OLYMPUS

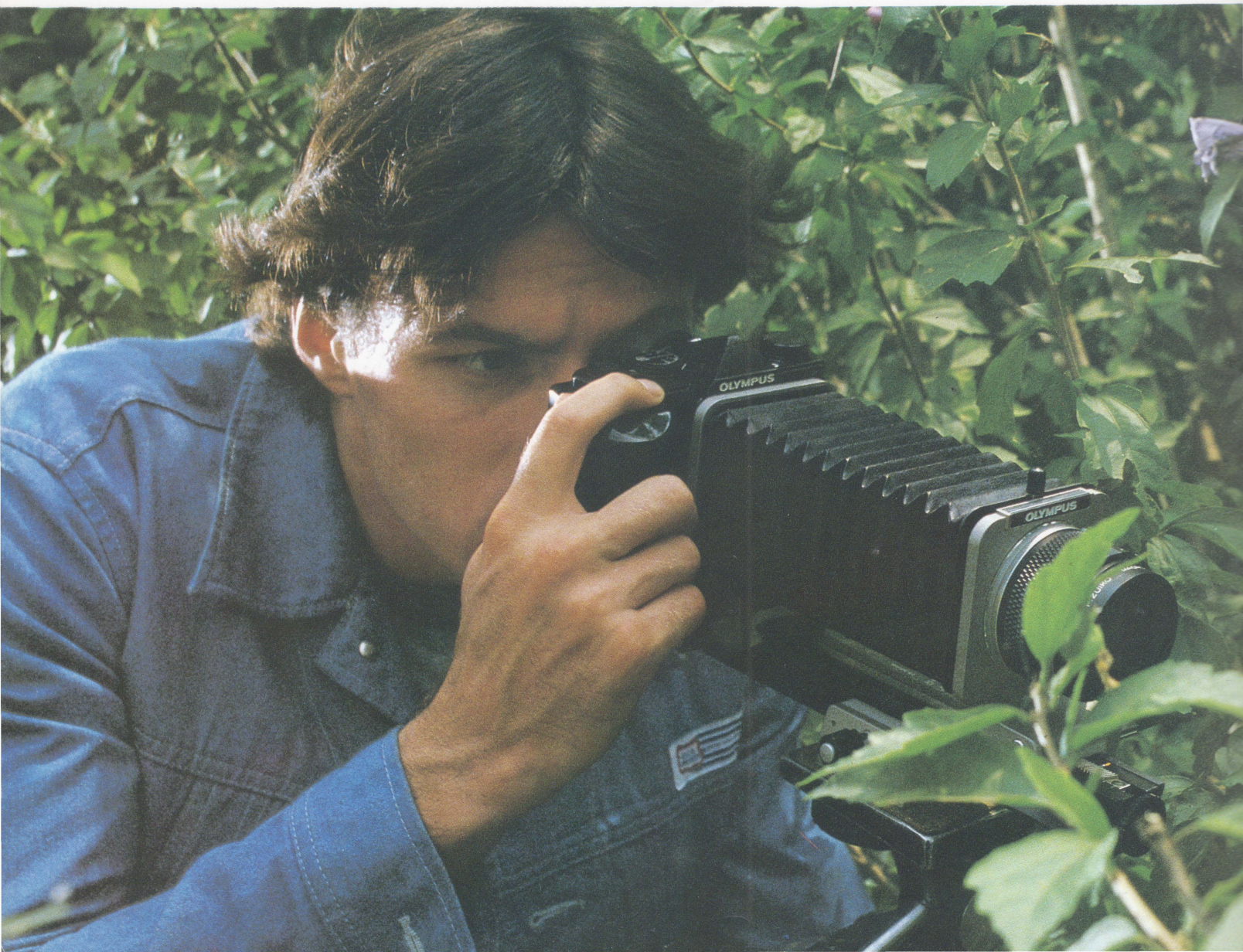
OM SYSTEM

MACROPHOTO GROUP

A Macro System of Phenomenal Versatility

The booming popularity of the 35mm single lens reflex camera has been accompanied by a burgeoning interest in close-up and macrophotography. And with excellent reason. For the photographic explorer, few subjects can rival the fascination of nature in close up, offer more opportunities for imaginative composition, or pose a greater creative challenge. For the scientist and technician, larger-than-life photos can often provide the key to complex and puzzling phenomena.

The 35SLR camera has several features that make it ideal for this kind of photography. Most important is that the viewfinder shows more or less exactly the image that will appear on the photograph, because this image is transmitted directly through the lens. There is no problem of parallax, and focus and depth of field, critical at close distances, can be determined immediately. The next great advantage of the 35SLR camera is its enormous versatility, permitting a wide choice of interchangeable lenses, focusing screens and other units. Not least is the remarkable functionality of this type of camera: it is easy to carry, quick and inexpensive to use.

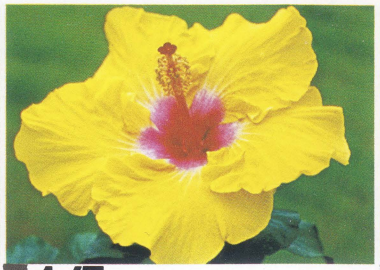


Not surprisingly, macrophotography is a field in which the OM System excels. Many of the design features that helped rank the OM-1 and OM-2 among the world's best selling 35SLR cameras take on still more importance in the world of the very small. The large, extremely bright finder and the wide selection of focusing screens become essential for accurate viewing when the light is reduced by close focusing, the use of the Auto Bellows, etc. The very quiet and vibration-free shutter/mirror mechanisms are of vital significance at high magnifications, when the slightest shake will blur the picture.

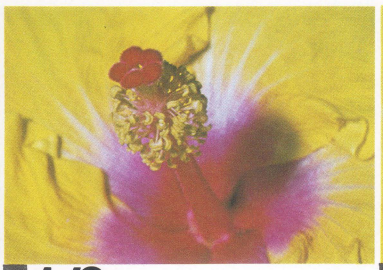
Even more dramatic is the contribution made by the Central Exposure Control system of the OM-2. (TTL Direct Light Measuring) This introduces an entirely new dimension to macrophotography, ensuring perfect exposures automatically in any conditions, with any screen including bright, clear-type screens, and most astonishingly even with flash. It also makes possible available light exposures up to 60 seconds, automatically compensated motor driven sequences, etc.

But quite apart from the properties of the OM cameras themselves, the OM system provides an unprecedented variety of units specifically designed to make perfect results a matter of routine, in whatever type of macrophotography you wish to pursue. The principal units in this, the world's most extensive and complete macro system, include a choice of macro lenses; a versatile extension system centered on the Auto Bellows; a system of stand units that permit both incident and transmitted lighting, arranged around the Macro Stand; a lighting system including everything from Lieberkühn reflectors to specially designed illuminator mirror housings, etc. In addition there is a system of auxiliary macro units offering extra advantages in economy and fast, easy operation. The units of the OM System Macrophoto Group, and some of the ways they can be used, are outlined in the following pages.

1/10x MAGNIFICATION



1/5x



1/2x

1x

The OM System Approach to Macrophotography

Broadly speaking, the field of macrophotography extends from subject magnifications of around one-tenth to ten times life size. In this area everything becomes more critical: depth of field and subject brightness decrease sharply, calling for more precise focusing and smaller taking apertures; lighting acquires a dominating influence; subject movement is faster, camera vibration more of a problem, and lens performance is tested to the ultimate.

Obviously, the system requires more than just a macro lens, a bellows, plus a few close-up lenses and extension tubes.

The OM System approach to macrophotography recognizes this fully, providing systematic answers to all the various problems that can arise. Because many are merely extensions of problems occurring in other photographic fields, OLYMPUS' "true system 35SLR" concept offers several initial advantages. The big, bright finder and the wide choice of interchangeable focusing screens (13 in all, four specially suited to macrophotography), for instance, assure remarkably precise viewing, and this is still further enhanced by the unique, two-stage Varimagni Finder and a range of dioptric correction lenses.

Four Unique Macro Lenses

Among macrophotographic units, lenses must be the first consideration. Normal lenses are designed to deliver maximum resolution at infinity. At close distances and high magnifications, performance drops off rapidly. Even standard focal length macro lenses perform poorly when the magnification approaches or exceeds life size. In short, no single lens can perform adequately throughout the macrophotographic range. For this reason, the OM System provides no less than four macro lenses, each of which gives outstanding results over a designated range of magnifications (see chart on right).

Stands and Bases, etc.

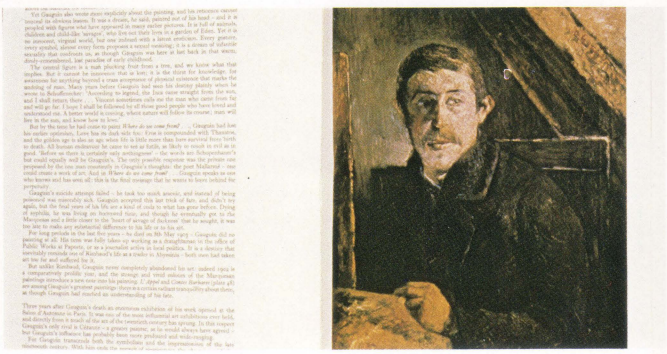
Much of macrophotography, including copying and laboratory work, is far more easy and precise if a proper stand is used. From the quadruped Handy Copy Stand to the Copy Stand and the Macrophoto Stand VST-1, the OM System caters fully to all requirements. The latter stand accepts a large number of attachment units to permit total control over all the lighting, composition, exposure and other factors affecting the final photograph.

More Convenient and Accurate Focusing Varimagni Finder

For prolonged, fatigue-free viewing. The Varimagni Finder rotates through 360° to assure the most convenient viewing position. It is adjustable to correct individual eyesight, a vital advantage for the pinpoint focusing essential in high magnification photography. The switch permits selection of either a 1.2x image of the whole viewfield, or a 2.5x image of the central portion.

Copying Work

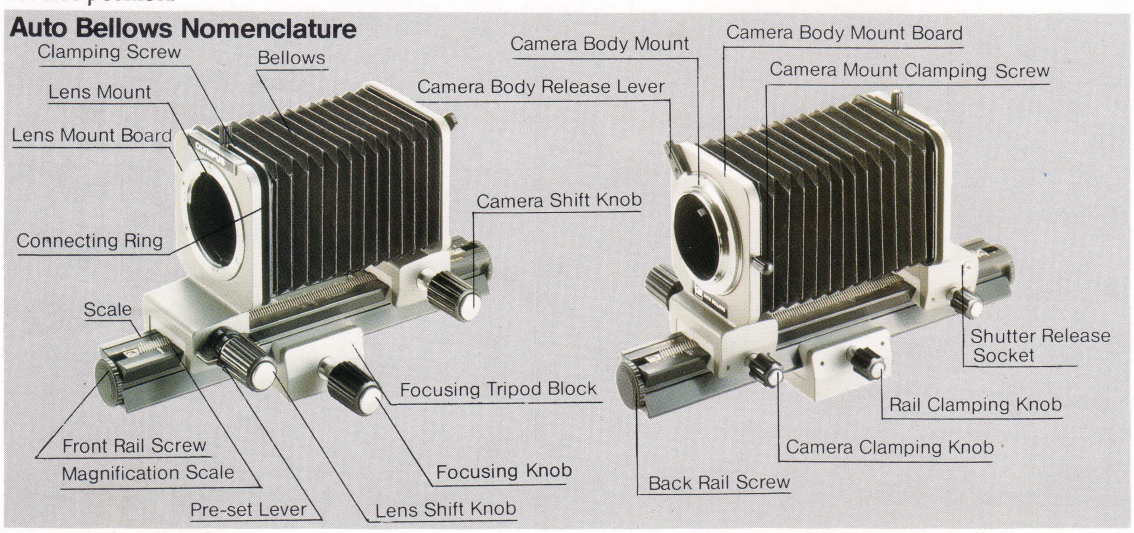
Your choice of equipment will depend on the type and size of copy you want. For books, paintings, etc., use the Zuiko Macro 50mm F3.5. You can mount the camera on the Handy Copy Stand, a tripod, or the Copy Stand. The gooseneck Lighting Set should provide a suitable light source. Use of the Motor Drive 1 or Winder 1 will make the work faster and less tiring. And the Varimagni Finder will help you find a relaxed viewing position as well as ensuring the focus is pinpoint accurate.



Highly Efficient and Versatile Auto Bellows

The Auto Bellows is almost essential for high performance macrophotography. It must be used with the Macro 80mm F4, Macro 38mm F3.5 and Macro 20mm F3.5. It can also be used with other OM System lenses, including the Macro 50mm F3.5, the 50mm F1.8, 50mm F1.4 and 55mm F1.2.

For ease and accuracy, focusing can be done at the full lens aperture. The lens is then stopped down to the taking aperture at the moment of exposure by the Double Cable Release. The rail of the Auto Bellows is calibrated for easy determination of the area of coverage, or of the required subject magnification. When a specific magnification is required, focusing is easily accomplished by moving the whole camera/Auto Bellows/lens assembly on the Focusing Tripod Block to adjust the lens-to-subject distance. If necessary, the lens mount board can be reversed together with the attached lens for easy use of the lens in reverse position.



Flash has many innate advantages for macrophotography, among them its enormously high speed, accurate color temperature and easy deployment. Epoch-making TTL Centralized Control Flash, available with the OM-2 and Quick Auto 310, completely overco former restrictions of relatively lar minimum distance, predetermined len apertures, and difficulty of accurately determining exposure, etc. This i because the flash emission i determined by the camera, i conjunction with the OM-2's Centra Exposure Control system. The camer reads the light that reaches the film plane, and immediately cuts off th exposure when the correct value is rea selected freely, working distances co macro range, results are completel length of the lens, with or without th unit can be located and aimed ind diffusing screens, etc. The use of flas in nature macrophotography, and can

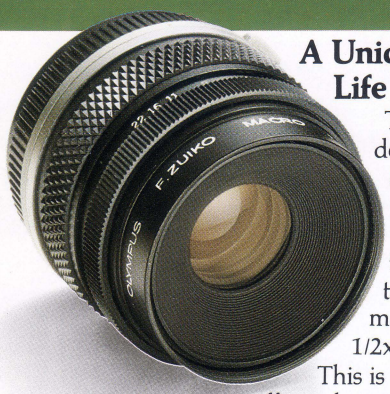
The OM System Marvellously Functiona

Zuiko Macro 50mm F3.5

Spanning the Macro Threshold

An ideal introduction to the world of macrophotography, this is the first ever macro lens with an automatic correction lens system to maintain outstanding resolution at close distances. Used alone, the Macro 50mm functions excellently as a normal lens, but also focuses as close as 23cm to take pictures 1/2 life size. It is designed for optimum performance at 1/10x magnifications, but as the world's first macro lens with automatic close focus correction, it provides outstanding resolution all the way from infinity to 1/2 life size. In conjunction with the Extension Tube 25, it can take life size pictures, and attached to the Auto Bellows it has a range from 0.7x to 4.1x magnifications. However, above 1/2 life size, other OM System macro lenses will give even better results.

Zuiko MC 1:1 Macro 80mm F4



A Unique Lens for Life Size Reproduction

The only lens available designed specifically for work at life size magnifications. Optimum resolution is attained at a 1:1 magnification and lens-to-subject distance of 160mm, but performance is superb throughout the 1/2x to 2x magnification range. This is an area where normal lenses, or 50mm macro lens, suffer a sharp drop in resolution even when mounted in the reverse position.

Note: The Macro 80mm F4 is designed exclusively for use with the Auto Bellows.

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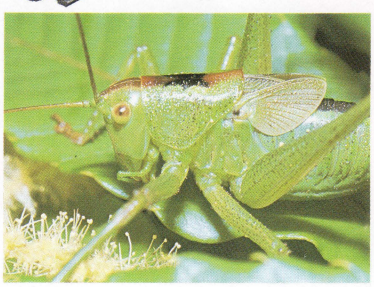
completely accurate whatever the focal
without the Auto Bellows, and the flash
aimed independently, covered by filters,
se of flash opens up entirely new fields
and can save both time and money in
studio or laboratory work too.

Flash!

On Location

If you want to go out shooting butterflies or flowers, what macro equipment do you need? You might just get by with the Zuiko Macro 50mm F3.5, if you do not want high magnifications and you are lucky enough to work in bright sunlight. For much greater versatility, add the Auto Bellows and the Quick Auto 310 flash, plus the TTL Auto Cord 0.6m. And don't forget to use the proper focusing screen, the 1-4, 1-10, 1-11 or 1-12 — it makes all the difference. You are now equipped to photograph up to twice life size or more. The flash will give you enough light to stop right down for maximum depth of field, and enough speed (between 1/40,000 and 1/1,000 sec.) to fully arrest even the fluttering of the butterfly's wings. If you are using an OM-2, you will have absolutely no worries about exposure either, even if you try aiming the flash from the side, or behind the subject. You can also afford the space for a Motor Drive 1 or Winder 1 unit. It will give you a chance at fast sequences (the butterfly emerging from the cocoon?) and give still faster reaction times when you chance upon a promising subject.



Slide

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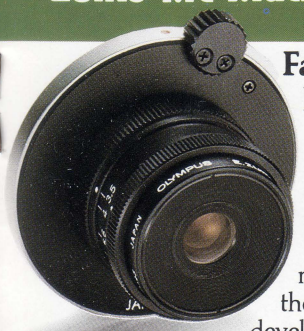
Zuiko MC Macro 38mm F3.5

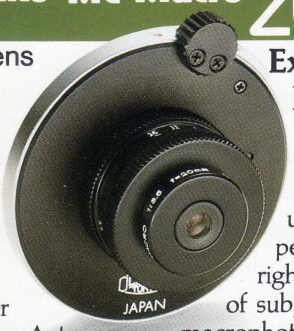


Faultless Execution at High Magnifications

Larger than life photography involves both optical and mechanical complications. Not only is lens performance deteriorated by close focusing aberrations, but the extent of magnification is physically limited by the length of the bellows. The specially developed Macro 38mm with its distinctive lens construction and relatively short focal length overcomes both these problems for impeccable subject rendition in a range between two and six times life size.

Note: The Macro 38mm F3.5 must be used with the Auto Bellows and the Objective Lens Mount PM-MTob.

Zuiko MC Macro 20mm F3.5



Objective Lens Mount PM-MTob

The Zuiko Macro 38mm F3.5 or Zuiko Macro 20mm F3.5 is screwed into this mount adapter for use with the Auto Bellows.

Excellent Sharpness Right Up to the Limit

This lens takes high magnification macrophotography a step further. It maintains the uncompromising OM System performance standards from 4x right up to 12x, the effective limit of subject magnification in the macrophotographic mode. Even in this highly specialized area operating convenience is unimpaired, and because of the short focal length the bellows can be kept close to the subject.

Note: The Macro 20mm F3.5 must be used with the Auto Bellows and the Objective Lens Mount PM-MTob.

e Copying

s work the Auto Bellows and the Zuiko 1:1 Macro 80mm F4, designed y for life size magnifications, are ideal. You will also need a Slide Copier u are copying roll film, the Roll Film Stage. Mount the assembly on a tripod nience and to minimize camera shake. By adjusting the bellows extension lide holder position you can of course trim the slides as desired. You can also obtain satisfactory results with the Macro 50mm F3.5 or standard lenses.

Trimming slide with copier

Life Size Reproduction

How do you go about copying a postage stamp so it fills the whole frame? The best results are obtained with the Zuiko 1:1 Macro 80mm F4 and incident lighting. To minimize movement and vibration, use the Macrophoto Stand VST-1. Attach the Macrophoto Stand B Adapter, onto which fits the Auto Bellows. For lighting use the Epi-Illuminator PM-LSD2. The Varimagni Finder will make viewing and focusing easier, and the Cable Release will assist in releasing the shutter smoothly.

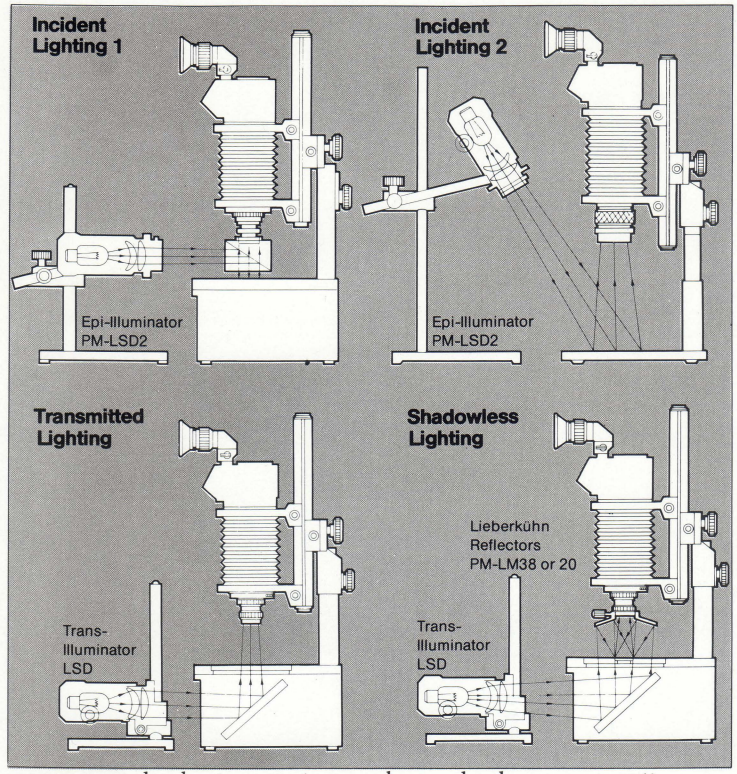
Incident Lighting or Transmitted Lighting?

For macrophotography at high magnifications, supplementary lighting is more or less essential. The proper type of lighting depends on the subject and the desired effect. Generally speaking, incident lighting is recommended for opaque subjects, transmitted lighting for transparent or translucent subjects. In some cases a combination of the two will prove most effective, and in others shadowless lighting will provide the optimum results.

The Macrophoto Group includes a generous variety of lighting and auxiliary units to ensure ideal lighting for every type of subject and photographic treatment.

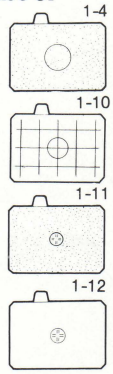
The lighting units are easiest used when the camera and subject are fixed in position on a stand. For example, for simple but highly efficient incident lighting, a pair of gooseneck light arms can be attached to the top of the Copy Stand, and the camera fitted to the column. When greater versatility is required the Macrophoto Stand VST-1 is invaluable. It can be mounted on the Trans-Illuminator Base X-DE for transmitted lighting by the Trans-Illuminator LSD. When this arrangement is complemented by the use of Lieberkühn Reflectors attached to the taking lens, shadowless lighting is obtained. The stand is also ideal for various types of incident lighting using the Epi-Illuminator PM-LSD2, or for both incident and transmitted lighting in combination. It accepts a selection of stage plates, stage glasses, etc. Several filters are available to correct the color temperature and intensity of the light provided by the Epi-Illuminator and Trans-Illuminator. The final lighting arrangements can be determined with superb accuracy by the Photomicrographic Exposure Meter EMM-7, which contains exposure and color temperature probes and color-compensating filters. This unit takes the Adapter PM-EA for use with the Auto Bellows.

Selection of Lighting Method

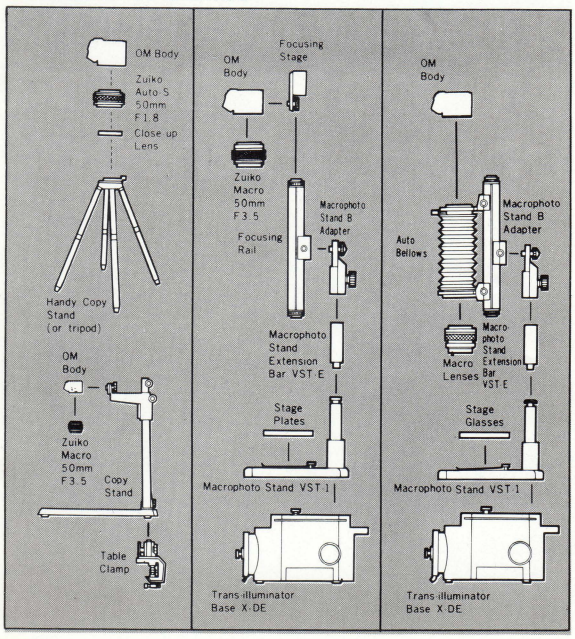


Optimum Viewfinder Definition Focusing Screens 1-4, 1-10, 1-11, 1-12

Because of the extremely small depth of field in macrophotography, exact focusing is absolutely essential, and this demands the use of special focusing screens. The 1-4 has an all-matte surface ground coarse for easy focusing. The 1-10 features a checker pattern on an all-matte ground for accurate alignment and composition. The 1-11 provides a cross hairs center spot for critical focusing, on a matte ground. The 1-12 has the same cross hairs center spot, but on a clear-field ground for maximum image brightness, excellent for high magnification macrophotography.

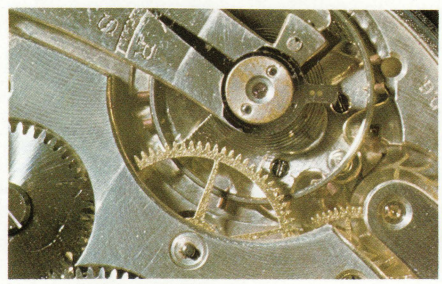


Selection of Stands

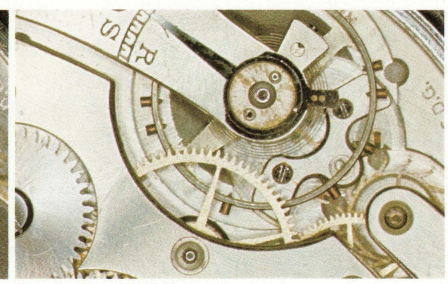


Shadowless Lighting

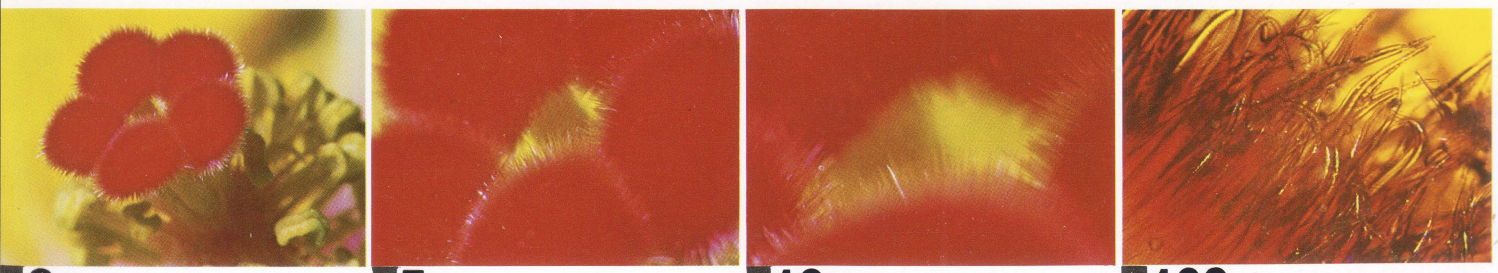
Especially in scientific applications, soft lighting with a minimum of glare is often required. This is achieved by the use of transmitted light, reflected back from the lens periphery to the subject by a Lieberkühn Reflector. By way of example, the following equipment would be necessary to take a 4x magnifications picture of a watch mechanism by this method: The Macrophoto Supporting Stand VST-1 mounted on the Trans-Illuminator Base X-DE, the OM-2 with 1-11 Focusing Screen, Varimagni Finder and Cable Release plus the Auto Bellows, fitted to the Macrophoto Stand B Adapter, and holding the 38mm Macro F3.5 mounted on the Objective Lens Mount PM-MTob and carrying the Lieberkühn Reflector PM-LM38. The watch itself is placed on a Stage Insert Plate, which in turn fits into the center hole of the Shade Stage Plate.



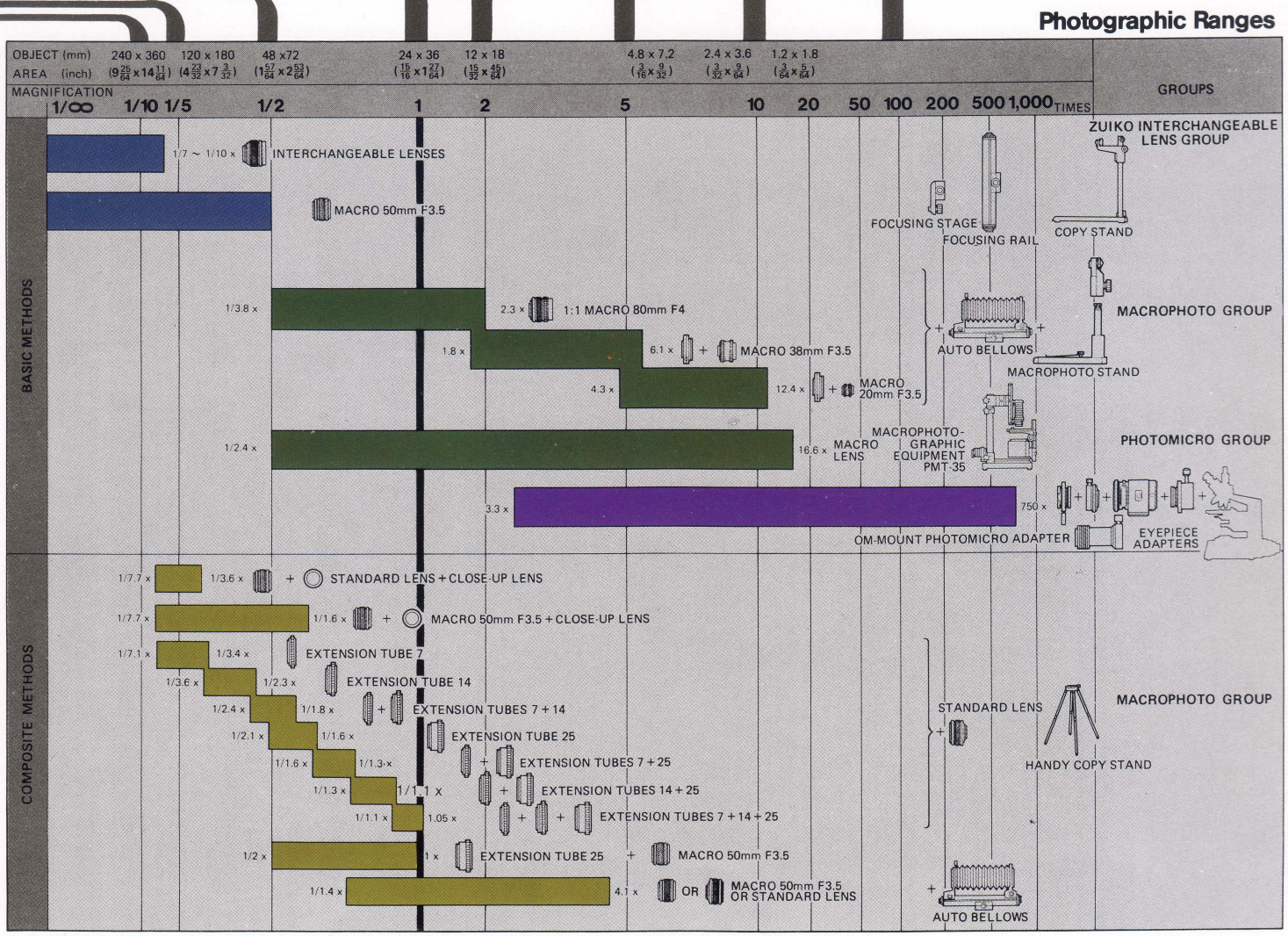
Normal Incident Lighting



Shadowless Lighting



2x 5x 10x 100x (PHOTOMICRO)



Every Kind of Lighting, Including Versatile Flash

This brings us to lighting itself, and here again the OM System Macrophoto Group makes available a comprehensive selection of units guaranteeing optimum results with any kind of subject and photographic treatment. The choice progresses from the simple but effective gooseneck lighting set for copy work, to epi- and trans-illuminators, Lieberkühn reflectors, mirror housings, filters and more.

One kind of lighting uniquely valuable in macrophotography is flash — its enormous speed is ideal for arresting movement, while its great versatility helps in a host of varied situations. Its main disadvantages — restriction on aperture settings, limitations in close distance work, and the difficulty of calculating correct exposures — are all eliminated by TTL Centralized Control Flash, available when the OM-2 is used together with the Quick Auto 310. Only the light reaching the film plane in the camera is measured, and the camera automatically cuts off the flash emission when the correct exposure has been made. This amazing development, exclusive to the OM System, marks the beginning of a new epoch in flash macrophotography.

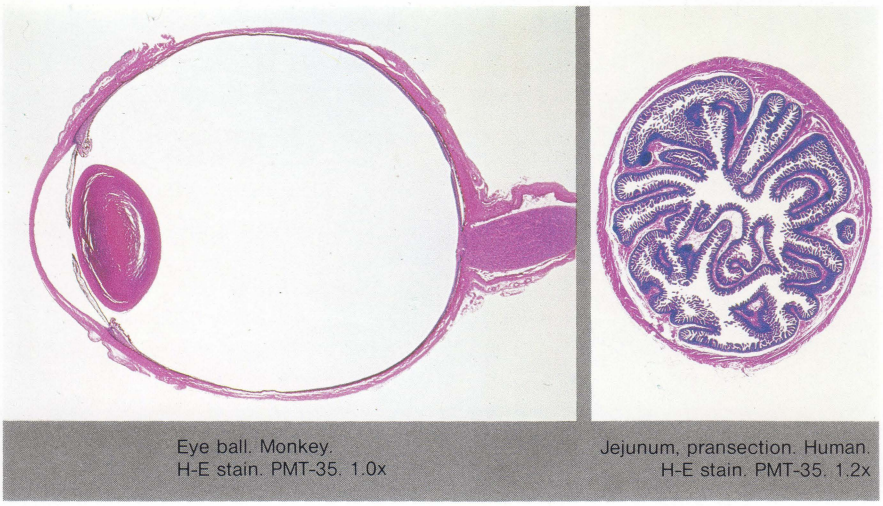
Macrophoto and More

As the Macrophoto Group System Chart (on the back cover) shows, the OM System makes ample provision for every kind of macrophotography, from the most basic to the most demanding and complex. For photography at still higher magnifications, the OM System Photomicro Group, described briefly on page 10, offers equally comprehensive coverage.

For the Real Professional

Macrophotographic Equipment PMT-35

This enormously comprehensive set is a complete macrophotographic system on its own. It contains 46 units, including 26 standard units, for photography at magnifications from 0.45x to 16.5x. The OM camera body is connected to the PMT-35 by the OM-Mount Photomicro Adaper H.



Eye ball. Monkey.
H-E stain. PMT-35. 1.0x

Jejunum, pransection. Human.
H-E stain. PMT-35. 1.2x

Incident Illuminator Mirror Housings (80mm, 38mm, 20mm)

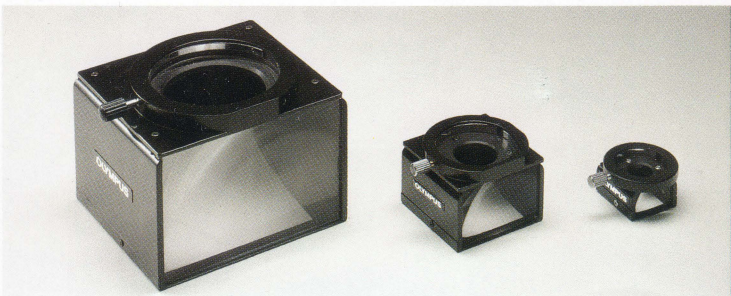
Specially designed for use with the OM System macro lenses together with the Auto Bellows or PMT-35, these housings are most effective with flat, highly reflective subjects such as polished metal specimens. The light is provided by the Epi-Illuminator PM-LSD2, and accurately angled by means of the centering Mirror PM-ELCS, which is mounted on the stage plate of the Macrophoto Stand. Use the PM-EL80 for 1:1 Macro 80mm and Macro 50mm lenses, the PM-EL38 for the Macro 38mm, and the PM-EL20 for the Macro 20mm.

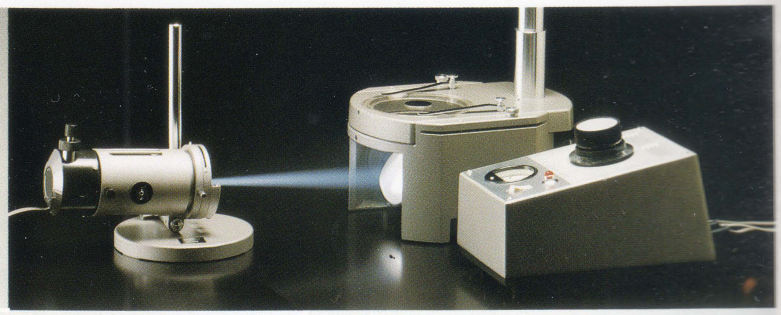
Epi-Illuminator PM-LSD2

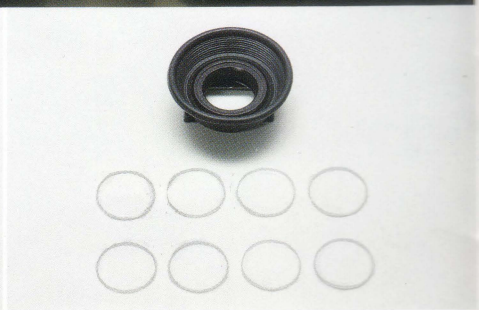
A high intensity light source for use with variable transformer. Bulb can be moved for focusing, and light bunching adjusted by diaphragm. Filters can also be housed in the unit.

Trans-Illuminator LSD

With built-in 6V, 30W bulb with centering and focus adjustment, rack and pinion control for adjustment of condenser lens, calibrated iris field diaphragm 6V-8V variable transformer and square cobalt filter; for use with substage mirror or for incident illumination of opaque subjects. Other filters are available.







Close-Up Lenses

A simple and economical alternative to the use of full-fledged macro equipment. Available in 49mm and 55mm diameters. Automatic aperture stop-down can be used as in regular photography.

Extension Tubes 7, 14 and 25

Fit between the lens and the camera mount. They have thickness of 7mm, 14mm and 25mm, and can be used separately or in combination for a total of seven different extensions. However, the aperture diaphragm must be stopped down manually.

Eyecup 1

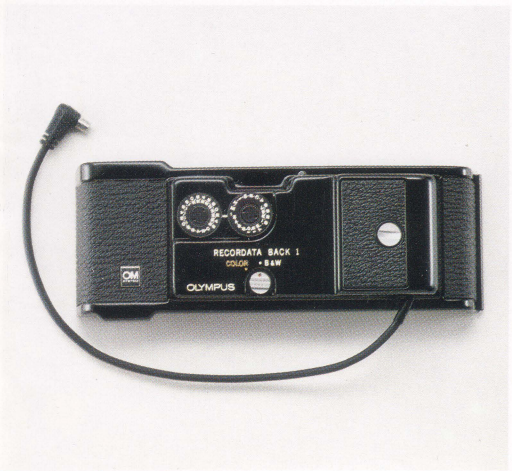
To prevent glare and loss of contrast from stray light hitting the eyepiece. Has slot for Dioptric Correction Lenses.

Dioptric Correction Lenses

To correct long- or short-sight. Particularly useful in macro and photomicro work. Eight different lenses are available: –1, –2, –3, –4 and –5 diopters for short sight, +2, +1 and 0 for long sight.

Useful Units from Other OM System Groups

The OM System is designed as an organic whole, and units from other system groups can play a highly useful role in macrophotography. Note in particular:



Recordata Back 1

For imprinting data such as the date, numbers, etc. directly onto the photograph. The back replaces the normal OM camera back. It connects electrically via a power cord to the camera flash synch · socket.

Motor Drive 1

A great time and energy saver when numerous photos have to be taken from a fixed position, especially when the film advance lever is not easily accessible. Suitable power sources are the M.15V Ni-Cd Control Pack 1, the M.AC Control Box or the M18V Control Grip with M. Remote Cord. The 250 Film Back 1 allows bulk film to be used for continuous shooting up to 250 frames.

Winder 1

An alternative to the Motor Drive 1, with single frame advance up to a speed of about three frames per second. This unit also accepts the 250 Film Back 1.

M. Remote Cords 1.2m/5m

For remote control of the Motor Drive 1 and Winder 1 units. Attached via the unit's remote control jack.

The Photomicro Group

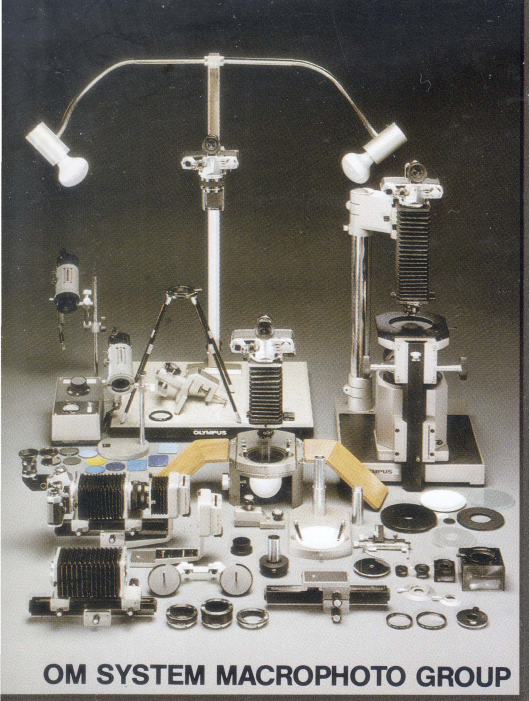
When magnifications exceed about 10x, the Photomicrography Group functions as the natural extension of the Macrophoto Group. The most important difference is that in photomicrography, the microscope lens is used as the taking lens, and the camera is connected to the microscope by means of a Photomicro Adapter.

The performance of the OM System in photomicrography is no less remarkable than in macrophotography. That much is guaranteed by OLYMPUS' 60 years as a manufacturer of all kinds of high precision microscopes and lenses. The group includes a variety of photomicro adapters and eyepiece adapters, focusing magnifier and focusing telescope, automatic exposure body and automatic exposure control box, photomicrographic supporting stand and all other units necessary for complete mastery of the subject.

The Phototechnical Group

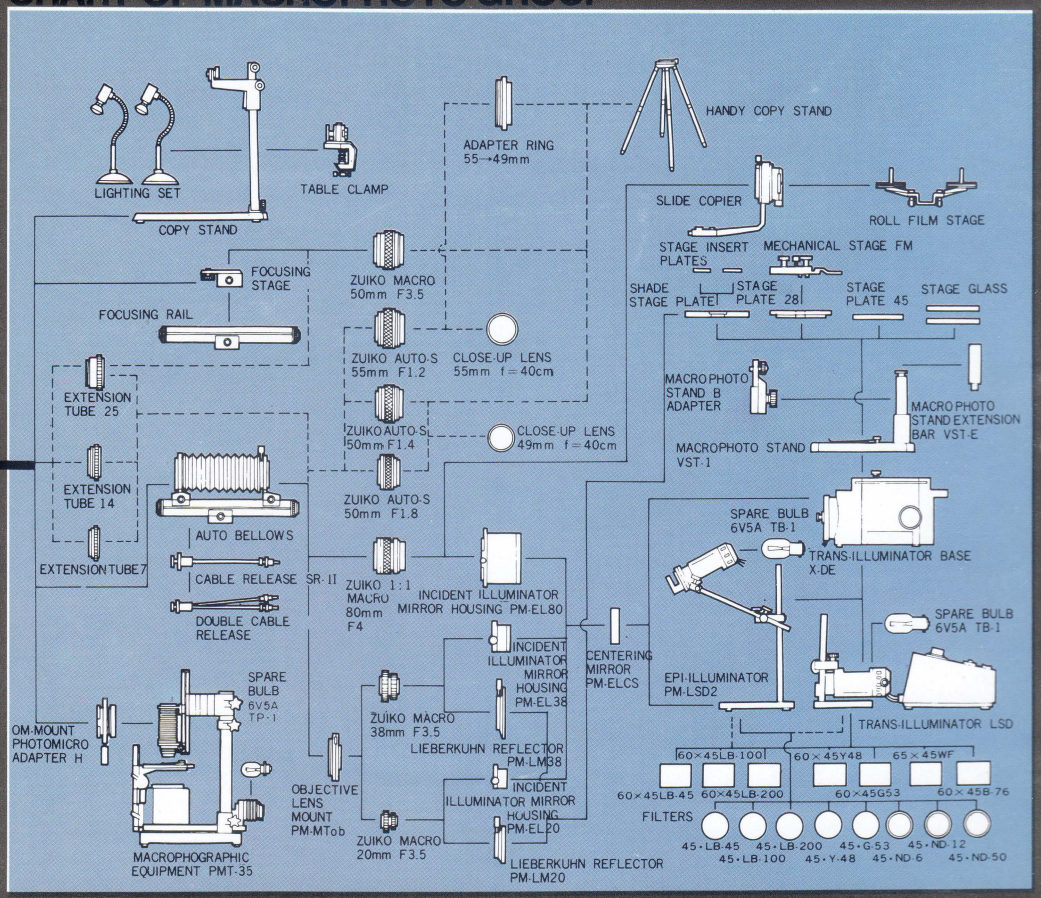
In addition to the Recordata Back 1, this group covers astroscope adapter for use in telescopy, endoscope adapter for use with medical and industrial fiberscopes, and an adapter for photography with a surgical operation microscope.

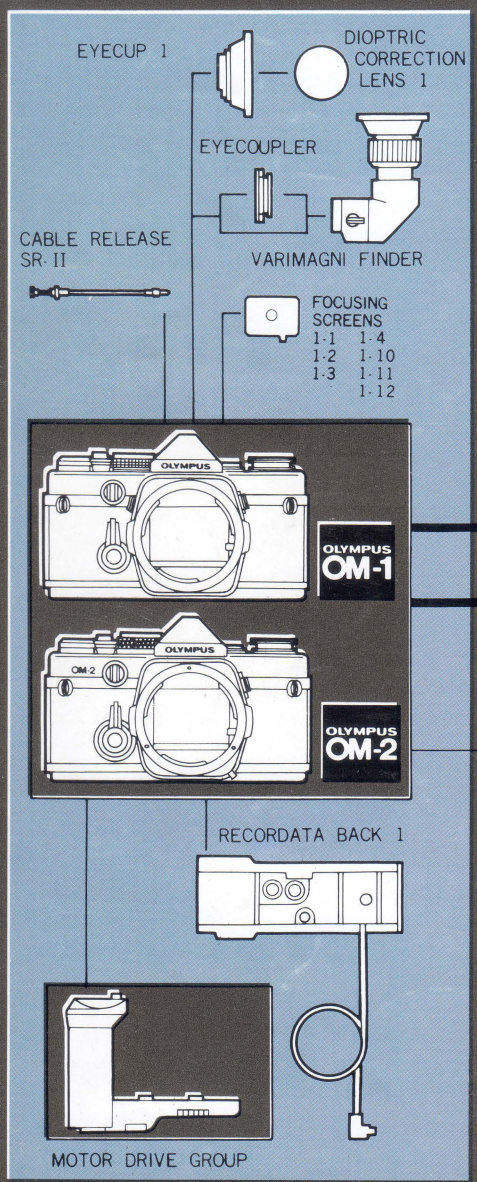
* These units can be ordered from distributors of Olympus Microscopes.



OM SYSTEM MACROPHOTO GROUP

CHART OF MACROPHOTO GROUP





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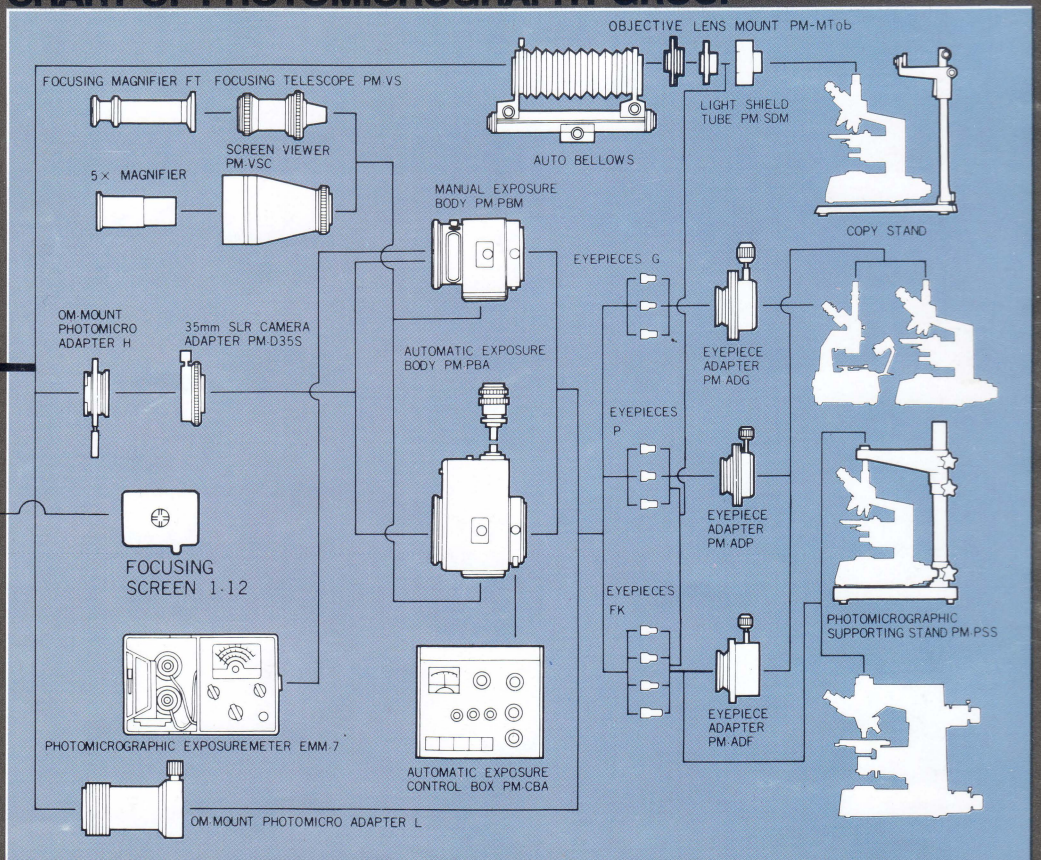

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