

F-Mount Line Scan Lenses

VS-L (F) Series

The VS-L(F) series is designed with an F-mount for line scan cameras. There is a large range of focal lengths and supported sensors which make it a good choice for any line scan application.

- Features
- 29 - 45mm sensor support
 - 11 models available
 - Focal Length 18 - 185mm
 - F-Mount
 - Distortionless



VS-L(F) Magnification chart

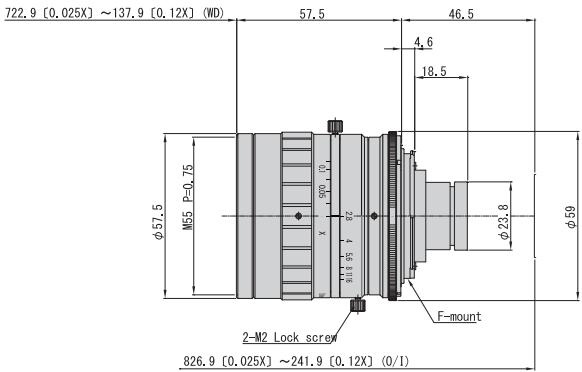
		∞	0.05x	0.1x	0.15x	0.2x	0.25x	0.3x	0.35x	0.5x	1x
VS-L1828/F	P113	722.9mm (0.025x)	↔	137.9mm (0.12x)							
VS-L2526/F	P113	1010.8mm (0.025x)	↔	198.1mm (0.12x)							
VS-L3528/F	P113		706.9mm (0.05x)	↔				112.8mm (0.3x)			
VS-L3528LM/F	P113	1795.2mm (0.02x)	↔	289.0mm (0.12x)							
VS-L5018FL/F	P114	1123.7mm (0.05x)	↔		388.6mm (0.14x)						
VS-L5028/F	P114		1025.0mm (0.05x)	↔				181.4mm (0.3x)			
VS-L8540/F	P114			864.2mm (0.1x)	↔				285.0mm (0.35x)		
VS-L10028/F	P114		2050.7mm (0.05x)	↔				409mm (0.3x)			
VS-L18556/F	P115			1951.7mm (0.108x)	↔	1404.4mm (0.159x)					



Please refer P106 for
Line scan telecentric lens series

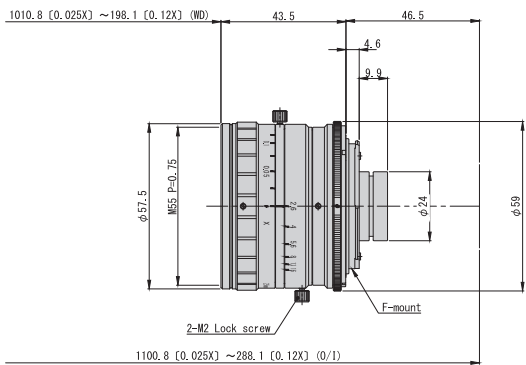
Low magnification model

VS-L1828/F



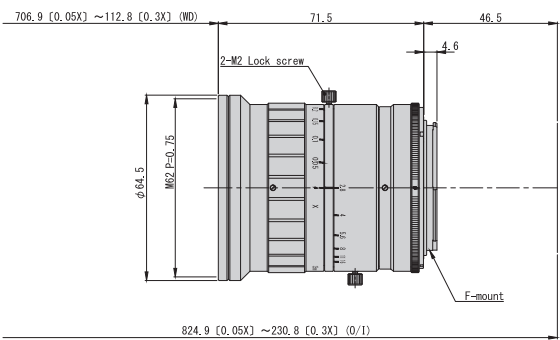
Focal Length(f)	18 mm			
Optical Mag. Range	(∞) 0.025x ~ 0.12x			
Optical Mag.	0.025x	0.05x	0.1x	0.12x
WD	722.9 mm	352.8 mm	168.4 mm	137.9 mm
O/I (Object & Imager distance)	826.9 mm	456.8 mm	272.4 mm	241.9 mm
Aperture	F 2.8 ~ 16			
Working F/# *Value at Iris open	2.9	3.0	3.1	3.2
DOF at PCoC φ0.04mm	371.2 mm	96 mm	24.8 mm	178 mm
Optical Distortion (Y=14.5)	-2.14 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	F-Mount			
Flange Back	46.5 mm			
Image Circle	φ29 mm			
Filter Thread	M 55 P = 0.75			
Weight (approx.)	330 g			
Dimension	φ59(max.) x L = 57.5 mm			

VS-L2526/F



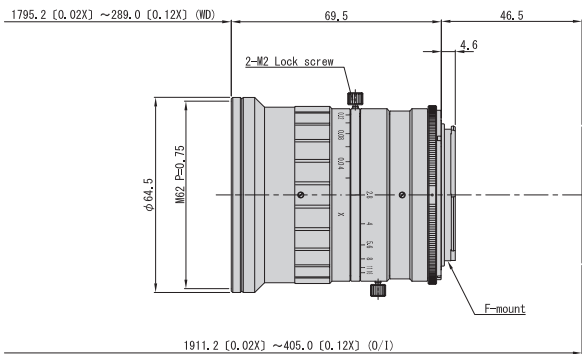
Focal Length(f)	25 mm			
Optical Mag. Range	(∞) 0.025x ~ 0.12x			
Optical Mag.	0.025x	0.05x	0.1x	0.12x
WD	1010.8 mm	496.6 mm	240.5 mm	198.1 mm
O/I (Object & Imager distance)	1100.8 mm	586.6 mm	330.5 mm	288.1 mm
Aperture	F 2.6 ~ 16			
Working F/# *Value at Iris open	2.7	2.8	2.9	2.9
DOF at PCoC φ0.04mm	345.6 mm	89.6 mm	23.2 mm	16.1 mm
Optical Distortion (Y=14.5)	-1.64 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	F-Mount			
Flange Back	46.5 mm			
Image Circle	φ29 mm			
Filter Thread	M 55 P = 0.75			
Weight (approx.)	245 g			
Dimension	φ59(max.) x L = 43.5 mm			

VS-L3528/F

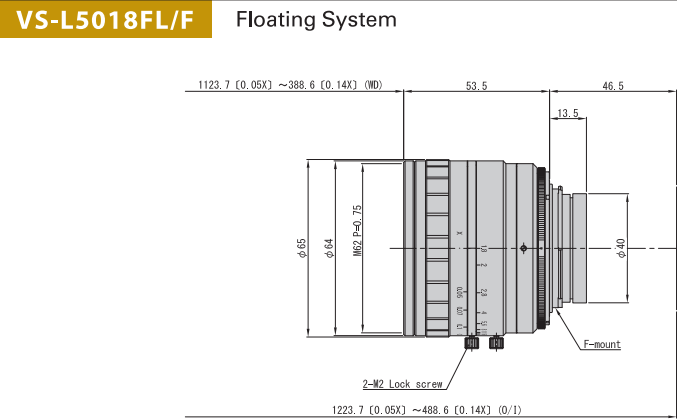


Focal Length(f)	35 mm			
Optical Mag. Range	(∞) 0.05x ~ 0.3x			
Optical Mag.	0.05x	0.1x	0.2x	0.3x
WD	706.9 mm	346.8 mm	169.5 mm	112.8 mm
O/I (Object & Imager distance)	824.9 mm	464.8 mm	287.5 mm	230.8 mm
Aperture	F 2.8 ~ 16			
Working F/# *Value at Iris open	2.8	3.0	3.3	3.5
DOF at PCoC φ0.04mm	89.6 mm	24.0 mm	6.6 mm	3.1 mm
Optical Distortion (Y=22.5)	-0.43 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	F-Mount			
Flange Back	46.5 mm			
Image Circle	φ45 mm			
Filter Thread	M 62 P = 0.75			
Weight (approx.)	350 g			
Dimension	φ64.5(max.) x L = 71.5 mm			

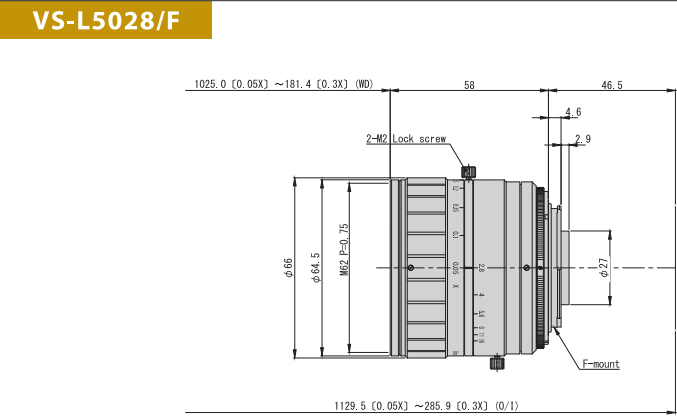
VS-L3528LM/F



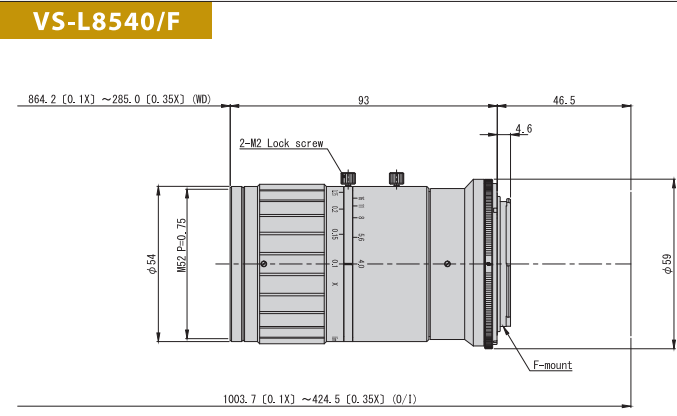
Focal Length(f)	35 mm			
Optical Mag. Range	(∞) 0.02x ~ 0.12x			
Optical Mag.	0.02x	0.04x	0.8x	0.12x
WD	1795.2 mm	890.0 mm	438.5 mm	289.0 mm
O/I (Object & Imager distance)	1911.2 mm	1006.0 mm	554.5 mm	405.0 mm
Aperture	F 2.8 ~ 16			
Working F/# *Value at Iris open	2.9	2.9	3.0	3.2
DOF at PCoC φ0.04mm	580.0 mm	145.0 mm	37.5 mm	178 mm
Optical Distortion (Y=22.5)	-0.21 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	F-Mount			
Flange Back	46.5 mm			
Image Circle	φ45 mm			
Filter Thread	M 62 P = 0.75			
Weight (approx.)	340 g			
Dimension	φ64.5(max.) x L = 69.5 mm			



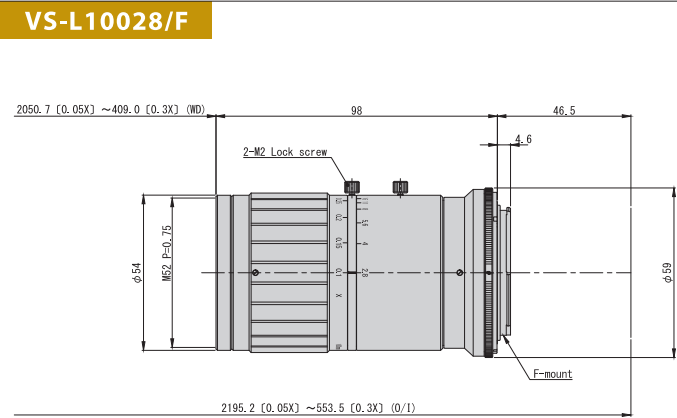
Focal Length (f)	50 mm			
Optical Mag. Range	(∞) 0.05x ~ 0.14x			
Optical Mag.	0.05x	0.07x	0.1x	0.14x
WD	1123.7 mm	752.4 mm	533.6 mm	388.6 mm
O/I (Object & Imager distance)	1223.7 mm	852.4 mm	633.6 mm	488.6 mm
Aperture	F 1.8 ~ 16			
Working F/# *Value at Iris open	2.0	2.1	2.2	
DOF at PCoC φ0.04mm	64.0 mm	32.7 mm	16.8 mm	9.0 mm
Optical Distortion (Y=21.5)	-2.37 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	F-Mount			
Flange Back	46.5 mm			
Image Circle	φ45 mm			
Filter Thread	M 62 P = 0.75			
Weight (approx.)	340 g			
Dimension	φ65(max.) x L = 53.5 mm			



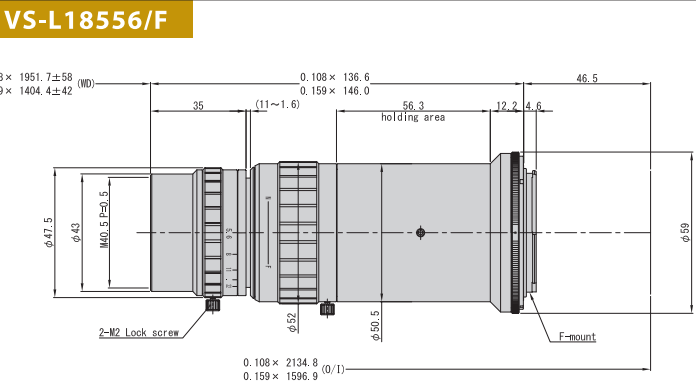
Focal Length (f)	50 mm			
Optical Mag. Range	0.05x ~ 0.3x			
Optical Mag.	0.05x	0.1x	0.2x	0.3x
WD	1025.0 mm	513.7 mm	261.9 mm	181.4 mm
O/I (Object & Imager distance)	1129.5 mm	618.2 mm	366.4 mm	285.9 mm
Aperture	F 2.8 ~ 16			
Working F/# *Value at Iris open	3.1	3.2	3.5	3.8
DOF at PCoC φ0.04mm	99.2 mm	25.6 mm	7.0 mm	3.4 mm
Optical Distortion (Y=22.5)	-0.02 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	F-Mount			
Flange Back	46.5 mm			
Image Circle	φ45 mm			
Filter Thread	M 62 P = 0.75			
Weight (approx.)	290 g			
Dimension	φ66(max.) x L = 58 mm			



Focal Length (f)	85 mm			
Optical Mag. Range	0.1x ~ 0.35x			
Optical Mag.	0.1x	0.2x	0.3x	0.35x
WD	864.2 mm	452.5 mm	320.8 mm	285.0 mm
O/I (Object & Imager distance)	1003.7 mm	592.0 mm	460.3 mm	424.5 mm
Aperture	F 4 ~ 16			
Working F/# *Value at Iris open	4.4	4.8	5.2	5.4
DOF at PCoC φ0.04mm	35.2 mm	9.6 mm	4.6 mm	3.5 mm
Optical Distortion (Y=25)	0.00 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	F-Mount			
Flange Back	46.5 mm			
Image Circle	φ50 mm			
Filter Thread	M 52 P = 0.75			
Weight (approx.)	350 g			
Dimension	φ59(max.) x L = 93 mm			

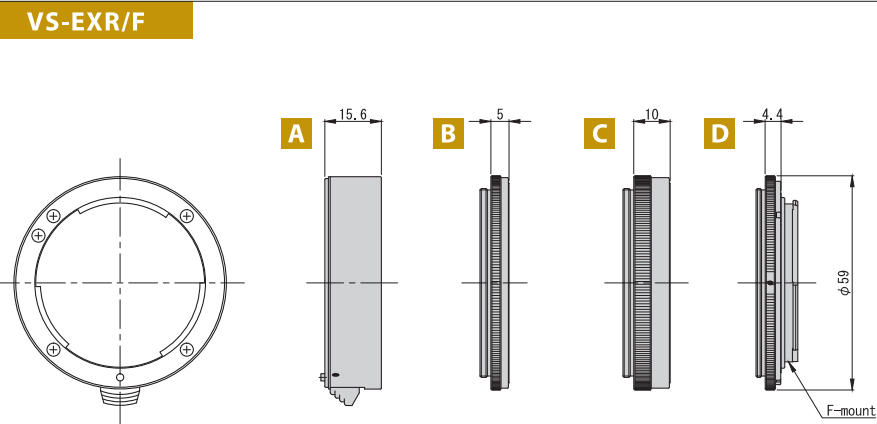


Focal Length (f)	100 mm			
Optical Mag. Range	0.05x ~ 0.3x			
Optical Mag.	0.05x	0.1x	0.2x	0.3x
WD	2050.7 mm	1055.7 mm	565.7 mm	409.0 mm
O/I (Object & Imager distance)	2195.2 mm	1200.2 mm	710.2 mm	553.5 mm
Aperture	F 2.8 ~ 16			
Working F/# *Value at Iris open	3.2	3.4	3.7	4.0
DOF at PCoC φ0.04mm	102.4 mm	27.2 mm	7.4 mm	3.6 mm
Optical Distortion (Y=22.5)	0.10 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	F-Mount			
Flange Back	46.5 mm			
Image Circle	φ45 mm			
Filter Thread	M 52 P = 0.75			
Weight (approx.)	360 g			
Dimension	φ59(max.) x L = 98 mm			



Focal Length (f)	185 mm	
Optical Mag. Range	0.108x ~ 0.159x	
Optical Mag.	0.108x	0.159x
WD	1951.7 mm ± 58	1404.4 mm ± 42
O/I (Object & Imager distance)	2134.8 mm	1596.9 mm
Aperture	F 5.6 ~ 32	
Working F/# *Value at Iris open	7.1	7.4
DOF at PCoC φ0.04mm	48.5 mm	23.4 mm
Optical Distortion (Y=22.5)	0.48 %	
Operation	Manual (Lock Screw M2)	
Wavelength	Visible	
Mount	F-Mount	
Flange Back	46.5 mm	
Image Circle	φ45 mm	
Filter Thread	M 40.5 P = 0.5	
Weight (approx.)	400 g	
Dimension	φ59(max.) x L = 133.6 ~ 146 mm	

F-Mount Extension Tube set



You may choose from any one of the following combinations:

- 1) A+D :default = 20mm
- 2) A+D+B = 25mm
- 3) A+D+C = 30mm
- 4) A+D+B+C = 35mm

Frange Back Chart

Mount	Camera Frange Back Length
F-Mount (Nikon Mount)	46.5mm
M42 mount	6.56mm
	10mm
	12mm
	19.53mm
M72 mount	45.5mm
	6.56mm
	12mm
	19.56mm
M95 mount	28.8mm
	31.8mm
	9.4mm

※ Camera Frange Back Length

Large Sensor Format Line Scan Lenses

VS-L(V) Series

The VS-L(V) series is especially designed for large sensors up to 90mm in length, with integrated vibration resistance, a large selection of various mount adapters, high resolution, and high contrast it is an exceptionally excellent choice for any line scan application.

- Features
- Up to 90mm sensors
 - 13 models available
 - Up to 2K, 12K, & 16K
 - Variable mounts
 - Distortionless

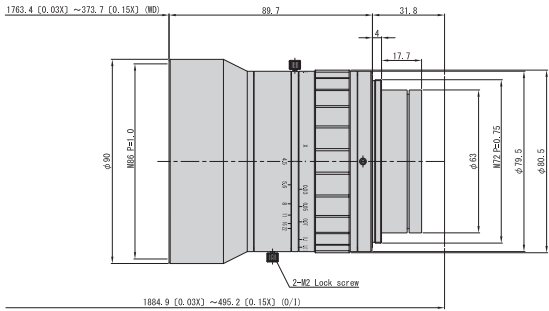


Line Up

Image Circle		Line Up					
		21Φ	28.6Φ	35Φ	45Φ	65Φ	90Φ
Line Sensor Size	2048bit×10μ=20.48mm	●	●	●	●	●	●
	2048bit×14μ=28.67mm		●	●	●	●	●
	7400bit×4.7μ=34.78mm		●	●	●	●	●
	4096bit×10μ=40.96mm				●	●	●
	6144bit×7μ=43.00mm				●	●	●
	8192bit×7μ=57.34mm					●	●
	12288bit×5μ=61.44mm					●	●
	16384bit×5μ=81.92mm						●
Area Sensor Seize	2048×2048(7.4μ)=15.15×15.15(dia 21.43mm)		●	●	●	●	●
	4096×3072(6μ)=24.57×18.43(dia 30.72mm)			●	●	●	●
	4008×2672(19μ×9μ)=76.15×24.04(dia 79.86mm)						●

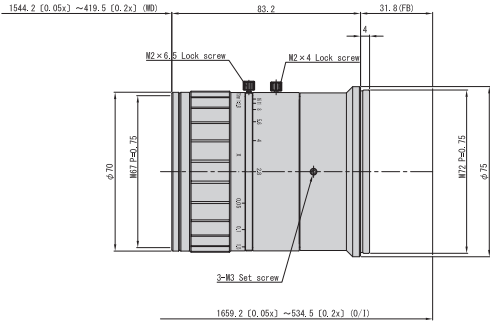
*Sensor size may differ depending on the camera manufacturer.

VS-L5045FL/M72S



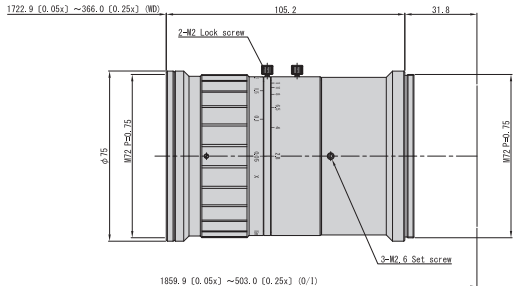
Focal Length (f)	52.5 mm		
Optical Mag. Range	(∞) 0.03x ~ 0.15x		
Optical Mag.	0.03x	0.10x	0.15x
WD	1763.4 mm	545.2 mm	373.7 mm
O/I (Object & Imager Distance)	1884.9 mm	666.7 mm	495.2 mm
Aperture	F 4.5 ~ 22		
Working F/# *Value at Iris Open	4.7	5.0	5.3
Optical Distortion (Y=37.5)	0.00 %	0.15 %	0.22 mm
Relative Illuminance (Y=37.5)	48 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	M 72 P = 0.75		
Flange Back	31.8 mm		
Image Circle	φ75 mm		
Filter Thread	M 86 P = 1.0		
Weight (approx.)	910 g		
Dimension	φ90(max.) x L = 89.7		

VS-L7528/M72-31.8



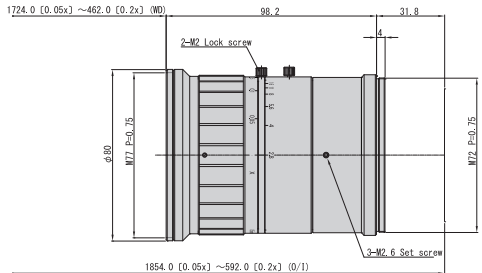
Focal Length (f)	75 mm			
Optical Mag. Range	(∞) 0.05x ~ 0.2x			
Optical Mag.	0.05x	0.1x	0.15x	0.2x
WD	1544.2 mm	790.6 mm	541.9 mm	419.5 mm
O/I (Object & Imager Distance)	1659.2 mm	905.6 mm	656.9 mm	534.5 mm
Aperture	F 2.8 ~ 16			
Working F/# *Value at Iris Open	3.0	3.1	3.3	3.4
NA	0.083	0.016	0.023	0.029
DOF at PCoC φ0.04mm	96.0 mm	24.8 mm	11.7 mm	6.8 mm
Optical Distortion (Y=36.5)	-0.66 %			
Relative Illuminance (Y=36.5)	45 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	M 72 P = 0.75			
Flange Back	31.8 mm			
Image Circle	φ73 mm			
Filter Thread	M 67 P = 0.75			
Weight (approx.)	440 g			
Dimension	φ75(max.) x L = 83.2 mm			

VS-L8528/M72

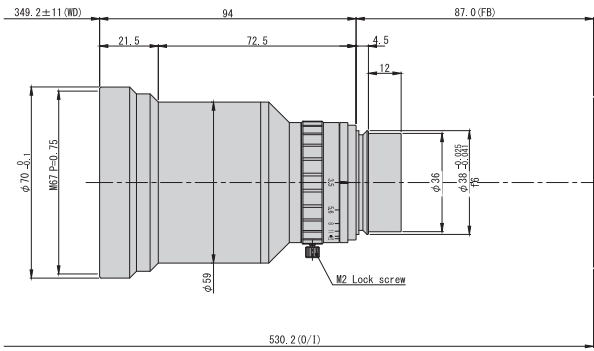


Focal Length (f)	85 mm		
Optical Mag. Range	0.05x ~ 0.25x		
Optical Mag.	0.05x	0.15x	0.25x
WD	1722.9 mm	598.0 mm	366.0 mm
O/I (Object & Imager Distance)	1859.9 mm	735.0 mm	503.0 mm
Aperture	F 2.8 ~ 16		
Working F/# *Value at Iris Open	3.0	3.2	3.5
DOF at PCoC φ0.04mm	96.0 mm	11.4 mm	4.5 mm
Optical Distortion (Y=31)	-0.06 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	M 72 P = 0.75		
Flange Back	31.8 mm		
Image Circle	φ62 mm		
Filter Thread	M 72 P = 0.75		
Weight (approx.)	520 g		
Dimension	φ75(max.) x L = 105.2		

VS-L8528LM/M72

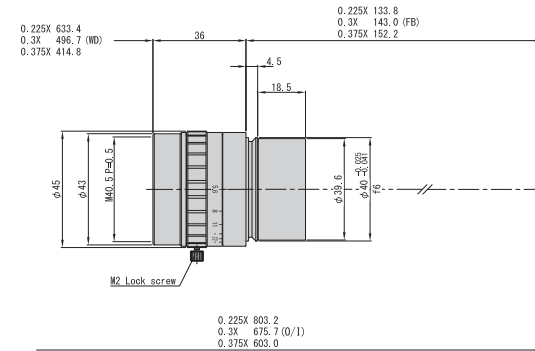


Focal Length (f)	85 mm			
Optical Mag. Range	(∞) 0.05x ~ 0.2x			
Optical Mag.	0.05x	0.1x	0.15x	0.2x
WD	1724.0 mm	878.4 mm	599.4 mm	462.0 mm
O/I (Object & Imager Distance)	1854.0 mm	1008.4 mm	729.4 mm	592.0 mm
Aperture	F 2.8 ~ 16			
Working F/# *Value at Iris Open	2.9	3.1	3.2	3.4
DOF at PCoC φ0.04mm	92.8 mm	24.8 mm	11.4 mm	6.8 mm
Optical Distortion (Y=31)	0.02 %			
Operation	Manual (Lock Screw M2)			
Wavelength	Visible			
Mount	M 72 P = 0.75			
Flange Back	31.8 mm			
Image Circle	φ62 mm			
Filter Thread	M 77 P = 0.75			
Weight (approx.)	540 g			
Dimension	φ80(max.) x L = 98.2 mm			

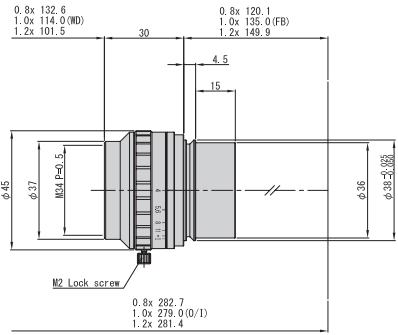
VS-L6035/V

Focal Length (f)	60 mm
Optical Mag.	0.165x
WD	349.2 mm ± 11
O/I (Object & Imager Distance)	530.2 mm
Aperture	F 3.5 ~ 22
Working F/# *Value at Iris Open	4.1
NA	0.020
DOF at PCoC ϕ 0.04mm	12.0 mm
Optical Distortion (Y=31)	-0.08 %
Operation	Manual (Lock Screw M2)
Wavelength	Visible
Mount	V-Mount
Flange Back	87.0 mm
Image Circle	ϕ 62 mm
Filter Thread	M 67 P = 0.75
Weight (approx.)	360 g
Dimension	ϕ 70(max.) x L = 94 mm

VS-L12056-03/V

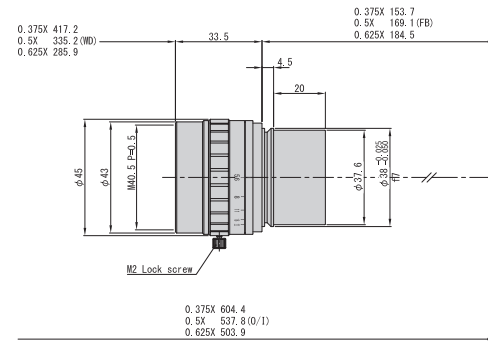


Focal Length (f)	120 mm		
Optical Mag.	0.225x	0.3x	0.375x
WD	633.4 mm	496.7 mm	414.8 mm
O/I (Object & Imager Distance)	803.2 mm	675.7 mm	603.0 mm
Aperture	F 5.6 ~ 32		
Working F/# *Value at Iris Open	6.9	7.3	7.7
NA	0.016	0.021	0.024
DOF at PCoC ϕ 0.04mm	10.9 mm	6.5 mm	4.4 mm
Optical Distortion (Y=45)	-0.02 %		
Relative Illuminance (Y=45)	57 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	V-Mount		
Flange Back	133.8 mm	143.0 mm	152.2 mm
Image Circle	ϕ 90 mm		
Filter Thread	M 40.5 P = 0.5		
Weight (approx.)	170 g		
Dimension	ϕ 45 (max.) x L = 36 mm		

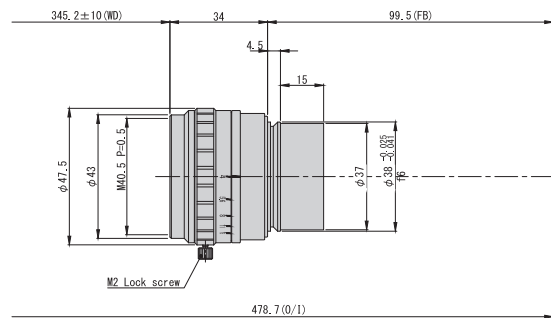
VS-L7540/V

Focal Length (f)	75 mm		
Optical Mag.	0.8x	1.0x	1.2x
WD	132.6 mm	114.0 mm	101.5 mm
O/I (Object & Imager Distance)	282.7 mm	279.0 mm	281.4 mm
Aperture	F 4 ~ 22		
Working F/# *Value at Iris Open	7.7	8.7	9.6
NA	0.052	0.057	0.063
DOF at PCoC ϕ 0.04mm	1.0 mm	0.7 mm	0.5 mm
Optical Distortion (Y=41)	-0.01 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	V-Mount		
Flange Back	120.1 mm	135.0 mm	149.9 mm
Image Circle	ϕ 82 mm		
Filter Thread	M 34 P = 0.5		
Weight (approx.)	134 g		
Dimension	ϕ 45 (max.) x L = 30 mm		

VS-L12056-05/V

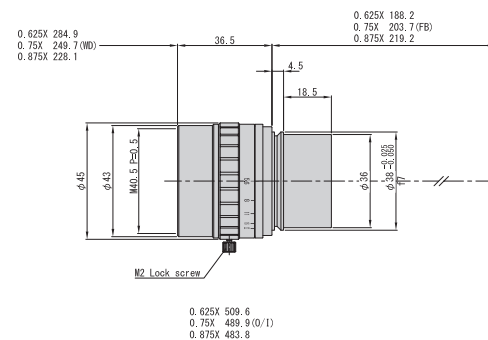


Focal Length (f)	120 mm		
Optical Mag.	0.375x	0.5x	0.625x
WD	417.2 mm	335.2 mm	285.9 mm
O/I (Obj & Imager Distance)	604.4 mm	537.8 mm	503.9 mm
Aperture	F 5.6 ~ 32		
Working F/# *Value at Iris Open	7.7	8.4	9.1
NA	0.024	0.030	0.034
DOF at PCoC ϕ 0.04mm	4.4 mm	2.7 mm	1.9 mm
Optical Distortion (Y=45)	0.01 %		
Relative Illuminance (Y=45)	60 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	V-Mount		
Flange Back	153.7 mm	169.1 mm	184.5 mm
Image Circle	ϕ 90 mm		
Filter Thread	M 40.5 P = 0.5		
Weight (approx.)	160 g		
Dimension	ϕ 45(max.) x L = 33.5 mm		

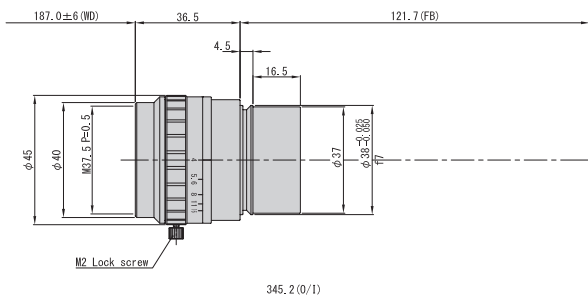
VS-L8540/V

Focal Length (f)	85 mm
Optical Mag.	0.28x
WD	345.2 mm $\pm$ 10
O/I (Object & Imager Distance)	478.7 mm
Aperture	F 4 ~ 16
Working F/# *Value at Iris Open	5.1
NA	0.027
DOF at PCoC ϕ 0.04mm	5.2 mm
Optical Distortion (Y=31)	0.00 %
Operation	Manual(Lock Screw M2)
Wavelength	Visible
Mount	V-Mount
Flange Back	99.5 mm
Image Circle	ϕ 62 mm
Filter Thread	M 40.5 P = 0.5
Weight (approx.)	160 g
Dimension	ϕ 47.5 (max.) x L = 34 mm

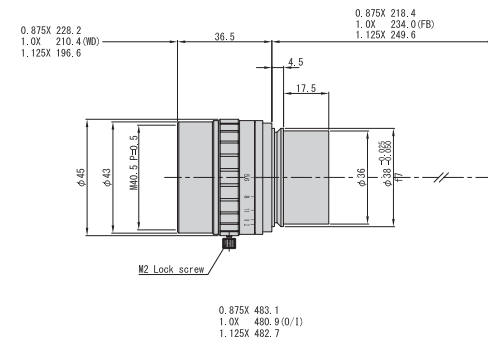
VS-L12056-075/V



Focal Length (f)	120 mm		
Optical Mag.	0.625x	0.75x	0.875x
WD	284.9 mm	249.7 mm	228.1 mm
O/I (Object & Imager Distance)	509.6 mm	489.9 mm	483.8 mm
Aperture	F 5.6 ~ 32		
Working F/# *Value at Iris Open	9.0	9.6	10.3
NA	0.035	0.039	0.042
DOF at PCoC ϕ 0.04mm	1.8 mm	1.4 mm	1.1 mm
Optical Distortion (Y=45)	-0.02 %		
Relative Illuminance (Y=45)	63 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	V-Mount		
Flange Back	188.2 mm	203.7 mm	219.2 mm
Image Circle	ϕ 90 mm		
Filter Thread	M 40.5 P = 0.5		
Weight (approx.)	165 g		
Dimension	ϕ 45(max.) x L = 36.5 mm		

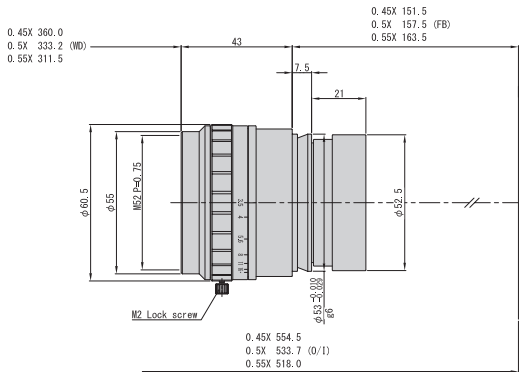
VS-L8540-06/V

Focal Length (f)	85 mm
Optical Mag.	0.6x
WD	1870 mm $\pm$ 6
O/I (Object & Imager Distance)	345.2 mm
Aperture	F 4 ~ 16
Working F/# *Value at Iris Open	6.4
NA	0.047
DOF at PCoC ϕ 0.04mm	1.4 mm
Optical Distortion (Y=31)	-0.04 %
Operation	Manual (Lock Screw M2)
Wavelength	Visible
Mount	V-Mount
Flange Back	121.7 mm
Image Circle	ϕ 62 mm
Filter Thread	M 37.5 P = 0.5
Weight (approx.)	170 g
Dimension	ϕ 45(max.) x L = 36.5 mm

VS-L12056-1/V

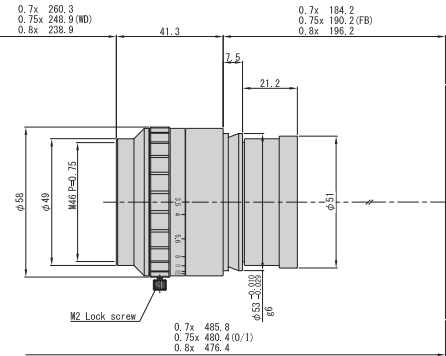
Focal Length (f)	120 mm		
Optical Mag.	0.875x	1.0x	1.125x
WD	228.2 mm	210.4 mm	196.6 mm
O/I (Object & Imager Distance)	483.1 mm	480.9 mm	482.7 mm
Aperture	F 5.6 ~ 32		
Working F/# *Value at Iris Open	10.3	11.0	11.7
NA	0.042	0.045	0.048
DOF at PCoC ϕ 0.04mm	1.1 mm	0.9 mm	0.7 mm
Optical Distortion (Y=45)	0.00 %		
Relative Illuminance (Y=45)	69 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	V-Mount		
Flange Back	218.4 mm	234.0 mm	249.6 mm
Image Circle	ϕ 90 mm		
Filter Thread	M 40.5 P = 0.5		
Weight (approx.)	165 g		
Dimension	ϕ 45(max.) x L = 36.5 mm		

VS-L12035-05/V



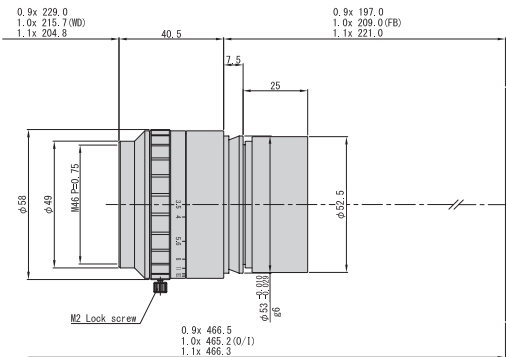
Focal Length (f)	120 mm		
Optical Mag.	0.45x	0.5x	0.55x
WD	360.0 mm	333.2 mm	311.5 mm
O/I (Object & Imager Distance)	554.5 mm	533.7 mm	518.0 mm
Aperture	F 3.5 ~ 32		
Working F/# *Value at Iris Open	5.1	5.3	5.4
NA	0.044	0.047	0.051
DOF at PCoC ϕ 0.04mm	2.0 mm	1.7 mm	1.4 mm
Optical Distortion (Y=45)	0.05 %		
Relative Illuminance (Y=45)	83 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	V-Mount		
Flange Back	151.5 mm	157.5 mm	163.5 mm
Image Circle	ϕ 90 mm		
Filter Thread	M 52 P = 0.75		
Weight (approx.)	390 g		
Dimension	ϕ 60.5 (max.) x L = 43 mm		

VS-L12035-075/V



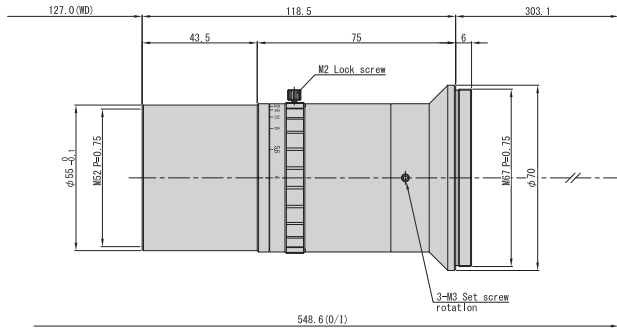
Focal Length (f)	120 mm		
Optical Mag.	0.7x	0.75x	0.8x
WD	260.3 mm	248.9 mm	238.9 mm
O/I (Object & Imager Distance)	485.8 mm	480.4 mm	476.4 mm
Aperture	F 3.5 ~ 22		
Working F/# *Value at Iris Open	6.0	6.1	6.3
NA	0.058	0.061	0.063
DOF at PCoC ϕ 0.04mm	1.0 mm	0.9 mm	0.8 mm
Optical Distortion (Y=45)	0.01 %		
Relative Illuminance (Y=45)	84 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	V-Mount		
Flange Back	184.2 mm	190.2 mm	196.2 mm
Image Circle	ϕ 90 mm		
Filter Thread	M 46 P = 0.75		
Weight (approx.)	350 g		
Dimension	ϕ 58 (max.) x L = 41.3 mm		

VS-L12035-1/V



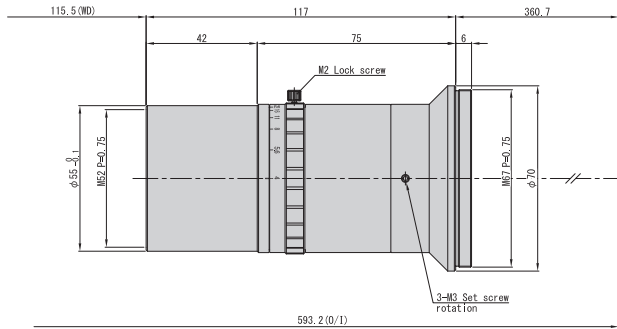
Focal Length (f)	120 mm		
Optical Mag.	0.9x	1.0x	1.1x
WD	229.0 mm	215.7 mm	204.8 mm
O/I (Object & Imager Distance)	466.5 mm	465.2 mm	466.3 mm
Aperture	F 3.5 ~ 22		
Working F/# *Value at Iris Open	6.7	7.0	7.4
NA	0.067	0.071	0.074
DOF at PCoC ϕ 0.04mm	0.7 mm	0.6 mm	0.5 mm
Optical Distortion (Y=45)	0.05 %		
Relative Illuminance (Y=45)	84 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	V-Mount		
Flange Back	197.0 mm	209.0 mm	221.0 mm
Image Circle	ϕ 90 mm		
Filter Thread	M 46 P = 0.75		
Weight (approx.)	350 g		
Dimension	ϕ 58 (max.) x L = 40.5		

VS-L12040-2/M67S



Focal Length (f)	120 mm		
Optical Mag.	2.0x		
WD	127.0 mm		
O/I (Object & Imager Distance)	548.6 mm		
Aperture	F 4 ~ 22		
Working F/# *Value at Iris Open	12.1		
NA	0.083		
DOF at PCoC ϕ 0.04mm	0.2 mm		
Optical Distortion (Y=45)	0.07 %		
Relative Illuminance (Y=45)	97 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	M 67 P = 0.75		
Flange Back	303.1 mm		
Image Circle	ϕ 90 mm		
Filter Thread	M 52 P = 0.75		
Weight (approx.)	680 g		
Dimension	ϕ 70 (max.) x L = 118.5 mm		

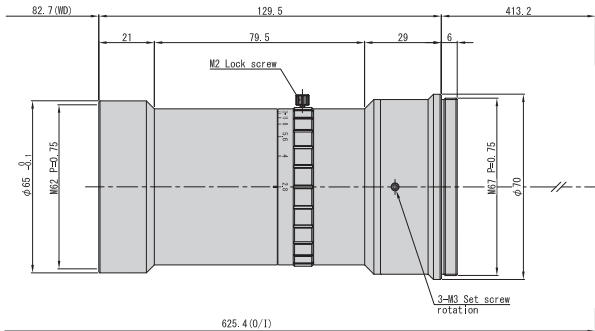
VS-L12040-2.5/M67S



Focal Length (f)	120 mm		
Optical Mag.	2.5x		
WD	115.5 mm		
O/I (Object & Imager Distance)	593.2 mm		
Aperture	F 4 ~ 22		
Working F/# *Value at Iris Open	13.7		
NA	0.091		
DOF at PCoC ϕ 0.04mm	0.2 mm		
Optical Distortion (Y=45)	0.04 %		
Relative Illuminance (Y=45)	98 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	M 67 P = 0.75		
Flange Back	360.7 mm		
Image Circle	ϕ 90 mm		
Filter Thread	M 52 P = 0.75		
Weight (approx.)	670 g		
Dimension	ϕ 70 (max.) x L = 117 mm		

VS-L12028-3.3/M67S

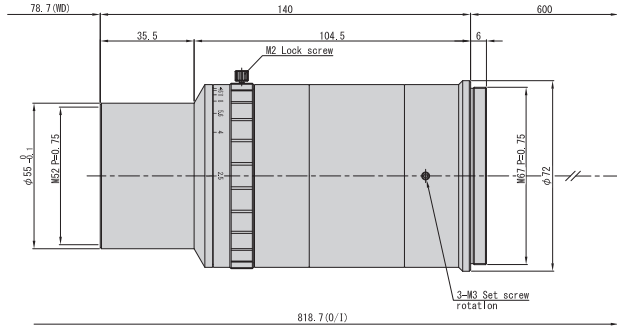
BTO



Focal Length (f)	120 mm		
Optical Mag.	3.3x		
WD	82.7 mm		
O/I (Object & Imager Distance)	625.4 mm		
Aperture	F 2.8 ~ 22		
Working F/# *Value at Iris Open	12.6		
NA	0.131		
DOF at PCoC ϕ 0.04mm	0.09 mm		
Optical Distortion (Y=45)	0.04 %		
Relative Illuminance (Y=45)	99 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	M 67 P = 0.75		
Flange Back	413.2 mm		
Image Circle	ϕ 90 mm		
Filter Thread	M 62 P = 0.75		
Weight (approx.)	950 g		
Dimension	ϕ 70 (max.) x L = 129.5 mm		

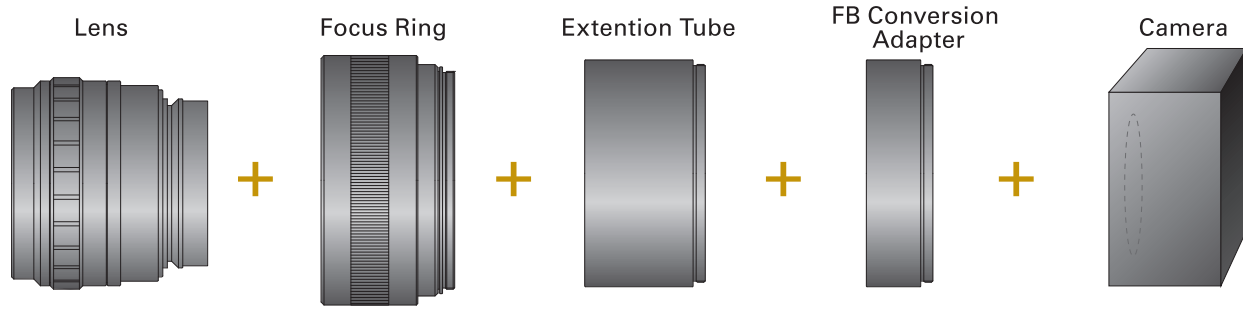
VS-L12025-5/M67S

BTO

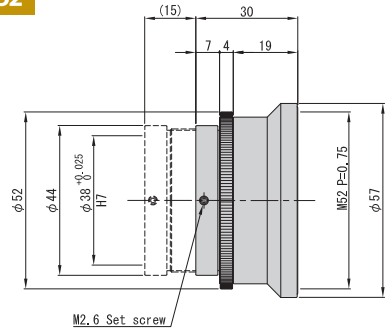
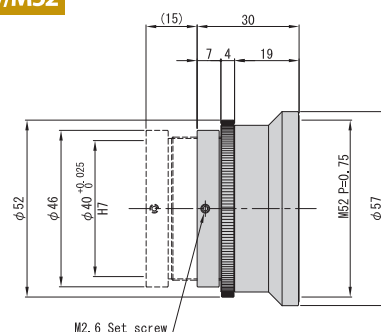
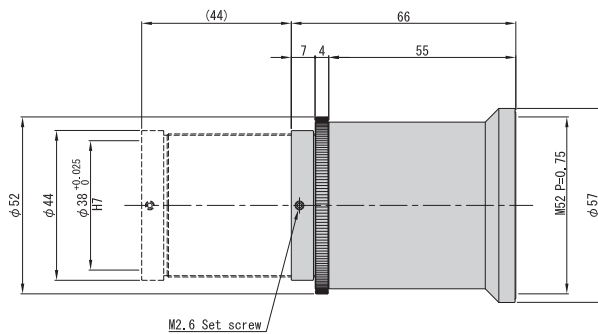


Focal Length (f)	116 mm		
Optical Mag.	5.0x		
WD	78.7 mm		
O/I (Object & Imager Distance)	818.7 mm		
Aperture	F 2.5 ~ 22		
Working F/# *Value at Iris Open	15.0		
NA	0.167		
DOF at PCoC ϕ 0.04mm	0.05 mm		
Optical Distortion (Y=43.2)	0.03 %		
Relative Illuminance (Y=43.2)	100 %		
Operation	Manual (Lock Screw M2)		
Wavelength	Visible		
Mount	M 67 P = 0.75		
Flange Back	600.0 mm		
Image Circle	ϕ 86.4 mm		
Filter Thread	M 52 P = 0.75		
Weight (approx.)	960 g		
Dimension	ϕ 72 (max.) x L = 140 mm		

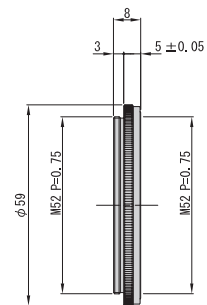
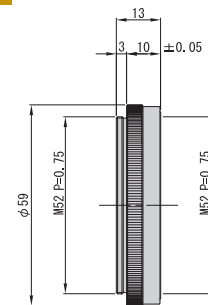
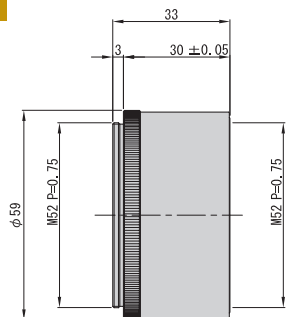
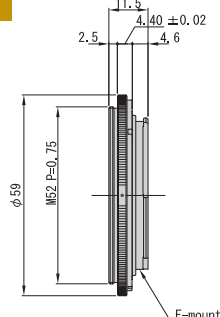
F-mount Adapter



■ Focus Ring

VS-FR15-38V/M52**VS-FR15-40V/M52****VS-FR44-38V/M52**

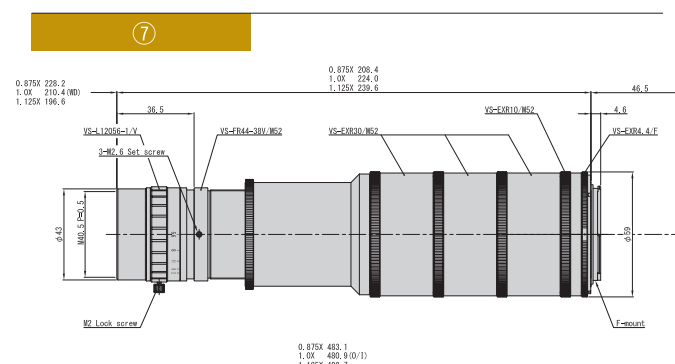
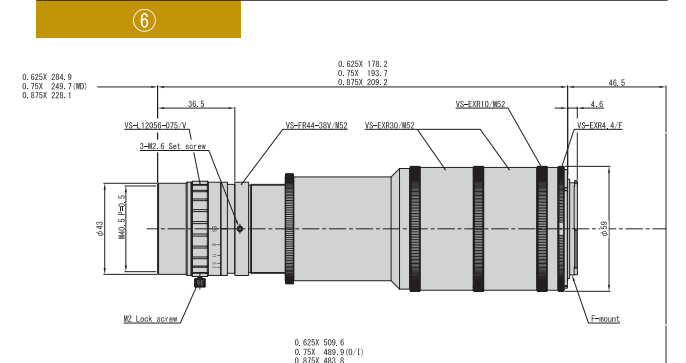
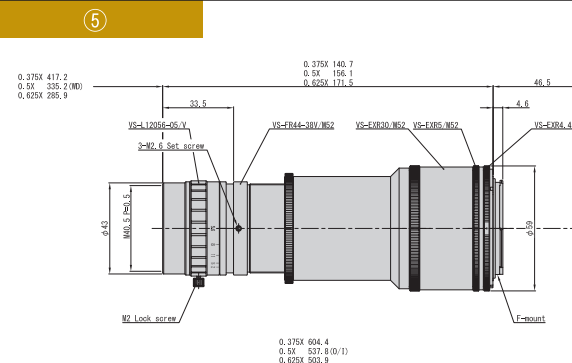
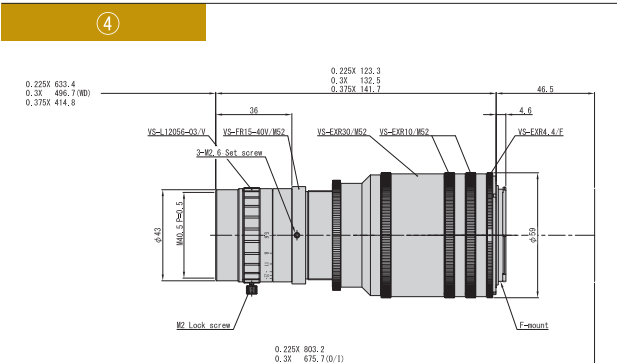
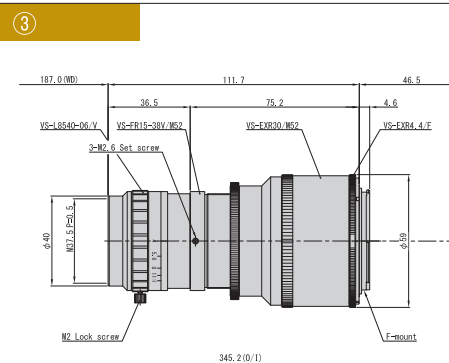
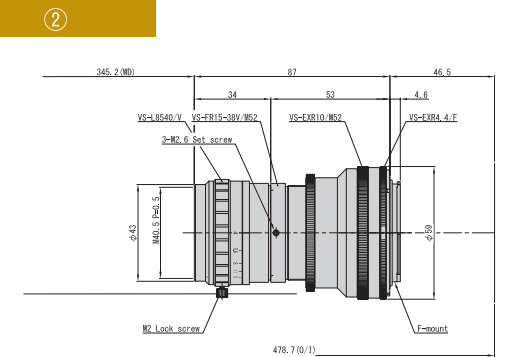
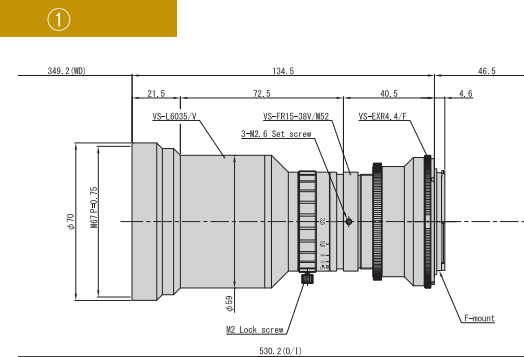
■ Extention Tube

VS-EXR5/M52**VS-EXR10/M52****VS-EXR30/M52****VS-EXR4.4/F**

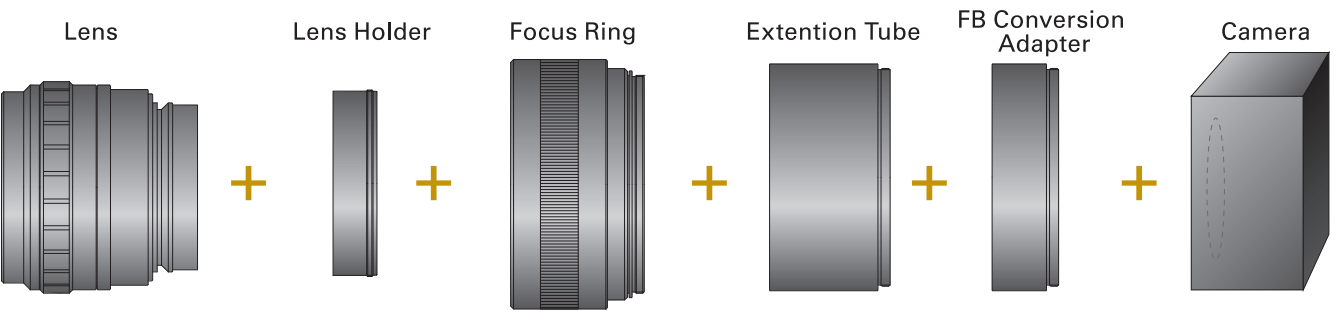
Reference drawing	Mag.	Mag. Range	WD	Lens	Recommend Components					
					Focus Ring	Extention Tube				
①	0.165	x0.07-x0.31	844-179	VS-L6035/V	VS-FR15-38V/M52	VS-EXR4.4/F				
②	0.28	x0.18-x0.35	513-285	VS-L8540/V	VS-FR15-38V/M52	VS-EXR10/M52	VS-EXR4.4/F			
③	0.6	x0.48-x0.64	223-177	VS-L8540-06/V	VS-FR15-38V/M52	VS-EXR30/M52	VS-EXR4.4/F			
④	0.3	x0.21-x0.32	673-471	VS-L12056-03/V	VS-FR15-40V/M52	VS-EXR30/M52	VS-EXR10/M52	VS-EXR10/M52	VS-EXR4.4/F	
⑤	0.5	x0.36-x0.71	432-262	VS-L12056-05/V	VS-FR44-38V/M52	VS-EXR5/M52	VS-EXR30/M52	VS-EXR4.4/F		
⑥	0.75	x0.62-x0.96	285-213	VS-L12056-075/V	VS-FR44-38V/M52	VS-EXR30/M52	VS-EXR30/M52	VS-EXR10/M52	VS-EXR4.4/F	
⑦	1	x0.87-x1.21	229-188	VS-L12056-1/V	VS-FR44-38V/M52	VS-EXR30/M52	VS-EXR30/M52	VS-EXR30/M52	VS-EXR10/M52	VS-EXR4.4/F

※Magnification ranges in above chart may change with different combination of components

※Reference Data

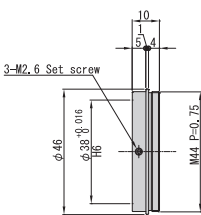


M72 mount Adapter

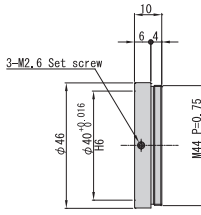


Lens Holder

VS-LH/V

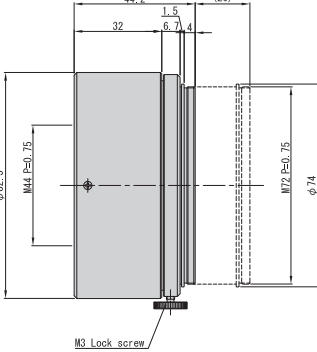


VS-LH/V2

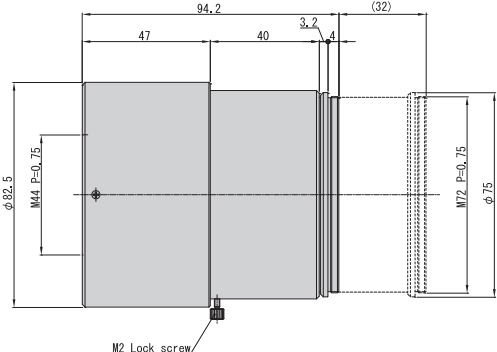


Focus Ring

VS-FR20

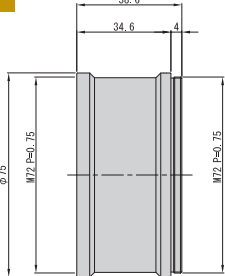


VS-FR32

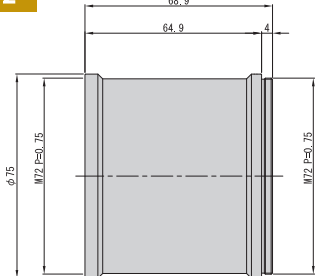


Extention Tube

VS-EXR35/M72

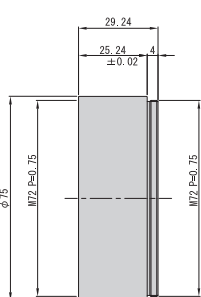


VS-EXR65/M72

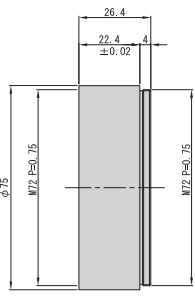


FB Conversion Adapter

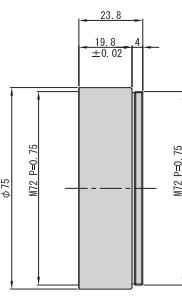
VS-MT-FB6.56



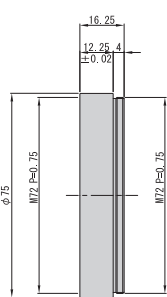
VS-MT-FB9.4



VS-MT-FB12.0

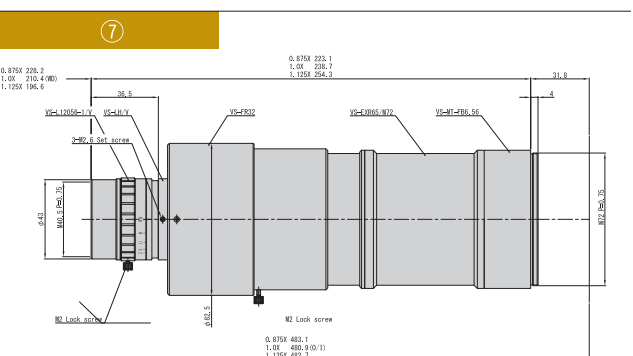
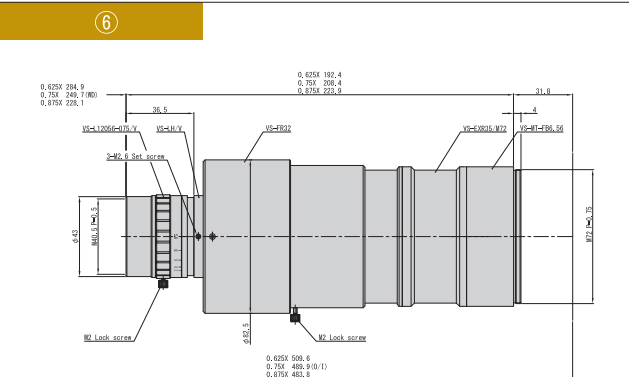
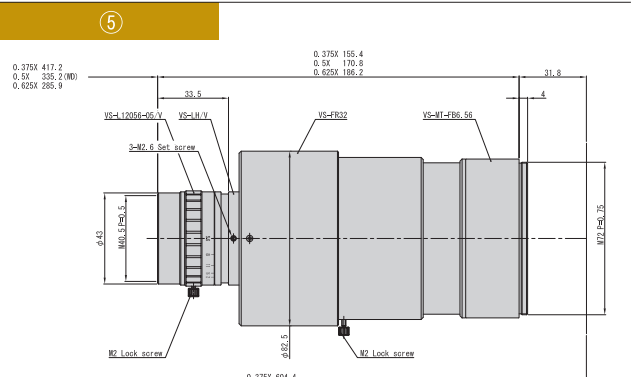
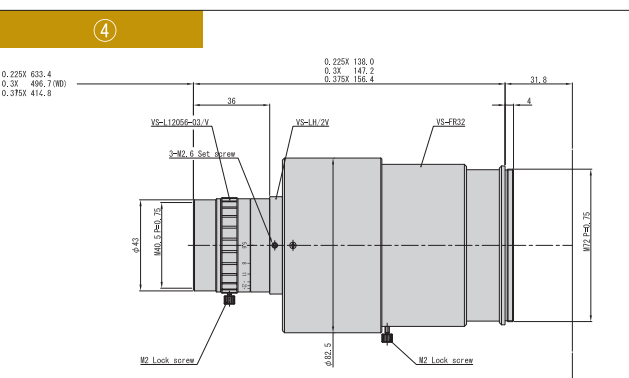
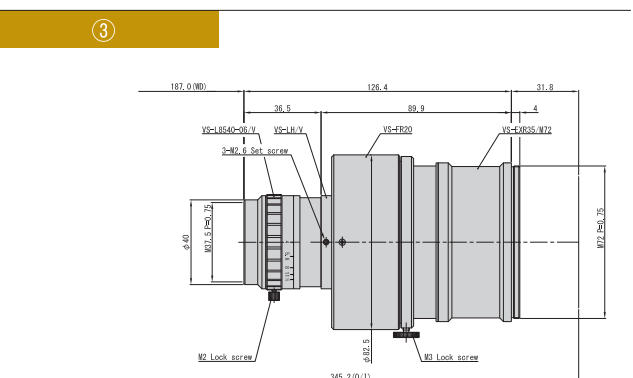
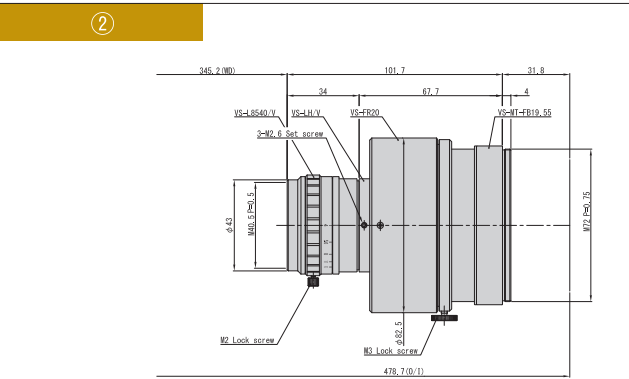
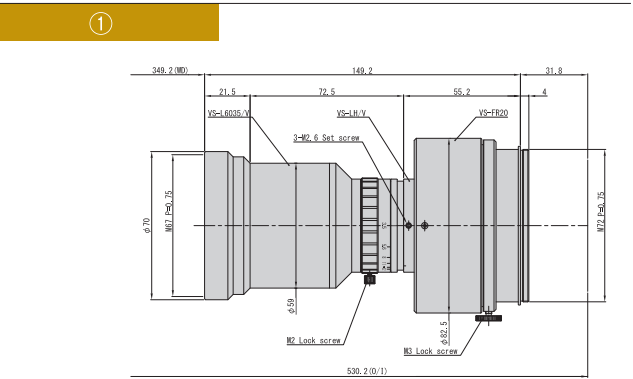


VS-MT-FB19.55

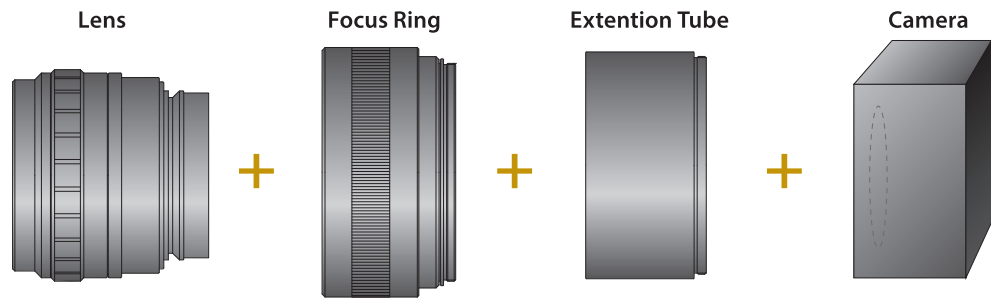


Reference drawing	Mag.	Mag. Range	WD	Recommended Components				FB Conversion Adapter				
				Lens	Lens Holder	Focus Ring	Extention Tube	N (31.8mm)	D (6.56mm)	E (9.4mm)	D (12mm)	O (19.55mm)
①	0.165	x0.01-x0.33	6000-167	VS-L6035/V	VS-LH/V	VS-FR20						
②	0.28	x0.16-x0.39	571-260	VS-L8540/V	VS-LH/V	VS-FR20	VS-MT-FB19.55					
③	0.6	x0.48-x0.71	223-165	VS-L8540-06/V	VS-LH/V	VS-FR20	VS-EXR35/M72					
④	0.3	x0.17-x0.43	811-373	VS-L12056-03/V	VS-LH/V2	VS-FR32						
⑤	0.5	x0.36-x0.62	432-287	VS-L12056-05/V	VS-LH/V	VS-FR32	VS-MT-FB6.56					
⑥	0.75	x0.65-x0.91	276-220	VS-L12056-075/V	VS-LH/V	VS-FR32	VS-EXR35/M72	VS-MT-FB6.56				
⑦	1	x0.79-x1.13	244-196	VS-L12056-1/V	VS-LH/V	VS-FR32	VS-EXR65/M72	VS-MT-FB6.56				

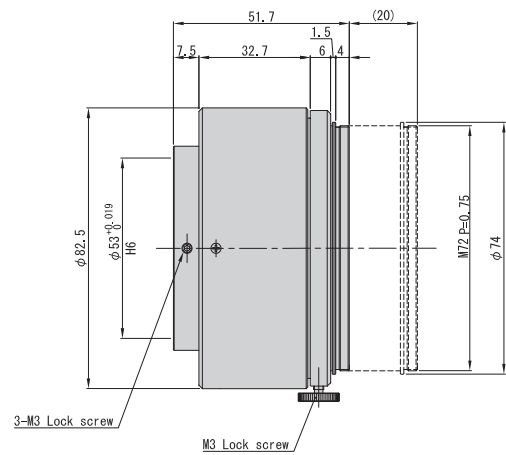
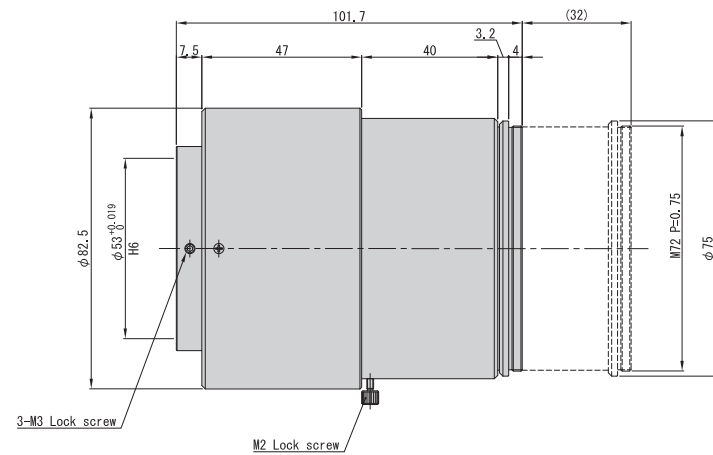
※Magnification ranges in above chart may change with different combination of components
※Reference Data



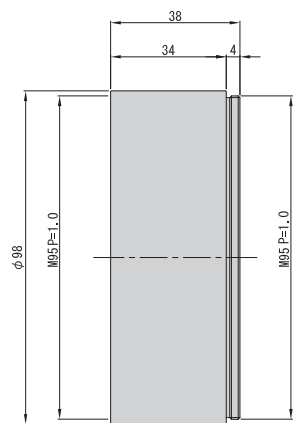
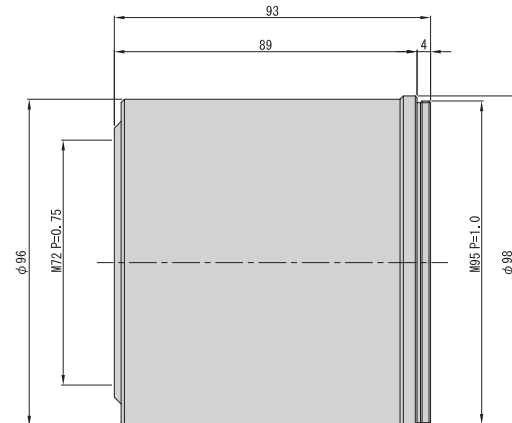
M95 mount Adapter



■ Focus Ring

VS-FR20-53V/M72**VS-FR32-53V/M72**

■ Extention Tube

VS-EXR35/M95**VS-EXR90/M95**

Reference drawing	Mag.	Mag. Range	WD	Lens	Recommended Components			
					Focus Ring	Extention Tube		
①	0.5	x0.41-x0.57	386-303	VS-L12035-05/V	VS-FR20-53V/M72	VS-EXR90/M95		
②	0.75	x0.67-x0.83	289-233	VS-L12035-075/V	VS-FR20-53V/M72	VS-EXR90/M95	VS-EXR35/M95	
③	1	x0.90-x1.15	230-200	VS-L12035-1/V	VS-FR32-53V/M72	VS-EXR90/M95		

※Magnification ranges in above chart may change with different combination of components

※Reference Data

