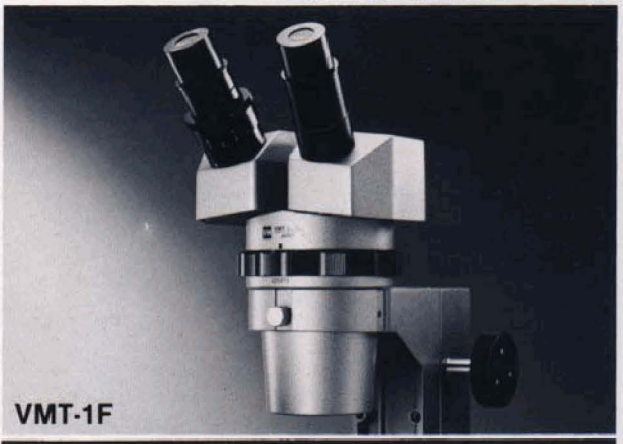
Microscope Bodies

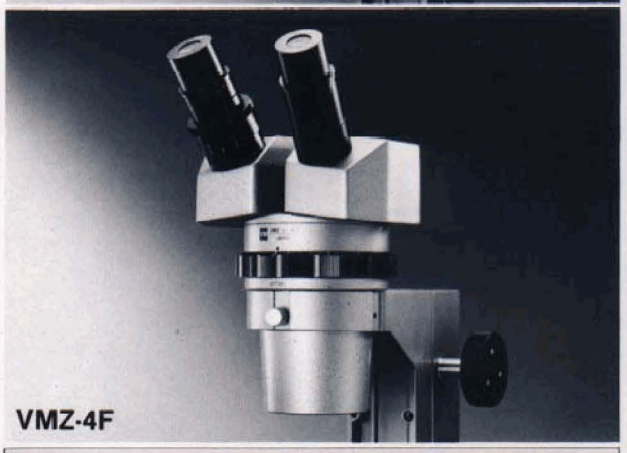
The bodies of the Olympus VM Stereoscopic Microscope Series are divided into three different groups according to the method of magnification change: The VMF body for fixed magnification, the VMT body for turret magnification change, and the VMZ body for zoom magnification change. They have the following features in common:

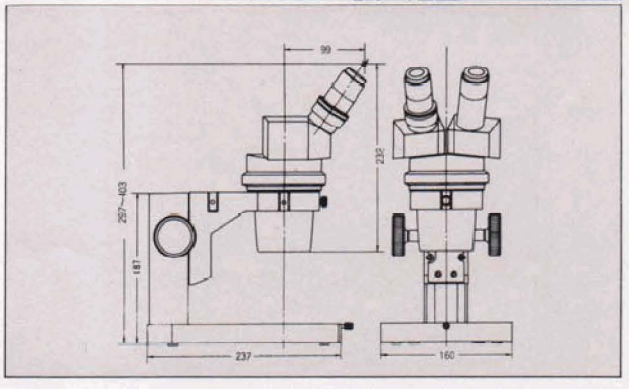
- Crisp, erect images with high resolution and an excellent stereoscopic effect.
- 90 mm working distance regardless of magnification.
- Binocular tubes with an inclination of 55° for greater ease of observation.
- Interpupillary distance adjustment from 50 mm to 73 mm. Eyepiece tubes are linked by gears for symmetrical movement, and to assure easier adjustment.
- Dioptric adjustment within a range of ±5 diopters is possible with the left eyepiece tube.
- Microscope bodies can be rotated a full 360°, and locked in any position desired.
- Any of the auxiliary lenses, eyepieces, etc., listed in the System Diagram can be used.

The selection of microscope bodies should be based on the characteristic of the specimen to be studied. The basic criteria for selection are: 1) the desired size of the field of view, and 2) the required magnification. As it is, these two are incompatible requirements, since the higher the magnification, the smaller the field of view will be, and vice versa. Thus, in choosing a microscope, a large magnification should be given precedence when the object to be observed is small, but a large field of view is more adequate if the object is large. When objects of different sizes are to be observed, the use of a microscope body that permits magnification to be varied is of advantage. The turret type is preferable when only two or three different magnifications are required. When continuous adjustment of magnification within a certain range is necessary, the zoom type should be selected.


VMF-1F


VMT-1F


VMZ-4F



Fixed Magnification Bodies VMF

The Model VMF, a microscope body with fixed magnification, is available in three types: the VMF-1F with 1X magnification, the VMF-2F with 2X magnification, and the VMF-4F with 4X magnification. They can provide a total magnification of 10X, 20X and 40X, respectively. The magnification range of these bodies can also be extended by adding optional auxiliary lenses and/or eyepieces. This applies also to the Models VMT and VMZ.

Turret Magnification Change Bodies VMT

The Model VMT permits magnification to be varied by means of a turret changer. The Model VMT comes in two types: the VMT-2F with 1X and 2X power objectives, and the VMT-4F with 1X and 4X power objectives. Both of them are useful when the specimen to be observed does not require more than two or three different discrete magnifications.

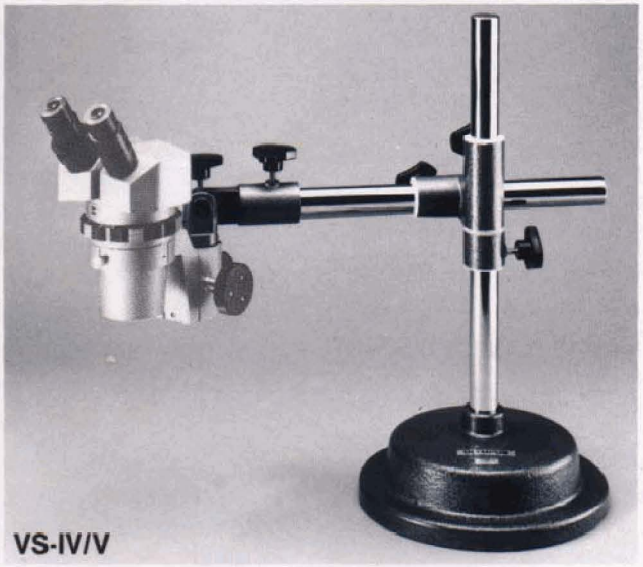
Zoom Magnification Change Body VMZ

With a zoom magnification body, the Model VMZ-4F is the most sophisticated of the VM Series microscopes. Magnification can be continuously varied from 1X to 4X. Once brought into focus, the image remains clear and sharp throughout the whole zoom range.

and illuminators for greater versati

VM-STA

VM-STI



VS-IV/V

Stands

As basic equipment for the VM Series microscopes, the following three stands are available according to the intended applications.

Stand VM-STA

The standard stand for this series, the VM-STA, is mainly for observation of relatively small specimens. However, with a size as large as 160 mm x 237 mm, this stand also facilitates examination of large specimens. Two stage plates, both measuring 100 mm in diameter, are provided as standard equipment. One is a transparent glass plate suitable for transmitted illumination, and the other one has one white side, and one black for reflected illumination.

Focusing can be accomplished by means of a rack and pinion mechanism covering a vertical range of 106 mm, an excellent feature for a microscope of this class.

A transmitted/incident light illuminator, the Model LSGA, can be attached to this stand. Moreover, there are three threaded holes provided in the mounting arms, which permit the Model LSGA Epi-illuminator to be attached at a location most suitable for the shape and size of the specimen, and the viewing position. An opening is also provided in the mounting arm IHC at the back of the microscope body for reflected light with the Model LSGA.

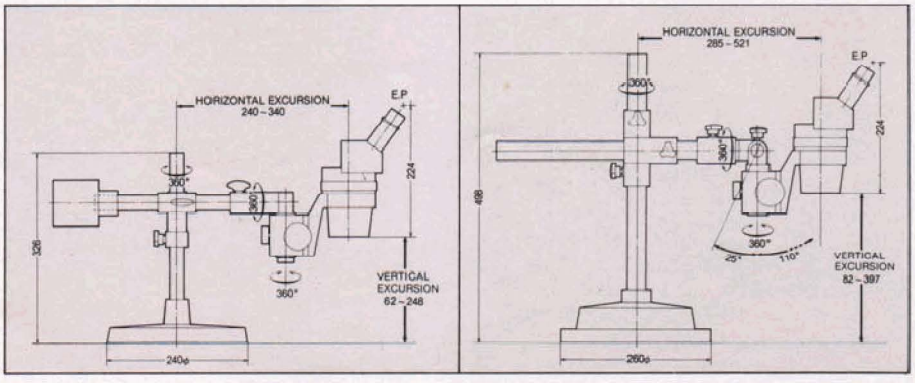
Industrial Stand VM-STI

This stand is used to mount a VM microscope body on other equipment, as well as on the universal table stand VS-IV or VS-V. Vertical movement over a range of 60.5 mm is possible with a rack and pinion focusing mechanism. Three threaded holes are provided, as in the Model VM-STA, for mounting the Model LSGA Epi-illuminator.

Universal Stands Models VS-IV and V

A universal stand may conveniently be used in observing objects which cannot be placed on conventional stages, or objects which are fixed on other devices or mounts.

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

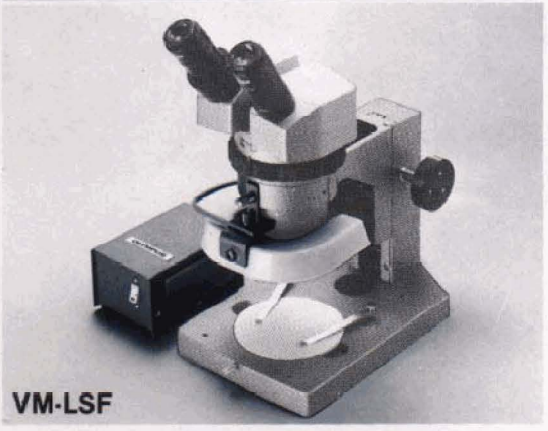


lity in various applications.

VM-ILA

LSGA
with IHC

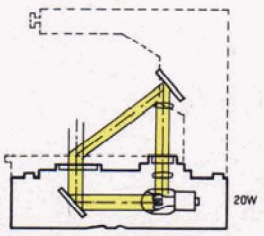
LSD-W



VM-LSF

Illuminators

Transmitted/Incident Light Illuminator Model VM-ILA



This 20W illuminator base can be directly connected to the primary power supply. By simply switching a light shield plate, it is possible to select the light path in three ways so as to obtain transmitted, transmitted/reflected, and reflected illumination. The mirror used for reflected illumination is adjustable to direct the light at an angle most suitable to specimen configuration.

The light exit of this illuminator base is covered with a frosted glass that serves as dust shield and as protection against damage from spilled liquids.

The Model VM-ILA can be firmly attached to the VM-STA stand by means of two thumb screws.

In the case of transmitted light illumination, the 0.5X auxiliary lens cannot be used.

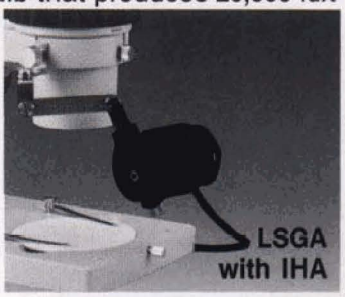
Epi-Illuminator Model LSGA

Suitable for most types of specimens, the LSGA Epi-illuminator provides extremely bright illumination in spite of its small size. The LSGA employs a 6V, 15W halogen bulb that produces 20,000 lux of illumination at a distance of 100mm.

The LSGA can be conveniently attached to the microscope body using mounting arms IHA, IHC.

A 32.5mm diameter filter can be used with the LSGA.

When mounted to the TL2 transformer with the IHA free-arm, the LSGA serves as an independent light source.



LSGA
with IHA

Stand Illuminator Model LSD-W

Equipped with a 6V, 30W bulb, this illuminator is useful when an especially brilliant light, parallel or converging, is required. A table stand type, this unit should properly be used by placing it next to the microscope. A built-in iris diaphragm illuminates only the desired area. The Model TGHM continuously variable transformer with voltmeter is standard for this illuminator.

Fluorescent Illuminator Model VM-LSF

The Model VM-LSF provides cool, white diffused illumination similar to daylight, and is suitable for low magnification examination of surface details of delicate organisms that are sensitive to heat, or for specimens with much surface reflection. This illuminator can be mounted on the Models VM-STA or VM-STI stands.

heat. Also, a daylight filter and a green filter are provided as standard equipment. They can be attached to the filter holder at the light exit of the illuminator.

A great variety of accessories for an even greater versatility.

Eyepieces GWH10X, GW10X (Standard), G15X, G20X

Four different eyepieces are available for the VM Series microscopes.

The GWH 10X is an eyepiece of especially high quality, with a wide field of view and high eyepoint, corrected for superior image flatness.

Auxiliary Objectives VM-AL 0.5X, 0.75X, 1.5X, 2X

Four auxiliary objectives are provided in order to extend the range of magnification of the VM Series. They can easily be mounted by threading them into the objective shroud.

The working distances of the microscope equipped with auxiliary objectives are as shown in the table on the bottom of this page.

The extension tube Model VM-ET is required when the 0.5X auxiliary objective is used in conjunction with the Model VM-STA stand.

Field of View, Magnification Range and Working Distance

			Without AL			With AL 0.5X			With AL 0.75X			With AL 1.5X			With AL 2X		
			Field Diam.	Total Mag.	W.D.	Field diam.	Total Mag.	W.D.	Field Diam.	Total Mag.	W.D.	Field Diam.	Total Mag.	W.D.	Field Diam.	Total Mag.	W.D.
VMF-1F	GWH 10X	23	23mm	10X	90mm	46mm	5X	156mm	30.7mm	7.5X	101mm	15.3mm	15X	43mm	11.5mm	20 X	29mm
	GW 10X	22	22	10X		44	5X		29.3	7.5X		14.7	15X		11	20X	
	G 15X	13	13	15X		26	7.5X		17.3	11.3X		8.7	22.5X		6.5	30X	
	G 20X	12.2	12.2	20X		24.4	10X		16.3	15X		8.1	30X		6.1	40X	
VMF-2F	GWH 10X	23	11.5	20X		23	10X		15.3	15X		7.7	30X		5.8	40X	
	GW 10X	22	11	20X		22	10X		14.7	15X		7.3	30X		5.5	40X	
	G 15X	13	6.5	30X		13	15X		8.7	22.5X		4.3	45X		3.3	60X	
	G 20X	12.2	6.1	40X		12.2	20X		8.1	30X		4.1	60X		3.1	80X	
VMF-4F	GWH 10X	23	5.8	40X		11.5	20X		7.7	30X		3.8	60X		2.9	80X	
	GW 10X	22	5.5	40X		11	20X		7.3	30X		3.7	60X		2.8	80X	
	G 15X	13	3.3	60X		6.5	30X		4.3	45X		2.2	90X		1.6	120X	
	G 20X	12.2	3.1	80X		6.1	40X		4.1	60X		2.0	120X		1.5	160X	
VMZ-4F	GWH 10X	23	23 ~ 5.8	10X ~ 40X		46 ~ 11.5	5X ~ 20X		30.7 ~ 7.7	7.5X ~ 30X		15.3 ~ 3.8	15X ~ 60X		11.5 ~ 2.9	20X ~ 80X	
	GW 10X	22	22 ~ 5.5	10X ~ 40X		44 ~ 11	5X ~ 20X		29.3 ~ 7.3	7.5X ~ 30X		14.7 ~ 3.7	15X ~ 60X		11 ~ 2.8	20X ~ 80X	
	G 15X	13	13 ~ 3.3	15X ~ 60X		26 ~ 6.5	7.5X ~ 30X		17.3 ~ 4.3	11.3X ~ 45X		8.7 ~ 2.2	22.5X ~ 90X		65 ~ 16	30X ~ 120X	
	G 20X	12.2	12.2 ~ 3.1	20X ~ 80X		24.4 ~ 6.1	10X ~ 40X		16.3 ~ 4.1	15X ~ 60X		8.1 ~ 2.0	30X ~ 120X		6.1 ~ 1.5	40X ~ 160X	

Note: Specifications of the VMT-2F and VMT-4F are identical to those of the VMF-1F, VMF-2F and VMF-4F

Polarizing Filter Set VM-POL

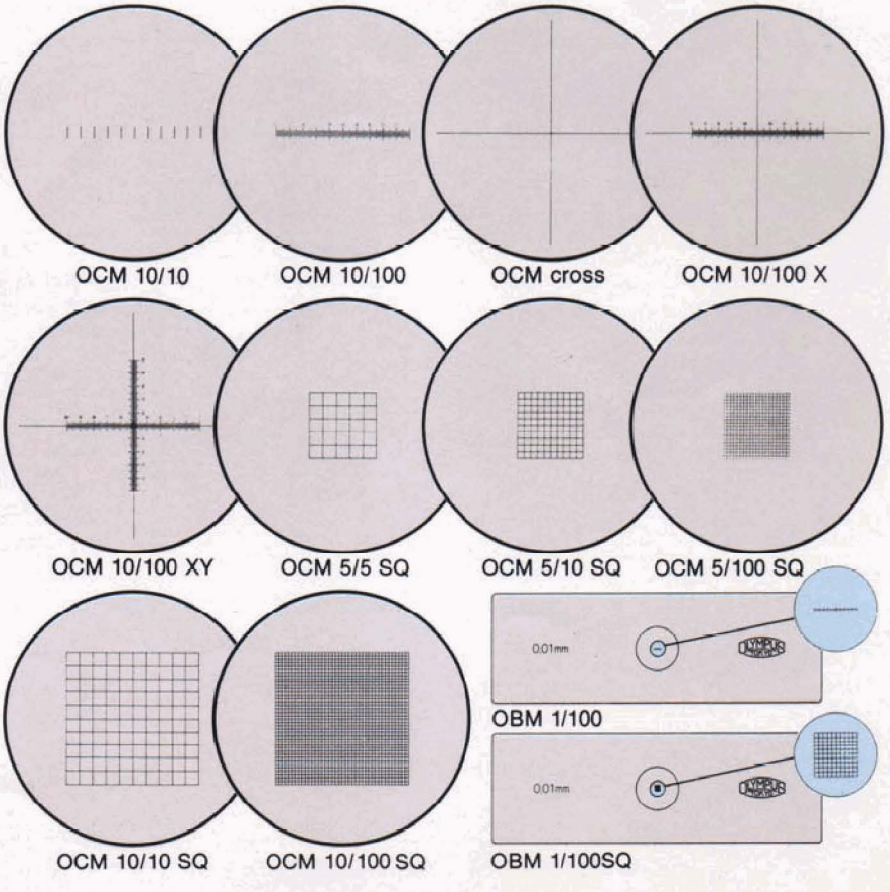
This attachment is used for detecting birefringent substances in a specimen, examination of strain and stress, study of crystallization, etc., all in transmitted light. The set consists of a polarizer and an analyzer. It is used with the Model VM-ILA illuminator base.

Camera Adapters PM-6-ADG and PM-ADG-3

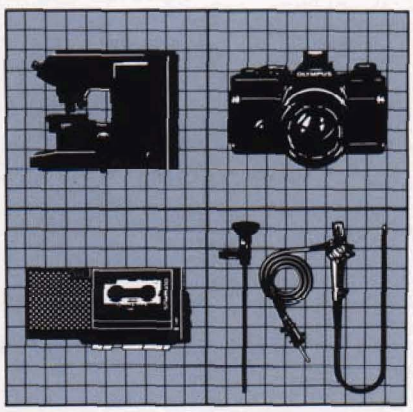
These adapters are mounted over one eyepiece sleeve and accept photomicrographic attachment cameras. The adapter PM-6-ADG is for use with the Model PM-6 camera, and the adapter PM-ADG-3 is for use with the Model PM-10 camera. The Models PM-10-M or PM-6 35 mm photomicrographic attachment cameras are recommended because of their relatively light weight.

Eyepiece Micrometer/Objective Micrometer

	GW10X, GWH10X (24mmφ)	G15X (22mmφ), G20X (19mmφ)
OCM 10/10	×	○
OCM 10/100	○	○
OCM CROSS	○	○
OCM 10/100X	×	○
OCM 10/100XY	○	○
OCM 5/5SQ	○	○
OCM 5/10SQ	○	○
OCM 5/100SQ	×	○
OCM 10/10SQ	○	○
OCM 10/100SQ	○	○
OBM 1/100	○	○
OBM 1/100SQ	○	○



It takes a tremendous amount of skills to build a reputation as an innovator among industries as diverse as communications, medicine, information and science. Yet that's exactly what Olympus has accomplished since its inception in 1919. Our varied product list is filled with technological achievements and resounding successes. Not only in cameras, but also in a wide range of Microscopes. Fiberscopes. Microcassette recorders. Clinical analysis equipment. Video equipment. And more breakthroughs are on the way, particularly in the exciting new field of opto-electronics, which combines the resources of optics, electronics and precision engineering. At Olympus, we've earned our reputation with an unfailing commitment to heavy research and development. With an uncompromising dedication to quality, precision and accuracy. And with a stubborn unwillingness to follow the crowd. That's why we'll continue to lead the way with original products that surprise you, assist you, involve you, and fulfill you.



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Microscopic,
Industrial & Business Equipment

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