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**OUR PRODOCT**

**2004**

Thirteenth edition

**TOHKAI SANGYO CO., LTD.**

TOKYO, JAPAN

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# BASIC POINTS ABOUT MAGNIFIERS

Dr. Zyun Koana

Professor of Optics, Sophia University

Professor Emeritus, the University of Tokyo

## 1. Select the Magnifying Power to Suit Your Purpose

A magnifier or a magnifying glass, also called a loupe, is a lens or a lens-system that can form a magnified virtual image of an object. When a magnifier is placed between the object and the observer's eye, the observer can inspect fine details of the object by viewing the magnified image of it.

Magnifiers of various "magnifying power (M.P.)" are manufactured according to the purpose for which they are used. The same object can be seen in larger scale by a magnifier of higher M.P. However, magnifiers with higher M.P. have the shortcomings of a smaller image field and a shorter working distance (i.e. the distance between the object under inspection and the magnifier); the latter effect makes their use less convenient.

The magnifier with a M.P. of 2X to 3X is usually a single convex lens, relatively low in cost; those with high M.P. are composed of 2 to 5 pieces of convex and concave lenses made of different kinds of optical glasses in accordance with elaborate optical design for the correction of aberrations, and so are more expensive.

For reading documents with small letters, magnifiers of 2X to 3X M.P., consequently with wider image field, are suitable. Those with 5X to 7X M.P. are most adequate for daily desk use. For the inspection of very fine details, M.P. of 10X to 15X is recommended. However, if you tried to read a newspaper with a 10X M.P. magnifier, you would have to move the magnifier along each letter because of the small image field, with the result that you would be unable to catch the import of the sentences. Therefore you should select a magnifier with an M.P. that suits your purpose, and to realize that expensive magnifiers with high M.P. are by no means universally usable. This is the first basic point about selecting magnifiers.

Observation with a M.P. of 20X or more is usually accomplished by a compound microscope, which is composed of an objective lens and an eye-piece separated by a definite distance. The objective lens forms a magnified but inverted real image of the object under inspection, and the eye-piece, which is a special kind of magnifier, further magnifies the real image. Thus the compound microscope can be compared to a two-step amplifier, whereas a magnifier is considered as a single-step one. Hence the former can have a very high M.P., such as 100X to 1000X; and when used at low M.P. of 20X to 30X, it has a wider image field and a longer working distance than a magnifier with the same M.P.

The compound microscope does however have some disadvantages; it is massive and expensive, the object under inspection must be placed on its stage, and the observed magnified image is inverted. Here one sees the advantage of having 20X to 30X magnifiers, which make possible the observation of the erect (i.e. not inverted) image of each part of a large object that cannot be laid on the microscope stage. Such magnifiers are indispensable, for instance, in photo-mechanical processes.

These high M.P. magnifiers, however, have a very short working distance, and further, the optical axis of the observer's eye must coincide correctly with that of the magnifier. This latter condition requires some experience on the part of the user, and incorrect use of these magnifiers prevents the user from taking full advantage of their performance.

It should be emphasized again that one should carefully select the M.P. of magnifiers, now available from about 2X to 30X.

## **2. Magnifying Power Changes with Conditions of Use**

Hitherto the term M.P. has been used without precise explanation. It is different from the "magnification" of the image, i.e. the physical quantity defined as the ratio of the lateral length of the image of a small object formed by an optical system (including a magnifier) to that of the object itself. The M.P. refers to the combination of a magnifier (or a compound microscope) and an observing eye. It is defined as the ratio of the view angle of the magnified virtual image of a small object to that of the same object viewed with the naked eye at a 250mm (ca. 10") distance from it, which is approximately equal to the ratio of the length of the image formed on the retina of the eye in each respective case. Thus if the M.P. of

a magnifier is 7X, the lateral length of the image viewed through it is about 7 times that of the same object seen with the naked eye at a distance of 250 mm. In this case, the area is magnified about  $7^2$  or 49 times.

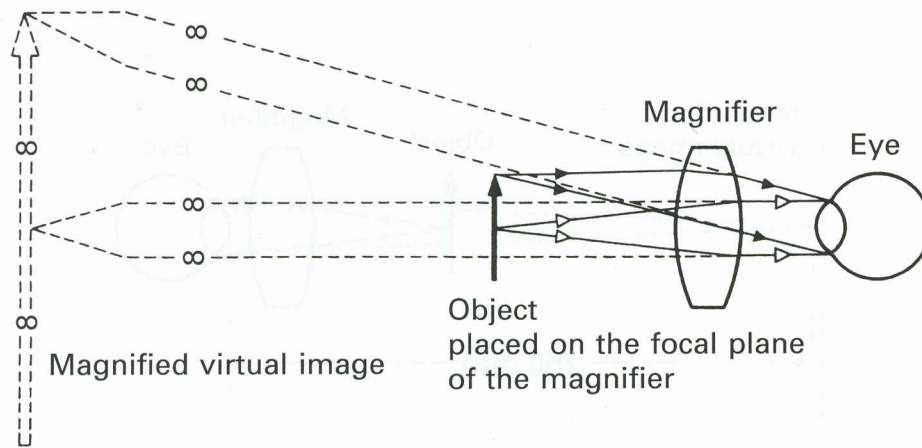


Fig. 1 "Normal" using condition

The M.P. of a magnifier is not a constant, but varies continuously within a certain range with changes in distance between the magnifier and the eye, as well as with changes in the working distance. So its value is indefinite as long as the condition of use is not specified.

The value of the M.P. of a magnifier engraved on its barrel or listed in catalogues is the so-called "normal M.P.", which is the M.P. under the condition that the object under inspection is placed on the "focal plane in the object space" of the magnifier. In this case, the rays of light emitted from each point of the object become parallel with each other after passing through the magnifier, as is shown in Fig. 1, and hence the virtual image of the object is formed at infinite distance from the eye with an infinitely large length. Hence the value of the "magnification" of the image is infinite, but the M.P. in this case, or the normal M.P. of the magnifier takes a finite value, and is given exactly by the formula

$$\text{normal M.P.} = \frac{250 \text{ (mm)}}{\text{focal length (mm) of magnifier'}}$$

being independent of the distance between the magnifier and the eye.

From the formula it is easily calculated that a magnifier with a 25 mm focal length has a normal M.P. of 10X, and one with a 50 mm focal length has 5X normal M.P. It can be seen also that the normal M.P. of a "weak" magnifier with a 250 mm focal length is 1.0X, meaning that no benefit can

be obtained by using such a magnifier. Furthermore, a weaker one with a 300 mm focal length has a normal M.P. of 0.83X, which means that the size of the virtual image viewed through it is smaller than that of the object viewed with the naked eye at a distance of 250 mm ! These results are absolutely correct so far as the "normal M.P." is concerned.

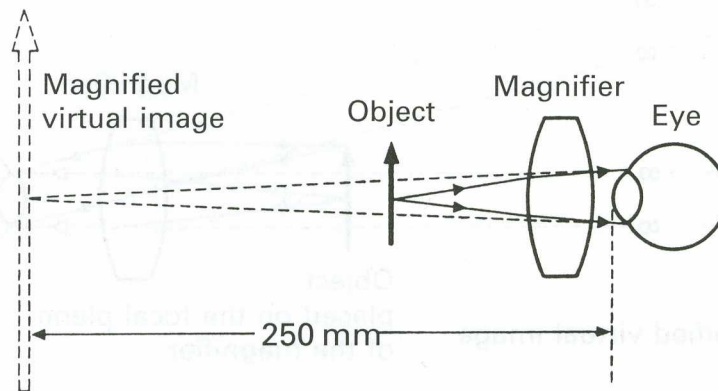


Fig. 2 Efficient using condition

The "normal using condition" described above, however, is by no means recommended in using ordinary magnifiers. The most efficient method is to bring the eye as close as possible to the magnifier, and adjust the distance between the object and the magnifier so that the virtual image is formed at a 250 mm distance from the eye as shown in Fig. 2. If the eye is brought in contact with the magnifier, or more strictly speaking, if the "nodal point in the object space" of the eye is made coincident with the "nodal point in the image space" of the magnifier, and the virtual image is formed at the position stated above, then the M.P. takes a maximum value  $(M.P.)_{\max}$  given by the following formula

$$(M.P.)_{\max} = 1 + \text{normal M.P.}$$

It may usually be impossible to realize this condition exactly, but the nearer the eye is brought to the magnifier, the more closely the M.P. takes a value given by the above formula. Hence the M.P. of a 300 mm magnifier will be approximately  $(1+0.83)$  or 1.83X, and that of a 250 mm one will be about  $(1+1.0)$  or 2X. This means that the M.P. of a magnifier is always greater than 1X, however weak it may be, as long as it is used under the condition stated above.

The medium power magnifier with a normal M.P. of 5X or 7X can also have a M.P. of nearly 6X or 8X respectively if used under the above condition. To realize this condition, hold the magnifier with one hand and keep it

as close as possible to your eye, while adjusting the position of the object under inspection with the other hand until the magnified virtual image can be observed sharply. This is the second basic point about using magnifiers.

### 3. Special Magnifiers for Special Purposes

Several kinds of special magnifiers have been manufactured for special purposes, with the same value of normal M.P. as ordinary ones but with some unusual features.

For instance, the "Anastigmatic Loupe 4X" with a very wide and flat image field is suited for inspecting fine details of 35mm size microfilm negatives or for viewing color slides, without having to move of the object or the magnifier. The "Telecentric Loupe 7X" fitted with a glass scale permits the measurement of the diameter of a thin wire or a small sphere without error due to parallax, and one without a glass scale can be used to read accurately the deflected position of a meter needle that moves in a plane slightly different from that of the ruled scale. The "Retrofocus Loupe 7X", because of its very long working distance, allows one to inspect the bottom of a small and deep hole, or to observe the fine structure of electrodes in a vacuum tube from outside the bulb.

At present, however, only one or two kinds of M.P. are available in such special magnifiers. If you want a special magnifier with a different M.P., the manufacturer can design and make it to your specifications, but the cost will be extraordinarily great due to a lot of mental labor and time required in the optical design. The fact is common in every order-made optical instrument, and the only way of reducing the cost is to order a large number of the same product by gathering the demand of persons equally interested in using it.

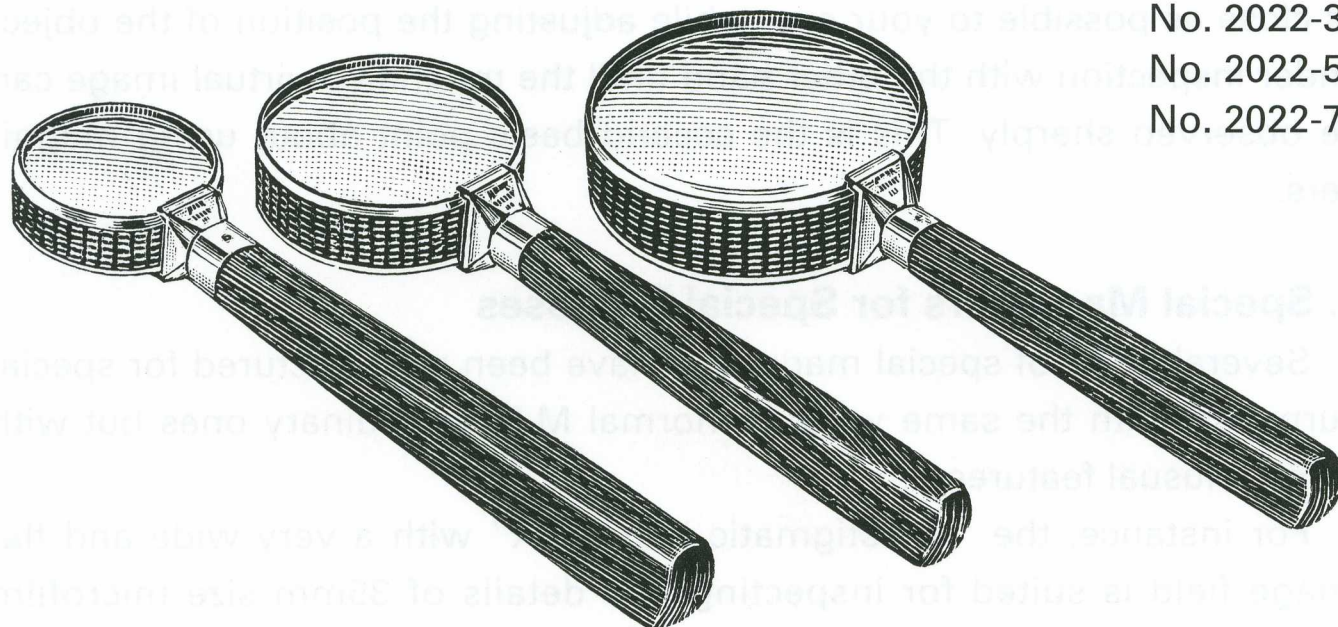
This is the third basic point about ordering special magnifiers.

| Item No.    | Size                    | Surface treatment | Magnification | Viewing distance | Weight |
|-------------|-------------------------|-------------------|---------------|------------------|--------|
| No. 2022-22 | 40 $\phi$ × 125 × 12 mm | Both faces        | 4X            | 37 mm $\phi$     | 67 gm  |
| No. 2022-23 | 65 $\phi$ × 175 × 20 mm | single            | 5X            | 64 mm $\phi$     | 117 gm |
| No. 2022-24 | 75 $\phi$ × 190 × 22 mm | coated            | 1.3X          | 72 mm $\phi$     | 248 gm |

No. 2022-35

No. 2022-55

No. 2022-75



## PEAK ACHROMA LUPE

The magnifying glass introduced here appears to resemble, in its outside appearance, the classic magnifying glass used by the famous detective Sherlock Holmes at the end of the last century. But PEAK ACHROMA LUPE is greatly different in its function and can give you more accurate information which the piercing eyes of the great detective could not detect.

The reason for the above is PEAK ACHROMA LUPE employs a newly-designed achromatic lens which is composed of two optical glass lenses cemented together. The image seen through this lens is free of color run and gives sharp contours so that no vague lines will be found throughout the entire image field. At the base of the lens frame of this ACHROMA LUPE, you will find a red point. Use the lupe with the face having this red point upwards.

The solid lense frame and the wooden handle made of rose wood which develops the more beautiful sheen the more you use it will make PEAK ACHROMA LUPE worthy of your treasured use. It will also become your good assistant in your research and inspection work and your good companion in your hobbies such as works of art, horticulture and handi-craft.

| Item No.    | Lens dia.    | Magnification | Surface treatment        | Size                                  | Net weight |
|-------------|--------------|---------------|--------------------------|---------------------------------------|------------|
| No. 2022-35 | 37 mm $\phi$ | 4 $\times$    | Both faces purple-coated | 40 $\phi$ $\times$ 155 $\times$ 15 mm | 67 gm.     |
| No. 2022-55 | 54 mm $\phi$ | 2 $\times$    |                          | 56 $\phi$ $\times$ 175 $\times$ 20 mm | 117 gm.    |
| No. 2022-75 | 75 mm $\phi$ | 1.3 $\times$  |                          | 78 $\phi$ $\times$ 195 $\times$ 25 mm | 245 gm.    |

No. 2033-90

No. 2033-100

No. 2033-115



## PEAK FLEXIBLE STAND LUPE

A flexible stand loupe has a flexible arm which extends in a freely-movable manner in vertical and horizontal directions from a solid and stabilized stand, and the lens at the tip of the arm can be freely set in height and inclination. Through the use of this stand, the viewer can continuously observe and inspect the specimen with an efficient posture which makes both his hands free, and under the optimal lighting condition.

Lens diameters of 90, 100 and 115 mm are available.

| Item No.     | Lens dia.     | Magnification | Size                             | Net weight |
|--------------|---------------|---------------|----------------------------------|------------|
| No. 2033-90  | 90 mm $\phi$  | 2.2 $\times$  | 145 $\times$ 120 $\times$ 460 mm | 1,427 gm.  |
| No. 2033-100 | 100 mm $\phi$ | 2 $\times$    | 145 $\times$ 120 $\times$ 470 mm | 1,484 gm.  |
| No. 2033-115 | 115 mm $\phi$ | 1.7 $\times$  | 145 $\times$ 120 $\times$ 485 mm | 1,527 gm   |



## PEAK multi DESK LUPE

The relationship between man and the lens is said to have continued since Ancient Egypt, and compared with the long history since then, the effort which Peak has applied to the manufacture of lupes and their outcome are small indeed.

However, this multi-lens Desk Lupe is a wonderful desk-type lupe which enables you to see things that under normal conditions are invisible. This is because four lenses with different magnifications are included in the viewer in front of you, which respond to your research and investigation requirements. The acrylic-resin lenses of the multi Desk Lupe, all having excellent and uniform stability in quality and transparency, are all manufactured using the latest techniques, and the main lens has been given a silicone-based hard coating.

Its stand has enough weight to capably withstand all possible working angles and, together with a serene black-finished pillar, suitable for decorative furnishings, it can be used freely to change the lenses positions.

If these lenses become dirty, remove dirt, etc., with a soft featherduster and lightly wipe the lens surfaces with silicone paper, lenswiping cloth, etc. Avoid the use of chemicals for wiping.

Caution: Placing the lens under direct sunlight will constitute a fire hazard.

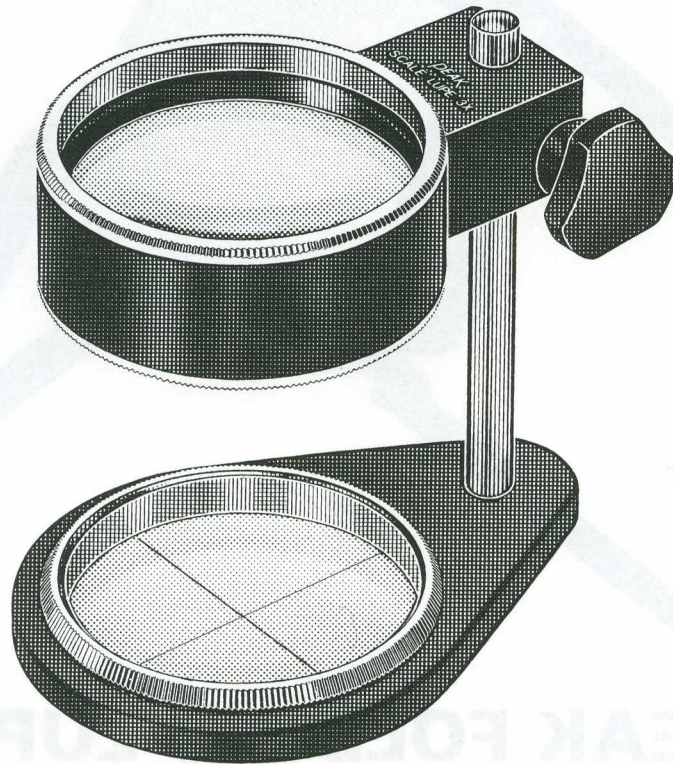
### Lens Sizes and Magnifications:

|                   |     |                  |
|-------------------|-----|------------------|
| G1 : 108×139 mm   | 2X  | G2 : Cylindrical |
| G3 : 15 mm $\phi$ | 10X | G4 : 20×25 mm 5X |

Dimensions: 176×150 to 330×200 mm (at ordinary operating position)

Base 135 mm  $\phi$

Weight: 1,500 gm.



## PEAK SCALE LUPE 3X

The Peak Scale Lupe 3X consists of lens, support pole and metal base. A reticle scale is placed on the metal base. The form of this lupe is, as you see, different from the scale lupes ever supplied. It is, by this form, possible to get a wider working space for observation.

This Scale Lupe 3X has lenses (2 elements, 2 groups) of 3X magnification. The aperture is large but the aberration is less.

The features of this new article are:

Light comes in from all sides. Visual field is wide. The long working distance makes observing activities more efficient.

The scale of 54 mm diameter placed in the metal base rotates freely for your measuring purposes. Setting and removal of the reticle scale are easy.

|               |                                      |
|---------------|--------------------------------------|
| Magnification | : 3X                                 |
| Field of view | : 58 mm $\phi$                       |
| Effective dia | : 59 mm $\phi$                       |
| Reticle scale | : 54 mm (Min. scale division 0.1 mm) |
| Size          | : 76×105×96 mm                       |
| Net weight    | : 378 gm.                            |



## PEAK FOLDING LUPE

The Peak Folding Lupe is a multi-purpose desk lupe. The large lens of 2X magnifying power is set as a main lens, accompanied by two small lenses having magnifying power of 5X and 10X respectively.

This folding lupe is supported by two metal legs which give a steady standing position when unfolded for use. Compact folds are easy to carry or put away.

The main lens with dimensions of  $103 \times 139$  mm, made of acrylic resin, has been given a silicone-based hard coating. Clear and wide viewing can be obtained. The lens of 5X and 10X magnifying power will be of use when the magnifying power of 2X is not sufficient.

This lupe is ideal for many uses such as inspections, observations as well as for making handicrafts. Especially helpful for checking of film and prints index.

We have prepared a protective cover for putting over the folding lupe when the lupe is not used. Placing the lupe under direct sunlight will constitute a fire hazard.

### Lens size and magnifications:

G1 :  $103 \times 139$  mm    2X

G2 :  $20 \times 25$  mm    5X

G3 :  $15\text{mm } \phi$     10X

### Overall dimensions:

$180 \times 295 \times 145$  mm (at operating position)

$180 \times 180 \times 39$  mm (when folded)

Net Weight: 456 gm.

No. 1994-2

No. 1994-4



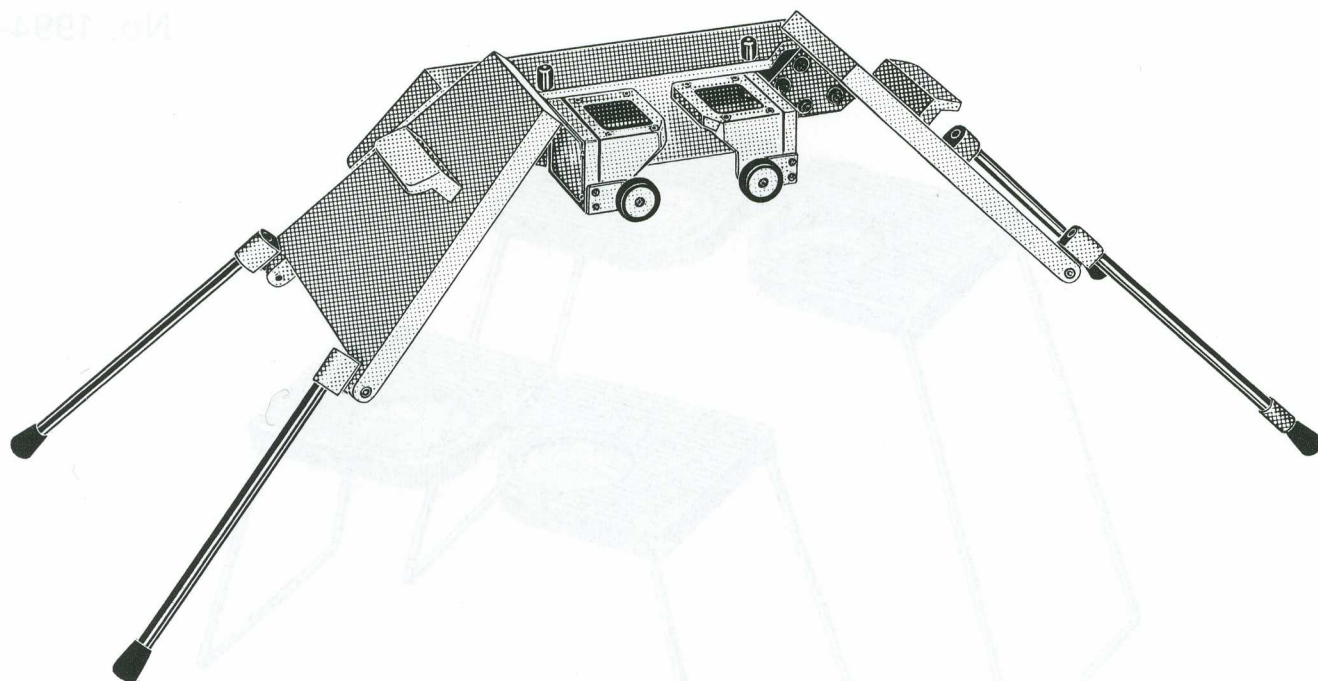
## PEAK STEREO VIEWER

The Peak Stereo Viewer is a simple device designed for viewing a set of three dimensional aerial photos in three dimension.

This viewer is supported by two metal legs which are unfolded to a standing position. The viewer is then placed over the aerial photos, which are spread out on a flat surface, and the photos are viewed through the two lenses simultaneously with both eyes. The coated lenses are 32 mm in diameter and magnifying power of No. 1994-2 is two and of No. 1994-4 is four times. The lenses can be easily adjusted for eye-to-eye width.

In general, of the overlapping set of photos, the one with the lower number is placed on the left side and the photo with the higher number on the right side. If this is not performed correctly, a mountain, for example, will look like a valley.

|                |               |              |
|----------------|---------------|--------------|
| Item No.:      | No. 1994-2    | No. 1994-4   |
| Magnification: | 2×            | 4×           |
| Size:          | 160×70×120 mm | 150×65×85 mm |
| Net weight:    | 250 gm.       | 250 gm.      |



## PEAK MIRROR STEREO VIEWER

Peak Mirror Stereo Viewer is used to solid-geometrically view and investigate stereo pictures, especially aerial photographs, and an indispensable tool for surveys in agriculture, forestry, civil engineering, architecture, regional development projects, etc. The equipment consists of the viewer body mainly composed of the optical system and the mirror section in which optical axes are fixed. One of legs is provided with a length adjusting device so that the equipment is supported stably during observation. The loupe can be set with a single action, and replaced depending on the application.

### How to use Peak Mirror Stereo Viewer

1. Prepare a pair of stereo pictures.
2. Arrange the pictures side by side with duplicated parts (shaded) on the pictures facing inside (Fig. 1). Let the lefthand one be left and the righthand one be right.
3. Determine principal point A on left picture. The principal point is defined as the intersection of lines passing the midpoints on opposite sides of a picture. Determine principal point B on right picture in the same manner.

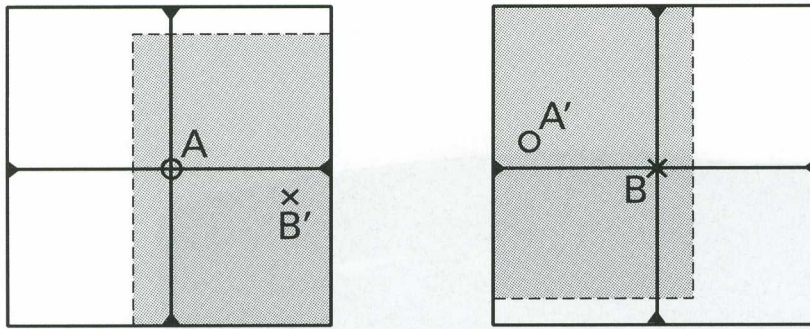


Fig. 1

4. Next, find the point on right picture corresponding to principal point A, and let the point be A'. Then, find point B' on left picture in the same way.
5. Rearrange pictures so that four points A, B', A' and B align on a line. A transparent ruler will be useful for this work. (Fig. 2)

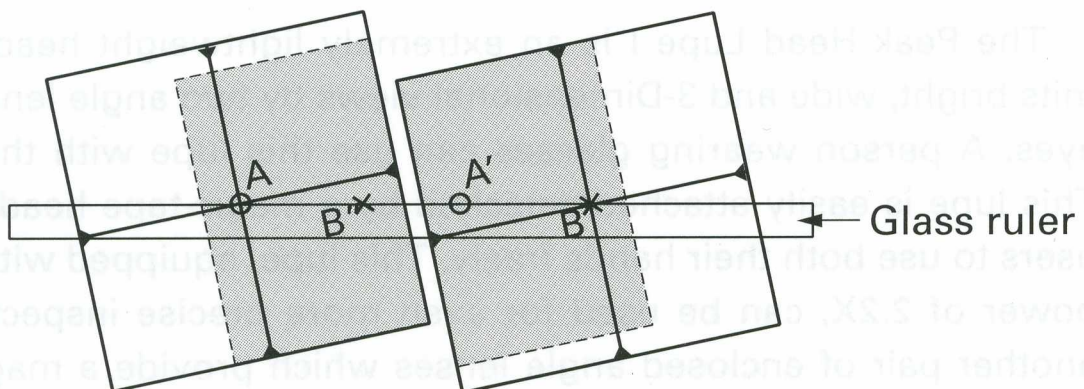


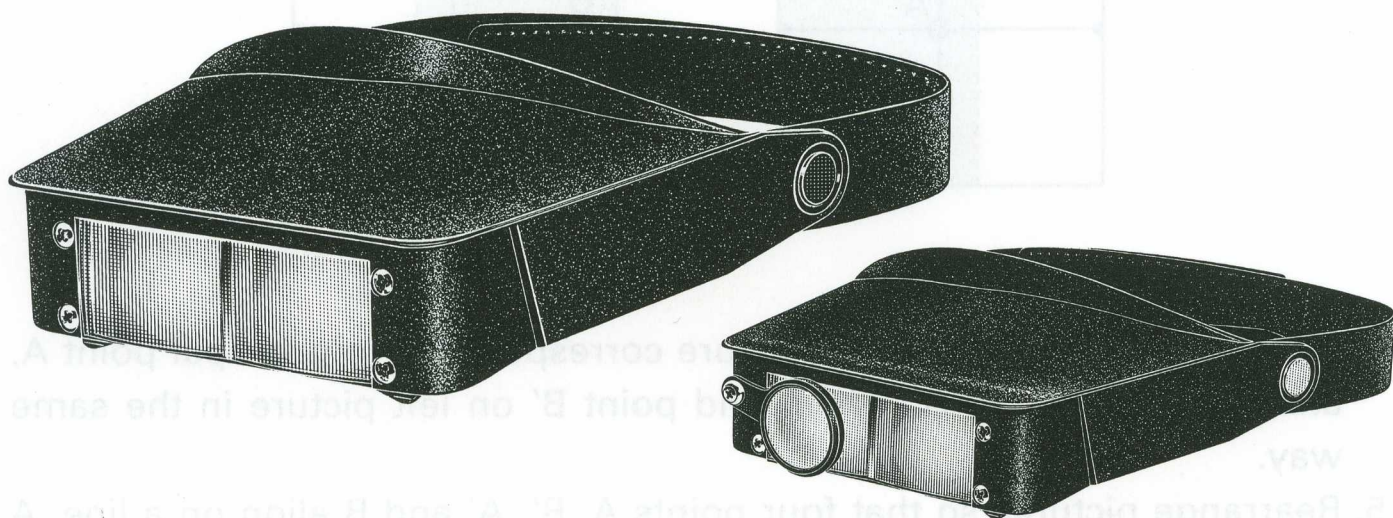
Fig. 2

6. Stretch legs of the viewer, and make adjustment using the length adjusting screw so that the equipment is set up stably and parallel to the arranged pictures.
7. Make adjustment of the spacing between pictures by moving the pictures along the line A, B', A' and B until images on the pictures are aligned.

|                              |                |
|------------------------------|----------------|
| Base line spacing:           | 260 mm         |
| Magnification of loupe:      | 2X             |
| Field of view without loupe: | 260×200 mm     |
| Field of view with loupe:    | 210×150 mm     |
| Maximum size set up:         | 713×267×255 mm |
| Net weight:                  | 2,650 gm.      |

No. 2035-I

No. 2035-II



## PEAK HEAD LUPE

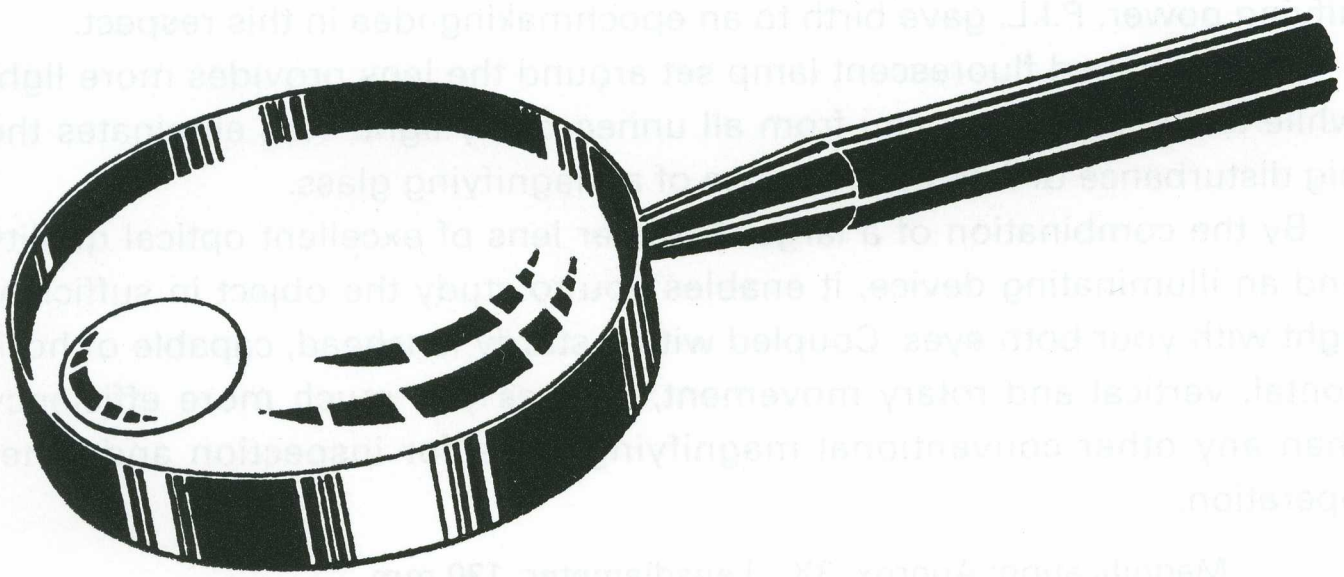
The Peak Head Lupe I is an extremely lightweight head-lupe and permits bright, wide and 3-Dimensional views by two angle lenses suitable for eyes. A person wearing glasses can use this lupe with their glasses on. This lupe is easily attached/detached by a magic-tape headband, allowing users to use both their hands freely. This lupe, equipped with a magnifying power of 2.2X, can be used for even more precise inspection by adding another pair of enclosed angle lenses which provide a magnifying power of 3.3X.

Moreover, the Peak Head Lupe II, by adding an attachment lens to the front of Head Lupe I, can have such power variations of 4.1X and 5.2X besides of 2.2X and 3.3X.

Superior functions of this lupe are best suited for such operations as professional precision processing, photoengraving, photography, and this lupe also serves in hobbies of model assembling, engraving and precision drawings.

Use alcohol to clean lenses. Other chemicals will whiten the lenses because they lenses are made of resin.

|                | No. 2035-I    | No. 2035-II             |
|----------------|---------------|-------------------------|
| Magnification: | 2.2X, 3.3X    | 2.2X, 3.3X, 4.1X & 5.2X |
| Size:          | 190×70×250 mm | 190×70×258 mm           |
| Net weight:    | 110 gm.       | 118 gm.                 |



## PEAK PARASITE LUPE

We have now added a new Peak Parasite Lupe to our highly reputed series of Peak magnifiers. The new Peak Parasite Lupe is an improved version of the conventional magnifying glass.

A cute 20 mm diameter parasite-like lens is cemented on a large 75 mm diameter lens. The magnification of the large lens is 2.5X, while that of the small lens has a compound magnification of 5X. The lens is of high grade crown glass, and the magnified image is very sharp and clear.

This simple idea has proved to be very effective, and uses for this magnifier are unlimited not only in the ordinary household but in specialized fields. Try it once. You'll agree with us that it is most convenient and versatile.

Magnification: 2.5X, 5X

Lens diameter: 75 mm  $\phi$  (2.5X), 20 mm  $\phi$  (5X)

Size: 78  $\phi$   $\times$  170 mm

Net weight: 111 gm.

# PEAK ILLUMINATING LUPE

Optical quality of a magnifying lens cannot be judged by its magnification alone. The problem of illumination is not less important than the magnifying power. P.I.L. gave birth to an epochmaking idea in this respect.

A ring shaped fluorescent lamp set around the lens provides more light while a shade protects you from all unnecessary light. This eliminates the big disturbance of fatigue in the use of a magnifying glass.

By the combination of a large diameter lens of excellent optical quality and an illuminating device, it enables you to study the object in sufficient light with your both eyes. Coupled with a sturdy lenshead, capable of horizontal, vertical and rotary movement, it gives you much more efficiency than any other conventional magnifying glass for inspection and other operation.

Magnification: Approx. 3X    Lensdiameter: 130 mm

Illumination: Circular fluorescent lamp 100—110V. 20 W.

(will be designed for special voltages)

## P.I.L. A

Affording higher efficiency in all manufacturing and inspecting proceed, P.I.L. A is particularly suited for use in machining and assembling of precision equipment, textiles, medical and biological specimens, photographs.

Size: 230 × 445 × 380 mm

Net weight: 2,900 gm.

No. 1977-A



## P.I.L. AUXILIARY LENS

A 60 mm diameter 3X magnifier. Place on the P.I.L. Lens, it increases the magnification to 5X for more accurate observation.

No. 1980



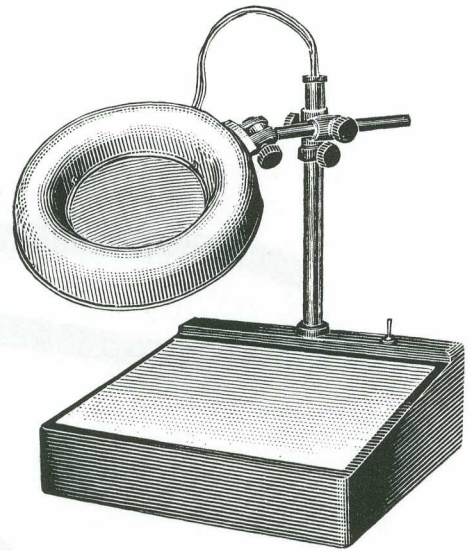
## P.I.L. B

No. 1977-B

Illumination is provided not only along the circumference of lens as in P.I.L. A, but also the bed box contains the same circular fluorescent lamp and through the opaque resin plate, the object having the light from both side will be embossed or transparently inspected.

Thus, P.I.L. B is particularly convenient for the gauge adjustment, identification of bank notes, postage stamps and securities, checking textiles and films, photo-retouching etc.

Size 315×445×380 mm  
Net weight: 4,450 gm.



## P.I.L. C

No. 1977-C

P.I.L. C has sturdy arms that give much freedom of movement expanding the versatility to the large diameter lens with a ring-type fluorescent lamp.

Size: 230×190×715 mm  
Net weight: 3,000 gm.



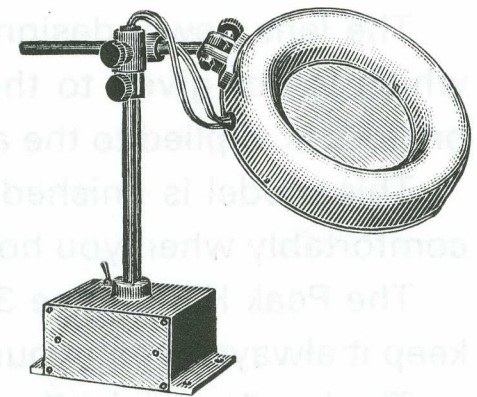
## P.I.L. D

No. 1977-D

P.I.L. D is available by economy price because of its simplified structure.

It has a metal-plate fitting in place of bed or light box and by this device, it will be fixed at every place the user wants to handle.

Size: 230×445×300 mm  
Net weight: 2,350 gm.



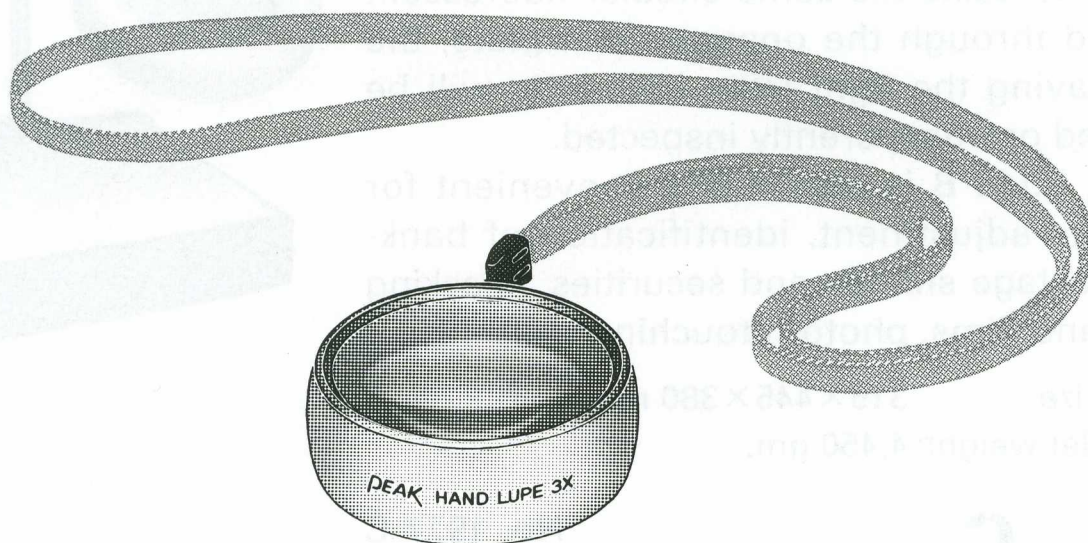
## P.I.L. E

No. 1977-E

This model is light weight handy type. Electric outlet is separated from the magnifying lens for easy carry.

Size: 235×420×650 mm  
Net weight: 1,800 gm.





## PEAK HAND LUPE 3X

We have produced an improved version of the Peak Hand Lupe 3X which kept a high reputation for a long time so far.

The lens newly designed for this version is covered with multicoating, which is not given to the magnifying lens usually. The latest full-metal process is applied to the aluminum barrel.

This model is finished in soft curved structure, getting to fit your palm comfortably when you hold it.

The Peak Hand Lupe 3X is ideal for observation and inspection. Please keep it always within your reach on the table and even at outdoors.

The hand-sewn leather case matches high quality of this excellent lupe.

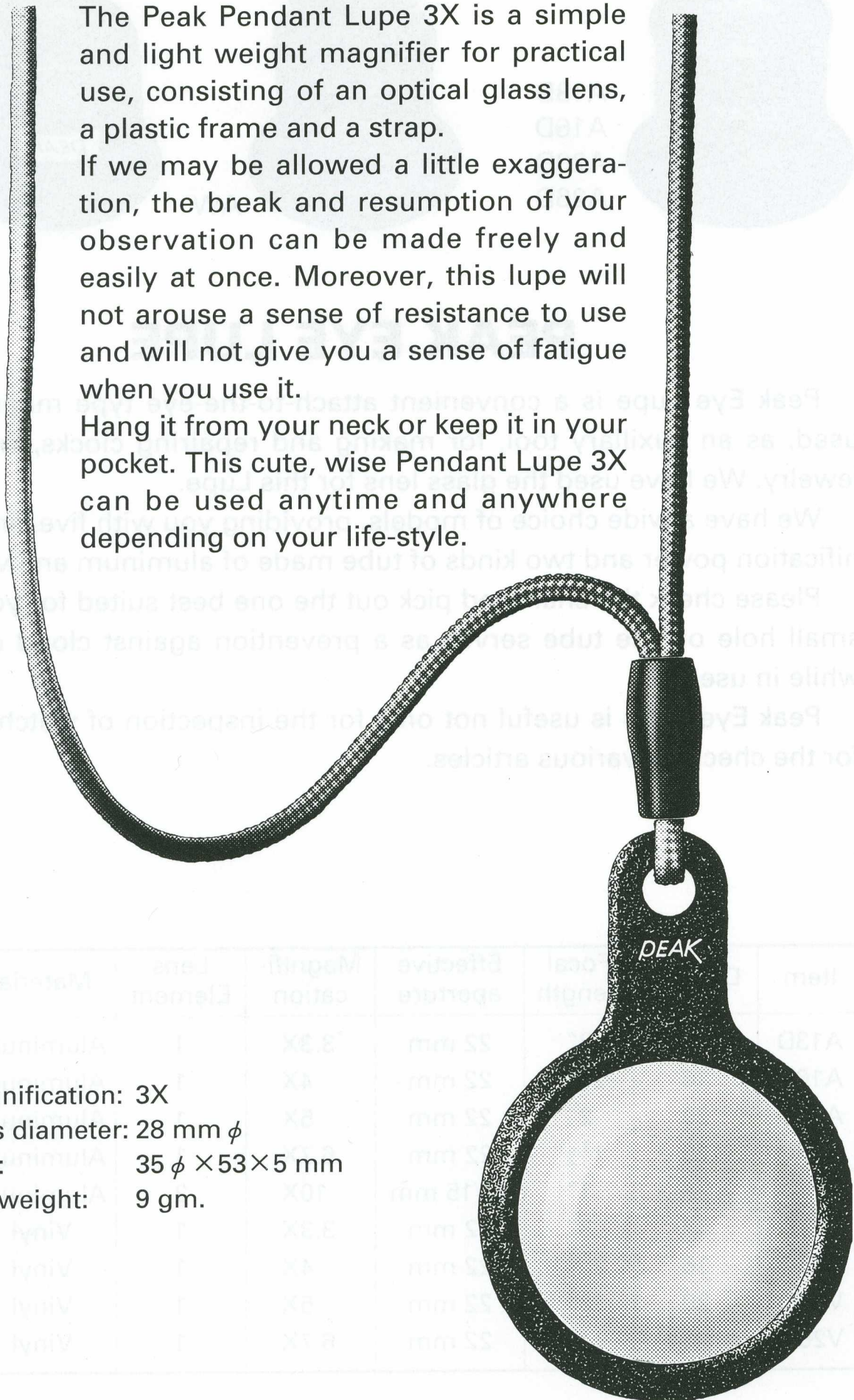
|                |                          |
|----------------|--------------------------|
| Magnification: | 3X                       |
| Lens diameter: | 50 mm $\phi$             |
| Size:          | 60 $\phi$ $\times$ 20 mm |
| Net weight:    | 80 gm                    |
| Accessory:     | Case strap               |

## PEAK PENDANT LUPE 3X

The Peak Pendant Lupe 3X is a simple and light weight magnifier for practical use, consisting of an optical glass lens, a plastic frame and a strap.

If we may be allowed a little exaggeration, the break and resumption of your observation can be made freely and easily at once. Moreover, this lupe will not arouse a sense of resistance to use and will not give you a sense of fatigue when you use it.

Hang it from your neck or keep it in your pocket. This cute, wise Pendant Lupe 3X can be used anytime and anywhere depending on your life-style.

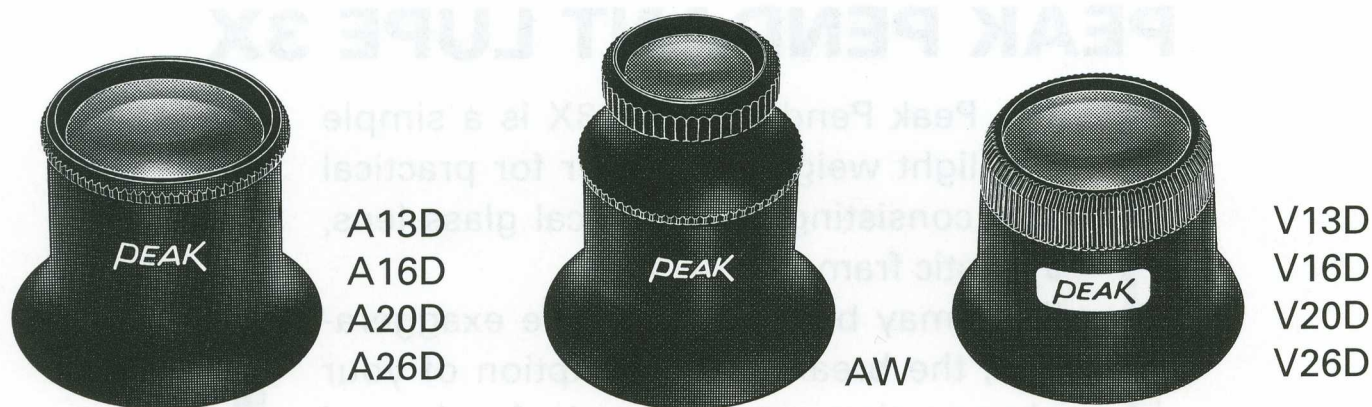


Magnification: 3X

Lens diameter: 28 mm  $\phi$

Size: 35  $\phi$   $\times$  53  $\times$  5 mm

Net weight: 9 gm.



## PEAK EYE LUPE

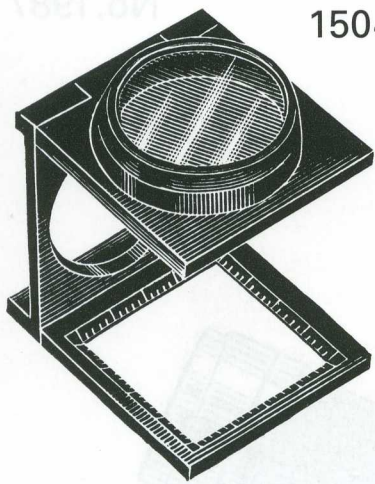
Peak Eye Lupe is a convenient attach-to-the-eye type magnifier to be used, as an auxiliary tool, for making and repairing clocks, watches and jewelry. We have used the glass lens for this Lupe.

We have a wide choice of models, providing you with five kinds of magnification power and two kinds of tube made of aluminum and vinyl.

Please check the chart and pick out the one best suited for your work. A small hole on the tube serves as a prevention against cloud on the lens while in use.

Peak Eye Lupe is useful not only for the inspection of watches but also for the check on various articles.

| Item | Diopter | Focal Length | Effective aperture | Magnification | Lens Element | Material | Net weight |
|------|---------|--------------|--------------------|---------------|--------------|----------|------------|
| A13D | 13      | 3"           | 22 mm              | 3.3X          | 1            | Aluminum | 10 gm.     |
| A16D | 16      | 2½"          | 22 mm              | 4X            | 1            | Aluminum | 10 gm.     |
| A20D | 20      | 2"           | 22 mm              | 5X            | 1            | Aluminum | 10 gm.     |
| A26D | 26      | 1½"          | 22 mm              | 6.7X          | 1            | Aluminum | 11 gm.     |
| AW   | 38      | 1"           | 20/15 mm           | 10X           | 2            | Aluminum | 13 gm.     |
| V13D | 13      | 3"           | 22 mm              | 3.3X          | 1            | Vinyl    | 6 gm.      |
| V16D | 16      | 2½"          | 22 mm              | 4X            | 1            | Vinyl    | 6 gm.      |
| V20D | 20      | 2"           | 22 mm              | 5X            | 1            | Vinyl    | 6 gm.      |
| V26D | 26      | 1½"          | 22 mm              | 6.7X          | 1            | Vinyl    | 6.5 gm.    |



1504WA3



3407SA0



3407SA3



1209WZ3

## PEAK LINEN TESTER

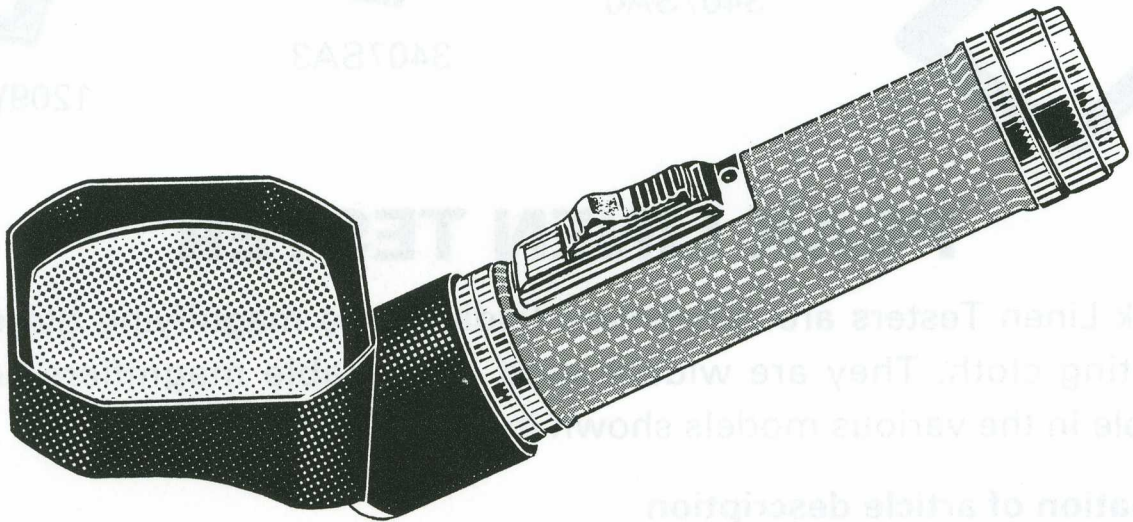
Peak Linen Testers are convenient folding type magnifying glasses for inspecting cloth. They are widely used as portable magnifiers and are available in the various models shown in the following chart.

### Explanation of article description

- \* First two numbers of four show the length of base on which each scale is marked. (e.g. 12 = 1/2", 34 = 3/4", 10 = 1")
- \* Last two numbers of four show the magnification. (e.g. 09 = 9X, 07 = 7X)
- \* S shows single lens and W shows double lenses.
- \* A shows frame of aluminum and Z shows of zinc.
- \* The last number shows the surface treatment of metal frame. (e.g. 0 = silver paint, 3 = black paint)

| Item    | Base Size in. | Base Size mm | Magnification | Lens Element | Material | Surface Treatment |
|---------|---------------|--------------|---------------|--------------|----------|-------------------|
| 1209SA0 | 1/2           | 10           | 9X            | 1            | Aluminum | Solid color       |
| 3407SA0 | 3/4           | 15           | 7X            | 1            | Aluminum | Solid color       |
| 1006SA0 | 1             | 25           | 6X            | 1            | Aluminum | Solid color       |
| 1209SA3 | 1/2           | 10           | 9X            | 1            | Aluminum | Black             |
| 3407SA3 | 3/4           | 15           | 7X            | 1            | Aluminum | Black             |
| 1006SA3 | 1             | 25           | 6X            | 1            | Aluminum | Black             |
| 1209WZ3 | 1/2           | 10           | 9X            | 2            | Zinc     | Black             |
| 3408WZ3 | 3/4           | 15           | 8X            | 2            | Zinc     | Black             |
| 1006WZ3 | 1             | 25           | 6X            | 2            | Zinc     | Black             |
| 1504WA3 | 1 1/2         | 30           | 4X            | 2            | Aluminum | Black             |
| 2003WA3 | 2             | 50           | 3X            | 2            | Aluminum | Black             |

Combination inch/mm graduations for base size are also available.



## PEAK LIGHT LUPE 3.5X

This magnifying glass, with its large square lens and an illuminating device, enables hikers or drivers to read a map during the night. The details of a map can be brightly and clearly magnified. Its frame is made of high-impact styrol which is elastic and does not change through the years. The handle takes two UM-2 (1.5V) dry cells.

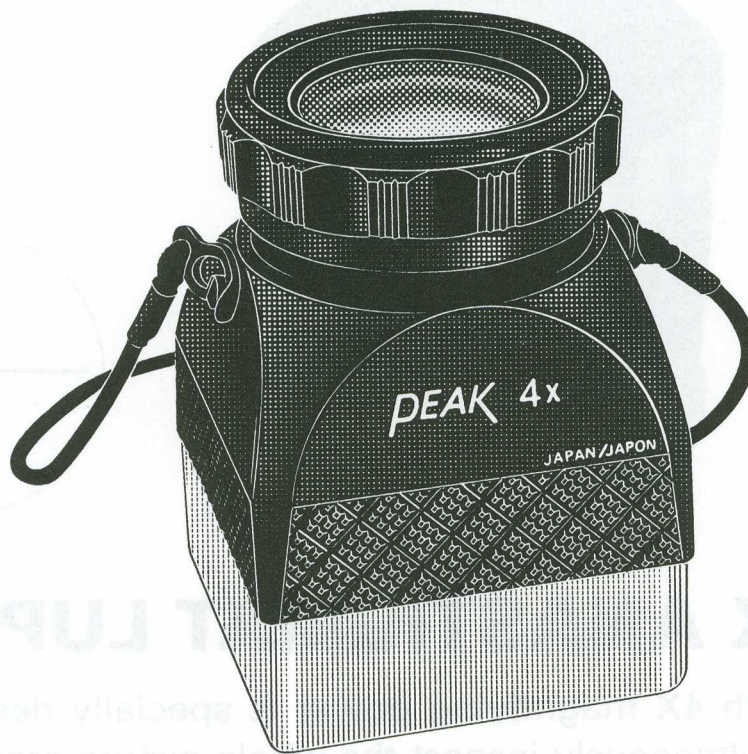
Used for ordinary flashlights (by detaching the lens): surveying maps, varied graphs, films, meters, and processing products, etc.

Magnification: 3.5X

Size: 60×75×190 mm

Net weight: 120 gm.

Battery: UM-2 (1.5V) × 2



## PEAK LUPE 4X

Peak Lupe 4X uses a high-resolution achromatic lenses whose chromatic aberration has been corrected. With its wide square vision of  $45 \times 45$  mm and a clever and smart design of its body, it will be useful not only in your daily life but also in various fields as an able assistant for precision works.

Particularly, semi-transparent and black bottom skirts are provided which allow one-touch changing operation, and it will be very convenient for observation if you select any one of them depending upon lighting conditions. For instance, you may use the semitransparent skirt for checking photographic films, and may install the black skirt for checking the focus of a large-format camera.

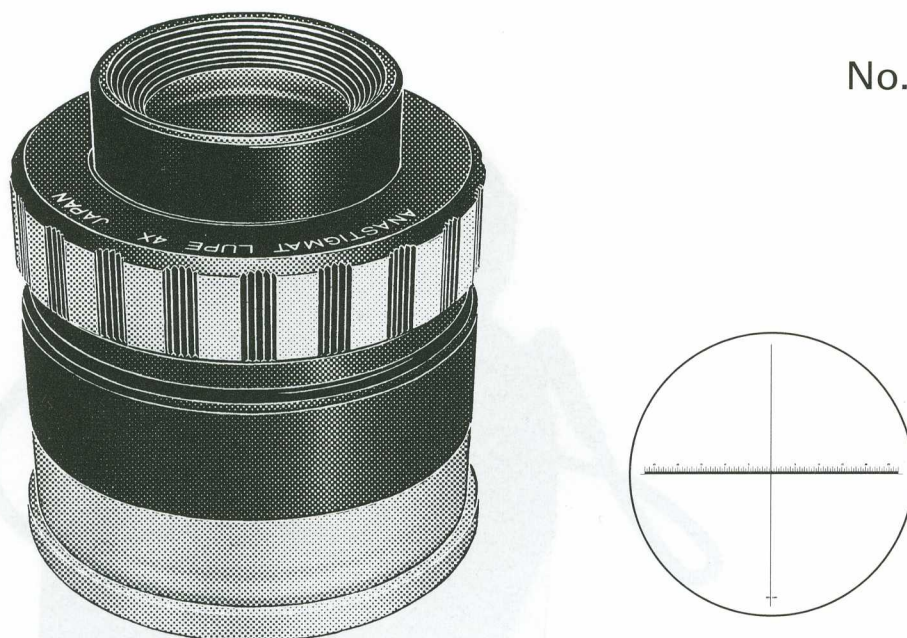
In addition, for the focus adjustment of this loupe, a multi-groove screw helicoid system is adopted, which is ordinarily used for camera lenses, thereby ensuring very smooth operation. The neck strap attached will also increase operational efficiency several times.

Magnification: 4X

Field of view:  $45 \times 45$  mm

Size:  $51 \times 65 \times 51$  mm

Net weight: 80 gm.



## PEAK ANASTIGMAT LUPE 4X

This loupe with 4X magnifying power is specially designed to enable observers to simultaneously inspect the whole picture area of the standard micro-film size, i.e. 32 mm  $\times$  45 mm, or flat objects less than 58 mm in diameter. The image observed through the loupe is critically sharp from the center to the edge of the image field, because of the careful optical correction of the loupe for the astigmatism and the curvature of field as well as aberrations concerning the image of the central image. Ordinary magnifiers are corrected only for the central image. In this respect this loupe is quite similar to anastigmatic photographic lenses, and is manufactured with the same care and precision as they are.

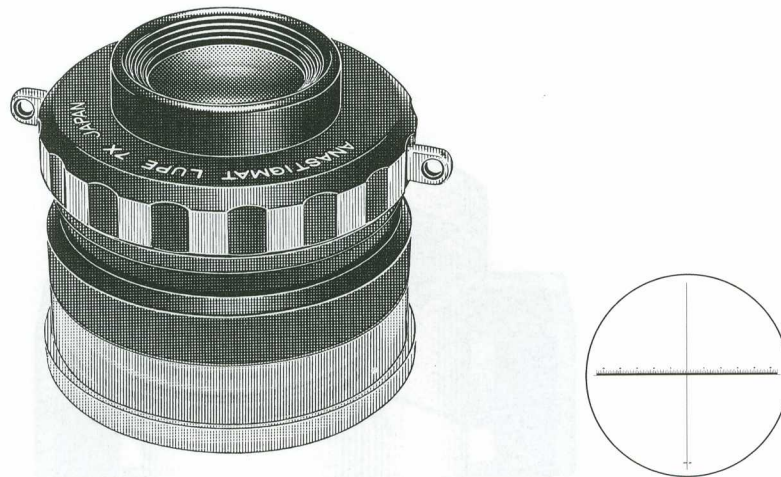
One point which distinguishes this loupe from photo-lenses is that the position of the effective pupil of the loupe has been placed as far as 25 mm above the upper pole of the loupe, so that an observer can inspect the whole image field by merely moving his eyeball, without moving his face. This is an extremely advantageous feature for a micro-filmer, because it enables him to inspect a number of negatives very speedily and comfortably.

Therefore, this loupe is recommended as the most suitable model if an extended area is to be inspected at one time, such as when inspecting negatives and color slides of 35 mm size (24 mm  $\times$  36 mm) as well as standard size micro-films.

A detachable glass scale, as shown in the illustration, is also provided at the position of the object plane of the loupe, to enable the observer to measure the size of the object very simply and easily.

As an additional accessory, black acrylic pipe is provided.

In case what you need is not a whole view of the object but an extended part of the object, Peak Anastigmat Lupe 7X is a suitable mode for your purpose.



## PEAK ANASTIGMAT LUPE 7X

The Peak Anastigmat Lupe 7X has taken over the optical system of Peak Anastigmat Lupe 4X, improving the magnifying power as high as 7 times.

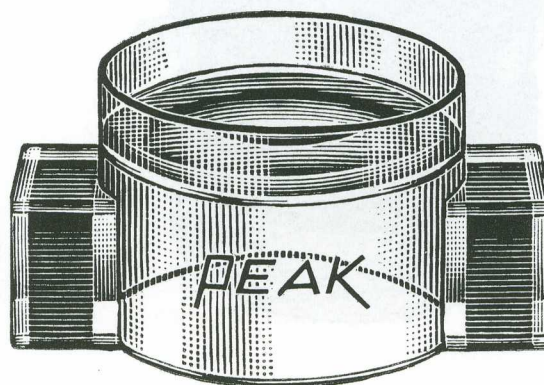
You can use Anastigmat Lupe 4X to check the whole picture area of film of  $32 \times 45$  mm or of 46 mm diameter and in case only a part of the object is to be inspected with high magnifying power, Peak Anastigmat Lupe 7X is the best for the job. It can be said that this usage is ideal for effective and precise inspection of the objects by the anastigmatic system. As for this system, please refer to the pamphlet enclosed.

A reticle scale is provided in the unit so that you will be able to get the measurements of object easily and simply.

A strap is also attached to the Lupe. This strap will be helpful for the focusing of large-size camera or the check of film at a photographing spot.

As an additional accessory, black acrylic pipe is provided.

|                      |                          |                                       |
|----------------------|--------------------------|---------------------------------------|
| Item No.:            | No. 1990-4               | No. 1990-7                            |
| Magnification:       | 4X                       | 7X                                    |
| Field of view:       | 58 mm $\phi$             | 41 mm $\phi$                          |
| Effective aperture:  | 30 mm $\phi$             | 22 mm $\phi$                          |
| Min. scale division: | 0.1 mm                   | 0.1 mm                                |
| Working distance:    | 54 mm                    | 36 mm                                 |
| Size:                | 73 $\phi$ $\times$ 77 mm | 55 $\phi$ $\times$ 53 mm (Strap-clasp |
| Net weight:          | 272 gm.                  | 103 gm. not included)                 |
| Accessory:           | Black acrylic pipe       | Black acrylic pipe                    |



## PEAK MAGNETIC MAGNIFIER

A completely new model magnifying glass has been added to the line of popular, high quality Peak magnifiers.

The Peak Magnetic Magnifier is a unique magnifying glass that has broken away from conventional models. Two small size magnets have been attached on opposing sides at the bottom part of the transparent resin lens barrel. The special feature of this magnifying glass is that it can be easily and conveniently attached on slide calipers, height gauges, micrometers and other measuring instruments made of steel, for increased readability and accuracy.

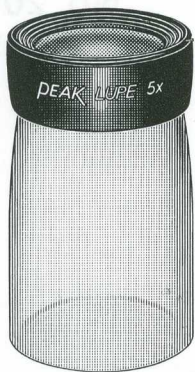
Due to the adhesion quality of the magnets, the magnifier will stay attached to the measuring instrument regardless of its position, that is whether the measuring instrument is used in an upright or slanted position. The magnifier can also be easily moved on the scale. Furthermore, the Peak Magnetic Magnifier can be conveniently used on steel desks or steel panels as a combination paper holder and magnifying glass.

Magnification: Approx. 5X  
Lens diameter: 27 mm  $\phi$   
Size: 30  $\phi$   $\times$  43  $\times$  20 mm  
Net weight: 15 gm.

No. 1960

## PEAK LUPE 5X

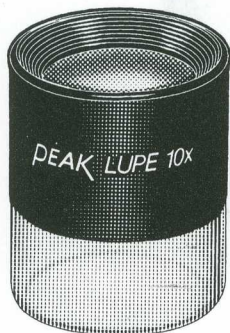
A very practical magnifier, with an acryle tube, for use by the entire family.



No. 1961

## PEAK LUPE 10X

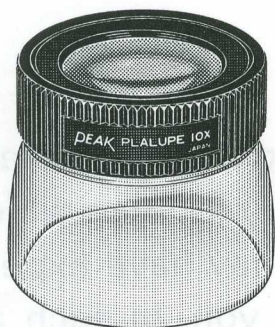
A moderately priced, all-purpose magnifier With large magnification and wide visual field.



No. 2032

## PEAK PLALUPE 10X

An all-purpose magnifier of two separated Plastic lenses, cheap yet optically designed.



No. 1962

## PEAK LUPE 15X

A most useful magnifier with a coated achromatic lens composed of a 2-component, 3-element construction.

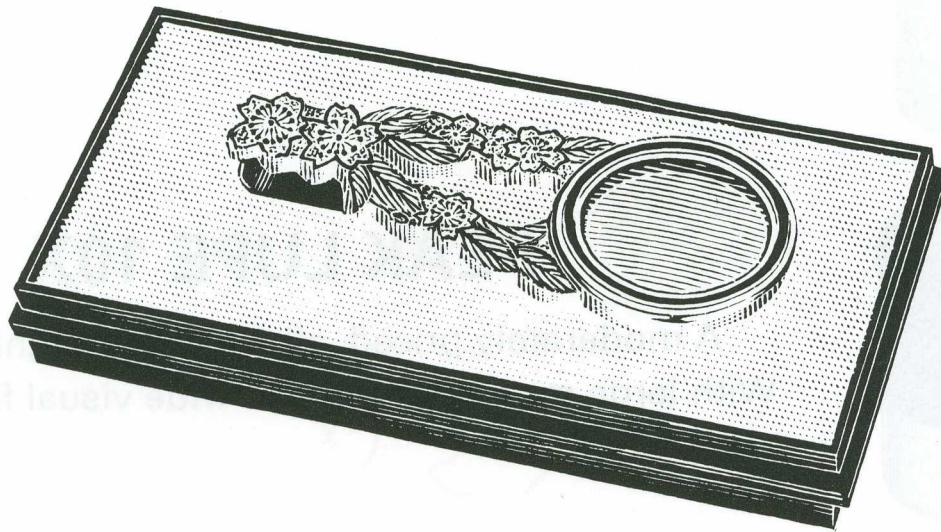


No. 1964

## PEAK LUPE 22X

A high grade, powerful magnifier with a coated achromatic lens composed of a 2-component, 3-element construction.





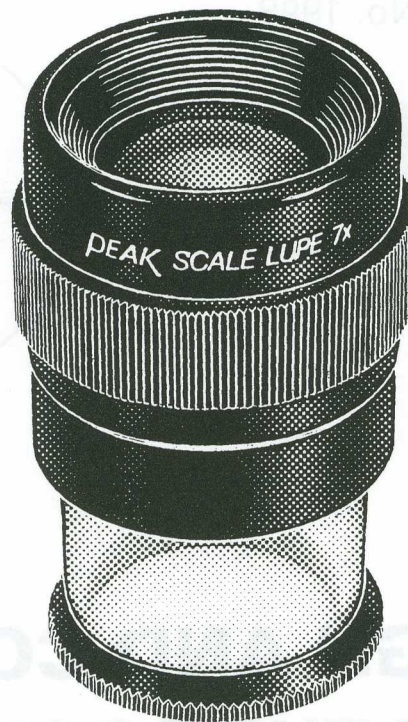
## PEAK TIEPIN LUPE

PEAK TIEPIN LUPE consists of a tiepin and a magnifying lens of an elaborate design set therein, and constitutes a unique accessory for men which also serves for practical purposes. In everyday life, you may have experienced an occasion when you wish you had a lupe with you. In such an occasion, you can immediately remove the tiepin lupe from your necktie and make a full use of the lupe to the amazement and applause of people around you.

The lens is a high quality one made of optical glass and coated on both faces. PEAK TIEPIN LUPE is available in two kinds, 6X and 8X magnifying, from which you can choose.

PEAK TIEPIN LUPES are often used as mementoes and have received wild acclaim of users. We can manufacture the TIEPIN LUPE according to your budget. Please consult us about the design, magnification power, price, etc.

|                |              |              |
|----------------|--------------|--------------|
| Item No.:      | No. 2017-6   | No. 2017-8   |
| Magnification: | 6X           | 8X           |
| Lens diameter: | 15 mm $\phi$ | 15 mm $\phi$ |
| Size:          | 50×16×21 mm  | 50×16×21 mm  |
| Net weight:    | 10 gm.       | 10 gm.       |



## PEAK SCALE LUPE 7X

Peak Scale Lupe is a typical measurement of simplicity, accuracy and low-price.

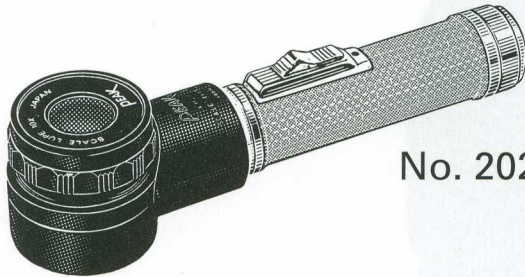
P.S.L. has an excellent achromatic lenses (3 elements, 2 groups) and a photo-printed precise scale. It also has a focusing ring and its magnification is 7 powers.

As all sorts of aberration of lenses are avoided you can easily read the object.

|                     |                          |
|---------------------|--------------------------|
| Magnification:      | 7X                       |
| Effective aperture: | 18 mm $\phi$             |
| Field of view:      | 24 mm $\phi$             |
| Size:               | 36 $\phi$ $\times$ 57 mm |
| Net weight:         | 56 gm.                   |

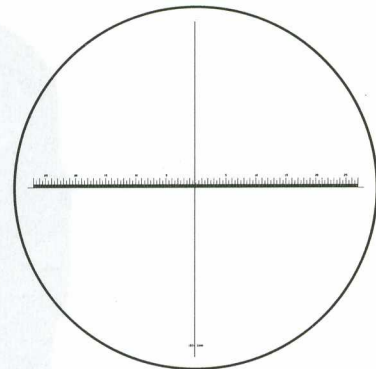


No. 1998



No. 2028

Standard Scale



## DESIGN AND COLOR OF THE SCALE

Basic designs of the scale used for various scale magnifiers are available in the standard scale and P.S. No.1 through P.S. No.12 as shown in left figures.

In addition, various different designs may be necessary depending on the application purpose. In this case, always contact us. We are ready to manufacture any required design, regardless of quantity, by actual marking, chromium evaporation, or silk printing.

Black line may cause difficulty inspection depending on the test piece. Lines in red or white may also be available if so required. Note that the price differs according to color, quantity, and design.

In the case of products No.1975, No.1976, No.1998, No.1999, and No. 2015, the scale design is common with the glass diameter at 26mm. No. 1983, No. 2004, and No. 2028 have the same design, but the glass diameter is 35mm. No. 2016 with the glass diameter at 26 mm is available in four types of the standard scale No.1, No.2, and No.8. It is Standard scale only that is available for No. 2037 and No. 2055.

We undertake production of optical equipment of lens, prism, glass, and measuring instrument to order.

# PEAK SCALE



1975  
Scale  
Lupe 7X



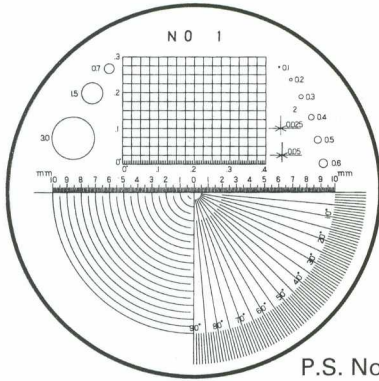
1983  
Scale Lupe  
10X



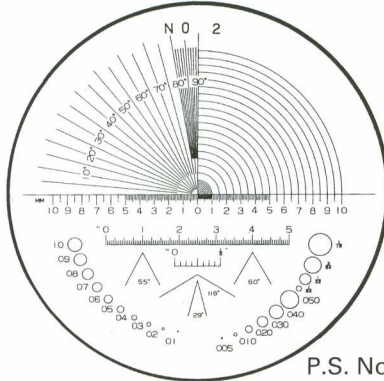
2015  
Mini  
Comparator  
7X



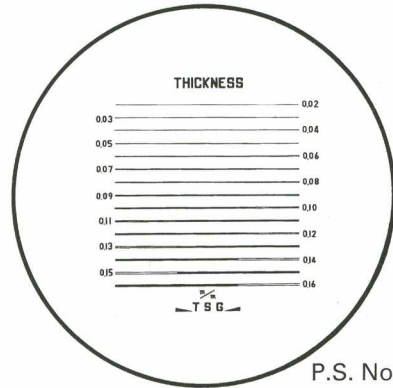
1999  
Telecentric  
Lupe 7X



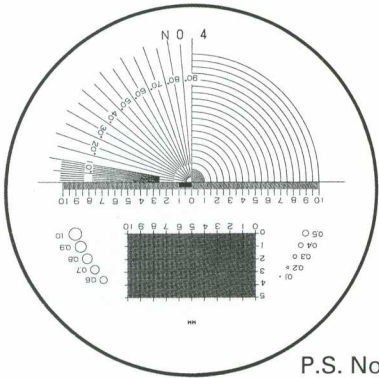
P.S. No. 1



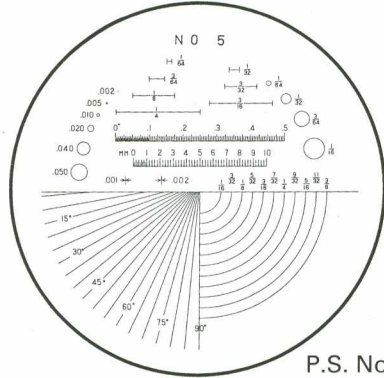
P.S. No. 2



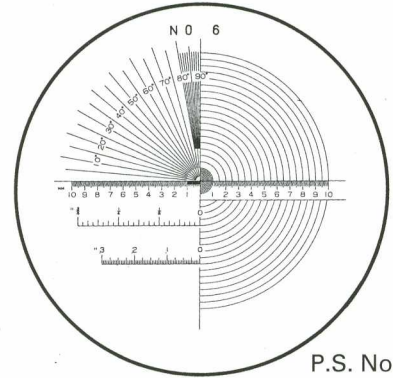
P.S. No. 3



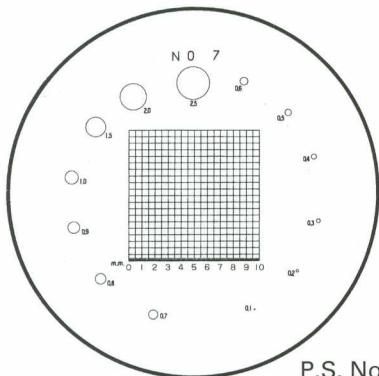
P.S. No. 4



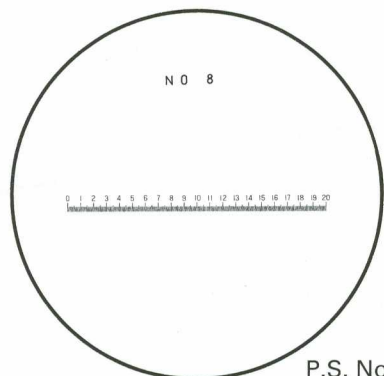
P.S. No. 5



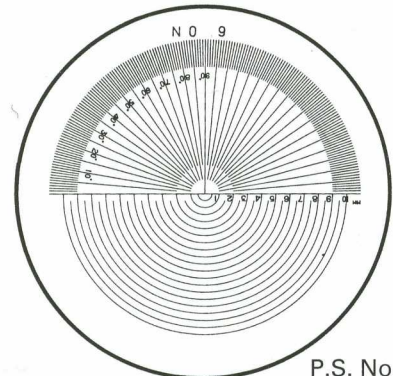
P.S. No. 6



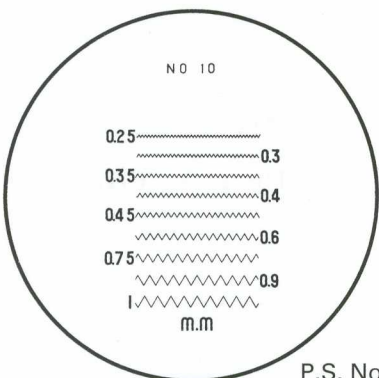
P.S. No. 7



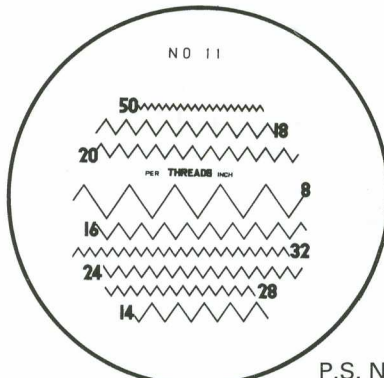
P.S. No. 8



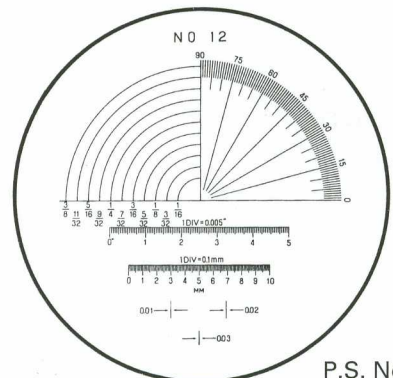
P.S. No. 9



P.S. No. 10



P.S. No. 11



P.S. No. 12



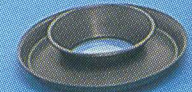
1977-B



1977-A



1977-E



1980

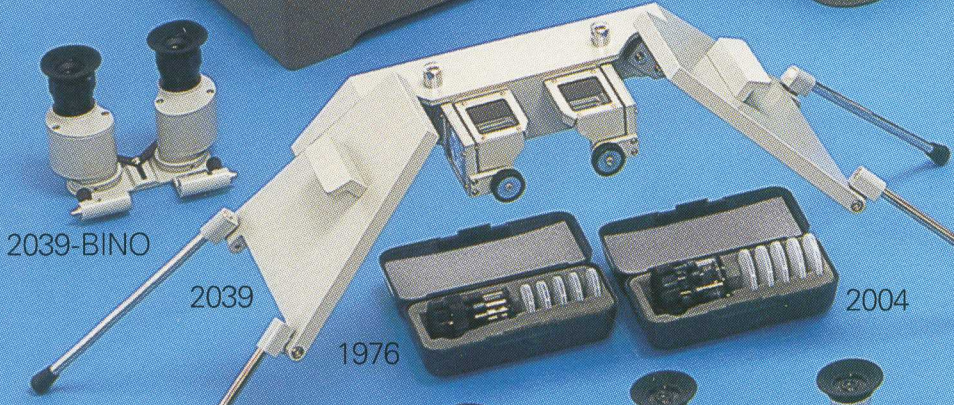


BG Filter

2000



2020

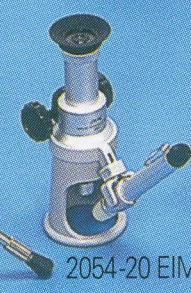


2039-BINO

2039

1976

2004



2054-20 EIM



2054-40 EIM



2054-60 EIM



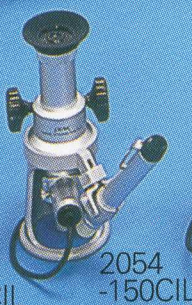
2054-40CIL



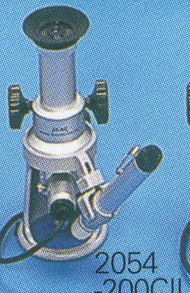
2054-60CIL



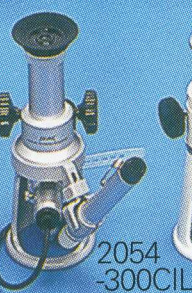
2054-100CIL



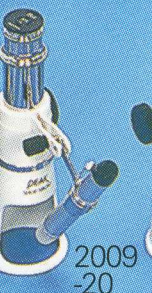
2054-150CIL



2054-200CIL



2054-300CIL



2009-20



1987



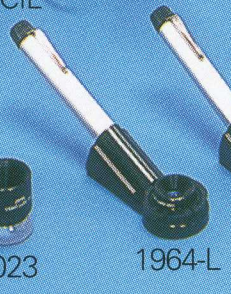
1998



2028



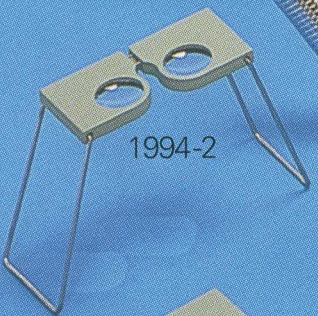
1966



1964-L



2037-L



1994-2



1994-4



2052



1999



1975



2015



1983



2049



2016



2055



2037



2049



2026-20



2026-15



2026-8



2047



1997



1989



2022-75



2022-55



2022-35



2017-8



2017-6



1986



1985-7



1985-16



V13D



V16D



1977-C

2041

1977-D

2033-90

2033-100

2033-115

2035-I

2054-20

2054-40

2054-60

2054-100

2054-150

2054-200

2054-300

209

2009-100

2034-20

2034-40

2034-60

2034-100

2034-150

2034-200

2034-300

5100

2027

2010

2008-25

2008-50

2008-75

2008-100

2008-LH

190-7

1996

1964

1962

2032

2018

2018-PH

2046

2038

2018-SET

1961

1993

1960

1006 SA3

1209 SA0

3407 SA0

1006 SA0

1209 WZ3

3408 WZ3

1006 WZ3

1504 WA3

2003 WA3

1972-300S

2021-15

2021-22

2019

13D

A16D

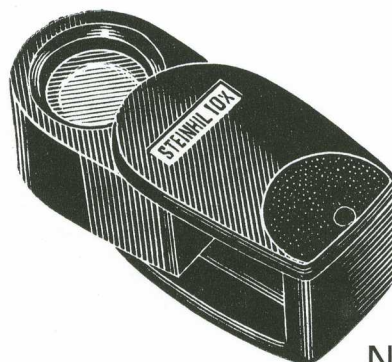
A20D

A26D

AW



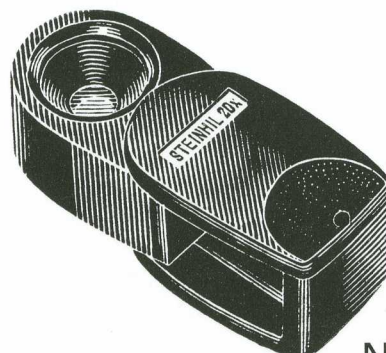
No. 1985- 7



No. 1985-10



No. 1985-14



No. 1985-20

## PEAK STEINHEIL SYSTEM LUPE

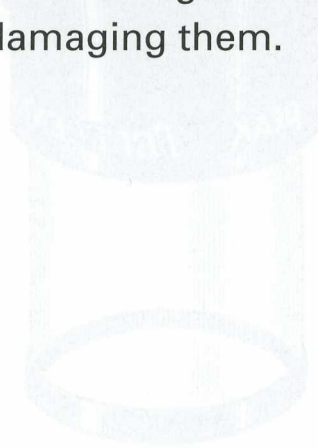
The magnifier of the Steinheil type is composed of a biconvex lens with strong curvatures made of crown glass and two negative meniscus lenses of flint glass cemented on both sides of the central positive component.

These magnifiers of various magnifying powers have been long and widely used for preliminary inspection of microscopic specimens. These are interchangeably mounted on a special stand made for this purpose, which is equipped with a specimen table and a reflecting mirror for illuminating the specimen, just like a stand of ordinary compound microscopes.

The magnifier of this kind is often used also as a hand loupe without the stand, because of its excellent chromatic correction and its reasonably wide field of view. In this case, however, the total weight of it including the thick metal lens-barrel is somewhat cumbersome for carrying it in one's pocket, and further, the naked lens surfaces of soft flint glass are liable to get scratches in daily use.

The new PEAK STEINHEIL LUPE series, consisting of loupes with a magnifying power of 7X, 10X, 14X and 20X respectively, have been designed for pocketable use of these high grade magnifiers. The cemented lens block is mounted on a light weight barrel made of black plastics, and a sliding frame of the same material covers and protects both lens surfaces from dust and mechanical damages. In the working condition, the frame is slidden to form a convenient handle for gripping the loupe.

The new series of loupes can thus be recommended to fans of Steinheil magnifiers who have been hesitating the daily use of them because of their weight and for fear of damaging them.



## PEAK TELECENTRIC LUPE 7X

This is a special purpose loupe with a magnifying power of 7 times. It belongs to that category of scale-loupes with an affixed transparent glass scale which can be placed in contact with the object under examination, so that you can measure the length of the object very easily and accurately. However, the magnifying optical system of this loupe is not conventional, but is "telecentric", i.e. characterized by a small opening fixed at the focal point of the lens system, through which you can measure the length or width of not only flat objects, but also three-dimensional ones such as

| Item No.    | Magnification | Effective aperture | Size        | Net weight |
|-------------|---------------|--------------------|-------------|------------|
| No. 1985-7  | 7X            | 16 mm $\phi$       | 39×24×22 mm | 22 gm.     |
| No. 1985-10 | 10X           | 15.5 mm $\phi$     | 39×24×22 mm | 19 gm.     |
| No. 1985-14 | 14X           | 12 mm $\phi$       | 39×24×22 mm | 18 gm.     |
| No. 1985-20 | 20X           | 7 mm $\phi$        | 39×24×22 mm | 18 gm.     |



## PEAK TELECENTRIC LUPE 7X

This is a special purpose loupe with a magnifying power of 7 times. It belongs to that category of scale-loupes with an affixed transparent glass scale which can be placed in contact with the object under examination, so that you can measure the length of the object very easily and accurately. However, the magnifying optical system of this loupe is not conventional, but is "telecentric", i.e. characterized by a small opening fixed at the focal point of the lens system, through which you can measure the length or width of not only flat objects, but also three-dimensional ones such as small spheres, cylinders etc. without the error caused by parallax. This handy instrument is equivalent in its principle to expensive profile projectors. The lens system, composed of three elements in two groups, has been specially designed for the present purpose.

To use the loupe, first adjust the distance between the glass scale and the lens system by turning the knurled outer barrel until the scale can be sharply observed by your own eye through the opening with the largest

diameter (3 mm), which can be selected simply by turning the turret ring at the top of the loupe. Then place the loupe upon the object to be measured so that the scale plate is incontact with it, and read its length by the scale. The scale is engraved 20 mm in total length at every 0.1 mm interval, so you can measure the length of objects with an error of less than 0.03 mm.

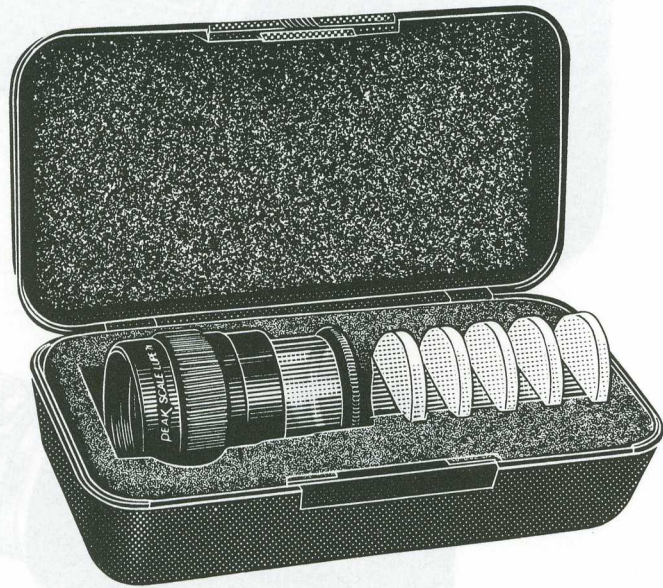
When measuring three-dimensional objects, the opening with the minimum diameter (1 mm), or preferably the one with a slit of 0.5 mm in width should be used; and the orientation of the slit should kept perpendicular to the direction along which the length of the object is to be measured. Even in these cases, the portions of the object that are not in contact with the scale plate may be fuzzy because they are out of focus. However, no error can occur in the measured length, as long as you measure the center-to-center distance of blurred images, thanks to the characteristic of the "telecentric" system. The low brightness of the image due to the small openings can be compensated for by higher illumination of the object.

This loupe can be applied very effectively as a reading aid for mercury thermometers. By putting the end surface of the transparent tube of the loupe (the scale plate of which should, preferably, be taken off) correctly against the thermometer tube, you can read the temperature extremely accurately and without any parallax, even if the mercury thread and the temperature scale are not in the same plane. The slit-form opening is used very effectively in this case, with its orientation kept parallel to the engraved lines of the thermometer scale. (Care should be taken that your body temperature does not affect the temperature to be measured.)

Also, by replacing the transparent tube of the loupe with a tube of the proper length and by putting its end surface squarely on the window of voltmeters etc., you can read the indication of the meterneedle very accurately and without any parallax.

Magnification: 7X  
Field of view: 24 mm  $\phi$   
Size: 38  $\phi$   $\times$  74 mm  
Net weight: 73 gm.

## PEAK SCALE LUPE 7X SET



Size (Case): 150×75×60 mm

Weight: 172 gm. (G.W.)

No. 2004

## PEAK SCALE LUPE 10X SET



Size (Case): 150×75×60 mm

Weight: 199 gm. (G.W.)

In the Peak Scale Lupe 7X and 10X sets we have included the five kinds of scales most widely used from among the 12 kinds of scales shown in the attached diagram. The five different kinds of scales, Nos. 2, 3, 7, 8 and 10, are contained in a plastic box together with the magnifier as a set.

The combination of the five scales can be ordered to meet your individual requirements.

No. 1998

No. 2028



## PEAK LIGHT SCALE LUPE

Attachment of an illuminating device to the Peak Scale Lupe 7X and 10X, widely known as a simple and accurate comparator, has greatly improved its inspection capabilities.

The Peak Light Scale Lupe consists of the magnifying unit and a section to insert two dry cell batteries with a connector in between. Any of the sections can be detached.

Moreover, since there are available a standard scale and 12 other scale models, select the model that fits your requirements.

(Enclosed in an attractive case)

|                |                                       |                                       |
|----------------|---------------------------------------|---------------------------------------|
| Item No.:      | No.1998                               | No.2028                               |
| Magnification: | 7X                                    | 10X                                   |
| Field of view: | 24 mm $\phi$                          | 32 mm $\phi$                          |
| Size:          | 36 $\phi$ $\times$ 58 $\times$ 175 mm | 47 $\phi$ $\times$ 45 $\times$ 185 mm |
| Net weight:    | 118 gm.                               | 134 gm.                               |
| Battery:       | UM-2 (1.5V) $\times$ 2                | UM-2 (1.5V) $\times$ 2                |

# PEAK LUPE 8X

No. 2018

Peak Magnifier 8X is a high performance, smartly designed magnifier. It is very convenient to have around your desk for daily use. This magnifier is specially designed to cover the entire 24 mm×36 mm picture area of single frames of film for 35 mm camera use and is most ideal for checking negatives. This is a high grade magnifier in which a 24 mm×37 mm angular object lens is employed in the optical system to cover single 35 mm frames, and a two-element achromatic lens is used in the eyepiece. On the bottom edge of the skirt of the transparent acryl is engraved a 30 mm long 1mm pitch scale. It can be effectively used according to purpose because it appears without obstructing the field of view.

Magnification: 8X

Field of view: 24×36 mm

Size: 46×49×39 mm

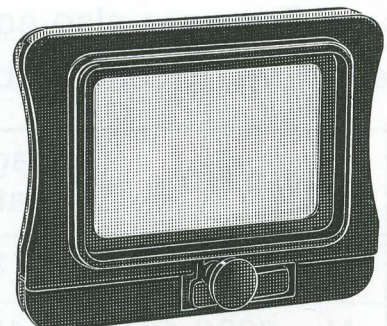
Net weight: 52 gm.



# PEAK PUNCHER & HOLDER

No. 2018-P.H.

Peak Puncher and Holder is a convenient accessory to be fitted to Lupe 8X which is receiving an enthusiastic acclaim from users, and is used for viewing and checking 35mm developed film and color slides. It is a non-efficient and troublesome operation to determine the quality of a long roll film by visual inspection and to affix marks using magic ink or scissors, but if you use Lupe 8X equipped with this puncher and holder, you can depress the puncher and give a V-shaped cut to the film perforation, while you are viewing the film, thereby completing the marking operation correctly and quickly. Fit its surface, on which a push-button for marking is mounted in a slanted state, to the bottom of the Lupe 8X, and you will be able to view and check a roll film, fit its reverse side, Which has grooves for inserting a slide mount, to the bottom of the Lupe 8X, and you will be able to view and check the slide.



Size: 60×47.3×15 mm

Net weight: 13 gm.

No. 2026-8  
 No. 2026-15  
 No. 2026-20



## PEAK HAND-VIEWER 8X

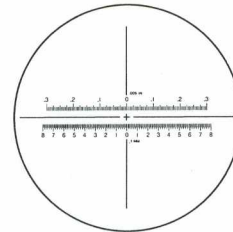


## PEAK MICROFILM VIEWER

PEAK Hand-Viewer 8X is a high quality magnifier with a handle of film insertion part added. The 2-group 3-element lens covers the entire frame of 35 mm film by compensating spherical aberration in spite of comparatively high magnification, thereby making Peak Hand-Viewer 8X suitable for viewing not only general-use film but also microfilm and X-ray film. A scale of 30 mm with a pitch of 1 mm is photografted at the lower edge of skirt and the scale image appears on the viewer without obstructing the field of view.

PEAK microfilm Viewer is a portable viewer which ensures easy and accurate reading of the aperture card and microfiche by means of optical supreme ability. A set of this viewer and film will make it possible to utilize and convey rich information anytime anywhere. 15X and 20X viewer are available. Both types have their lens aberration corrected over the entire field of view and are designed not to fatigue your eyes for longtime use. They are also equipped with a focusing ring. With the light admitting aperture, excellent observation can be made.

| Item No.    | Magnification | Field of view | Size         | Net weight |
|-------------|---------------|---------------|--------------|------------|
| No. 2026-8  | 8X            | 24×36 mm      | 138×46×53 mm | 92 gm.     |
| No. 2026-15 | 15X           | 19 mm $\phi$  | 138×46×44 mm | 91 gm.     |
| No. 2026-20 | 20X           | 11 mm $\phi$  | 138×46×40 mm | 110 gm.    |



scale

## PEAK ZOOM LUPE 816

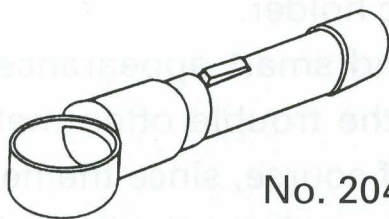
We have produced a number of unique and easy-to-handle loupes, "Peak Lupe Series," to meet users' requirements. The Zoom Lupe 816 is an epochal product designed to permit the stepless change of magnification for zooming operation. Composed of 8 lenses in 6 groups for zooming from 8X to 16X, the optical system of this loupe keeps sufficient brightness in each stage of magnification with the least optical aberration.

The black body, finished with aluminum precision machining similar to camera lenses, allows smooth zooming-in and zooming-out. The click stop helps selection of desired magnification from 8X, 10X, 12X, 14X and 16X shown in a small window.

Before starting observation, move the adjust ring at the bottom of the lens body to select the optimum magnification in accordance with the purpose of inspection. After this selection is completed, finally regulate the adjust ring around the eyepiece so that the mounted scale will be visible clearly. The zooming mechanism changes magnification to allow for continuous observation.

Magnification: 8X to 16X  
 Field of view: 20  $\phi$  to 10  $\phi$   
 Diopter adjust ring: +2.5D to -5D

Size: 45  $\phi$   $\times$  65 mm  
 Min scale division: 0.1 mm, 0.005"  
 Net weight: 149 gm.



No. 2044-LH

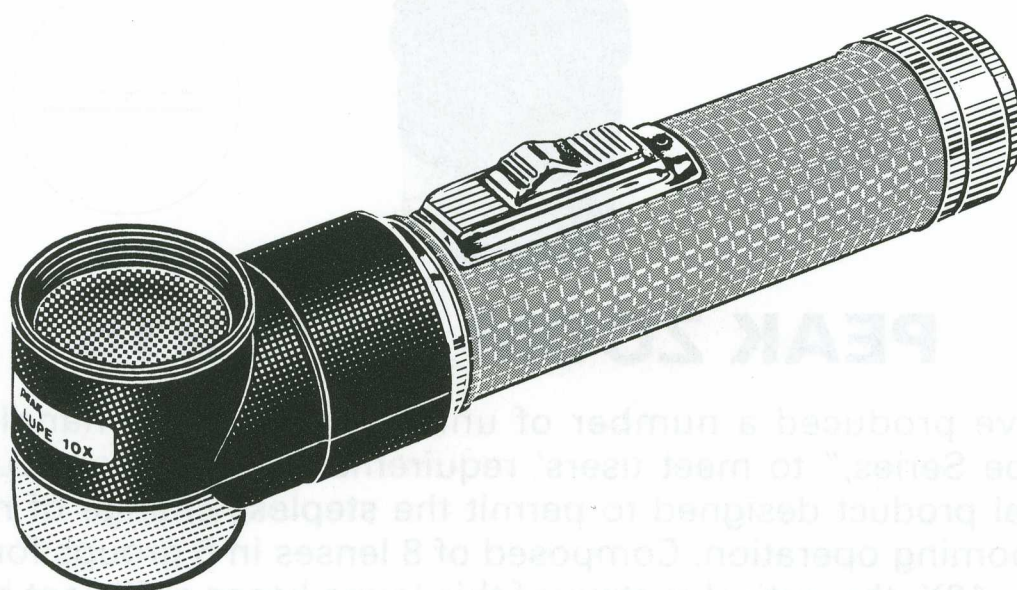


## PEAK LIGHT HOLDER FOR PEAK ZOOM LUPE 816

An illuminating device to supply enough amount of light on the item being observed.

It will make clear examination with unnecessary light cut off and also it will help smooth focusing and zooming operation by holding the illuminator in hand.

Size: 47  $\phi$   $\times$  35  $\times$  185 mm    Net weight: 65 gm.    Battery: UM-2 (1.5V)  $\times$  2



## PEAK LIGHT LUPE 10X

The Peak Lupe Series, now well accepted for its excellent magnifying power both at the workshop and in the home, has recently been expanded with a new addition—Peak Light Lupe 10X.

The Peak Light Lupe 10X is an improved model of the Peak Lupe 10X, an excellent magnifier which is widely used because of its magnifications, field of vision and reasonable price. The new unit features a built-in lighting device that works from a pair of UM-2, 1.5-volts batteries. Powerful, convenient and lightweight, the flashlight is made of metal and the crystal-clear lens is shielded by a hard plastic holder.

With its excellent performance and smart appearance, the Peak Light Lupe 10X is a complete solution to the trouble often met in using a conventional magnifier in a dim place. Of course, since the new unit absorbs a sufficient amount of light, it needs not depend on the lamp in a bright place.

|                |                                       |
|----------------|---------------------------------------|
| Magnification: | 10X                                   |
| Size:          | 36 $\phi$ $\times$ 41 $\times$ 175 mm |
| Net weight:    | 81 gm.                                |
| Battery:       | UM-2 (1.5V) $\times$ 2                |



## PEAK SCALE LUPE 10X

Peak Scale Lupe 10X has precision-constructed achromatic lenses (coated 4 elements, 2 groups), a photo-printed scale and focusing ring. Its magnification is 10 powers.

The contradiction between high resolving power and wide visual field has been completely eliminated from this product so it can provide efficient inspection.

It comes with a convenient carrying case.

|                      |                          |
|----------------------|--------------------------|
| Magnification:       | 10X                      |
| Field of view:       | 32 mm $\phi$             |
| Effective apperture: | 20 mm $\phi$             |
| Size:                | 46 $\phi$ $\times$ 44 mm |
| Net weight:          | 74 grn.                  |



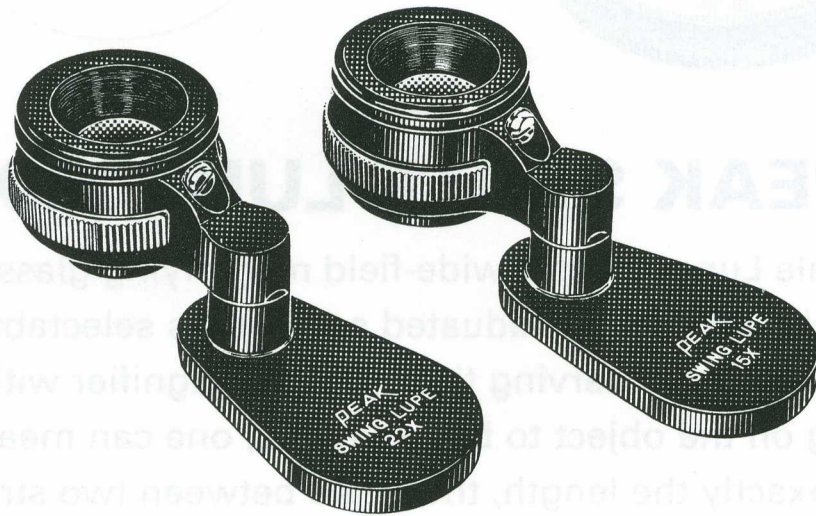
## PEAK SUCKING LUPE 10X

The demand for large size cameras is steadily increasing in recent years. Not only professionals but also amateurs take pleasure in looking into a large bright screen and composing pictures. However, as many photographers have experienced, this source of true pleasure sometimes becomes the source of irritation.

Even veteran photographers sometimes find it time-consuming in obtaining a sharp image, when moving the focus ring, due to the user's eyesight and individual difference.

The newly developed Peak Sucking Lupe 10X will immediately solve this problem. This magnifier was made by attaching a high quality natural rubber attachment to the hitherto highly popular Peak Lupe 10X so that it can be adhered to the focal plane glass by vacuum suction. All you have to do, after attaching this magnifier to the focal plane glass, is to look into it. It can be easily detached after focusing has been completed. We guarantee that the pleasure of using large size cameras will be doubled with the use of this Peak Sucking Lupe 10X.

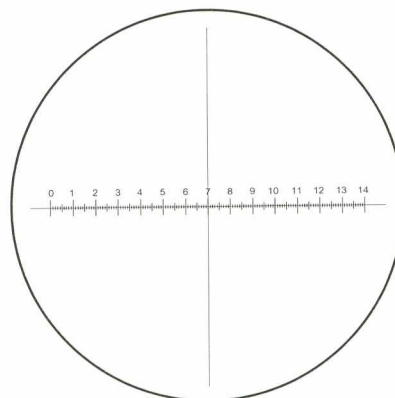
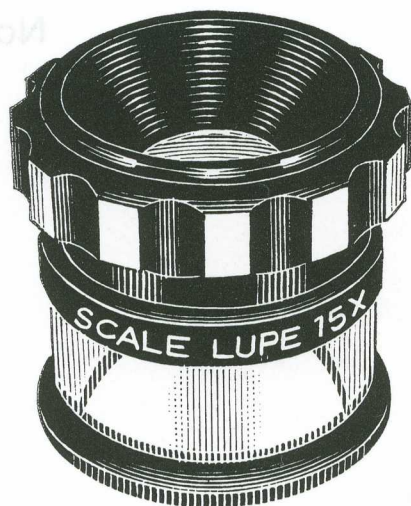
Magnification: 10X  
Field of view: 28 mm  $\phi$   
Size: 60  $\phi$   $\times$  51 mm  
Net weight: 35 gm.



## PEAK SWING LUPE

Peak Swing Lupe has the same optical system as the Peak Lupe 15X and 22X, but features a swing lens support. After focusing, the hands are left free.

|                      |              |              |
|----------------------|--------------|--------------|
| Item No.:            | No. 2021-15  | No. 2021-22  |
| Magnification:       | 15X          | 22X          |
| Effective apperture: | 19 mm $\phi$ | 10 mm $\phi$ |
| Size:                | 55×32×32 mm  | 55×32×32 mm  |
| Net weight:          | 97 gm.       | 96 gm.       |



Standard

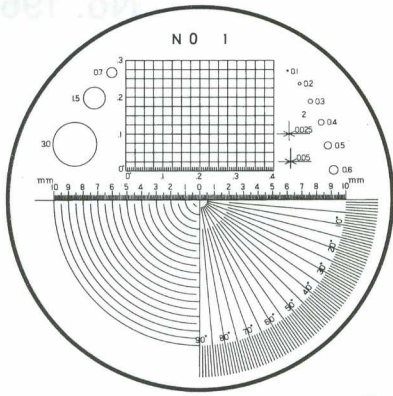
## PEAK SCALE LUPE 15X

The Peak Scale Lupe 15X is a wide-field magnifying glass of magnifying power 15X combined with a graduated scale glass selectable from among four different kinds. By observing through the magnifier with the appropriate scale resting on the object to be examined, one can measure very easily, rapidly and exactly the length, the angle between two straight lines, the radius of curvature of a circular arc etc. of the object.

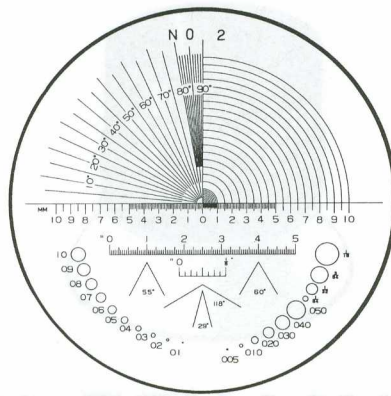
The present instrument is a sequel of the Peak Scale Lupe series hitherto produced of magnifying powers 7X and 10X. However, to enable the sharp observation of the entire field of a 14 mm diameter object magnified as large as 15 times, the magnifier has been newly designed to correct almost perfectly the curvature of field and the lateral chromatic aberration by a combination of four lenses, three grouped as shown in the cross section diagram, and two of the lenses being made of a new type of optical glass. Moreover, all six air-to-glass interfaces of the magnifier are multi-coated to reduce internal reflection.

In using the instrument, adjust the distance between the scale glass and the magnifier by rotating the rugged ring of the latter so that the user can observe sharply the magnified image of the scale. Re-adjustment is unnecessary unless the user is changed.

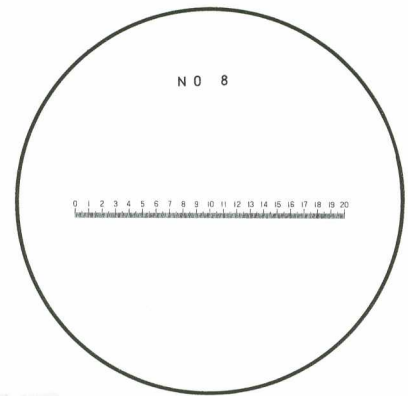
By turning the rugged ring to the left until it stops, and then turning with a little more force, the magnifier can be removed from the transparent pipe holding the scale glass and be used as an independent magnifier of magnifying power 15X.



No. 1



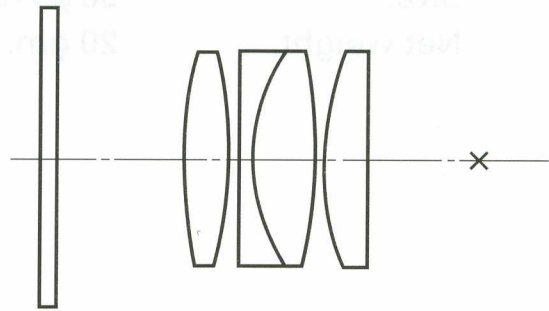
No. 2



No. 8



No. 2016-L



## PEAK LIGHT SCALE LUPE 15X

Insufficient supply of light has been improved by attaching to the Peak Scale Lupe 15X an illuminating device consisting of the penlight and the holder.

Observations can be achieved more easily than ever.

| Item No.   | Magnification | Field of view | Effective aperture | Size                                  | Net weight |
|------------|---------------|---------------|--------------------|---------------------------------------|------------|
| No. 2016   | 15X           | 20 mm $\phi$  | 13 mm $\phi$       | 35 $\phi$ $\times$ 33 mm              | 40 gm.     |
| No. 2016-L | 15X           | 20 mm $\phi$  | 13 mm $\phi$       | 43 $\phi$ $\times$ 65 $\times$ 184 mm | 72 gm.     |

No. 1962



## PEAK LUPE 15X

A most useful magnifier with a coated achromatic lens composed of a 2-component, 3-element construction.

|                     |                          |
|---------------------|--------------------------|
| Magnification:      | 15X                      |
| Effective aperture: | 19 mm $\phi$             |
| Size:               | 36 $\phi$ $\times$ 33 mm |
| Net weight:         | 20 gm.                   |

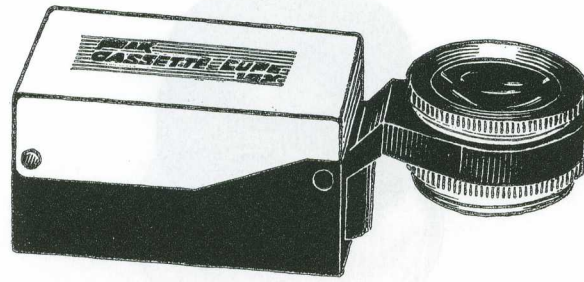
No. 2023



## PEAK LIGHT LUPE 15X

Peak Light Lupe 15X is the same as the Peak Lupe 15X except for an illumination device using 2 penlight batteries as the power source. Convenient for use under poor light conditions.

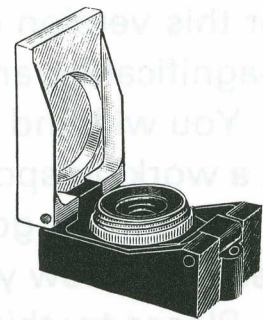
|                |                                |
|----------------|--------------------------------|
| Magnification: | 15X                            |
| Field of view: | 19 mm $\phi$                   |
| Size:          | 180 $\times$ 36 $\times$ 42 mm |
| Net weight:    | 90 gm.                         |
| Battery:       | UM-2 (1.5V) $\times$ 2         |



## PEAK CASSETTE LUPE 15X

Peak Cassette Lupe 15X has the same optical system as the popular Peak Lupe 15X but is a portable, universal type lupe housed in a smart resin cassette. The high resolution of this optical system is known for its superiority and the ABS resin cassette provides lightweight, rigid protection as well as portability. To use this lupe, place the cassette on a table, etc., and rotate the focusing ring to bring the object being observed into sharp focus. Both hands are then left completely free.

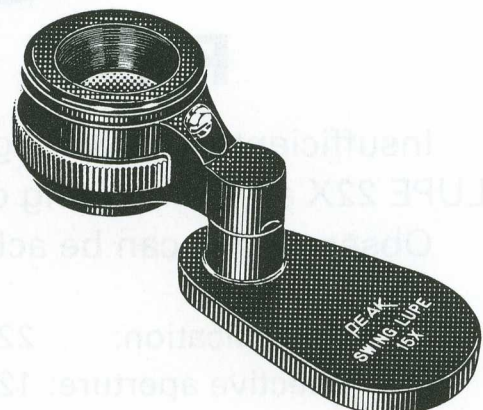
Magnification: 15X  
 Effective aperture: 19 mm  $\phi$   
 Size: 34 × 54 × 26 mm  
 Net weight: 48 gm.



## PEAK SWING LUPE 15X

Peak Swing Lupe 15X has the same optical system as the Peak Lupe 15X but features a swinging lens support. After focusing, the hands are left free.

Magnification: 15X  
 Effective aperture: 19 mm  $\phi$   
 Size: 55 × 32 × 32 mm  
 Net weight: 97 gm.





## PEAK LUPE 22X

An improved version of the PEAK LUPE 22X has been produced.

The lenses of component, three element-constructions newly designed for this version cover a wide visual field. Distortion-free viewing and clear magnification are possible.

You will find this item to be convenient for the check on various articles at a working spot.

When you go out for a walk with PEAK LUPE 22X in your pocket, this item will show you the wonder and beauty of the nature.

Please try this new version of PEAK LUPE 22X.

Magnification: 22X  
Effective aperture: 12 mm  $\phi$

Size: 36  $\phi$   $\times$  25 mm  
Net weight: 22 gm.

No. 1964-L



## PEAK LIGHT LUPE 22X

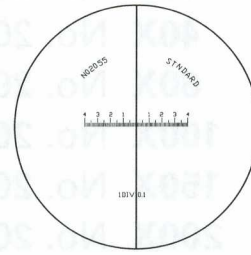
Insufficient supply of light has been improved by attaching to the PEAK LUPE 22X an illuminating device consisting of the penlight and holder.

Observations can be achieved more easily than ever.

Magnification: 22X  
Effective aperture: 12 mm  $\phi$

Size: 43  $\phi$   $\times$  65  $\times$  184 mm  
Net weight: 55 gm.

No. 2055



## PEAK SCALE LUPE 20X

PEAK SCALE LUPE 20X, a new product has been added to our SCALE LUPE series so far supplied. We have produced this article with the intention that the SCALE LUPE 20X composed of 2 groups, 3 elements will enlarge entire area with clear distortion-free viewing. We believe that this SCALE LUPE 20X will solve your complaint that the magnification 10X is too low but that the magnifying power of 30X is too high to use.

In using the instrument, turn the diopter adjustment ring so that you can observe sharply the magnified image of the scale.

By observing through the lupe with the scale resting on the object to be examined, you are able to measure the object very easily and exactly.

This new product is also useful for the inspection of film, printed matters and many other objects.

|                      |              |             |                          |
|----------------------|--------------|-------------|--------------------------|
| Magnification:       | 20X          | Size:       | 35 $\phi$ $\times$ 23 mm |
| Effective aperture:  | 12 mm $\phi$ | Net weight: | 35 gm.                   |
| Min. scale division: | 0.1 mm       |             |                          |



No. 2055-L

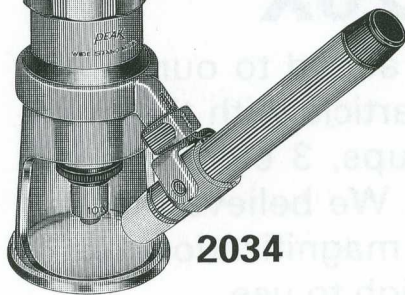
## PEAK LIGHT SCALE LUPE 20X

Insufficient supply of light has been improved by attaching to the PEAK SCALE LUPE 20X an illuminating device consisting of the penlight and holder.

Observations can be achieved more easily than ever.

|                      |              |             |                                       |
|----------------------|--------------|-------------|---------------------------------------|
| Magnification:       | 20X          | Size:       | 43 $\phi$ $\times$ 65 $\times$ 184 mm |
| Effective aperture:  | 12 mm $\phi$ | Net weight: | 64 gm.                                |
| Min. scale division: | 0.1 mm       |             |                                       |

- 20X No. 2034-20
- 40X No. 2034-40
- 60X No. 2034-60
- 100X No. 2034-100
- 150X No. 2034-150
- 200X No. 2034-200
- 300X No. 2034-300



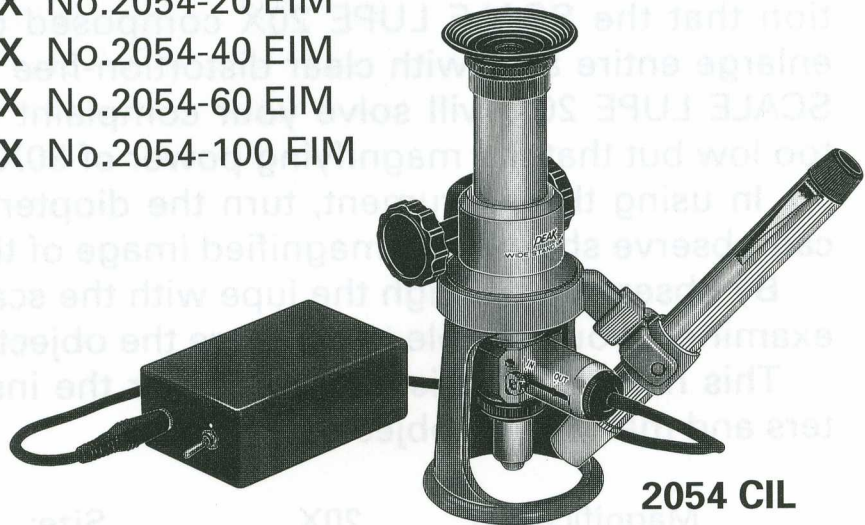
**2034**

- 40X No.2054-40 CIL
- 60X No.2054-60 CIL
- 100X No.2054-100 CIL
- 150X No.2054-150 CIL
- 200X No.2054-200 CIL
- 300X No.2054-300 CIL



**2054  
2054 EIM**

- 20X No.2054-20 EIM
- 40X No.2054-40 EIM
- 60X No.2054-60 EIM
- 100X No.2054-100 EIM



**2054 CIL**

## PEAK WIDE STAND MICROSCOPE

Peak Wide Stand Microscope is a simple measuring microscope designed to be compact and light weight like the Stand Microscope, but characterized by a wider field of view than that of the conventional ones. It allows not only to provide magnified view of fine pattern and contour of object, but also to measure length and compare dimension by using a scale included in the eye-piece.

Focusing by a smooth helicoid is provided with the 2034 series ever supplied and this time focusing by a smooth rack and pinion with knob on both sides of microscope is newly provided to the 2054 series. The optical system of erect image is also added to the 2054 series. (The word EIM = ERECT IMAGE WITH MEASURE is added to end of catalog No.)

The models with coaxial incident light illumination are also available. (We have added the word CIL to the end of catalog No.)

Peak Wide Stand Microscope will be useful not only for the general observation but also for improving the accuracy in precision machining and securing uniform quality in the inspection process.

## **CONSTRUCTION OF OPTICAL SYSTEM**

The optical system consists of an objective and an eye-piece. Since all the lens surfaces are coated, bright and high contrast images can be obtained.

There are seven kinds of objectives, 2X, 4X, 6X, 10X, 15X, 20X and 30X. The magnification of the eye-piece is 10X, and a scale is provided on its focal plane. Owing to Huygens type construction with the focal plane inside the lens system, the contamination of scale with dust is excluded. The lens closest to the eye in the eye-piece system is movable by turning an adjuster ring, which allows to bring the scale to focus in accordance with the dioptric power of the user.

There are four kinds of scale, depending upon the magnification of objectives. You are able to pick out the design according to your application purposes.

The overall magnification of the optical system is equal to the magnification of objective magnified by that of eye-piece: 20X, 40X, 60X, 100X, 150X, 200X and 300X.

As to the 2054 model, there are four kinds of erect image type with prism built-in: 20X, 40X, 60X and 100X.

The illumination system of the 2054CIL series is built in the tube in order that coaxial incident light illumination can be possible. Six models are available: 40X, 60X, 100X, 150X, 200X and 300X.

## **CONSTRUCTION OF MECHANICAL SYSTEM**

The series of Peak Wide Stand Microscope are divided into three categories.

- 1) Helicoid Focus Mechanism (No. 2034 series)
- 2) Focusing by a rack and pinion with knob on both sides of microscope. (No. 2054 series)
- 3) Focusing by a rack and pinion, with prism built-in. (No. 2054 EIM series = Erect Image with measure)

An objective is screwed in at the bottom end of the tube and an eye-piece is inserted to the top end. The length between the two ends (mechanical tube length) is 120 mm and that of EIM model is 105.9 mm.

The base of model 2054 series has been changed to sturdy aluminum die casting. A penlight is attached to every model so the object will be clearly illuminated.

As to the 2054CIL model, the coaxial incident light illumination can be obtained by moving a changeover knob. This illumination method is suitable for the inspection of subjects with a high reflectivity.

# OPERATIONAL INSTRUCTION

Turn on the penlight switch and adjust its position so that the object is illuminated. Rotate the adjuster ring of the eye-piece until the scale becomes clearly visible. While viewing through the eye-piece, turn the helicoid ring or knob to focus by moving the tube vertically until the image of object becomes clearly visible on the scale plane. Finally, move the base horizontally so that the desired area of object is set in the field of view. If defocused, make the fine adjustment of helicoid ring or knob again to focus.

The 2054CIL series: The illumination both by pen light and coaxial incident light is possible. When you use the pen light, pull the changeover knob and set it at the position marked OUT and switch off the outer power supply. When you use the coaxial incident light illumination, pull the changeover knob and set it at the position marked IN and switch on the outer power supply. Switch off the pen light.

## USE OF RUBBER EYE ADAPTER

Soft rubber eye adapter is to cut out sidelight to help facilitate the observation. The person wearing glasses is to fold the outer margin of rubber adapter downward to adjust the eye point.

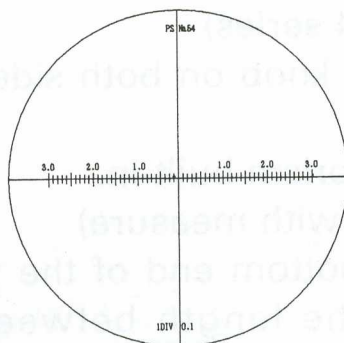
## PENLIGHT

Rotate and remove the milky-white portion at the tip of the penlight and insert two penlight batteries (SUM-3) with plus side oriented outward. The black plastic portion on the clip is the switch. Turn on the switch and adjust its position so that the object is clearly illuminated.

## SCALES

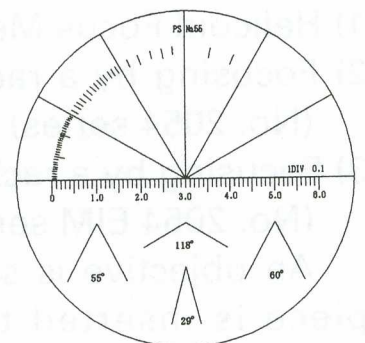
### Standard (mm)

- 20X PS No. 54
- 40X PS No. 64
- 60X PS No. 74
- 100X PS No. 84
- 150X PS No. 94
- 200X PS No. 104
- 300X PS No. 114



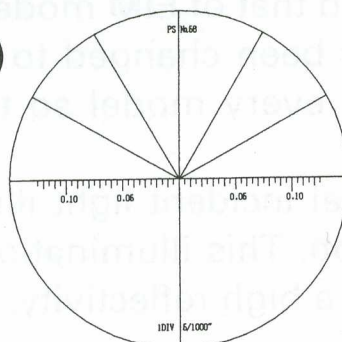
### For tool (mm)

- 20X PS No. 55
- 40X PS No. 65



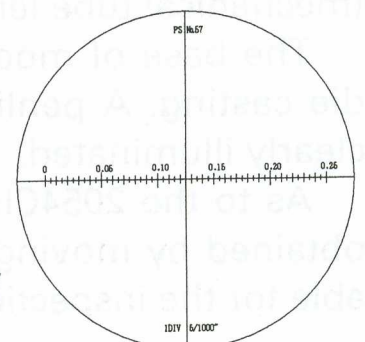
### For printing (inch)

- 20X PS No. 56
- 40X PS No. 66



### Standard (inch)

- 20X PS No. 57
- 40X PS No. 67
- 60X PS No. 77
- 100X PS No. 87
- 150X PS No. 97
- 200X PS No. 107



| Item No.            | 2034-20<br>2054-20<br>2054-20 EIM | 2034-40<br>2054-40<br>2054-40 EIM<br>2054-40 CIL | 2034-60<br>2054-60<br>2054-60 EIM<br>2054-60 CIL |
|---------------------|-----------------------------------|--|--|
| Magnification       | 20X                               | 40X  | 60X  |
| Field of view       | 7.2 mm $\phi$                     | 3.6 mm $\phi$                                    | 2.4 mm $\phi$                                    |
| Min. scale division | No.54 0.1 mm                      | No.64 0.05 mm                                    | No.74 0.02 mm                                    |
| Min. scale division | No.57 0.005"                      | No.67 0.002"                                     | No.77 0.001"                                     |
| Measuring range     | 6.0 mm                            | 3.0 mm   | 2.0 mm   |
| Measuring range     | 0.236"                            | 0.118"   | 0.078"   |
| Working distance    | 36.0 mm                           | 18.7 mm  | 10.8 mm  |
| Numerical aperture  | 0.06                              | 0.12   | 0.15   |
| Focal distance      | 35.0 mm                           | 22.0 mm  | 16.5 mm  |

| Item No.            | 2034-100<br>2054-100<br>2054-100 EIM<br>2054-100 CIL | 2034-150<br>2054-150<br>2054-150 CIL | 2034-200<br>2054-200<br>2054-200 CIL | 2034-300<br>2054-300<br>2054-300 CIL |
|---------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|
| Magnification       | 100X   | 150X                                 | 200X                                 | 300X                                 |
| Field of view       | 1.45 mm $\phi$                                       | 0.96 mm $\phi$                       | 0.72 mm $\phi$                       | 0.48 mm $\phi$                       |
| Min. scale division | No.84 0.01 mm  | No.94 0.005 mm                       | No.104 0.002 mm                      | No.114 0.001 mm                      |
| Min. scale division | No.87 0.0005"  | No.97 0.0002"                        | No.107 0.0001"                       | —                                    |
| Measuring range     | 1.2 mm   | 0.9 mm                               | 0.6 mm                               | 0.4 mm                               |
| Measuring range     | 0.047"   | 0.035"                               | 0.023"                               | —                                    |
| Working distance    | 5.7 mm   | 9.2 mm                               | 6.7 mm                               | 4.0 mm                               |
| Numerical aperture  | 0.19   | 0.24                                 | 0.35                                 | 0.4                                  |
| Focal distance      | 10.7 mm  | 7.3 mm                               | 5.7 mm                               | 3.9 mm                               |

Sizes and Net weight of each item (accessories excluded)

| Item No.   | 2034-20~300               | 2054-20~300               | 2054-20~100 EIM           | 2054-40~300 CIL           |
|------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Size       | 63 $\phi$ $\times$ 172 mm | 69 $\phi$ $\times$ 172 mm | 69 $\phi$ $\times$ 172 mm | 63 $\phi$ $\times$ 172 mm |
| Net weight | 237~241 gm.               | 263~267 gm.               | 263~267 gm.               | 393~394 gm.               |

# PEAK SHOP MICROSCOPE

The Shop Microscope is widely used as a universal measurer. Despite its small-sized and lightweight mechanism, it has very useful devices for practical efficiency. For example, its rack and pinion focusing makes operation very simple and smooth.

Furthermore, observation in dark places is possible because it is attached with an illumination device using one penlight battery.

Also, as shown in the attached diaphragms, it has built-in precision scales for measuring.

With the above-mentioned advantages, the Shop Microscope is useful in a large number of fields, including surface inspections, centering, blade inspections, measuring diameters of small holes, inspecting plates and printed matter, measuring meshes of textiles, inspecting yarn, inspecting skins, observation of slides, and in the electronics field.

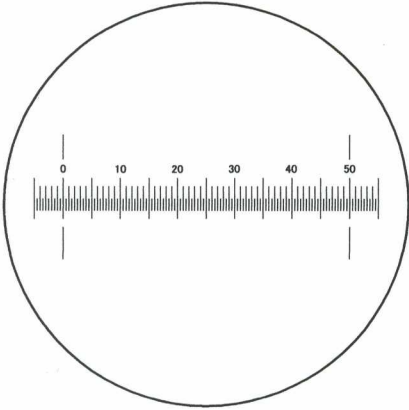
## How to Use:

Rotate and remove the milky-white portion at the tip of the illuminating device and insert two penlight batteries into the device. Then fit the device to the main body as shown in the figure and adjust so that light will fall on the object to be inspected. The black plastic portion on the clip is the switch. Next rotate the adjust ring of the eye-piece lens, until the scale can be clearly visualized, and operate the handle of the rack and pinion type focusing device to focus the microscope.

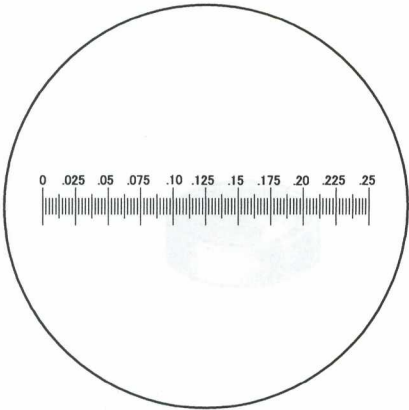
| Item No.            | No. 2009-20               | No. 2009-40   | No. 2009-60   | No. 2009-100  |
|---------------------|---------------------------|---------------|---------------|---------------|
| Magnification       | 20X                       | 40X           | 60X           | 100X          |
| Field of view       | 7.2 mm $\phi$             | 4.3 mm $\phi$ | 2.2 mm $\phi$ | 1.8 mm $\phi$ |
| Min. scale division | No.16 0.05 mm             | No.18 0.02 mm | No.20 0.02 mm | No.22 0.01 mm |
|                     | No.17 0.0025"             | No.19 0.0010" | No.21 0.0010" | No.23 0.0005" |
| Measuring range     | 6.0 mm                    | 3.4 mm        | 1.6 mm        | 1.2 mm        |
| Working distance    | 52.0 mm                   | 28.0 mm       | 6.0 mm        | 5.5 mm        |
| Case                | 60 $\phi$ $\times$ 176 mm |               |               |               |
| Total weight        | 496 gm.                   | 493 gm.       | 507 gm.       | 528 gm.       |

The scales are available in either millimeters or inches.  
Please indicate your choice when ordering.

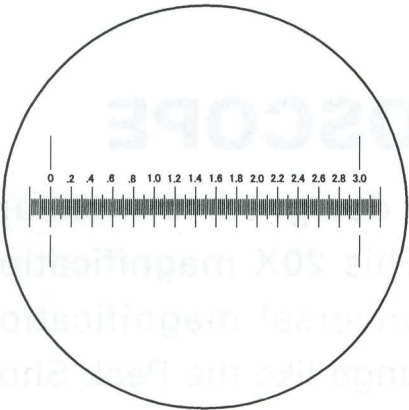
**No. 16**



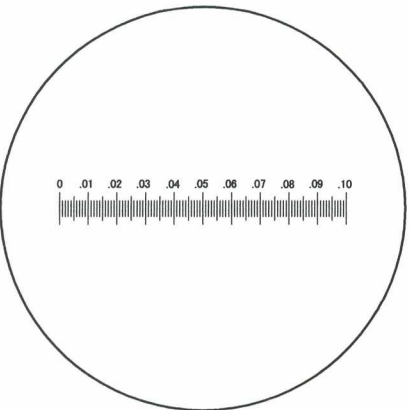
**No. 17**



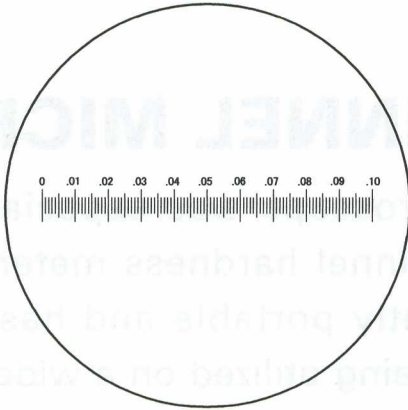
**No. 18**



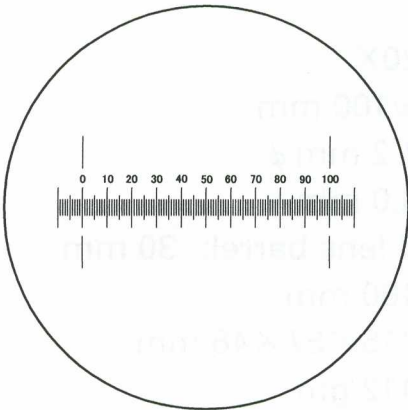
**No. 21**



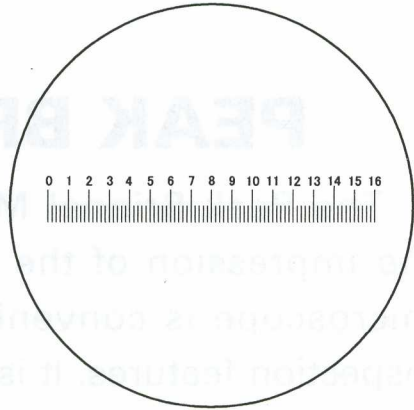
**No. 19**



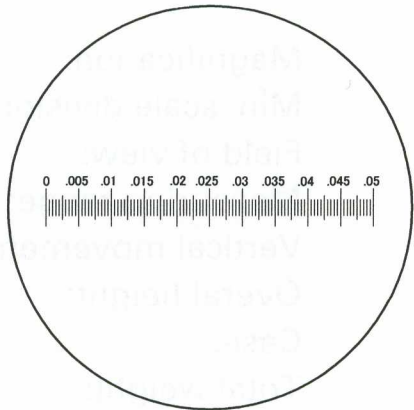
**No. 22**



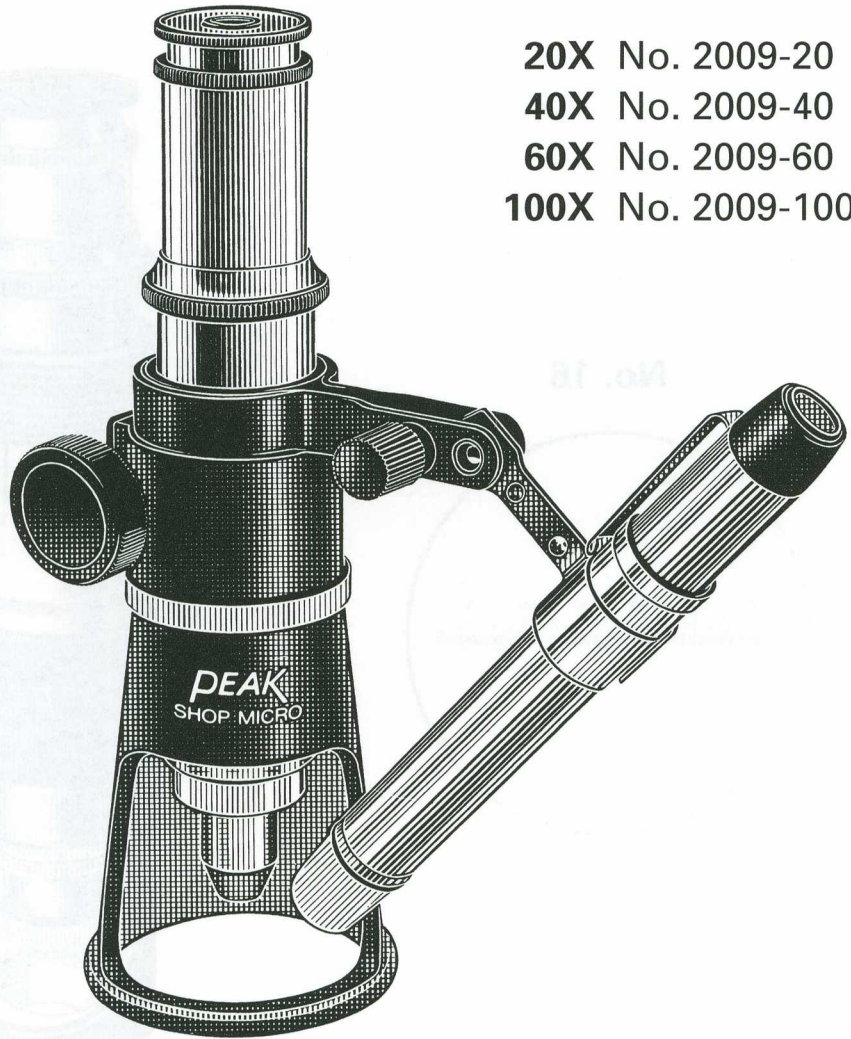
**No. 20**



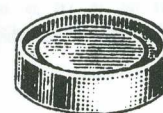
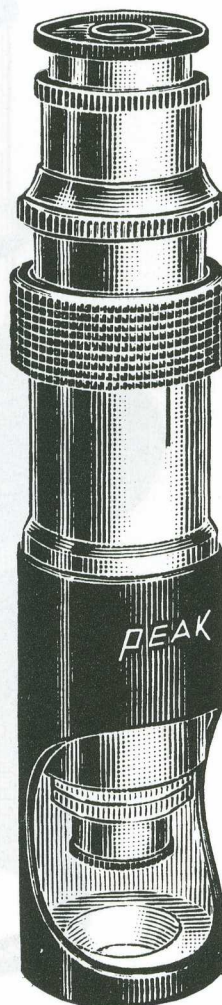
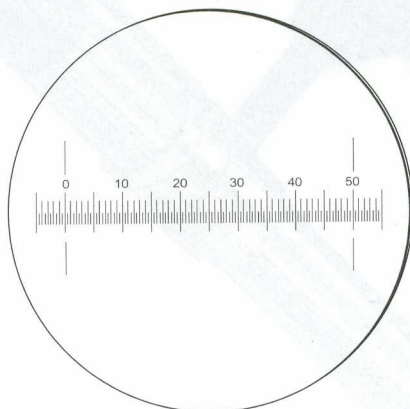
**No. 23**



**20X** No. 2009-20  
**40X** No. 2009-40  
**60X** No. 2009-60  
**100X** No. 2009-100



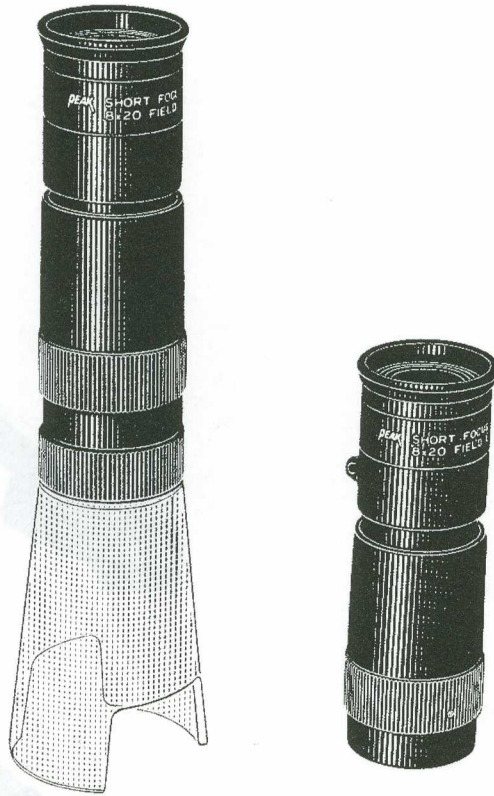
No. 16



## PEAK BRINNEL MICROSCOPE

The Peak Brinell Microscope was especially designed to measure the impression of the Brinell hardness meter. This 20X magnification microscope is conveniently portable and has universal magnification inspection features. It is being utilized on a wide range like the Peak Shop Microscope.

|                                   |               |
|-----------------------------------|---------------|
| Magnification:                    | 20X           |
| Min. scale division:              | 5/100 mm      |
| Field of view:                    | 7.2 mm $\phi$ |
| Measuring range:                  | 6.0 mm        |
| Vertical movement of lens barrel: | 30 mm         |
| Overall height:                   | 160 mm        |
| Case:                             | 215×57×46 mm  |
| Total weight:                     | 412 gm.       |



## PEAK SHORT FOCUS SCOPE 8x20

The Peak Short Focus Scope is a lightweight pocket-size telescope with a built-in roof prism allowing you to obtain correct images. With this, you can observe objects at point-blank range of 300mm. Mainly, conventional telescopes are designed to look into the distance. This telescope, however, can magnify with a wide field of vision correct images of objects at a short distance as well as at a great distance. You can double your enjoyment in anything you like such as trips, sports, hobbies. In addition, this lupe helps you to make inside and outside inspections and/or confirm processed conditions of objects practicably difficult of access. For example, you can make correct and detailed observations that cannot be performed with monitor TV images, etc.

Moreover, with this telescope constantly on hand, even weak-sighted persons can easily read railroad schedules, signs, signboards, etc. Attaching an accessory close-up lens to the objective of this lupe allows you to obtain a magnifier of 25 magnifications having bright and sharp resolving power. Optimum for observations, inspections, and checks!

|                               |                                       |             |                                     |
|-------------------------------|---------------------------------------|-------------|-------------------------------------|
| Magnification:                | Telescope 8X                          | Brightness: | 6.2                                 |
|                               | Magnifier 25X                         | Size:       | Telescope 32 $\phi$ $\times$ 91 mm  |
| Effective field:              | 20 mm $\phi$                          |             | Magnifier 45 $\phi$ $\times$ 172 mm |
| Real field of vision:         | 7°                                    | Net weight: | Telescope 76 gm.                    |
| Field of vision at a distance |                                       |             | Magnifier 110 gm.                   |
| of 1000 m:                    | 113 m                                 | Pupildia.:  | 2.5 mm                              |
|                               | (Beautiful cover of leather attached) |             |                                     |

25X No. 2008-25  
50X No. 2008-50  
75X No. 2008-75  
100X No. 2008-100



No. 2008-LH

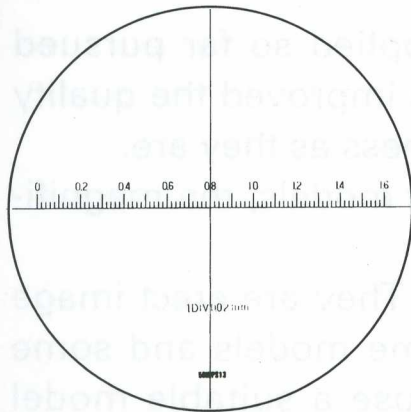
## PEAK STAND MICROSCOPE

Peak Stand Microscope is a small size, lightweight and conveniently portable microscope. It is designed to cover the range in between the high grade, heavily equipped microscopes and the various magnifiers (3X—30X) developed by our company. It can easily, speedily and accurately catch the subject to be examined with its bright and superior resolving power and smooth-working mechanism.

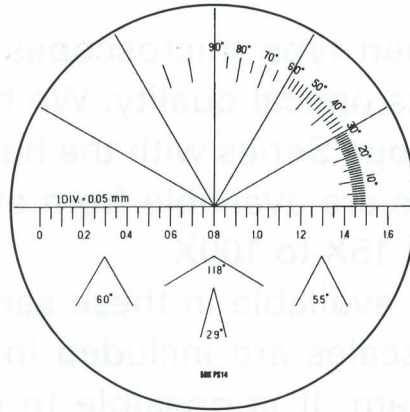
Especially, the precision-made focusing ring, which simplifies operation, and the freely attachable/detachable black colored rubber eyepiece increase the ease in observation

By reading the scale engraved on the focusing ring and the main needle of the lens barrel, depths can be measured with the accuracy of 0.1 mm. This microscope is convenient for measuring the thickness, height or depth of subjects having different levels and for measuring the lengths of printing machine cylinders and copperplates.

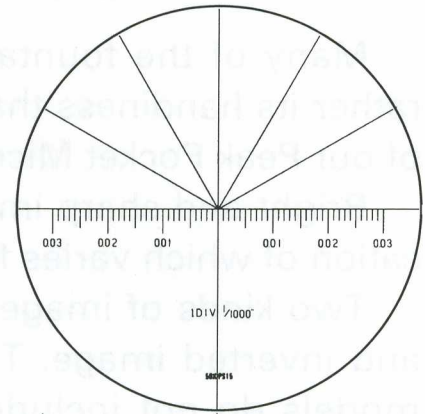
## SCALE



**25X** PS No. 24  
**50X** PS No. 13  
**75X** PS No. 34  
**100X** PS No. 44



**25X** PS No. 25  
**50X** PS No. 14  
**75X** PS No. 35  
**100X** PS No. 45



**25X** PS No. 26  
**50X** PS No. 15  
**75X** PS No. 36  
**100X** PS No. 46

A scale is built into the scale chamber above the focusing ring. This scale can be easily interchanged according to use. Three kinds of scales—standard, for tools, for printing—are available. Specially designed scale can also be made to order.

The lens barrel of the eyepieces is the visibility adjustment ring. First, turn this ring and set it at the position where the scale can be seen clearly. Then turn the focusing ring and start observations.

Peak Stand Microscope is ideal for use in factories, inspection rooms, research laboratories, and private homes.

Optional light source (No. 2008-LH Light Holder) is available.

| Item No.            | No. 2008-25          | No. 2008-50    | No. 2008-75    | No. 2008-100   |
|---------------------|----------------------|----------------|----------------|----------------|
| Magnification       | 25X                  | 50X            | 75X            | 100X           |
| Field of view       | 3.30 mm $\phi$       | 1.70 mm $\phi$ | 1.09 mm $\phi$ | 0.84 mm $\phi$ |
| Min. scale division | No.24 0.05 mm        | No.13 0.02 mm  | No.34 0.01 mm  | No.44 0.005 mm |
|                     | No.26 0.002"         | No.15 0.001"   | No.36 0.0005"  | No.46 0.0005"  |
| Measuring range     | 3.0 mm               | 1.6 mm         | 1.0 mm         | 0.8 mm         |
| Working distance    | 17.0 mm              | 11.7 mm        | 11.7 mm        | 11.6 mm        |
| Numerical aperture  | 0.11                 | 0.18           | 0.22           | 0.22           |
| Focal distance      | 19.8 mm              | 14.9 mm        | 9.9 mm         | 9.9 mm         |
| Size                | 41.5 $\phi$ × 122 mm |                |                |                |
| Net weight          | 83 gm.               | 83 gm.         | 83 gm.         | 88 gm.         |

# PEAK POCKET MICROSCOPE SERIES

Many of the fountain-pen type microscopes supplied so far pursued rather its handiness than its optical quality. We have improved the quality of our Peak Pocket Microscope Series with the handiness as they are.

Bright and sharp images are available from every models, the magnification of which varies from 15X to 100X.

Two kinds of image are available in these series. They are erect image and inverted image. The scales are included in some models and some models do not include them. It is possible to choose a suitable model according to your purpose of use.

How to use: Observe an object by holding the unit with the notch of acrylic-cylinder point in front, with the center of the object lens placed about right over the object, tilting towards front and rear while applying an eye to the eye lens and setting the unit at an angle of catching the object clearly. The bright and sharp image throughout its field of view will surprise you.

LED illumination is available on all items as optional light source.



- 15X** No. 2001-15
- 25X** No. 2001-25
- 50X** No. 2001-50
- 75X** No. 2001-75
- 100X** No. 2001-100

## PEAK POCKET MICROSCOPE

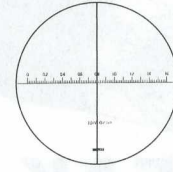
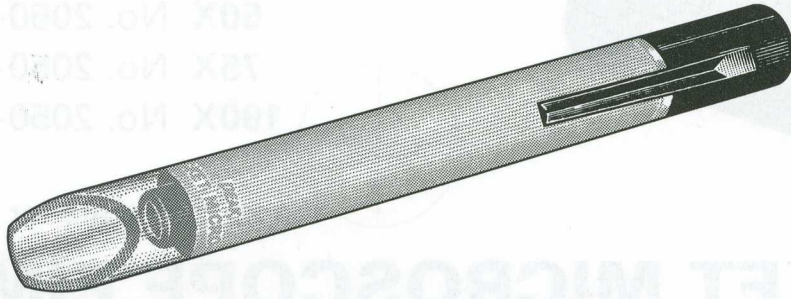
### INVERTED IMAGE

This microscope is a fundamental model with an inverted image. A scale is not included. Five models from 15X to 100X are available.

| Item No.    | Magnification | Field of view  | Min. scale division | Measuring range | Size                        | Net weight |
|-------------|---------------|----------------|---------------------|-----------------|-----------------------------|------------|
| No.2001-15  | 15X           | 5.40 mm $\phi$ | —                   | —               | 12.4 $\phi$ $\times$ 126 mm | 13 gm.     |
| No.2001-25  | 25X           | 3.30 mm $\phi$ | —                   | —               | 12.4 $\phi$ $\times$ 127 mm | 12 gm.     |
| No.2001-50  | 50X           | 1.70 mm $\phi$ | —                   | —               | 12.4 $\phi$ $\times$ 127 mm | 12 gm.     |
| No.2001-75  | 75X           | 1.09 mm $\phi$ | —                   | —               | 12.4 $\phi$ $\times$ 127 mm | 13 gm.     |
| No.2001-100 | 100X          | 0.84 mm $\phi$ | —                   | —               | 12.4 $\phi$ $\times$ 127 mm | 16 gm.     |

25X No. 2036-25

50X No. 2036-50



a built-in scale for 2036

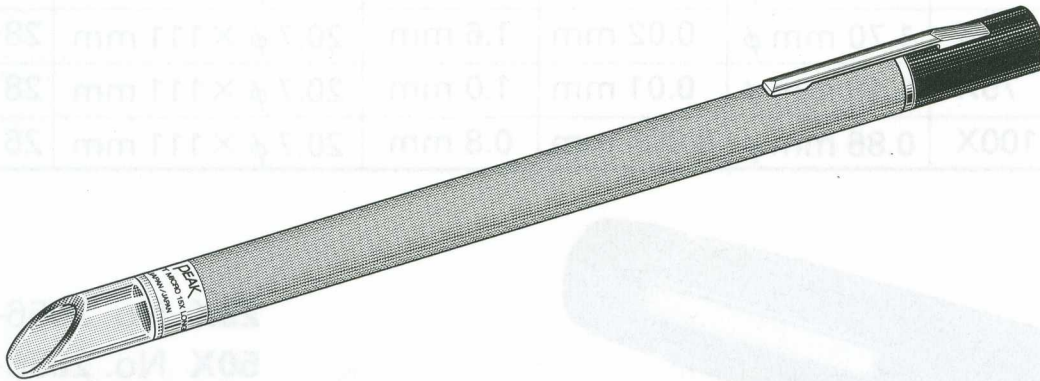
## PEAK POCKET MEASURING MICROSCOPE

INVERTED INVERTED IMAGE WITH A SCALE BUILT-IN

This model covers an inverted image with a scale included. 25X and 50X models are available. The built-in scale is ideal for the check and observation of objects.

| Item No.   | Magnification | Field of view  | Min. scale division | Measuring range | Size                        | Net weight |
|------------|---------------|----------------|---------------------|-----------------|-----------------------------|------------|
| No.2036-25 | 25X           | 3.30 mm $\phi$ | 0.05 mm             | 3.0 mm          | 12.4 $\phi$ $\times$ 127 mm | 12 gm.     |
| No.2036-50 | 50X           | 1.70 mm $\phi$ | 0.02 mm             | 1.6 mm          | 12.4 $\phi$ $\times$ 127 mm | 12 gm.     |

15X No. 2001-15 LONG



## PEAK POCKET MICROSCOPE 15X LONG

INVERTED IMAGE WITH A LONG BODY.

The model of long barrel type has been added to the pocket microscope series. The barrel part is longer than the one so far supplied. By this modification, you are able to keep a comfortable, sitting posture while you observe an object.

LED illumination is of use when you look into the far side where you are not able to reach with the model so far supplied.

| Item No.        | Magnification | Field of view  | Min. scale division | Measuring range | Size                        | Net weight |
|-----------------|---------------|----------------|---------------------|-----------------|-----------------------------|------------|
| No.2001-15 LONG | 15X           | 5.40 mm $\phi$ | —                   | —               | 12.4 $\phi$ $\times$ 180 mm | 18 gm.     |



25X No. 2050-25  
 50X No. 2050-50  
 75X No. 2050-75  
 100X No. 2050-100



a built-in scale for 2050

## PEAK POCKET MICROSCOPE EIM

Erect Image Model with a scale built-in

This is the microscope of erect image with a scale built-in. This model, with roof-prisms built in the body, provides you an erect image just like you see the image with the naked eye.

The word EIM consists of the following capital letters: Erect Image with Measure.

How to use: First, rotate the adjuster-ring of eye piece until the scale is brought into focus. Observe an object by holding the unit with notch of acrylic-cylinder point in front, with the center of object lens placed over the object, tilting the cylinder towards front and rear while applying an eye to the eye lens setting the unit at angle of catching the object clearly.

| Item No.    | Magnification | Field of view  | Min. scale division | Measuring range | Size                        | Net weight |
|-------------|---------------|----------------|---------------------|-----------------|-----------------------------|------------|
| No.2050-25  | 25X           | 3.50 mm $\phi$ | 0.05 mm             | 3.0 mm          | 20.7 $\phi$ $\times$ 111 mm | 25 gm.     |
| No.2050-50  | 50X           | 1.70 mm $\phi$ | 0.02 mm             | 1.6 mm          | 20.7 $\phi$ $\times$ 111 mm | 28 gm.     |
| No.2050-75  | 75X           | 1.10 mm $\phi$ | 0.01 mm             | 1.0 mm          | 20.7 $\phi$ $\times$ 111 mm | 28 gm.     |
| No.2050-100 | 100X          | 0.86 mm $\phi$ | 0.005 mm            | 0.8 mm          | 20.7 $\phi$ $\times$ 111 mm | 26 gm.     |



25X No. 2056-25  
 50X No. 2056-50

## PEAK POCKET MICROSCOPE EI

Erect Image Model

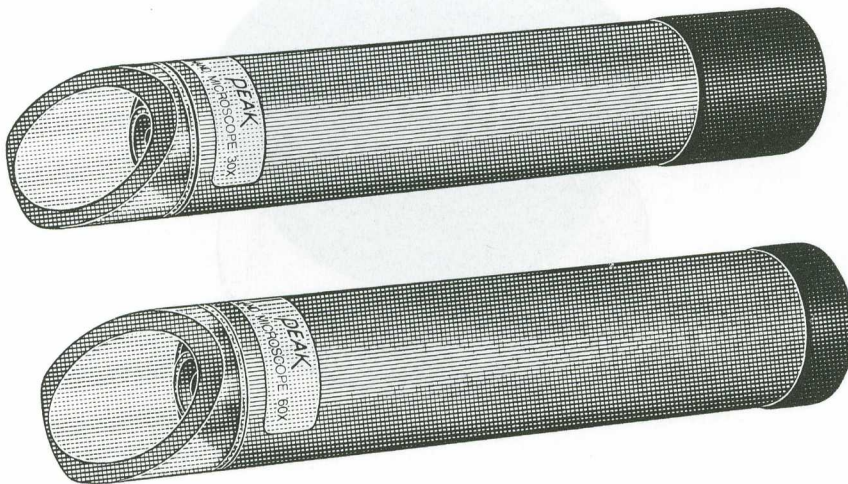
This is the model of erect image without a scale. 25 $\times$  and 50 $\times$  models are available.

The specification of these units is the same as that of Peak Pocket Microscope EIM models except that a scale is not included.

| Item No.   | Magnification | Field of view  | Min. scale division | Measuring range | Size                        | Net weight |
|------------|---------------|----------------|---------------------|-----------------|-----------------------------|------------|
| No.2056-25 | 25X           | 3.50 mm $\phi$ | —                   | —               | 20.7 $\phi$ $\times$ 111 mm | 25 gm.     |
| No.2056-50 | 50X           | 1.70 mm $\phi$ | —                   | —               | 20.7 $\phi$ $\times$ 111 mm | 26 gm.     |

30X No. 2051-30

60X No. 2051-60



## PEAK HAND MICROSCOPE

Peak pocket microscopes, small in size and light in weight, have had high reputation for a long time as the article of high resolution power and brightness.

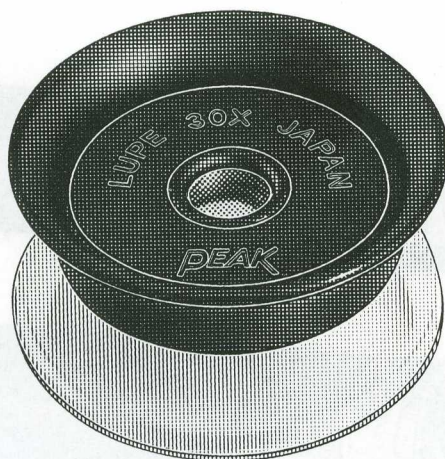
After its appearance in the market, we have added to them as a variation the measuring (a function to measure) and EIM (a function to measure erected images).

It was the small size and lightness in weight that we have had put emphasis on for this product so far. In some cases, however, end-users need microscopes with rather longer barrel and wider effective visual field which will satisfy their purposes. In response to their request, we have produced PEAK HAND MICROSCOPE as a high-quality new product to meet our customer's requirements.

### How to use:

This HAND MICROSCOPE can be focused in the same way as in our pocket microscopes so far supplied. Observe an Object by holding the unit with the notch of the acrylic-cylinder point in front, with the center of the object lens placed about right over the object, tilting the cylinder back and forth while applying an eye to the eye-piece setting the unit at an angle of catching the object clearly.

| Item No.    | Magnification | Field of view | Size                      | Net weight |
|-------------|---------------|---------------|---------------------------|------------|
| No. 2051-30 | 30X           | 5.8 mm $\phi$ | 28 $\phi$ $\times$ 157 mm | 115 gm.    |
| No. 2051-60 | 60X           | 3.5 mm $\phi$ | 28 $\phi$ $\times$ 139 mm | 100 gm.    |



## PEAK LUPE 30X

This loupe is a simple microscopic magnifier with a magnification of as high as 30 times.

Obviously a magnifier with a magnifying power of higher than 20 times can be designed more easily by a combination of an objective and an eyepiece separated by a definite distance, i.e. like a compound microscope. However, the compound microscope is accompanied inevitably with a long tube length that hinders its use with one hand. Furthermore, the image viewed through it is inverted. Hence it has often been requested that a high power magnifier like the loupe be made for the purpose of using it with one hand to view an erected image, with its optical performance as of only secondary importance.

This loupe is our new product for meeting these demands, especially those of engineers in photo-mechanical and precision machining works. The loupe is so small and lightweight that one can manage it quite easily with one hand, while the other hand holds the object to be examined. Owing to our excellent optical design, the performance is almost comparable with that of a compound microscope of the same magnifying power, while the image viewed is of course erected.

The loupe is composed of four lenses in two groups. It is designed to give the widest image field when the pupil of the observing eye is placed on the optical axis at an 8 mm distance from the outer vertex of the loupe.

Hence the user should press the hood of the loupe on his face tightly with one hand, while the other hand holds the object to be inspected and adjusts its distance from the loupe for focusing. The depth of sharp field is very shallow due to the high magnifying power of the loupe, so it is recommended that the user make some exercises for fine focusing. It is also necessary to hold the loupe in such a way that the optical axis of it coincides with the visual axis of the eye, or in other words, the plane of the end surface of the loupe is perpendicular to the visual axis.



No. 1996-L

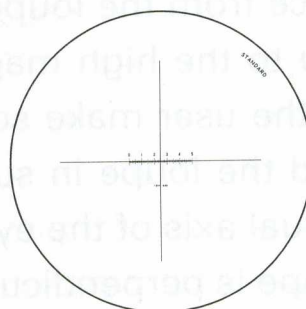
## PEAK LIGHT LUPE 30X

Insufficient supply of light has been improved by attaching to the Peak Loupe 30X an illuminating device consisting of the Penlight and the holder.

Observations can be achieved more easily than ever.

| Item No.   | Magnification | Effective aperture | Size                                  | Net weight |
|------------|---------------|--------------------|---------------------------------------|------------|
| No. 1996   | 30X           | 7 mm $\phi$        | 37 $\phi$ $\times$ 20 mm              | 10 gm.     |
| No. 1996-L | 30X           | 7 mm $\phi$        | 43 $\phi$ $\times$ 65 $\times$ 184 mm | 40 gm.     |

No. 2037



## PEAK SCALE LUPE 30X

Peak Lupe 30X has been enjoying favourable reception from customers as a loupe of high magnification by the design of 4 elements, 2 groups, allowing erect image vision. This excellent magnifier is now fitted with a glass scale as shown in the figure to meet the demands from the many different sectors. Thereby making it possible to measure and compare the object to be inspected over the entire effective visual field of 7 mm.



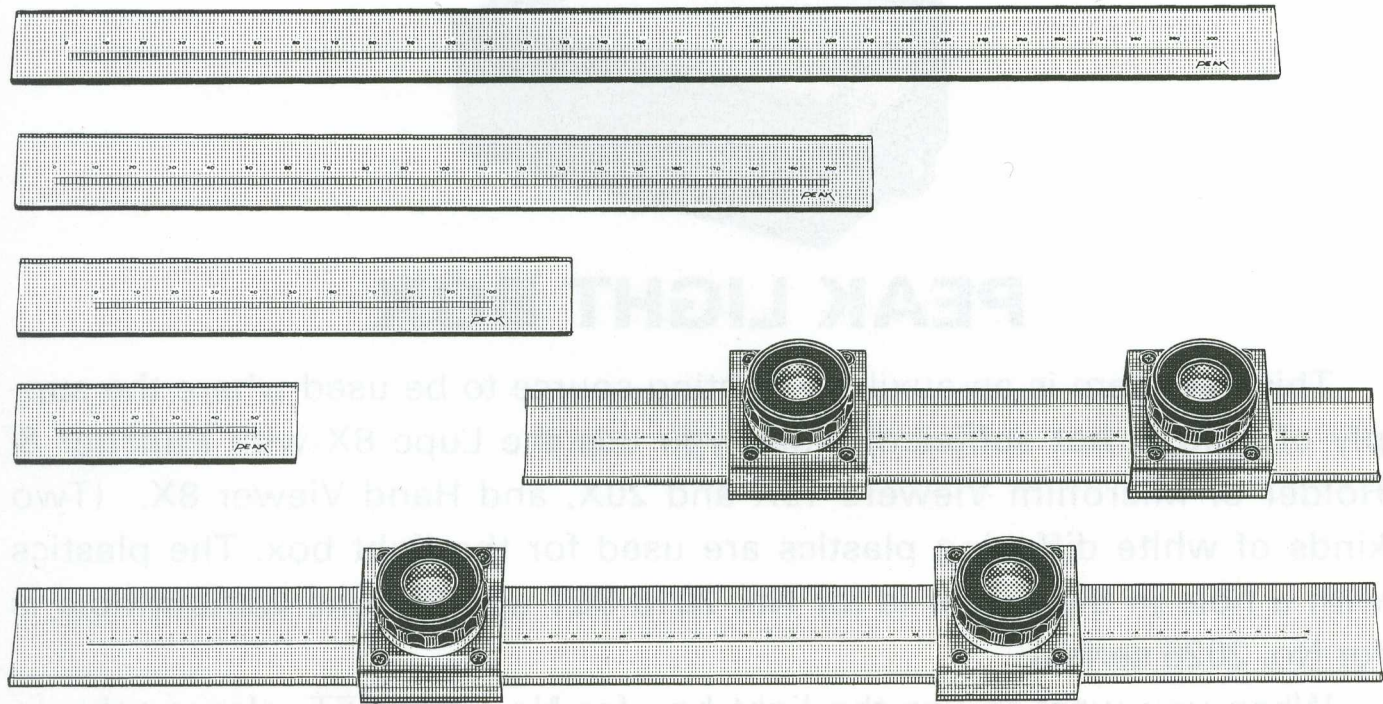
No. 2037-L

## PEAK LIGHT SCALE LUPE 30X

Insufficient supply of light has been improved by attaching to the Peak Scale Lupe 30X an illuminating device consisting of the penlight and the holder.

Observations can be achieved more easily than ever.

| Item No.   | Magnification | Effective aperture | Size                                  | Net weight |
|------------|---------------|--------------------|---------------------------------------|------------|
| No. 2037   | 30X           | 7 mm $\phi$        | 30 $\phi$ $\times$ 19 mm              | 16 gm.     |
| No. 2037-L | 30X           | 7 mm $\phi$        | 43 $\phi$ $\times$ 65 $\times$ 184 mm | 48 gm.     |



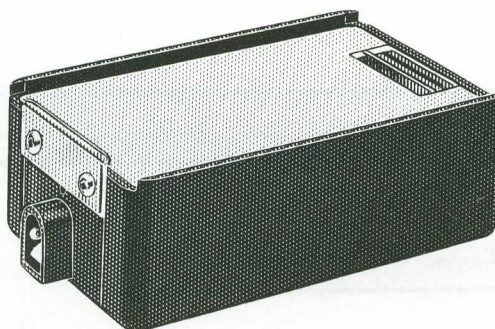
## PEAK GLASS SCALE

The PEAK glass scale consists of a transparent glass plate, which has graduations marked by means of photo-printing. This scale provides accurate readings without screening a whole visual field of an object to be measured from the eyes of the user. This glass plate has a function to resist against the difference of temperature.

For easier readings, use the accessory, PEAK lupe 15X.

S-type series have two cursors, on both of which PEAK scale lupe 10× (w/out scale) is set. The confirmation of 0-position and measuring between two points are possible.

| Item No.   | Length of scale | Min. scale division | Lupe     | Size               | weight    |
|------------|-----------------|---------------------|----------|--------------------|-----------|
| 1972-50    | 50 mm           | 0.1 mm              | 15×1 ps  | 3 t×25 mm×70 mm    | 31 gm.    |
| 1972-100   | 100 mm          | 0.1 mm              | 15×1 ps  | 3 t×25 mm×140 mm   | 39 gm.    |
| 1972-200   | 200 mm          | 0.1 mm              | 15×1 ps  | 3 t×25 mm×220 mm   | 57 gm.    |
| 1972-300   | 300 mm          | 0.1 mm              | 15×1 ps  | 3 t×25 mm×330 mm   | 77 gm.    |
| 1972-300S  | 300 mm          | 0.1 mm              | 10×2 pcs | 10 t×50 mm×360 mm  | 590 gm.   |
| 1972-500S  | 500 mm          | 0.1 mm              | 10×2 pcs | 10 t×50 mm×560 mm  | 807 gm.   |
| 1972-700S  | 700 mm          | 0.1 mm              | 10×2 pcs | 10 t×50 mm×760 mm  | 1,023 gm. |
| 1972-1000S | 1,000 mm        | 0.1 mm              | 10×2 pcs | 10 t×50 mm×1,060mm | 1,348 gm. |



## PEAK LIGHT BOX

This new item is an auxiliary lighting source to be used where the supply of light is not sufficient when you use the Lupe 8X with Puncher & Holder or Microfilm Viewers 15X and 20X, and Hand Viewer 8X. (Two kinds of white diffusing plastics are used for the light box. The plastics with a hole in the center is for No. 2018-SET and the one without hole is for No. 2026 series)

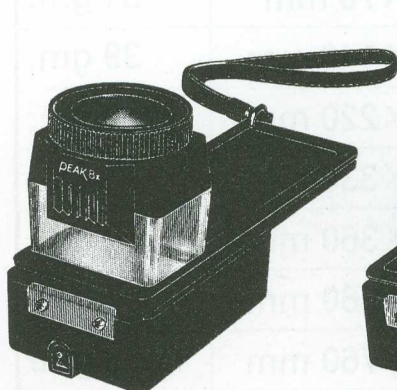
When you want to use the light box for No. 2018-SET, please refer to the pamphlet of 2018 series.

It is very simple and easy to connect the Light Box to the Microfilm Viewers.

A small rectangular metal plate is enclosed for the purpose of the connection. Put the small metal plate with a paper cover upward horizontally just on the magnet of Light Box. Then, peel the paper cover from it and fit the Microfilm Viewer, sliding it into the inner side along the both guides, on the white diffusing plastics until it stops at the end. Press the Viewer down from above so that metal plate with adhesive on the surface will stick to the bottom of the Viewer. Now, you can use the Light Box properly. When you like to detach the Microfilm Viewer from the light box, just lift it up with light box holding in your hand.

Size: 50×81×25 mm  
Net weight: 50 gm.

Battery: R6P×2  
Bulb: 2.5V 0.3A×1



2026-8



2026-15



2026-20

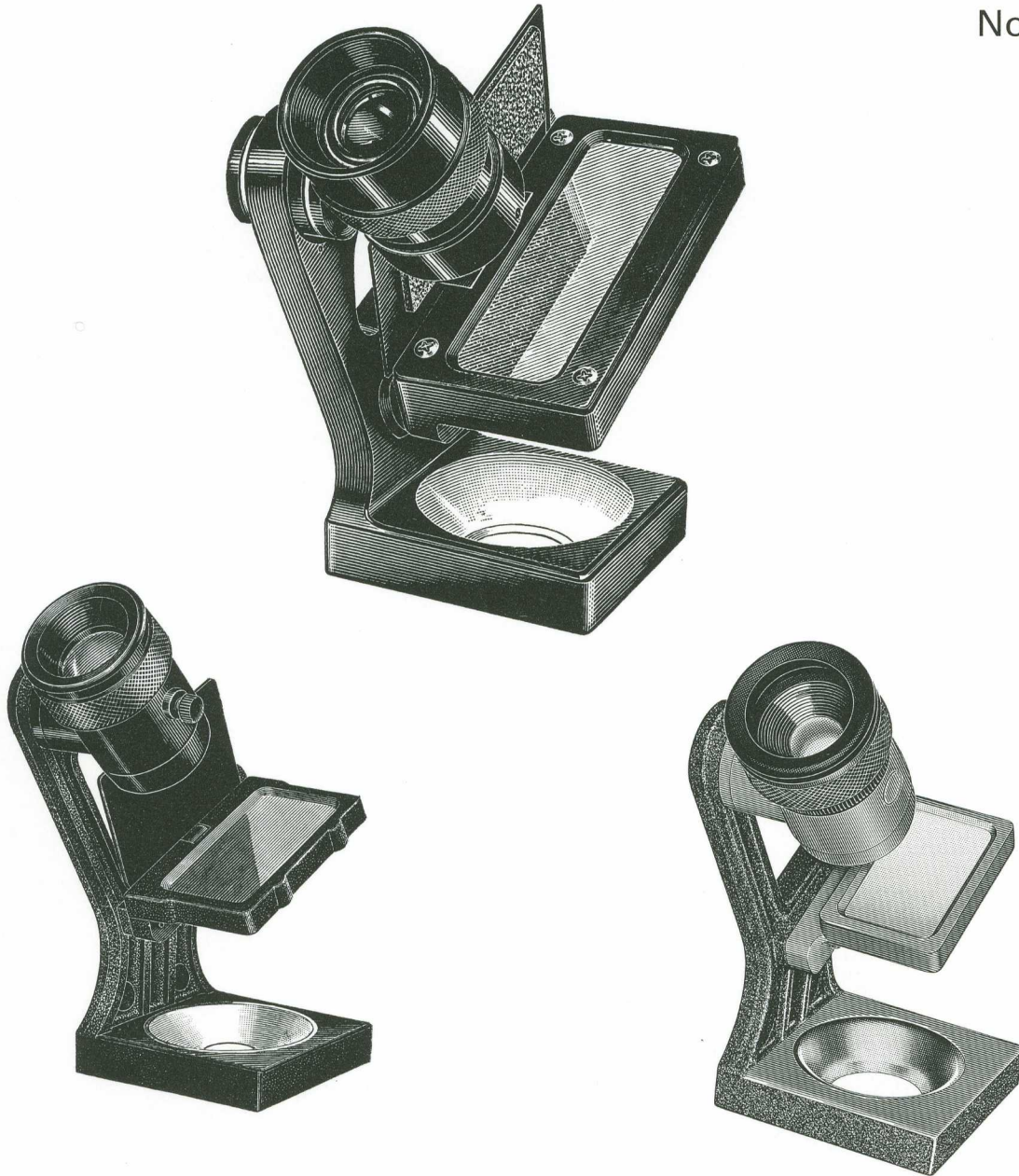


2018-SET

No. 2000

No. 2020

No. 2030



## **PEAK ENLARGING FOCUSER**

*(Prof. Z. Koana System)*

This focuser is an auxiliary instrument that enables extremely accurate focusing of a photo-enlarger at any position within the picture area as well as at its center. With the aid of the focuser you may utilize full performance of your enlarger and get prints as sharp as it can afford.