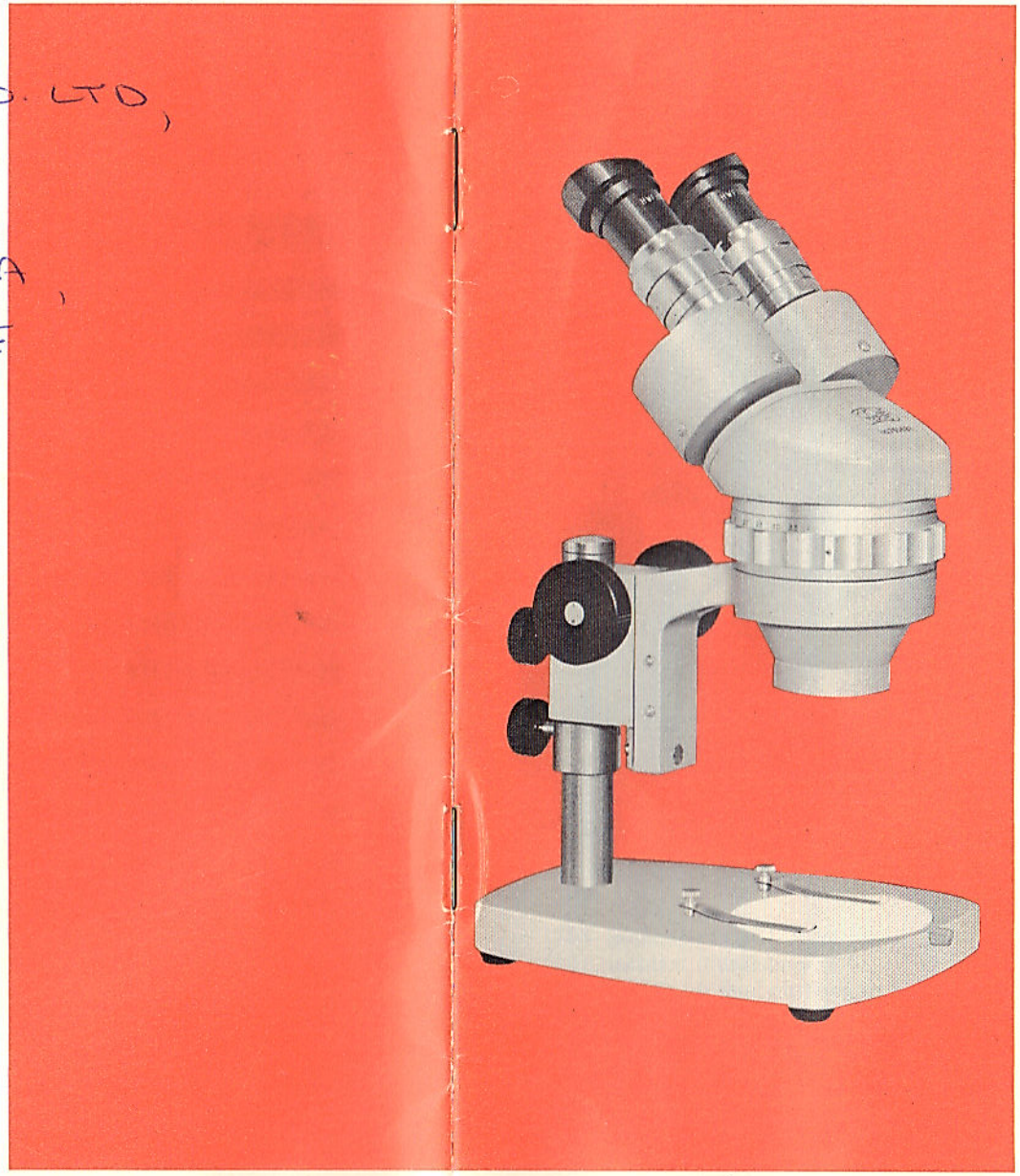
FINLAM MICROVISION CO. LTD,
12-13 MARKET HILL,
SOUTHAM,
LEAMINGTON SPA,
WARICKSHIRE

092681 3043

KYOWA TOKYO

KYOWA OPTICAL CO.,LTD.
TOKYO, JAPAN

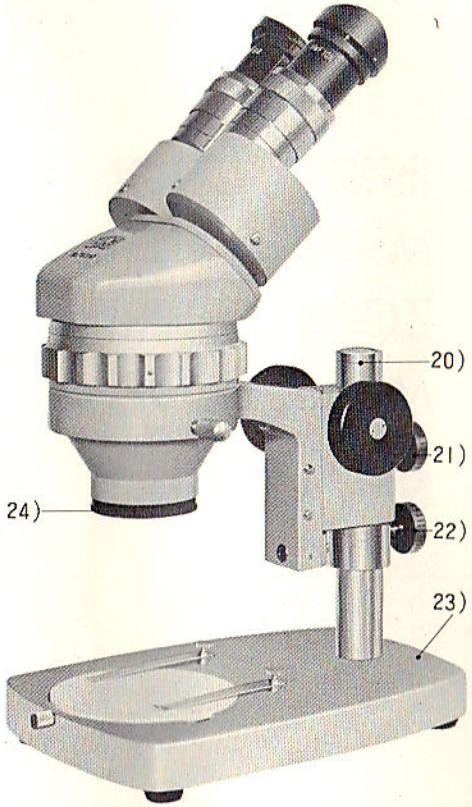


INSTRUCTION MANUAL ZOOM STEREO MICROSCOPES

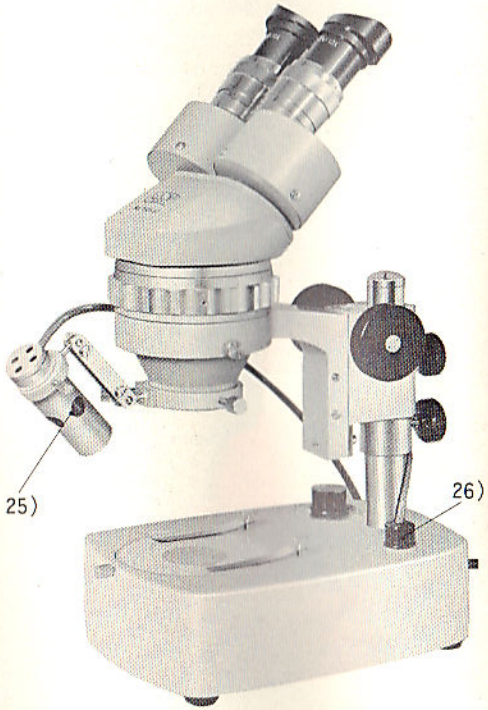
SDZ Series

7510 20H
Printed in Japan.

SDZ-P

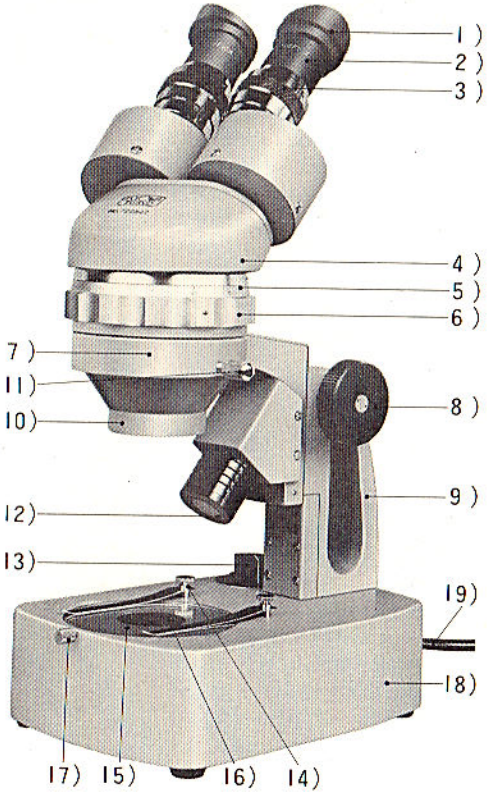


SDZ-PL

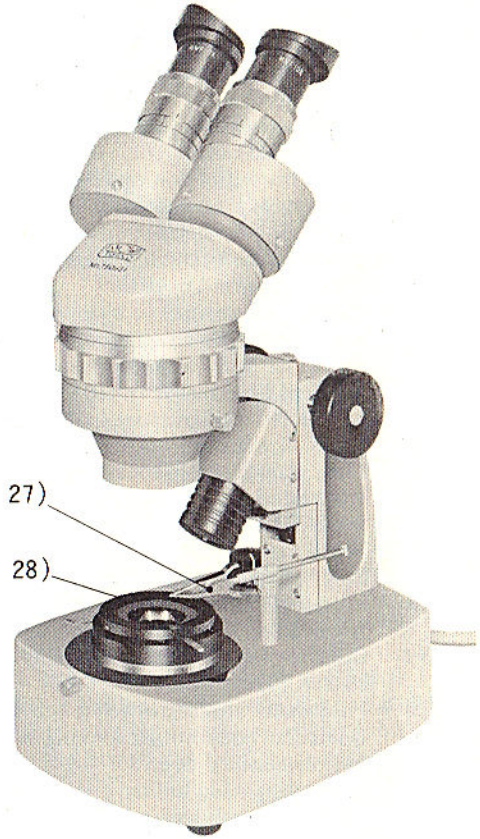


(1) Eyeguard
(2) Eyepiece
(3) Diopter adjustment ring
(4) Binocular body
(5) Zoom ratio guide line
(6) Zoom magnification revolver
(7) Binocular body holder
(8) Rack & pinion knob
(9) Handy arm stand
(10) Zoom objective cover mount

SDZ-AL



SDZ-AL-J



(11) Binocular body locking screw
(12) Incident illuminator
(13) Switch for dual purpose
(14) Stage clip
(15) Clear glass plate and black & white contrasted plastic plate
(16) Blue frosted filter
(17) Stage plate locking screw
(18) Transmitted illumination base
(19) Cord & plug (mains lead)
(20) Pole stand
(21) Binocular body holder locking screw
(22) Supplementary ring for supporting head holder
(23) Plain base
(24) Zoom objective protecting cover
(25) EP-1 flexible illuminator
(26) Socket for connecting EP-1 lamp
(27) Gem clamp (GC)
(28) Darkfield attachment (DFA)

COMPLETE MICROSCOPE

No.	Main parts	SDZ-P	SDZ-PL	SDZ-AL	SDZ-AL-J
1	Eyeguards 1 pair	*	*	*	*
2	Eyepieces HWF10x, HWF15x each 1 pair				
	Eyepieces HWF20x 1 pair optional	*	*	*	*
3	Diopter adjustment rings (right & left tubes) 1 division 0.8 dptr.	*	*	*	*
4	Binocular body, inclined 45°, rotatable 360°, can be locked in any position	*	*	*	*
5	Zoom ratio guide line (on the back of the head)	*	*	*	*
6	Zoom magnification revolver with zoom ratio graduations 0.7, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5	*	*	*	*
7	Binocular body holder	*	*	*	*
8	Rack & pinion knobs	*	*	*	*
9	Handy arm stand	/	/	*	*
10	Zoom objective cover mount	*	*	*	*
11	Binocular body locking screw	*	*	*	*
12	Incident illuminator (fixed)	/	/	*	*
13	Switch for dual purpose	/	*	*	*
14	Stage clips 1 pair	*	*	*	*
15	Clear glass plate and black & white contrasted plastic plate each 1 pc. dia. 93.8 mm	*	*	*	*
16	Blue frosted filter dia. 39 mm	/	*	*	*
17	Stage plate locking screw	*	*	*	*
18	Illumination base with built-in transmitted lamp and transformer	/	*	*	*
19	Cord & plug to home power source UL approved	/	*	*	*
20	Pole stand with a groove on the back	*	*	/	/
21	Binocular body holder locking screw	*	*	*	*
22	Supplementary ring for supporting head holder	*	*	/	/
23	Plain base with four rubber feet	*	/	/	/
24	Zoom objectives protecting cover	*	*	*	*
25	EP-1 flexible illuminator 6V 1.2A bulb	/	*	/	/
26	Socket for connecting EP-1 lamp to lamp base	/	*	/	/
27	Gem clamp (GC)	/	/	/	*
28	Darkfield attachment (DFA) for Jewel inspection	/	/	/	*
29	Supplementary lens attachment acceptable	*	*	/	/
30	Wooden cabinet, lock and keys	*	*	*	*

Note: * means yes, and / means not equipped or no necessary.

UNPACKING THE MICROSCOPE

1. Remove the wooden cabinet from its cardboard sleeve.
2. Unwined the keys from around the handle and remove the cord from the handle.
3. Lay the cabinet on its back on a clear table top or work bench.
4. Unlock the cabinet door and swing the door open.
5. Remove the styrofoam case wherein zoom head is contained and other accessories and all loose packing material from the cabinet onto the work top.
6. Remove the zoom head from the styrofoam case.
7. Open all containers and check all packing materials to ensure nothing is misplaced in the packing.
8. Using the triangular key on the key cord release the two screws securing the microscope base to the cabinet.
9. Remove the microscope from the cabinet and stand the microscope upright on the work top.
10. Close the cabinet and refasten the key cord to the handle.

SETTING UP THE MICROSCOPE

1. Remove the eyetube dust caps before inserting eyepieces into eye-tubes.
2. Remove the black cover plate (24) from the zoom objective cover mount (10).
3. Place the eyepieces (2) in the extention tubes (3) and place rubber eyeguards (1) over eyepieces if required.
4. Place the plastic stage plate one side black colored and another is white or clear glass stage plate (15) in the large stage hole, the choice is depended on whether you see opaque or disopaque object, and fix with the thumb screw (17) on the front surface of the base, (18) (23).
5. Place the two stage clips (14).
6. Place the specimen directly beneath the zoom objective mount (10).
7. Fix the binocular body (4) in any position with the head holder (7) by thumb locking screw (11) on the left side of the head holder (7).
8. Before scanning into eyepieces turn the knurled dioptric adjustment rings (3) on both right and left extention tubes until (0) number of the upper tubes are brought in line with a vertical line of the lower part of tubes.
9. Adjust the interocular (interpupillary) distance between two eye-tubes according to your both eyes by adjusting with both hands until you have single field in view.

10. First, turn the zoom magnification revolving changer (6) to the highest No. 4.5 in line with the vertical fixed line of the upper metal ring. (5)
11. Second, adjust the focusing by means of coarse knob (8) with both hands until specimen is sharp to both eyes.
12. Third, turn the zoom magnification revolving changer (6) to the lowest end No. 0.7.
13. In this case, if the image is not yet sharp try to adjust the dioptric adjustment ring (3) until the image is strictly sharp to both eyes (in this case, don't try to focus by coarse adjustment knob).
14. Turn again the zoom magnification revolving changer to the highest No. 4.5, if the image is still out of focusing, then try to refocus by adjusting coarse adjustment knob (in this case don't try to adjust by dioptric ring since this is already settled).
15. After complying with all above procedures step by step, then there will be no more unparfocality at all times and you will see sharp image at all magnifications continously.

EYESIGHT ADJUSTMENT PROCESS FROM NO. 8 TO NO. 14 IS VERY IMPORTANT PROCESS TO AVOIDE OUT-OF-FOCUS WHILE ZOOMING.

SPECIAL NOTE:

1. The removal or insertion of the binocular body from or into the binocular body holder must be done by gentle lifting up or down straightly by both hands.
2. Zoom objective protection cap must be removed before focusing.
3. For the experienced user, the eyeguards are not always necessary.
4. For the SDZ-AL or SDZ-AL-J, the supplementary lens attachments can not be used, because these microscope stands are provided with fixed working distance of 86 mm.
5. For the pole stand microscopes SDZ-P and SDZ-PL, the supplementary lenses 0.5x, 0.75x, 1.5x and 2.0x can be attached to the bottom part of the zoom objective cover mount by screw fitting. In case of using 0.5x lens or when the specimen is thicker you can add supplementary pole (P-1) for long excursion.
6. Zoom magnification change. . . .Since the zoom ratio numbers are engraved on the upper part of zoom magnification changer from 0.7 to 4.5. . . . .0.7, 1.0, 1.5, 2.0, 2.5x, 3.0, 3.5, 4.0, and 4.5, so that these numbers must be guided by the fixed vertical line on the lower part of binocular head.
7. Total magnification and field view are listed on page 10.

8. EP-1 Illuminator (25) for SDZ-PL
   Clamp the EP-1 illuminator removed from the styrofoam case on the bottom part of the zoom objective cover mount (10), and plug into the left part socket (26) of the pole (20), and plug in mains lead into the power supply source. The illuminator is provided with flexible arm and can be retained in any position and direction. The lamp house includes a blue filter on the top and double-lens condenser projects incandescent spot light on the specimen, bulb is connected with built-in base transformer. Relamping unscrew the lamp house.
9. The incident illuminator (12) for Model SDZ-AL and SDZ-AL-J.
   This is attached to the throat part of the binocular body holder with four screws. This includes a blue filter on the top and two lens condenser beneath the filter. The light is always projected to the specimen without adjustment. Relamping unscrew the lamp house.
10. Transmitted illumination base (18) for Model SDZ-PL and SDZ-AL.
    Transformer is built in the base, and bulb filament is directed to the center of the stage hole. Relamping open the bottom cover plate.
11. Bulbs:
    6V 1.2A with horizontal flat filament with bayonet base for EP-1 or incident illuminator for SDZ-AL.
    6V 1.2A with vertical flat filament with bayonet base for transmitted illuminator for SDZ-PL or SDZ-AL.
12. Switch On or Off of the illuminators:
    Rotate the rotary switch knob (13) from OFF to (I) or (T) and or (IT).
    (I) connects incident illuminators (EP-1 or regular), (T) connects transmitted illuminator and (IT) connects simultaneous illuminators with incident and transmitted.

ACCESSORIES

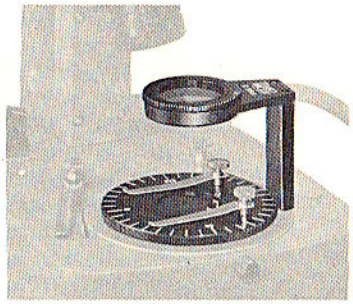
EYEPIECES



HWF 10x HWF15x HWF20x

POS-2

POLARIZING ATTACHMENT



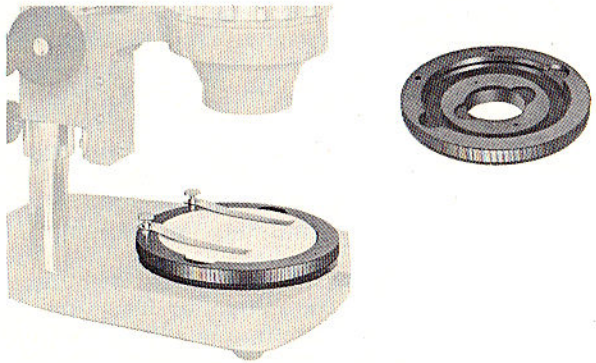
DFA

DARK FIELD ATTACHMENT



DON'T USE A BLUE FILTER WHEN DARK FIELD ATTACHMENT USED.

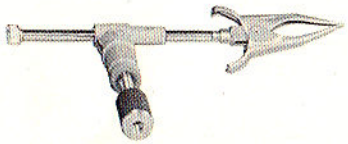
SST CIRCULAR SLIDING STAGE



Replace the disc insert on the base. It permits convenient movement of a specimen in any direction within a diameter of 20 mm for scanning or orienting position. The stage accepts a clear glass stage plate or an opaque stage plate which are already provided as conventional accessories and stage clips too.

GC

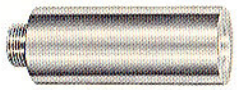
GEM CLAMP



Sturdy metal clamp, adjustable for holding & positioning a variety of tiny objects for stereo observations. Place it in its socket by removing a spring clip. Facilitate JEWELSCOPE.

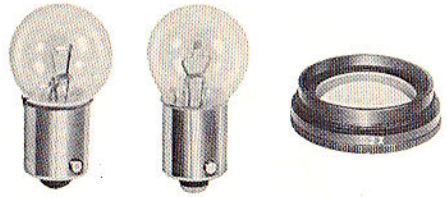
P-1

EXTENSION PILLAR



Screw into the upright pillar support of the microscope head. It provides additional height up to 60mm for use with large thicker specimens, and for greater working distance required when using the 0.5x Supplementary Lens Attachment.

BULB



flat filament for incident Vertical Filament for transmitted

SLA

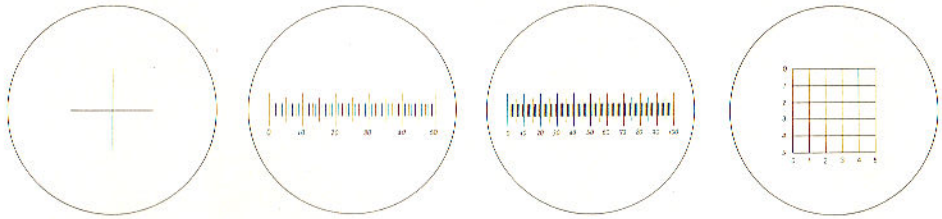
SUPPLEMENTARY LENS ATTACHMENTS

0.5x	W.D.	158mm
0.75x	W.D.	100mm
1.5x	W.D.	44mm
2x	W.D.	30mm

Available for SDZ-P and SDZ-PL
0.5x Lens requires additional pillar P-1 as shown on page 8.

EYEPIECE MICROMETER DISCS

In the case of Kellner type eyepiece, the real image is formed ahead of the field lens, and an arrangement is made to place reticles in front of field lens.



SM100-1
Cross-hair

SM101-1
5/50
5mm scale divided into 50 parts

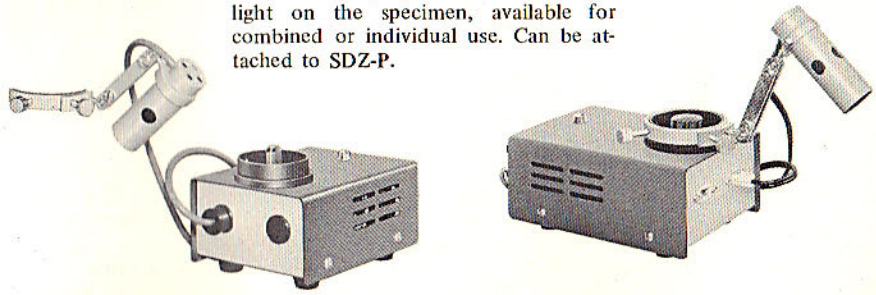
SM102-1
10/100
10mm scale divided into 100 parts

SM103-1
Net Micrometer
5mm square subdivided into 25 squares.

EP-1

FLEXIBLE EPI-ILLUMINATOR WITH TRANSFORMER

6V 1.2A bulb projects incandescent spot light on the specimen, available for combined or individual use. Can be attached to SDZ-P.



ZOOM STEREOSCOPIC MICROSCOPE

GENERAL OPTICAL TABLE ACCORDING TO EACH ZOOM MAGNIFICATION DIAL

Primary Zoom Magnification	Eyepieces	Dial	0.7X	1.0X	1.5X	2.0X	2.5X	3.0X	3.5X	4.0X	4.5X
Without Supplementary Lens (Working Distance 86mm)	HWF10X	Total Mag.	7X	10X	15X	20X	25X	30X	35X	40X	45X
		Real Field	32.86 mm	23.0 mm	15.33 mm	11.5 mm	9.2 mm	7.67 mm	6.57 mm	5.75 mm	5.11 mm
	HWF15X	Mag.	10.5X	15X	22.5X	30X	37.5X	45X	52.5X	60X	67.5X
		Field	21.71	15.2	10.13	7.6	6.08	5.07	4.34	3.8	3.38
	HWF20X	Mag.	14X	20X	30X	40X	50X	60X	70X	80X	90X
		Field	16.14	11.3	7.53	5.65	4.52	3.77	3.23	2.83	2.51
With Supplementary Lens 0.5X (W. D. 158mm)	HWF10X	Mag.	3.5X	5X	7.5X	10X	12.5X	15X	17.5X	20X	22.5X
		Field	67.52	46.00	30.66	23.00	18.40	15.34	13.14	11.50	10.22
	HWF15X	Mag.	5.2X	7.5X	11.2X	15X	18.7X	22.5X	26X	30X	33.6X
		Field	43.42	30.40	20.26	15.20	12.16	10.14	8.68	7.60	6.76
	HWF20X	Mag.	7X	10X	15X	20X	25X	30X	35X	40X	45X
		Field	32.28	22.60	15.06	11.30	9.04	7.54	6.46	5.66	5.02
With Supplementary Lens 0.75X (W. D. 100mm)	HWF10X	Mag.	5.25X	7.5X	11.25X	15X	18.75X	22.5X	26.25X	30X	33.75X
		Field	43.81	30.67	20.44	15.33	12.27	10.22	8.76	7.67	6.81
	HWF15X	Mag.	7.88X	11.25X	16.88X	22.5X	28.13X	33.75X	39.38X	45X	50.63X
		Field	28.95	20.27	13.51	10.13	8.11	6.76	5.79	5.07	4.50
	HWF20X	Mag.	10.5X	15X	22.5X	30X	37.5X	45X	52.5X	60X	67.5X
		Field	21.52	15.07	10.04	7.53	6.03	5.02	4.30	3.77	3.35
With Supplementary Lens 1.5X (W. D. 44mm)	HWF10X	Mag.	10.5X	15X	22.5X	30X	37.5X	45X	52.5X	60X	67.5X
		Field	21.90	15.33	10.22	7.67	6.13	5.11	4.38	3.83	3.41
	HWF15X	Mag.	15.75X	22.5X	33.75X	45X	56.25X	67.5X	78.75X	90X	101.25X
		Field	14.48	10.13	6.76	5.07	4.05	3.38	2.90	2.53	2.25
	HWF20X	Mag.	21X	30X	45X	60X	75X	90X	105X	120X	135X
		Field	10.76	7.53	5.02	3.77	3.01	2.51	2.15	1.88	1.67
With Supplementary Lens 2X (W. D. 30mm)	HWF10X	Mag.	14X	20X	30X	40X	50X	60X	70X	80X	90X
		Field	16.43	11.50	11.25	5.75	4.60	3.83	3.28	2.87	2.55
	HWF15X	Mag.	21X	30X	45X	60X	75X	90X	105X	120X	135X
		Field	10.85	7.60	5.15	3.80	3.04	2.53	2.17	1.90	1.69
	HWF20X	Mag.	28X	40X	60X	80X	100X	120X	140X	160X	180X
		Field	8.07	5.65	3.76	2.82	2.26	1.88	1.61	1.41	1.25

MEMO: