

# Macro Lenses / Objective Lenses / A.E. Rings for Objective Lenses

## Low/High Magnification

# Objective Lenses / A.E. Rings Mounting Conversion Chart

### Macro Lens - Low Magnification

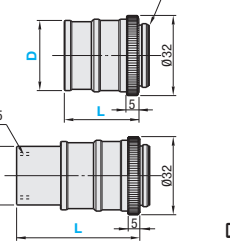


#### LFSL

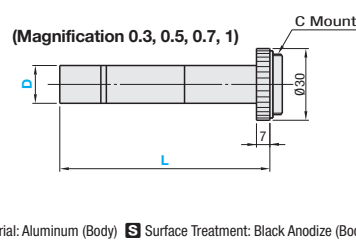
(Magnification 0.3)

(Magnification 0.5/1.0)

· Ø29 Type



· Ø16 Type

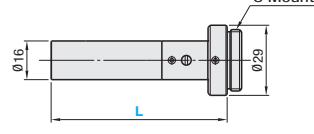


Material: Aluminum (Body) Surface Treatment: Black Anodize (Body)

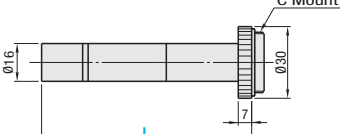
### Macro Lens - High Magnification



#### LFSHA (Precision Grade)



#### LFSHB (General Purpose)



Material: Aluminum (Body) Surface Treatment: Black Anodize (Body)

### Low Magnification

Part Number	D	L	WD	Resolution µm	Depth of Field (mm)	Weight (g)	Unit Price	Volume Discount Rate
Type	Magnification						1 - 4 pc(s)	5 - 20 pcs.
LFSL	0.3	16	50	242	14.5	4.38	23	
		29	29.8	90	14	4	39	
	0.5	16	35	105	6.4	1.19	20	
			42	118	7.2	1.35	21.5	
			50	139	8.6	1.55	23	
			60	162	9.8	1.82	25	
		29	50.5	90	8	2.4	55	
	0.7	16	41	84	5.2	0.67	21.5	
			69	129	7.9	1.03	26	
	1	16	50	68	4.2	0.4	23	
				57.5	77	4.7	0.45	25
			68.5	90	5.5	0.52	26	
		99	128	7.4	1.2	35		
	29	92.6	90	5	0.8	68		

For orders larger than indicated quantity, please check with WOS.

### High Magnification

Part Number	L	WD	Resolution µm	Depth of Field (mm)	Weight (g)	Unit Price	Volume Discount Rate
Type	Magnification					1 - 4 pc(s)	5 - 20 pcs.
LFSHA	2	72.8	75	3.3	0.4	35	
	4	103.8			0.28	40	
LFSHB	2	90	56	3.4	0.28	33	
			113	63	3.9	0.32	40
		125	77	4.7	0.38	43	
	4	158	45	2.8	0.12	53	
			186	52	3.2	0.14	60
		6	198	37	2.3	0.06	65

For orders larger than indicated quantity, please check with WOS.

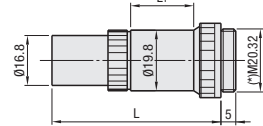
Ordering Example: Part Number LFSLO,5 - 29 - 50.5 LFSHBA - 29 - 158

Features: The combination of the objective lens, generally used for microscopes, with a macro ring can be used as an economical FA image inspection lens. For selection, see P.2028, 2030

### Objective Lens



#### LTAB

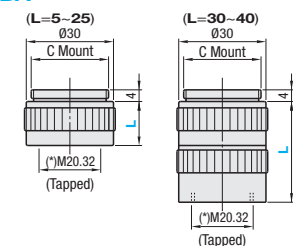


Material: Aluminum (Body) Surface Treatment: Black Anodize (Body)

### Auto Extension Rings for Objective Lenses



#### LTABA



Material: Aluminum (Body) Surface Treatment: Black Anodize (Body)

### Objective Lens

Part Number	Resolution µm	Depth of Field (mm)	L	L1	Weight (g)	Unit Price	Volume Discount Rate
Type	Magnification					1 - 4 pc(s)	5 - 20 pcs.
LTAB	3	4.8	0.124	42	7	24	
	4	3.7	0.074	56	21	28	
	6	2.4	0.031	71.5	34	37	
	8	2.2	0.024	79	41	43	

For orders larger than indicated quantity, please check with WOS.

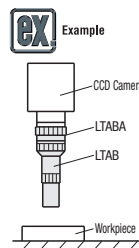
Data in the above table are the values for lens only and it will be changed depending on the combination of auto extension ring. P.2030

### Auto Extension Rings for Objective Lenses

Part Number	L	Weight (g)	Unit Price	Volume Discount Rate
Type			1 - 4 pc(s)	5 - 20 pcs.
LTABA	5	7		
	10	12		
	15	17		
	20	22		
	25	27		
	30	28		
	35	32.5		
	40	37		

For orders larger than indicated quantity, please check with WOS.

Ordering Example: Part Number LTAB3 LTABA10



Most suitable for cost sensitive applications not requiring high quality imaging.

### The Field of View and Monitor Magnification with Auto Extension Ring mounted to the Objective Lens

Auto Extension Ring No.	Objective Lens No.	CCD Camera Size and Field of View (Length x Width mm)			CCD Camera Size and Monitor Magnification (9 Inch Monitor)			Shooting Distance WD
		2/3 inch	1/2 inch	1/3 inch	2/3 inch	1/2 inch	1/3 inch	
5	3	32x41	24x31	18x24	4	6	7	330
	4	8.2x10.8	6x8	4.8x6.2	16	21	28	100
	6	3.3x4.5	2.6x3.4	2x2.6	38	50	67	47
	8	2.2x2.9	1.6x2.2	1.3x1.7	59	78	104	33
10	3	20.5x27	15.5x20.5	12x15.5	6	8	11	230
	4	7x9.3	5.3x7	4x5.3	18	24	32	93
	6	3.1x4	2.4x3.2	1.8x2.4	41	54	73	45
	8	2x2.7	1.6x2	1.2x1.6	63	83	110	32
15	3	15.4x20	11x15	9x11.5	9	12	15	181
	4	6.2x8	4.7x6.1	3.5x4.8	21	28	37	86
	6	2.9x3.8	2.2x2.9	1.6x2.2	45	59	77	43
	8	1.9x2.5	1.4x1.9	1.1x1.5	68	89	117	32
20	3	12x16	9x12	7x9	11	14	19	153
	4	5.5x7.1	4.1x5.4	3.1x4.1	24	31	42	81
	6	2.7x3.4	2x2.7	1.5x2	48	65	83	42
	8	1.8x2.4	1.4x1.8	1x1.4	74	96	127	31
25	3	10x13	7.5x10	5.7x7.5	13	17	23	135
	4	5x6.3	3.8x5	2.9x3.8	26	34	46	77
	6	2.5x3.2	1.9x2.5	1.4x1.9	51	69	89	41
	8	1.7x2.2	1.3x1.7	1.0x1.3	77	100	134	31
30	3	8.5x11	6.5x8.5	5x6.5	16	20	27	122
	4	4.5x5.9	3.3x4.4	2.6x3.4	29	38	51	73
	6	2.3x3	1.8x2.3	1.3x1.8	54	73	96	40
	8	1.6x2.1	1.2x1.6	0.9x1.2	81	107	138	30
35	3	7.4x9.8	5.7x7.3	4.2x5.7	18	23	30	112
	4	4x5.3	3x4	2.3x3.1	31	42	55	70
	6	2.2x2.9	1.7x2.2	1.3x1.7	58	77	103	39
	8	1.5x2	1.2x1.5	0.9x1.2	86	113	148	30
40	3	6.6x8.5	5x6.5	3.9x5	20	26	34	105
	4	3.8x5	2.8x3.8	2.2x2.9	35	45	59	68
	6	2.1x2.8	1.6x2.1	1.2x1.6	61	81	109	39
	8	1.5x1.9	1.1x1.5	0.8x1.1	89	118	154	30

Monitor Magnification: Magnification of each lens and expansion of magnification on the monitor with the actual size of CCD camera.

Data in the above table are only for reference, which are obtained through our actual measurements using 9 inches monitor.

Note that when the monitor size is different, its value will be different because the size of monitor and monitor magnification are proportional.

CCD Camera Used: 400,000 Pixels, Resolution: 570 Pairs in TV (Horizontal Resolution)

(\*) Thread size specific to microscope-related products  
The combination of LTAB and LTABA can be used as the C Mount FA lens. (See P.2028, 2030)