VS Technology
Machine Vision Optics

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● Specification and dimensions are subject to change without notice.

MACHINE VISION OPTICS DATA

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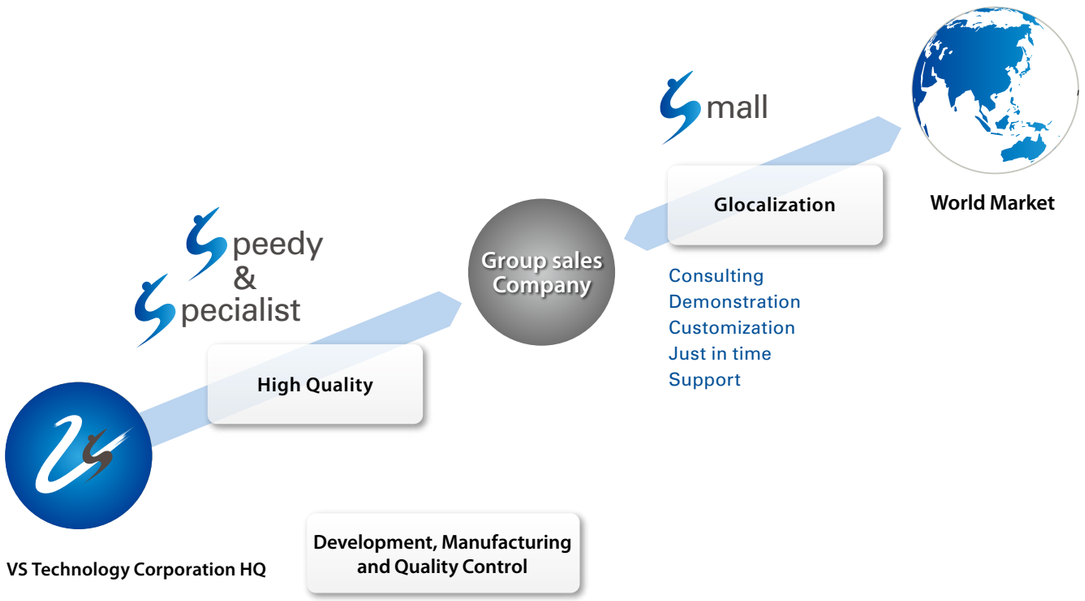
Keep on challenging

VS Technology Corp is developing, designing and manufacturing a wide range of products from lenses, prisms and lighting for CCD and CMOS cameras with our technical know-how in the machine vision industry. VST is also capable of developing a total solution image input device. In response to industrial diversification, we adopt a high-mix low-volume production method.

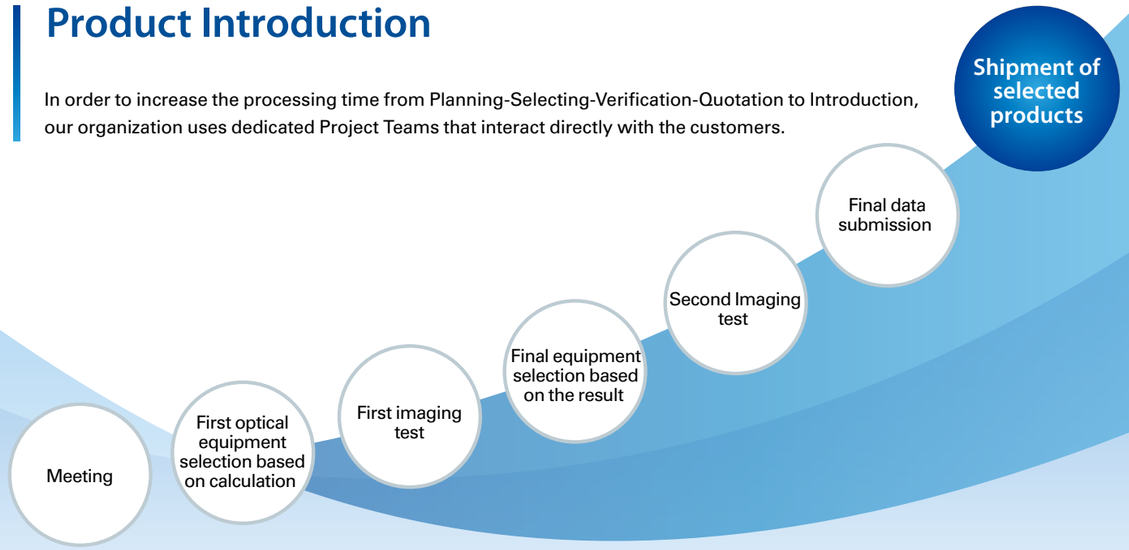
System

Our professional sales team strives to provide higher quality regional services in response to customer needs. We are proud of our highly skilled technical personnel who are always capable of developing high quality products and reducing processing time from designing to manufacturing. Our company's dedicated project team reduces the time for decision-making and facilitates to create the best quality development initiatives for customers and expand new value creation.



Product Introduction

In order to increase the processing time from Planning-Selecting-Verification-Quotation to Introduction, our organization uses dedicated Project Teams that interact directly with the customers.



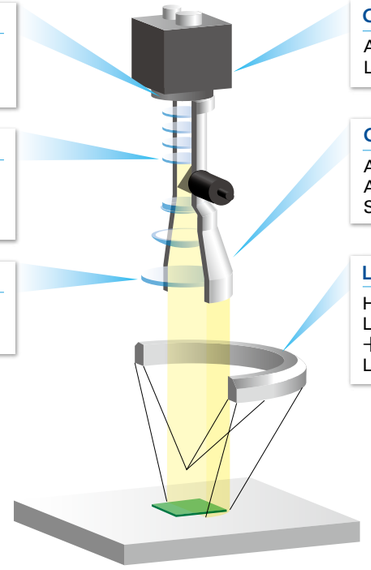
Solution Theme

We offer lens and lighting solutions together in order to meet your needs.
We are always capable of OEM and customized products.

Mount
C/CS/F Mount
M72.0/M42.0
Customized

Lens
Wide variety of products More than 500 different lenses

Filter
Polarizing filter
Contrast filter



Camera
Area sensor
Line sensor

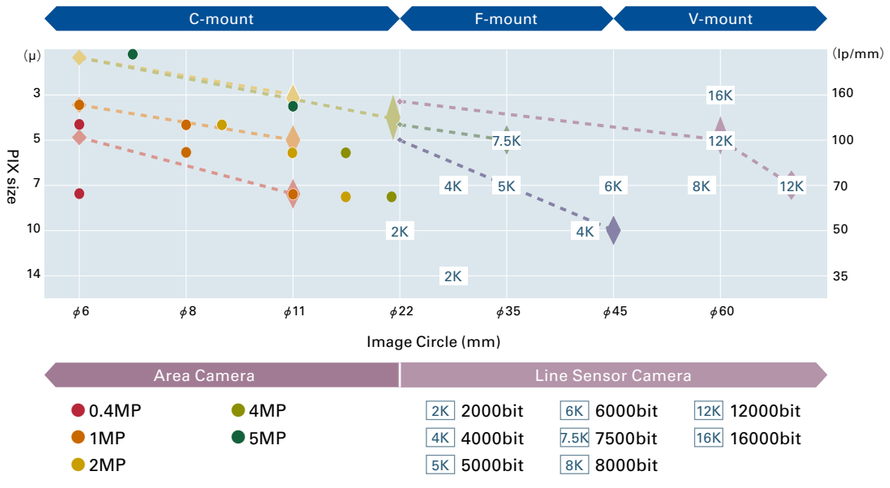
Component
Adapter
Aluminum, Brass, Metal
Surface treatment

Lighting
Halogen Light Source,
LED Light Source
+Light Guides
LED・Laser

VST Products

VST has over 400 high quality and
we handle more than 50 custom projects per year to meet customer' fs needs

Pixel Size and Lens Image Circle Chart



【Standard Models】

- SV-V, VS-TC
- VS-LD, VS-MC, VS-TCH/TCM
- VS-TEC, VS-TM, SV-H
- VS-TCM(5M), VS-L
- VS-LTC
- VS-L(F)
- VS-L(V)

Note: In the chart
◇ Indicates the maximum Image circle

Note: Cameras above dotted line could have decrease contrast, please confirm with demo test

Contents

M Megapixel　LF Large Format　DL Distortionless

VS-H1 Series

Mega Pixel CCTV lenses applicable to 1” camera (4 to 9 Megapixels)
9 models available; f=6mm to f=100mm
Bright F-no’s are preferable for high-speed CMOS sensors
Lowest possible distortion & high contrast

Table for WD.FOV and Extension Tube Length

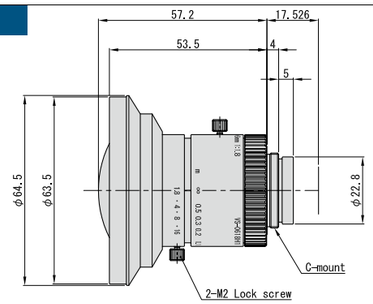
Extension Tube (mm)	Model / Focal Length	VS-1214H1 f12		VS-1614H1N f16		VS-2514H1 f25		VS-3514H1 f35		VS-5018H1 f50	
	Focus	300～∞		300～∞		300～∞		300～∞		300～∞	
0	WD	300		300		300		300		500	
	1"	252.6x336.8		177.8x237.0		115.7x154.2		80.7x107.6		95.0x126.7	
	2/3"-5M	186.8x221.1		131.5x155.6		85.5x101.2		59.7x70.6		70.3x83.2	
	Mag.	0.038x		0.054x		0.083x		0.119x		0.101x	
0.5	WD	284.7	137.8	538.9	187.6	1329.0	240.3	2508.7	265.8	4997.4	454.6
	1"	240.0x320.0	123.1x164.1	320.0x426.7	114.3x152.4	505.3x673.7	94.1x125.5	685.7x914.3	72.2x96.2	960.0x1280.0	86.5x115.3
	2/3"-5M	177.5x210.0	91.0x107.7	236.7x280.0	84.5x100.0	373.7x442.1	69.6x82.4	507.1x600.0	53.4x63.2	710.0x840.0	64.0x75.7
	Mag.	0.040x	0.078x	0.030x	0.084x	0.019x	0.102x	0.014x	0.133x	0.010x	0.111x
1	WD	139.9	88.1	275.1	138.9	660.0	201.2	1255.3	240.6	2501.1	417.4
	1"	124.7x166.2	83.5x111.3	165.5x220.7	85.7x114.3	252.6x336.8	79.3x105.8	342.9x457.1	65.3x87.1	480.0x640.0	79.3x105.8
	2/3"-5M	92.2x109.1	61.7x73.0	122.4x144.8	63.4x75.0	186.8x221.1	58.7x69.4	253.6x300.0	48.3x57.1	355.0x420.0	58.7x69.4
	Mag.	0.077x	0.115x	0.058x	0.112x	0.038x	0.121x	0.028x	0.147x	0.020x	0.121x
1.5	WD	91.9	64.2	187.6	111.3	445.0	174.0	857.9	221.2	1726.4	388.9
	1"	86.5x115.3	64.4x85.9	114.3x152.4	69.6x92.8	171.4x228.6	69.1x92.1	234.1x312.2	60.0x80.0	331.0x441.4	73.8x98.5
	2/3"-5M	64.0x75.7	47.7x56.4	84.5x100.0	51.4x60.9	126.8x150.0	51.1x60.4	173.2x204.9	44.4x52.5	244.8x289.7	54.6x64.6
	Mag.	0.111x	0.149x	0.084x	0.138x	0.056x	0.139x	0.041x	0.160x	0.029x	0.130x
2	WD	68.2	50.3	142.9	93.1	339.3	154.0	651.8	204.8	1285.0	361.4
	1"	67.6x90.1	53.3x71.1	88.1x117.4	58.9x78.5	131.5x175.3	61.5x82.1	177.8x237.0	55.5x74.0	246.2x328.2	68.6x91.4
	2/3"-5M	50.0x59.2	39.4x46.7	65.1x77.1	43.6x51.5	97.3x115.1	45.5x53.8	131.5x155.6	41.0x48.6	182.1x215.4	50.7x60.0
	Mag.	0.142x	0.180x	0.109x	0.163x	0.073x	0.156x	0.054x	0.173x	0.039x	0.140x
5	WD			62.6	49.4	146.1	94.0	282.7	145.7	553.5	264.9
	1"			41.0x54.7	33.3x44.4	58.5x78.0	38.9x51.8	76.8x102.4	39.3x52.5	105.5x140.7	50.0x66.7
	2/3"-5M			30.3x35.9	24.7x29.2	43.3x51.2	28.7x34.0	56.8x67.2	29.1x34.4	78.0x92.3	37.0x43.8
	Mag.			0.234x	0.288x	0.164x	0.247x	0.125x	0.244x	0.091x	0.192x
10	WD			35.8	30.4	81.2	60.7	160.0	104.8	303.8	191.1
	1"			25.3x33.8	22.2x29.6	34.0x45.4	26.3x35.1	43.2x57.7	28.2x37.5	57.5x76.6	35.8x47.8
	2/3"-5M			18.7x22.2	16.4x19.4	25.2x29.8	19.5x23.0	32.0x37.8	20.8x24.6	42.5x50.3	26.5x31.3
	Mag.			0.379x	0.433x	0.282x	0.365x	0.222x	0.341x	0.167x	0.268x
15	WD					59.6	47.1	119.3	85.9	220.9	155.2
	1"					25.9x34.5	21.1x28.2	32.1x42.8	23.0x30.6	41.6x55.4	28.9x38.6
	2/3"-5M					19.1x22.6	15.6x18.5	23.7x28.1	17.0x20.1	30.7x36.4	21.4x25.3
	Mag.					0.371x	0.454x	0.299x	0.418x	0.231x	0.332x
20	WD					48.9	39.7	98.6	74.7	179.4	133.8
	1"					21.8x29.1	18.4x24.5	26.4x35.3	19.9x26.6	33.6x44.8	24.8x33.1
	2/3"-5M					16.1x19.1	13.6x16.1	19.6x23.1	14.7x17.4	24.8x29.4	18.3x21.7
	Mag.					0.440x	0.523x	0.363x	0.482x	0.286x	0.387x
25	WD					42.3	35.0	86.3	67.5	154.3	119.6
	1"					19.4x25.8	16.6x22.1	23.1x30.8	17.9x23.9	28.7x38.3	22.1x29.4
	2/3"-5M					14.3x16.9	12.3x14.5	17.1x20.2	13.3x15.7	21.3x25.1	16.3x19.3
	Mag.					0.496x	0.579x	0.416x	0.535x	0.334x	0.435x
30	WD					38.1	31.8	78.0	62.4	138.0	109.7
	1"					17.7x23.7	15.4x20.5	20.8x27.8	16.6x22.1	25.6x34.1	20.2x26.9
	2/3"-5M					13.1x15.5	11.4x13.5	15.4x18.2	12.2x14.5	18.9x22.4	14.9x17.6
	Mag.					0.541x	0.624x	0.461x	0.580x	0.375x	0.476x
35	WD							72.2	58.7	126.0	102.1
	1"							19.2x25.7	15.5x20.7	23.3x31.1	18.7x25.0
	2/3"-5M							14.2x16.8	11.5x13.6	17.2x20.4	13.8x16.4
	Mag.							0.499x	0.618x	0.412x	0.513x
40	WD							67.7	55.7	117.0	96.3
	1"							18.0x24.0	14.7x19.6	21.6x28.8	17.6x23.4
	2/3"-5M							13.3x15.8	10.9x12.9	16.0x18.9	13.0x15.4
	Mag.							0.533x	0.652x	0.445x	0.546x
45	WD							64.3	53.4	110.1	91.6
	1"							17.1x22.8	14.1x18.8	20.3x27.0	16.7x22.3
	2/3"-5M							12.6x14.9	10.4x12.3	15.0x17.7	12.3x14.6
	Mag.							0.562x	0.681x	0.474x	0.575x
50	WD							61.6	51.5	104.7	87.9
	1"							16.3x21.8	13.6x18.1	19.2x25.6	16.0x21.3
	2/3"-5M							12.1x14.3	10.0x11.9	14.2x16.8	11.8x14.0
	Mag.							0.588x	0.707x	0.500x	0.601x

Description of the table above

Extension Tube (mm)	Model / Focal Length	VS-○○○○H1 (f)		
	Focus	0.5m～∞		→ Object Distance(mm)
5	WD	103	130	→ The distance between the object and front of the lens
	1/3"	14x19	19x25	→ FOV at 1/3" sensor
	1/2"	18x24	24x32	→ FOV at 1/2" sensor
	Mag.	0.25x	0.20x	→ Optical Magnification

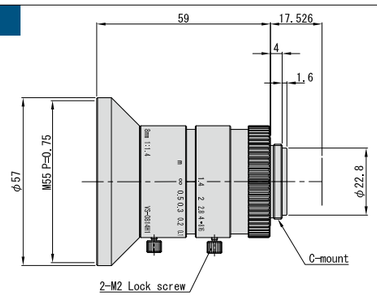
↓ Length of Extension Tube

VS-0618H1



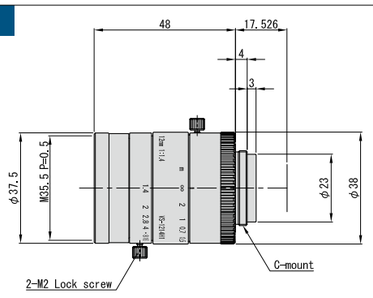
Focal Length (f)(mm)	6
FNO	1.8 ~ 16
Angle of view (°)(VxH)	77.9x94.8 (1")
OD (mm)	100 ~ ∞
Iris / Focus Operation	Manual
Sensor Size (max.) / Mount	1"/C-mount
Filter Thread	-
Weight (approx.)	-g

VS-0814H1



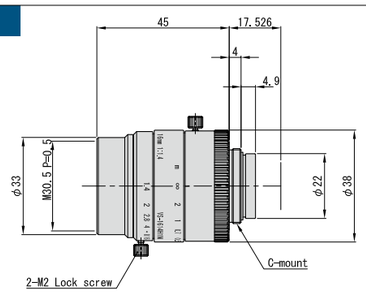
Focal Length (f)(mm)	8
FNO	1.4 ~ 16
Angle of view (°)(VxH)	62.8x79.3 (1")
OD (mm)	100 ~ ∞
Iris / Focus Operation	Manual
Sensor Size (max.) / Mount	1"/C-mount
Filter Thread	M55 P=0.75
Weight (approx.)	-g

VS-1214H1



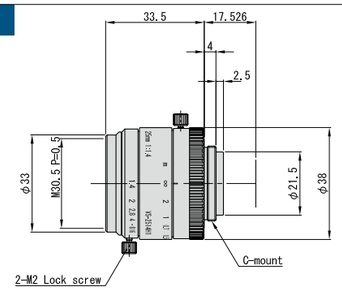
Focal Length (f)(mm)	12
FNO	1.4 ~ 16
Angle of view (°)(VxH)	44.0x56.9 (1")
OD (mm)	300 ~ ∞
Iris / Focus Operation	Manual
Sensor Size (max.) / Mount	1"/C-mount
Filter Thread	M35.5 P=0.5
Weight (approx.)	140g

VS-1614H1N



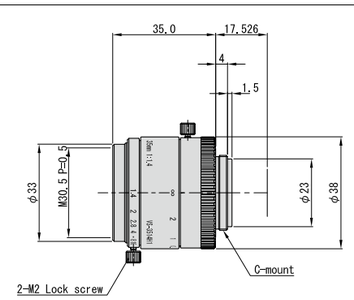
Focal Length (f)(mm)	16
FNO	1.4 ~ 16
Angle of view (°)(VxH)	33.1x43.6 (1")
OD (mm)	300 ~ ∞
Iris / Focus Operation	Manual
Sensor Size (max.) / Mount	1"/C-mount
Filter Thread	M30.5 P=0.5
Weight (approx.)	-g

VS-2514H1



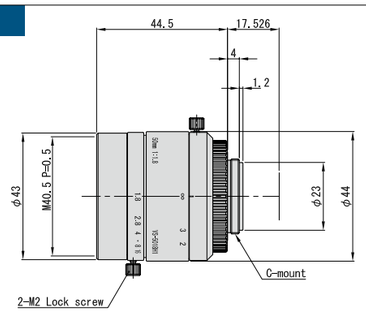
Focal Length (f)(mm)	25
FNO	1.4 ~ 16
Angle of view (°)(VxH)	21.5x28.5 (1")
OD (mm)	300 ~ ∞
Iris / Focus Operation	Manual
Sensor Size (max.) / Mount	1"/C-mount
Filter Thread	M30.5 P=0.5
Weight (approx.)	90g

VS-3514H1



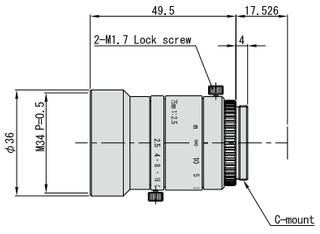
Focal Length (f)(mm)	35
FNO	1.4 ~ 16
Angle of view (°)(VxH)	15.6x20.7 (1")
OD (mm)	300 ~ ∞
Iris / Focus Operation	Manual
Sensor Size (max.) / Mount	1"/C-mount
Filter Thread	M30.5 P=0.5
Weight (approx.)	100g

VS-5018H1



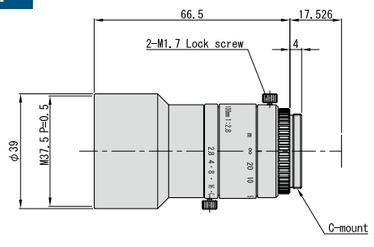
Focal Length (f)(mm)	50
FNO	1.8 ~ 16
Angle of view (°)(VxH)	11.0x14.6 (1")
OD (mm)	500 ~ ∞
Iris / Focus Operation	Manual
Sensor Size (max.) / Mount	1"/C-mount
Filter Thread	M40.5 P=0.5
Weight (approx.)	135g

SV-7525H



Focal Length (f)(mm)	75
FNO	2.5 ~ (C)
Angle of view (°)(VxH)	7.3x9.7 (1")
OD (mm)	1200 ~ ∞
Iris / Focus Operation	Manual
Filter Thread	M34 P=0.5
Sensor size (max.)/Mount	1"/C-mount
Weight (approx.)	85g

SV-10028H



Focal Length (f)(mm)	100
FNO	2.8 ~ (C)
Angle of view (°)(VxH)	5.6x7.5 (1")
OD (mm)	2000 ~ ∞
Iris / Focus Operation	Manual
Filter Thread	M37.5 P=0.5
Sensor size (max.)/Mount	1"/C-mount
Weight (approx.)	105g

SV-H Series

12 models from f6~100mm
High Resolution for high megapixel cameras
Lock screws for Iris and Focus for all models
Filters are available for all models

Table for WD.FOV and Extension Tube Length

Extension Tube (mm)	Model / Focal Length	SV-0614H f6.1		SV-0814H f8		SV-1214H f12.3		SV-1614H f16.2		SV-2514H f25		SV-3514H f35		SV-5014H f50		SV-5026H f49.99		SV-7525H f75	SV-10028H f100
	Focus	100～∞		100～∞		100～∞		100～∞		150～∞		200～∞		300～∞		500～∞		1200～∞	2000～∞
0	WD	100		100		100		100		150		200		300		500		1200	2000
	1/3"	68.2x90.9		51.4x68.6		35x46.6		26.5x35.3		24.2x32.2		21.3x28.4		21.4x28.6		33.6x44.9		52.2x69.6	69.2x92.3
	1/2"	90.9x121.2		68.6x91.4		46.6x62.1		35.3x47.1		32.2x43		28.4x37.9		28.6x38.1		44.9x59.8		69.6x92.8	92.3x123.1
	Mag.	0.0528x		0.07x		0.1x		0.136x		0.149x		0.169x		0.168x		0.107x		0.069x	0.052x
0.5	WD	29.9	58.9	46.0	113.6	66.1	283.2	77.8	505.4	130.3	1232.2	177.0	2443.3					1103.3	1844.5
	1/3"	26.9x35.8	43.9x58.5	27.3x36.4	57.1x76.2	25x33.3	87.8x117.1	21.7x28.9	116.1x154.8	21.3x28.4	180x240	18.3x24.4	257.1x342.9					48x64	63.2x84.2
	1/2"	35.8x47.8	58.5x78	36.4x48.5	76.2x101.6	33.3x44.4	117.1x156.1	28.9x38.6	154.8x206.5	28.4x37.9	240x320	24.4x32.5	342.9x457.1					64x85.3	84.2x112.3
	Mag.	0.134x	0.082x	0.132x	0.063x	0.144x	0.041x	0.166x	0.031x	0.169x	0.02x	0.197x	0.014x					0.075x	0.057x
1	WD					47.2	131.9	62.6	243.0	114.6	607.2	165.1	1218.3					1022.0	1703.8
	1/3"					19.5x25.9	44.4x59.3	18.3x24.4	58.1x77.4	19x25.4	90x120	17.1x22.7	124.1x165.5					43.9x58.5	58.1x77.4
	1/2"					25.9x34.6	59.3x79	24.4x32.5	77.4x103.2	25.4x33.9	120x160	22.7x30.3	165.5x220.7					58.5x78	77.4x103.2
	Mag.					0.185x	0.081x	0.197x	0.062x	0.189x	0.04x	0.211x	0.029x					0.082x	0.062x
1.5	WD					35.2	81.4	51.5	155.5	102.0	398.9	154.6	809.9	256.3	1669.3	398.7	1700.9	953.9	1584.5
	1/3"					16x21.3	29.5x39.3	15.8x21.1	38.7x51.6	17.2x23	60x80	16x21.3	83.7x111.6	18.2x24.2	120x160	26.3x35	120x160	40.4x53.9	53.7x71.6
	1/2"					21.3x28.4	39.3x52.5	21.1x28.1	51.6x68.8	23x30.6	80x106.7	21.3x28.4	111.6x148.8	24.2x32.3	160x213.3	35x46.7	160x213.3	53.9x71.9	71.6x95.5
	Mag.					0.225x	0.122x	0.228x	0.093x	0.209x	0.06x	0.225x	0.043x	0.198x	0.03x	0.137x	0.03x	0.089x	0.067x
2	WD					26.9	56.2	43.0	111.7	91.5	294.7	145.3	605.8	251.6	1252.7	374.0	1284.4	894.5	1482.0
	1/3"					13.5x18	22.1x29.4	13.9x18.5	29.3x39	15.7x21	45x60	15.9x21.2	63.2x84.2	17.3x23.1	90x120	24.5x32.7	90x120	37.9x50.5	50x66.7
	1/2"					18x24.1	29.4x39.3	18.5x24.7	39x52	21x27.9	60x80	21.2x28.3	84.2x112.3	23.1x30.8	120x160	32.7x43.5	120x160	50.5x67.4	66.7x88.9
	Mag.					0.266x	0.163x	0.259x	0.123x	0.229x	0.08x	0.226x	0.057x	0.208x	0.04x	0.147x	0.04x	0.095x	0.072x
5	WD									53.90	107.20	107.0	238.30	193.7	502.70	275.90	534.70	663.1	1080.6
	1/3"									10.3x13.8	18x24	11x14.7	25.2x33.6	13.4x17.9	36x48	17.4x23.2	36x48	26.7x35.6	35x46.6
	1/2"									13.8x18.3	24x32	14.7x19.6	33.6x44.8	17.9x23.9	48x64	23.2x30.9	48x64	35.6x47.4	46.6x62.1
	Mag.									0.349x	0.2x	0.326x	0.143x	0.268x	0.1x	0.207x	0.1x	0.135x	0.103x
10	WD											74.2	115.8	144.9	252.7	197.5	284.8	479.0	763.3
	1/3"											7.7x10.2	12.6x16.8	9.8x13	18x24	11.7x15.6	18x24	17.8x23.8	23.2x31
	1/2"											10.2x13.6	16.8x22.4	13x17.4	24x32	15.6x20.8	24x32	23.8x31.7	31x41.3
	Mag.											0.469x	0.286x	0.368x	0.2x	0.307x	0.2x	0.202x	0.155x
15	WD											57.3	74.9	116.7	169.3	157.6	201.5	386.6	607.2
	1/3"											5.9x7.9	8.4x11.2	7.7x10.3	12x16	8.8x11.8	12x16	13.4x17.8	17.5x23.3
	1/2"											7.9x10.5	11.2x14.9	10.3x13.7	16x21.3	11.8x15.7	16x21.3	17.8x23.8	23.3x31.1
	Mag.											0.611x	0.429x	0.468x	0.3x	0.407x	0.3x	0.269x	0.206x
20	WD											45.9	54.5	98.3	127.7	133.4	159.9	331.7	513.0
	1/3"											4.8x6.4	6.3x8.4	6.3x8.5	9x12	7.1x9.4	9x12	10.7x14.3	14x18.7
	1/2"											6.4x8.5	8.4x11.2	8.5x11.3	12x16	9.4x12.6	12x16	14.3x19.1	18.7x24.9
	Mag.											0.754x	0.571x	0.568x	0.4x	0.508x	0.4x	0.335x	0.257x
25	WD													85.4	102.7	117.2	134.9	294.4	450.0
	1/3"													5.4x7.2	7.2x9.6	5.9x7.9	7.2x9.6	9x11.9	11.7x15.6
	1/2"													7.2x9.6	9.6x12.8	7.9x10.5	9.6x12.8	11.9x15.9	15.6x20.8
	Mag.													0.668x	0.5x	0.608x	0.5x	0.402x	0.308x
30	WD													75.8	86	105.6	118.2	267.8	404.9
	1/3"													4.7x6.3	6x8	5.1x6.8	6x8	7.7x10.2	10x13.4
	1/2"													6.3x8.3	8x10.7	6.8x9	8x10.7	10.2x13.6	13.4x17.8
	Mag.													0.768x	0.6x	0.708x	0.6x	0.469x	0.359x
35	WD													68.4	74.1	96.8	106.3	247.8	371.0
	1/3"													4.1x5.5	5.1x6.9	4.5x5.9	5.1x6.9	6.7x9	8.8x11.7
	1/2"													5.5x7.4	6.9x9.1	5.9x7.9	6.9x9.1	9x11.9	11.7x15.6
	Mag.													0.868x	0.7x	0.808x	0.7x	0.536x	0.41x
40	WD													62.5	65.2	90.0	97.4	232.2	344.1
	1/3"													3.7x5	4.5x6	4x5.3	4.5x6	6x8	7.8x10.4
	1/2"													5x6.6	6x8	5.3x7	6x8	8x10.6	10.4x13.9
	Mag.													0.968x	0.8x	0.908x	0.8x	0.603x	0.462x
45	WD													57.8	58.2	84.6	90.5	219.8	323.1
	1/3"													3.4x4.5	4x5.3	3.6x4.8	4x5.3	5.4x7.2	7x9.4
	1/2"													4.5x6	5.3x7.1	4.8x6.4	5.3x7.1	7.2x9.6	9.4x12.5
	Mag.													1.07x	0.9x	1x	0.9x	0.67x	0.513x
50	WD													53.8	52.7	80.1	84.9	209.8	305.9
	1/3"													3.1x4.1	3.6x4.8	3.2x4.3	3.6x4.8	4.9x6.5	6.4x8.5
	1/2"													4.1x5.5	4.8x6.4	4.3x5.8	4.8x6.4	6.5x8.7	8.5x11.3
	Mag.													1.17x	1x	1.11x	1x	0.736x	0.564x
																		※ ∞のみ	※ ∞のみ

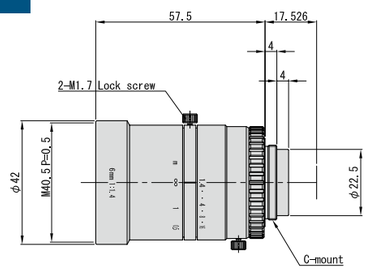
Description of the table above

Extension Tube (mm)	Model / Focal Length	SV-○○○○H (f)		
	Focus	0.5m～∞		→ Object Distance(mm)
5	WD	103	130	→ The distance between the object and front of the lens
	1/3"	14x19	19x25	→ FOV at 1/3" sensor
	1/2"	18x24	24x32	→ FOV at 1/2" sensor
	Mag.	0.25x	0.20x	→ Optical Magnification

↓ Length of Extension Tube

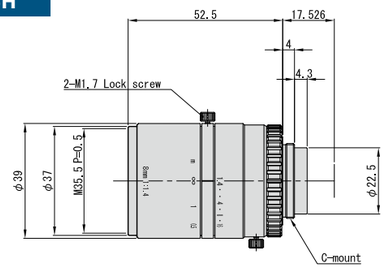
5 Megapixels

SV-0614H



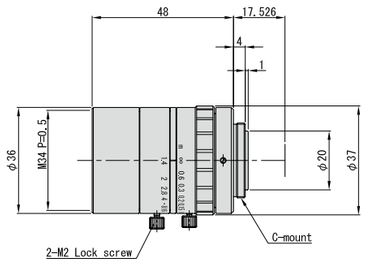
Focal Length (f)(mm)	6
FNO	1.4~16
Angle of view (°)(VxH)	56.8x71.5(2/3")
OD (mm)	100~∞
Iris / Focus Operation	Manual
Filter Thread	M40.5 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	145g

SV-0814H



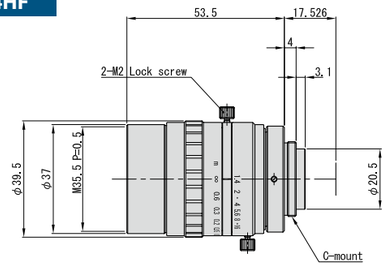
Focal Length (f)(mm)	8
FNO	1.4~16
Angle of view (°)(VxH)	44.9x57.6(2/3")
OD (mm)	100~∞
Iris / Focus Operation	Manual
Filter Thread	M35.5 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	125g

SV-1214HF



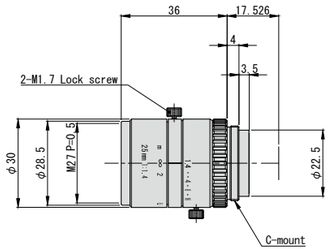
Focal Length (f)(mm)	12
FNO	1.4 ~ 16
Angle of view (°)(VxH)	31.2x40.8 (2/3")
OD (mm)	100 ~ ∞
Iris / Focus Operation	Manual
Filter Thread	M34 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	110g

SV-1614HF



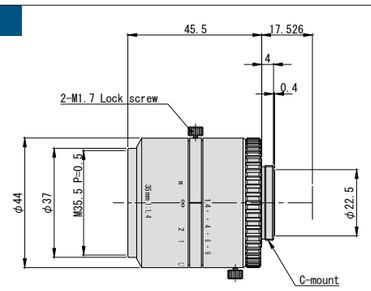
Focal Length (f)(mm)	16
FNO	1.4 ~ 16
Angle of view (°)(VxH)	22.9x30.2 (2/3")
OD (mm)	100 ~ ∞
Iris / Focus Operation	Manual
Filter Thread	M35.5 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	125g

SV-2514H



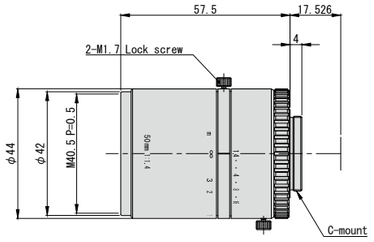
Focal Length (f)(mm)	25
FNO	1.4~16
Angle of view (°)(VxH)	15.0x20.0(2/3")
OD (mm)	150~∞
Iris / Focus Operation	Manual
Filter Thread	M27 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	65g

SV-3514H



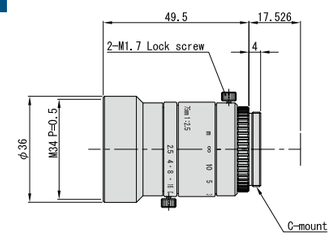
Focal Length (f)(mm)	35
FNO	1.4~16
Angle of view (°)(VxH)	10.8x14.3(2/3")
OD (mm)	200~∞
Iris / Focus Operation	Manual
Filter Thread	M35.5 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	150g

SV-5014H



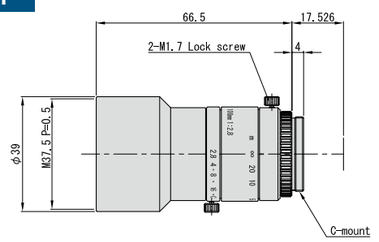
Focal Length (f)(mm)	50
FNO	1.4~16
Angle of view (°)(VxH)	7.5x10.0(2/3")
OD (mm)	300~∞
Iris / Focus Operation	Manual
Filter Thread	M40.5 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	170g

SV-7525H



Focal Length (f)(mm)	75
FNO	2.5 ~ (C)
Angle of view (°)(VxH)	7.3x9.7 (1")
OD (mm)	1200 ~ ∞
Iris / Focus Operation	Manual
Filter Thread	M34 P=0.5
Sensor size (max.)/Mount	1"/C-mount
Weight (approx.)	85g

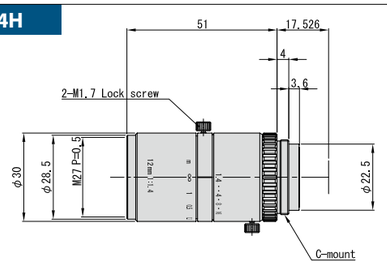
SV-10028H



Focal Length (f)(mm)	100
FNO	2.8 ~ (C)
Angle of view (°)(VxH)	5.6x7.5 (1")
OD (mm)	2000 ~ ∞
Iris / Focus Operation	Manual
Filter Thread	M37.5 P=0.5
Sensor size (max.)/Mount	1"/C-mount
Weight (approx.)	105g

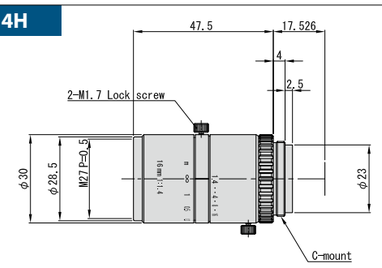
Megapixel Compact Model

SV-1214H



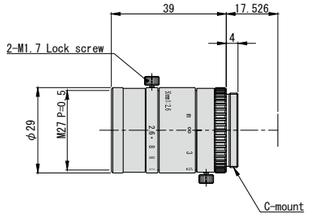
Focal Length (f)(mm)	12
FNO	1.4~16
Angle of view (°)(VxH)	30.2x39.6(2/3")
OD (mm)	100~∞
Iris / Focus Operation	Manual
Filter Thread	M27 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	85g

SV-1614H



Focal Length (f)(mm)	16
FNO	1.4~16
Angle of view (°)(VxH)	23.1x30.6(2/3")
OD (mm)	100~∞
Iris / Focus Operation	Manual
Filter Thread	M27 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	85g

SV-5026H

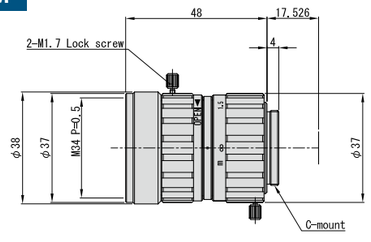


Focal Length (f)(mm)	50
FNO	2.6~(C)
Angle of view (°)(VxH)	7.6x10.1(2/3")
OD (mm)	500~∞
Iris / Focus Operation	Manual
Filter Thread	M27 P=0.5
Sensor size (max.)/Mount	2/3"/C-mount
Weight (approx.)	53g

VS-1628H10M

10 Megapixels CCTV lenses
More than 200Lp/mm available from center to perimeter
Reduce Shading and Distortionless

VS-1628H10M



Focal Length (f)(mm)	16
FNO	2.8 ~ 22
Angle of view (°)(VxH)	23.3x30.7 (2/3")
OD (mm)	350 ~ ∞
Iris / Focus Operation	Manual
Sensor Size (max.) / Mount	2/3"/C-mount
Filter Thread	M34 P=0.5
Weight (approx.)	-g

SV-V Series

11 models from focal lengths f3.5mm ～ f100mm
Designed for FA and has a more robust mechanical design than conventional security CCTV lenses
Lock screws for Iris and Focus for all models
Designed for a wide range of applications by using an extension tube and a rear converter lens

【Area sensor lineup】

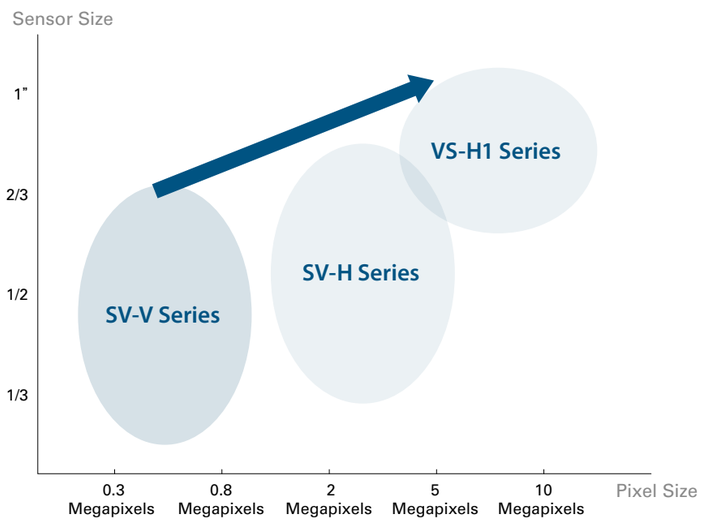


Table for WD.FOV and Extension Tube Length

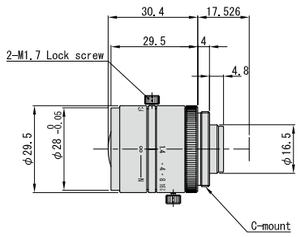
Extension Tube (mm)	Model / Focal Length / Focus	SV-03514V f3.61 200～∞	SV-04514V f4.63 200～∞	SV-0614V f6.2 200～∞	SV-0813V f8.05 200～∞	SV-1214V f12.43 300～∞	SV-1614V f16.34 400～∞	SV-2514V f25.17 500～∞	SV-3518V f34.75 300～∞	SV-5018V f47.97 1000～∞	SV-7527V f76.71 1000～∞	SV-10035V f95.41 1000～∞
0	WD	200	200	200	200	300	400	500	300	1000	1000	1000
	1/3"	206.9x275.9	162.2×216.2	124.1x165.5	94.7x126.3	90x120	90x120	70.6x94.1	31x41.4	72x96	45x60	36x48
	1/2"	275.9x367.8	216.2×288.3	165.5x220.7	126.3x168.4	120x160	120x160	94.1x125.5	41.4x55.2	96x128	60x80	48x64
	Mag.	0.017x	0.022×	0.029x	0.038x	0.040x	0.040x	0.051x	0.116x	0.050x	0.080x	0.100x
0.5	WD		27.7 35.0	43.0 63.3	69.5 118.6	143.0 296.8	222.0 524.1	358.5 1269.4	267.5 2416.1			
	1/3"		27.7x36.9 33.3x44.4	32.8x43.8 44.6x59.5	36x47.9 58x77.3	44.9x59.8 89.5x119.3	51x68 117.6x156.9	50.8x67.7 181.2x241.6	27.6x36.8 250.2x333.6			
	1/2"		36.9x49.2 44.4x59.3	43.8x58.4 59.5x79.4	47.9x63.9 77.3x103	59.8x79.8 119.3x159.1	68x90.7 156.9x209.2	67.7x90.3 241.6x322.2	36.8x49.1 333.6x444.8			
	Mag.		0.130x 0.108x	0.110x 0.081x	0.100x 0.062x	0.080x 0.040x	0.071x 0.031x	0.071x 0.020x	0.130x 0.014x			
1	WD				38.7 53.8	91.3 142.3	152.0 257.1	280.8 635.9	241.0 1208.5			
	1/3"				22.2x29.6 29x38.6	29.9x39.9 44.7x59.7	35.6x47.4 58.8x78.4	39.7x52.9 90.6x120.8	24.9x33.2 125.1x166.8			
	1/2"				29.6x39.5 38.6x51.5	39.9x53.1 59.7x79.6	47.4x63.2 78.4x104.6	52.9x70.5 120.8x161.1	33.2x44.2 166.8x222.4			
	Mag.				0.162x 0.124x	0.120x 0.080x	0.101x 0.061x	0.091x 0.040x	0.145x 0.029x			
1.5	WD					65.4 90.8	114.5 168.1	230.9 424.7	219.3 806.0	632.5 1576.3	823.4 3475.0	1046.2 6505.6
	1/3"					22.4x29.9 29.8x39.8	27.3x36.4 39.2x52.3	32.6x43.4 60.4x80.5	22.6x30.2 83.4x111.2	44.3x59.1 115.1x153.5	34.7x46.3 184.1x245.5	29.5x39.3 229x305.3
	1/2"					29.9x39.8 39.8x53	36.4x48.6 52.3x69.7	43.4x57.9 80.5x107.4	30.2x40.2 111.2x148.3	59.1x78.8 153.5x204.7	46.3x61.7 245.5x327.3	39.3x52.4 305.3x407.1
	Mag.					0.161x 0.121x	0.132x 0.092x	0.111x 0.060x	0.159x 0.043x	0.081x 0.031x	0.104x 0.020x	0.122x 0.016x
2	WD					50.0 65.1	91.2 123.6	196.3 319.1	201.2 604.7	565.4 1192.8	780.2 2664.7	1010.5 4988.4
	1/3"					17.9x23.9 22.4x29.8	22.2x29.6 29.4x39.2	27.6x36.8 45.3x60.4	20.7x27.7 62.6x83.4	39.3x52.3 86.3x115.1	32.3x43 138.1x184.1	27.8x37.1 171.7x229
	1/2"					23.9x31.9 29.8x39.8	29.6x39.4 39.2x52.3	36.8x49.1 60.4x80.5	27.7x36.9 83.4x111.2	52.3x69.8 115.1x153.5	43x57.4 184.1x245.5	37.1x49.4 229x305.3
	Mag.					0.201x 0.161x	0.162x 0.122x	0.130x 0.079x	0.174x 0.058x	0.092x 0.042x	0.112x 0.026x	0.130x 0.021x
5	WD							104.2 129.0	134.7 242.5	353.3 502.5	610.9 1206.1	859.6 2257.5
	1/3"							14.4x19.2 18.1x24.2	13.9x18.5 25x33.4	23.3x31.1 34.5x46.1	22.7x30.2 55.2x73.6	20.7x27.6 68.7x91.6
	1/2"							19.2x25.6 24.2x32.2	18.5x24.6 33.4x44.5	31.1x41.5 46.1x61.4	30.2x40.3 73.6x98.2	27.6x36.8 91.6x122.1
	Mag.							0.250x 0.199x	0.260x 0.144x	0.154x 0.104x	0.159x 0.065x	0.174x 0.052x
10	WD							59.5 65.7	87.0 121.7	227.9 272.4	478.6 720.0	728.0 1347.2
	1/3"							8x10.7 9.1x12.1	8.9x11.9 12.5x16.7	13.9x18.6 17.3x23	15.1x20.2 27.6x36.8	14.5x19.4 34.3x45.8
	1/2"							10.7x14.3 12.1x16.1	11.9x15.9 16.7x22.2	18.6x24.8 23x30.7	20.2x26.9 36.8x49.1	19.4x25.8 45.8x61.1
	Mag.							0.448x 0.397x	0.404x 0.288x	0.258x 0.208x	0.238x 0.130x	0.248x 0.105x
15	WD								64.4 81.5	174.5 195.7	412.2 557.9	656.9 1043.8
	1/3"								6.6x8.8 8.3x11.1	9.9x13.2 11.5x15.4	11.4x15.2 18.4x24.5	11.2x14.9 22.9x30.5
	1/2"								8.8x11.7 11.1x14.8	13.2x17.6 15.4x20.5	15.2x20.2 24.5x32.7	14.9x19.9 30.5x40.7
	Mag.								0.548x 0.432x	0.363x 0.313x	0.317x 0.196x	0.321x 0.157x
20	WD								51.2 61.3	145.0 157.3	372.3 476.9	612.3 892.0
	1/3"								5.2x6.9 6.3x8.3	7.7x10.3 8.6x11.5	9.1x12.1 13.8x18.4	9.1x12.1 17.2x22.9
	1/2"								6.9x9.3 8.3x11.1	10.3x13.7 11.5x15.4	12.1x16.2 18.4x24.5	12.1x16.2 22.9x30.5
	Mag.								0.692x 0.576x	0.467x 0.417x	0.396x 0.261x	0.395x 0.210x
25	WD								42.6 49.3	126.2 134.3	345.6 428.2	581.7 801.0
	1/3"								4.3x5.7 5x6.7	6.3x8.4 6.9x9.2	7.6x10.1 11x14.7	7.7x10.2 13.7x18.3
	1/2"								5.7x7.7 6.7x8.9	8.4x11.2 9.2x12.3	10.1x13.5 14.7x19.6	10.2x13.6 18.3x24.4
	Mag.								0.835x 0.719x	0.571x 0.521x	0.474x 0.326x	0.469x 0.262x
30	WD									113.3 119.0	326.6 395.8	559.5 740.3
	1/3"									5.3x7.1 5.8x7.7	6.5x8.7 9.2x12.3	6.6x8.8 11.4x15.3
	1/2"									7.1x9.5 7.7x10.2	8.7x11.6 12.3x16.4	8.8x11.8 15.3x20.4
	Mag.									0.675x 0.625x	0.553x 0.391x	0.543x 0.314x
35	WD									103.8 108.0	312.3 372.7	542.6 697.0
	1/3"									4.6x6.2 4.9x6.6	5.7x7.6 7.9x10.5	5.8x7.8 9.8x13.1
	1/2"									6.2x8.2 6.6x8.8	7.6x10.1 10.5x14	7.8x10.4 13.1x17.4
	Mag.									0.780x 0.730x	0.632x 0.456x	0.617x 0.367x
40	WD									96.5 99.8	301.2 355.3	529.3 664.5
	1/3"									4.1x5.4 4.3x5.8	5.1x6.7 6.9x9.2	5.2x7 8.6x11.4
	1/2"									5.4x7.2 5.8x7.7	6.7x9 9.2x12.3	7x9.3 11.4x15.3
	Mag.									0.884x 0.834x	0.711x 0.521x	0.690x 0.419x
45	WD									90.8 93.4	292.3 341.8	518.6 639.2
	1/3"									3.6x4.9 3.8x5.1	4.6x6.1 6.1x8.2	4.7x6.3 7.6x10.2
	1/2"									4.9x6.5 5.1x6.8	6.1x8.1 8.2x10.9	6.3x8.4 10.2x13.6
	Mag.									0.988x 0.938x	0.790x 0.587x	0.764x 0.472x
50	WD									86.2 88.3	285.0 331.0	509.7 619.0
	1/3"									3.3x4.4 3.5x4.6	4.1x5.5 5.5x7.4	4.3x5.7 6.9x9.2
	1/2"									4.4x5.9 4.6x6.1	5.5x7.4 7.4x9.8	5.7x7.6 9.2x12.2
	Mag.									1.092x 1.042x	0.869x 0.652x	0.838x 0.524x

Description of the table above

Extension Tube (mm)	Model / Focal Length / Focus	SV-○○○○V (f) 0.5m～∞		
	Focus	0.5m～∞		→ Object Distance(mm)
5	WD	103	130	→ The distance between the object and front of the lens
	1/3"	14x19	19x25	→ FOV at 1/3" sensor
	1/2"	18x24	24x32	→ FOV at 1/2" sensor
	Mag.	0.25x	0.20x	→ Optical Magnification

↓ Length of Extension Tube

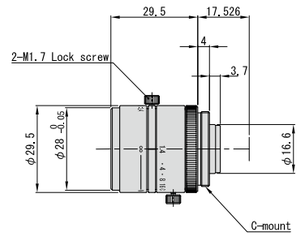
SV-03514V



Focal Length (f)(mm)	3.5
FNO	1.4 ~ (C)
Angle of view (°)(VxH)	77.8x105.9 (1/2")
OD (mm)	200 ~ ∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1/2"/C-mount
Filter Thread	-
Weight (approx.)	53g

* Filter adapter, SV-FAD28-305 , is available.

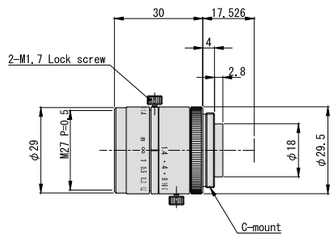
SV-04514V



Focal Length (f)(mm)	4.5
FNO	1.4 ~ (C)
Angle of view (°)(VxH)	59.7x79.9 (1/2")
OD (mm)	200 ~ ∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1/2"/C-mount
Filter Thread	-
Weight (approx.)	53g

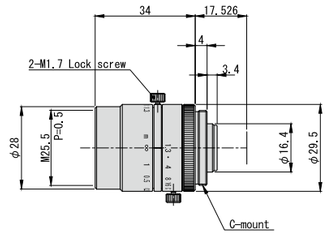
* Filter adapter, SV-FAD28-305 , is available.

SV-0614V



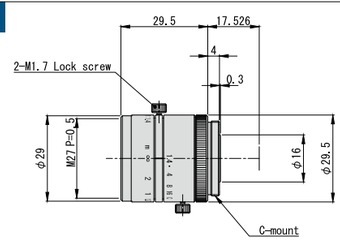
Focal Length (f)(mm)	6
FNO	1.4~(C)
Angle of view (°)(VxH)	42.3x54.6(1/2")
OD (mm)	200~∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1/2"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	49g

SV-0813V



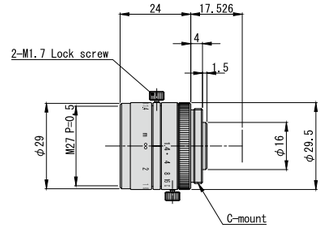
Focal Length (f)(mm)	8
FNO	1.3~(C)
Angle of view (°)(VxH)	44.6x57.3(2/3")
OD (mm)	200~∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	2/3"/C-mount
Filter Thread	M25.5 P=0.5
Weight (approx.)	55g

SV-1214V



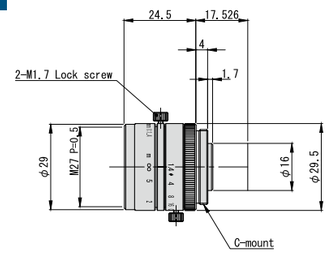
Focal Length (f)(mm)	12
FNO	1.4~(C)
Angle of view (°)(VxH)	21.9x28.9(1/2")
OD (mm)	300~∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1/2"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	44g

SV-1614V



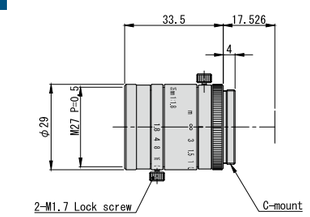
Focal Length (f)(mm)	16
FNO	1.4~(C)
Angle of view (°)(VxH)	22.8x30.1(2/3")
OD (mm)	400~∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	2/3"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	34g

SV-2514V



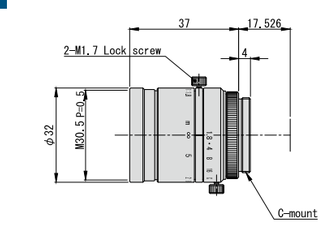
Focal Length (f)(mm)	25
FNO	1.4~(C)
Angle of view (°)(VxH)	14.9x19.8(2/3")
OD (mm)	500~∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	36g

SV-3518V



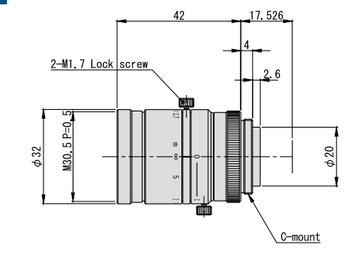
Focal Length (f)(mm)	35
FNO	1.8~(C)
Angle of view (°)(VxH)	10.8x14.4(2/3")
OD (mm)	300~∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	2/3"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	47g

SV-5018V



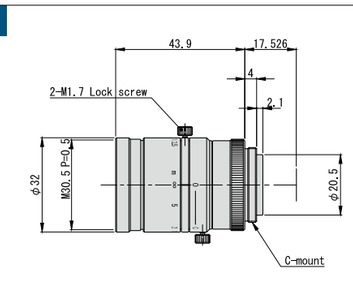
Focal Length (f)(mm)	50
FNO	1.8~(C)
Angle of view (°)(VxH)	7.9x10.5(2/3")
OD (mm)	1000~∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	2/3"/C-mount
Filter Thread	M30.5 P=0.5
Weight (approx.)	67g

SV-7527V



Focal Length (f)(mm)	75
FNO	2.7~(C)
Angle of view (°)(VxH)	3.6x4.8(1/2")
OD (mm)	1000~∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1/2"/C-mount
Filter Thread	M30.5 P=0.5
Weight (approx.)	76g

SV-10035V

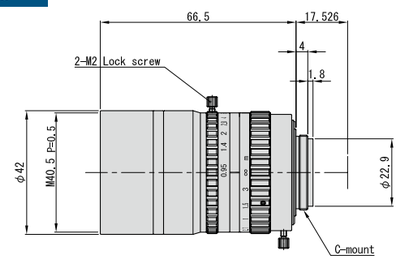


Focal Length (f)(mm)	100
FNO	3.5~(C)
Angle of view (°)(VxH)	2.9x3.8(1/2")
OD (mm)	1000~∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1/2"/C-mount
Filter Thread	M30.5 P=0.5
Weight (approx.)	79g

SV-095 Series

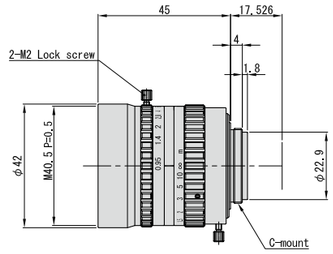
High Speed CCTV lens (Fno 0.95)
Two times brighter than standard CCTV lens
Come with lock screws for iris, focus and filter threads for installing options

SV-17095



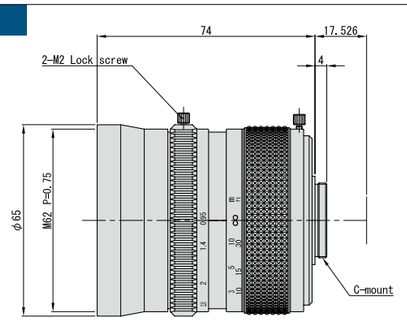
Focal Length (f)(mm)	17
Maximum Aperture Ratio	1 : 0.95
FNO	0.95~16
Angle of view (°)(VxH)	22.6x30.4(2/3")
OD (mm)	420 ~ ∞
Operation of Iris & Focus	Manual
Mount	C-mount
Filter Thread	M40.5 P=0.5
Sensor Size (max.)	2/3"
Weight (approx.)	175 g

SV-25095



Focal Length (f)(mm)	25
Maximum Aperture Ratio	1 : 0.95
FNO	0.95~16
Angle of view (°)(VxH)	21.2x28.5(1")
OD (mm)	450 ~ ∞
Operation of Iris & Focus	Manual
Mount	C-mount
Filter Thread	M40.5 P=0.5
Sensor Size (max.)	1"
Weight (approx.)	165 g

SV-50095



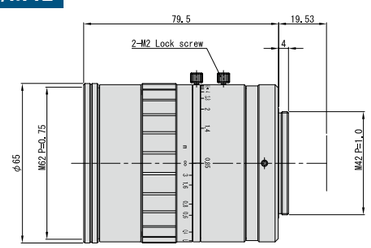
Focal Length (f)(mm)	50
Maximum Aperture Ratio	1 : 0.95
FNO	0.95~16
Angle of view (°)(VxH)	11.0x14.6(1")
OD (mm)	600 ~ ∞
Operation of Iris & Focus	Manual
Mount	C-mount
Filter Thread	M62.0 P=0.75
Sensor Size (max.)	1"
Weight (approx.)	480 g

CCTV Lens for high speed camera

VS-085 Series

The fastest, brightest industrial CCTV lens with F-no. 0.85 & 3/4" camera capable
High Contrast, Low Distortion

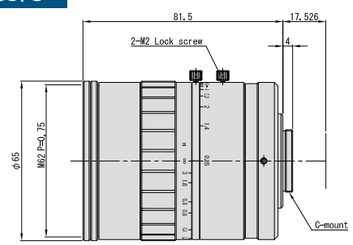
VS-50085/M42



Focal Length (f)(mm)	50
Maximum Aperture Ratio	1 : 0.85
FNO	0.85 ~ 16
Angle of view (°)(VxH)	15.7x20.9 (4/3")
OD (mm)	240 ~ ∞
Operation of Iris & Focus	Manual
Mount	M42 P=1.0
Filter Thread	M62 P=0.75
Sensor Size (max.)	4/3"
Weight (approx.)	620g

Note: Customized C mount, Maximum Focal Ratio is 1:0.90

VS-50085/C



Lens Kit for R&D

SV-EGG-BOX Series

Egg Box series is a convenient and useful CCTV and Macro lens kit for testing in laboratory or factory settings.
All lenses are equipped with lock screws for focus and iris. Light weight compact lens box.

VS-LD Series

SV-V Series

SV-H Series

SV-EXR Series

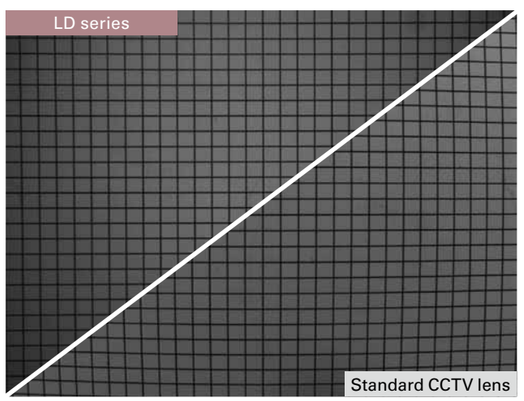
SV-X Series

Model	Contents				CD	Megapixel
	Series	C-mount Lens	Extension Tube	Rear Converter Lens		
SV-EGG-BOX-LD1	LD Series	f6.5/15/25/50mm 4set	0.5/1/5/10/20mm 5set	–	○	○
SV-EGG-BOX-LD2	LD Series	f6.5/15/20/30/50/75mm 6set	0.5/1/2/5/10/20/40mm 7set	–	○	○
SV-EGG-BOX-H1	SV-H Series	f8/16/25mm 3set	0.5/1/5/10/20mm 5set	–	○	○
SV-EGG-BOX-H2	SV-H Series	f6/12/25/35/50mm 5set	0.5/1/2/5/10/20/40mm 7set	–	○	○
SV-EGG-BOX-V1	SV-V Series	f8/16/25/35/50/100mm 6set	0.5/1/2/5/10/20/40mm 7set	1.5x · 2.0x 2set	○	○
SV-EGG-BOX-V2	SV-V Series	f6/12/25/50/75mm 5set	0.5/1/2/5/10/20/40mm 7set	1.5x · 2.0x 2set	○	○

VS-LD Series

Low distortion even when using extension tubes 10 models from focal lengths f4mm～f75mm
Compact size: 32mm in diameter (except for VS-LD 6.5)
For VGA ～3 Megapixel sensors
Reduced shading

Distortion comparison chart



Lens shift

VS-LD Series maintains low distortion and less shading by utilizing a higher amount of lens shift. The result is a lens with a great variety of WD and magnifications while maintaining a high quality image in the entire FOV.

Table for WD.FOV and Extension Tube Length

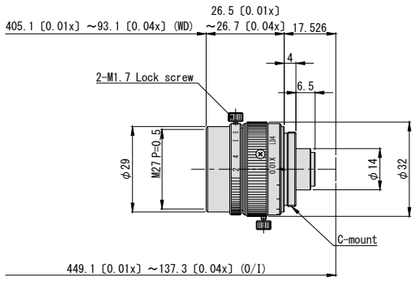
Extension Tube (mm)	Model / Focal Length	VS-LD4 f4.16		VS-LD6.5 f6.51		VS-LD10 f10.27		VS-LD15 f15.00		VS-LD20 f20.74		VS-LD25N f25.18		VS-LD30 f30.01		VS-LD35 f35.02		VS-LD50 f48.46		VS-LD75 f73.98	
	Focus	90～500mm		90～630mm		90～450mm		90～500mm		90～500mm		85～190mm		150～300mm		100～150mm		200～500mm		250～530mm	
0	WD	93.1	509.1	89.0	631.5	89.3	448.0	91.8	491.8	86.8	511.0	102.9	510.9	143.1	312.7	95.7	142.4	213.0	503.8	245.9	527.7
	1/3"	90x120	450x600	60x80	360x480	36x48	180x240	24x32	120x160	16.4x21.8	90x120	14.4x19.2	72x96	15.7x20.9	36x48	7.2x9.6	12x16	14.4x19.2	36x48	10.3x13.7	24x32
	1/2"	120x160	600x800	80x106.7	480x640	48x64	240x320	32x42.7	160x213.3	21.8x29.1	120x160	19.2x25.6	96x128	20.9x27.8	48x64	9.6x12.8	16x21.3	19.2x25.6	48x64	13.7x18.3	32x42.7
	Mag.	0.04x	0.008x	0.06x	0.01x	0.1x	0.02x	0.15x	0.03x	0.22x	0.04x	0.25x	0.05x	0.23x	0.1x	0.5x	0.3x	0.25x	0.1x	0.35x	0.15x
0.5	WD	15.1	22.4	27	52.8	55.2	135.1	73.8	229.9	76.8	315.7	95.4	365.2	134.1	269.1	93.8	137.2	205.6	459.7	241.9	506.5
	1/3"	22.5x30	28.8x38.4	25.7x34.3	40.9x54.5	25x33.3	52.2x69.6	19.7x26.2	57.1x76.2	14.6x19.5	56.3x75	13.3x17.8	51.4x68.6	14.6x19.4	30.8x41	7x9.3	11.5x15.3	13.8x18.5	32.7x43.6	10.1x13.4	22.9x30.6
	1/2"	30x40	38.4x51.2	34.3x45.7	54.5x72.7	33.3x44.4	69.6x92.8	26.2x35	76.2x101.6	19.5x26	75x100	17.8x23.7	68.6x91.4	19.4x25.9	41x54.7	9.3x12.5	15.3x20.4	18.5x24.6	43.6x58.2	13.4x17.9	30.6x40.8
	Mag.	0.16x	0.125x	0.14x	0.088x	0.144x	0.069x	0.183x	0.063x	0.246x	0.064x	0.27x	0.07x	0.247x	0.117x	0.514x	0.314x	0.26x	0.11x	0.357x	0.157x
1	WD			10.1	20.0	38.2	73.3	61.3	148.1	69.3	227.4	88.9	284.3	126.7	238.3	91.9	132.1	198.0	419.7	238	485.6
	1/3"			16.4x21.8	21.8x29.1	18.2x24.2	30.5x40.7	16.7x22.2	37.5x50	13.3x17.8	40.9x54.5	12.4x16.6	40x53.3	13.7x18.3	27.1x36.1	6.8x9.1	10.9x14.6	13.3x17.7	29.8x39.7	9.9x13.2	22x29.3
	1/2"			21.8x29.1	29.1x38.8	24.2x32.3	40.7x54.2	22.2x29.6	50x66.7	17.8x23.7	54.5x72.7	16.6x22.1	53.3x71.1	18.3x24.3	36.1x48.1	9.1x12.1	14.6x19.5	17.7x23.6	39.7x52.9	13.2x17.6	29.3x39
	Mag.			0.22x	0.165x	0.198x	0.118x	0.216x	0.096x	0.27x	0.088x	0.29x	0.09x	0.263x	0.133x	0.529x	0.329x	0.271x	0.121x	0.363x	0.164x
1.5	WD					28.0	48.2	51.8	107.2	62.2	176.8	83.2	234.9	119.8	212.7	90.2	127.8	191.6	389.1	234.4	468.9
	1/3"					14.6x19.5	21.7x28.9	14.4x19.2	27.7x36.9	12.2x16.3	32.1x42.9	11.6x15.5	33x44	12.9x17.1	24x32	6.6x8.8	10.5x14	12.8x17.1	27.5x36.6	9.7x13	21.2x28.2
	1/2"					19.5x26	28.9x38.6	19.2x25.6	36.9x49.2	16.3x21.8	42.9x57.1	15.5x20.6	44x58.7	17.1x22.9	32x42.7	8.8x11.8	14x18.7	17.1x22.8	36.6x48.9	13x17.3	28.2x37.6
	Mag.					0.246x	0.166x	0.25x	0.13x	0.294x	0.112x	0.31x	0.11x	0.28x	0.15x	0.543x	0.343x	0.281x	0.131x	0.37x	0.17x
2	WD					21.1	34.1	44.8	83.3	52.3	144.2	78.2	199.2	113.7	192.3	88.5	123.8	185.7	362.1	230.8	452.2
	1/3"					12.2x16.3	16.7x22.3	12.7x17	22x29.3	10.5x14	26.5x35.3	10.9x14.5	27.9x37.2	12.1x16.2	21.6x28.7	6.5x8.6	10.1x13.4	12.4x16.5	25.5x34	9.5x12.7	20.3x27.1
	1/2"					16.3x21.7	22.3x29.8	17x22.6	29.3x39	14x18.7	35.3x47.1	14.5x19.4	37.2x49.6	16.2x21.5	28.7x38.3	8.6x11.5	13.4x17.9	16.5x22	34x45.4	12.7x17	27.1x36.2
	Mag.					0.295x	0.215x	0.283x	0.164x	0.342x	0.136x	0.33x	0.13x	0.297x	0.167x	0.557x	0.357x	0.291x	0.141x	0.377x	0.177x
5	WD							22.9	33.2	37.5	65.5	60.2	104.2	88.2	125	80.1	104.7	156.4	257.9	211.7	373.9
	1/3"							7.5x9.9	9.9x13.2	7.8x10.4	12.8x17.1	8.4x11.2	14.6x19.4	9.1x12.1	13.5x18	5.6x7.5	8.1x10.8	10.2x13.6	17.7x23.6	8.6x11.5	16.5x22
	1/2"							9.9x13.3	13.2x17.6	10.4x13.9	17.1x22.8	11.2x14.9	19.4x25.9	12.1x16.1	18x24	7.5x10	10.8x14.4	13.6x18.1	23.6x31.5	11.5x15.3	22x29.4
	Mag.							0.483x	0.363x	0.461x	0.281x	0.43x	0.25x	0.397x	0.267x	0.643x	0.443x	0.353x	0.203x	0.417x	0.218x
10	WD							10.2	13.4	21.1	31.4	40.6	58.	65.9	81.9	70.2	85.4	125.4	177.3	187.1	293.9
	1/3"							4.4x5.9	5.2x6.9	5.1x6.8	6.9x9.2	5.6x7.5	8.1x10.8	6.4x8.5	8.3x11.1	4.6x6.1	6.1x8.2	7.9x10.5	11.8x15.7	7.4x9.9	12.6x16.8
	1/2"							5.9x7.8	6.9x9.2	6.8x9.1	9.2x12.3	7.5x10	10.8x14.4	8.5x11.4	11.1x14.8	6.1x8.1	8.2x10.9	10.5x14	15.7x20.9	9.9x13.2	16.8x22.5
	Mag.							0.817x	0.697x	0.704x	0.522x	0.64x	0.44x	0.563x	0.433x	0.786x	0.586x	0.456x	0.306x	0.485x	0.285x
15	WD									13.7	18.9	31.3	40.8	53.8	62.7	63.4	73.8	105.9	137.4	168.3	244.1
	1/3"									3.8x5.1	4.7x6.3	4.3x5.7	5.6x7.5	4.9x6.6	6x8	3.9x5.2	4.9x6.6	6.4x8.6	8.8x11.7	6.5x8.7	10.1x13.4
	1/2"									5.1x6.8	6.3x8.4	5.7x7.6	7.5x10	6.6x8.8	8x10.7	5.2x6.9	6.6x8.8	8.6x11.4	11.7x15.6	8.7x11.6	13.4x17.9
	Mag.									0.943x	0.763x	0.84x	0.64x	0.73x	0.6x	0.928x	0.728x	0.559x	0.41x	0.553x	0.357x
20	WD											25.6	31.5	46.1	51.8	58.4	65.9	92.3	113.6	153.8	210.5
	1/3"											3.5x4.6	4.3x5.7	4x5.4	4.7x6.3	3.4x4.5	4.1x5.5	5.4x7.2	7x9.4	5.8x7.7	8.6x11.4
	1/2"											4.6x6.2	5.7x7.7	5.4x7.1	6.3x8.4	4.5x6	5.5x7.3	7.2x9.7	9.4x12.5	7.7x10.3	11.4x15.2
	Mag.											1.04x	0.84x	0.896x	0.766x	1.071x	0.871x	0.663x	0.513x	0.62x	0.42x
25	WD											21.7	25.7	40.9	44.8	54.5	60.2	82.4	97.8	142	186.1
	1/3"											2.9x3.9	3.5x4.7	3.4x4.5	3.9x5.1	3x4	3.6x4.7	4.7x6.3	5.8x7.8	5.2x7	7.4x9.8
	1/2"											3.9x5.2	4.7x6.2	4.5x6	5.1x6.9	4x5.3	4.7x6.3	6.3x8.4	7.8x10.4	7x9.3	9.8x13.1
	Mag.											1.23x	1.03x	1.063x	0.933x	1.214x	1.014x	0.766x	0.616x	0.688x	0.488x
30	WD											18.8	21.7	37.0	39.9	51.5	56.0	74.9	86.6	132.4	167.6
	1/3"											2.5x3.4	2.9x3.9	2.9x3.9	3.3x4.4	2.7x3.5	3.1x4.1	4.1x5.5	5x6.7	4.8x6.4	6.5x8.6
	1/2"											3.4x4.5	3.9x5.2	3.9x5.2	4.4x5.8	3.5x4.7	4.1x5.5	5.5x7.4	6.7x8.9	6.4x8.5	8.6x11.5
	Mag.											1.43x	1.23x	1.23x	1.1x	1.357x	1.157x	0.869x	0.719x	0.755x	0.556x
35	WD											16.6	18.9	34.1	36.3	49	52.6	69	78.1	124.4	153.2
	1/3"											2.2x3	2.5x3.4	2.6x3.4	2.8x3.8	2.4x3.2	2.8x3.7	3.7x4.9	4.4x5.8	4.4x5.8	5.8x7.7
	1/2"											3x3.9	3.4x4.5	3.4x4.6	3.8x5.1	3.2x4.3	3.7x4.9	4.9x6.6	5.8x7.8	5.8x7.8	7.7x10.3
	Mag.											1.63x	1.42x	1.396x	1.266x	1.5x	1.3x	0.972x	0.822x	0.823x	0.623x
40	WD											15.0	16.7	31.8	33.6	47.0	49.4	64.2	71.5	117.3	141.6
	1/3"											2x2.6	2.2x3	2.3x3.1	2.5x3.3	2.2x2.9	2.5x3.3	3.3x4.5	3.9x5.2	4x5.4	5.2x6.9
	1/2"											2.6x3.5	3x4	3.1x4.1	3.3x4.5	2.9x3.9	3.3x4.4	4.5x5.9	5.2x6.9	5.4x7.2	6.9x9.3
	Mag.											1.82x	1.62x	1.563x	1.433x	1.643x	1.443x	1.076x	0.926x	0.891x	0.691x
45	WD											13.6	15	30	31.4	45.3	47.8	60.3	66.3	111.7	132.1
	1/3"											1.8x2.4	2x2.6	2.1x2.8	2.3x3	2x2.7	2.3x3	3.1x4.1	3.5x4.7	3.8x5	4.7x6.3
	1/2"											2.4x3.	2.6x3.5	2.8x3.7	3x4	2.7x3.6	3x4	4.1x5.4	4.7x6.2	5x6.7	6.3x8.4
	Mag.											2.02x	1.82x	1.729x	1.6x	1.785x	1.585x	1.179x	1.029x	0.958x	0.758x
50	WD											12.5	13.6	28.5	29.6	43.8	45.9	57.0	62.0	106.6	124.1
	1/3"											1.6x2.2	1.8x2.4	1.9x2.5	2x2.7	1.9x2.5	2.1x2.8	2.8x3.7	3.2x4.2	3.5x4.7	4.4x5.8
	1/2"											2.2x2.9	2.4x3.2	2.5x3.4	2.7x3.6	2.5x3.3	2.8x3.7	3.7x5	4.2x5.7	4.7x6.2	5.8x7.7
	Mag.											2.21x	2.01x	1.896x	1.766x	1.928x	1.728x	1.282x	1.132x	1.026x	0.826x

Description of the table above

Extension Tube (mm)	Model / Focal Length	VS-LD○○ (f)		
	Focus	0.5m～∞		→ Object Distance(mm)
5	WD	103	130	→ The distance between the object and front of the lens
	1/3"	14x19	19x25	→ FOV at 1/3" sensor
	1/2"	18x24	24x32	→ FOV at 1/2" sensor
	Mag.	0.25x	0.20x	→ Optical Magnification

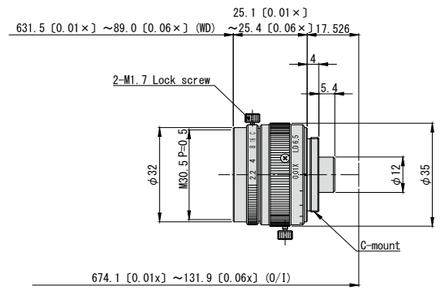
↓ Length of Extension Tube

VS-LD4



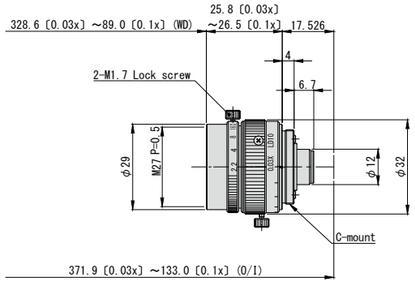
Focal Length (f)(mm)	4			
Opt. Mag. Range	0.01x～0.04x			
Optical Mag.	0.01x	0.016x	0.03x	0.04x
FOV 2/3" (VxH mm)	–	–	–	–
FOV 1/2" (VxH mm)	480x640	300x400	160x213.3	120x160
FOV 1/3" (VxH mm)	360x480	225x300	120x160	90x120
WD (mm)	405.1	249.1	127.8	93.1
O/I (mm)	449.1	293.1	171.8	137.3
Working F/#*1	2.10	2.11	2.14	2.16
DOF*2 (mm)	1680.0	659.4	190.2	108.0
TV Distortion (max.)	0.95%	0.95%	0.93%	0.92%
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	52g			
Sensor Size(max.)/Mount	1/2" / C-mount			
Lens shift (max.)	0.2mm			

VS-LD6.5



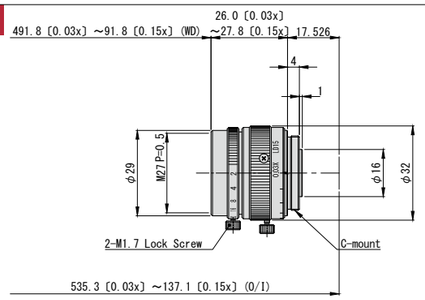
Focal Length (f)(mm)	6.5			
Opt. Mag. Range	0.01x～0.06x			
Optical Mag.	0.01x	0.02x	0.04x	0.06x
FOV 2/3" (VxH mm)	–	–	–	–
FOV 1/2" (VxH mm)	480x640	240x320	120x160	80x106.7
FOV 1/3" (VxH mm)	360x480	180x240	90x120	60x80
WD (mm)	631.5	306.0	143.3	89.0
O/I (mm)	674.1	348.6	186.0	131.9
Working F/#*1	2.28	2.31	2.35	2.4
DOF*2(mm)	1824.0	462.0	117.5	53.3
TV Distortion (max.)	0.11%	0.09%	0.04%	-0.01%
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	50g			
Sensor Size(max.)/Mount	1/2" / C-mount			
Lens shift (max.)	0.3mm			

VS-LD10



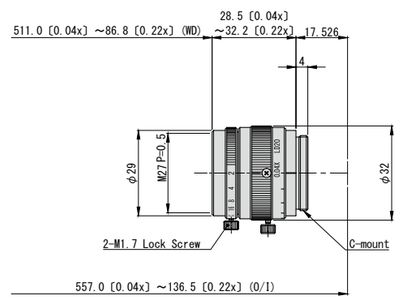
Focal Length (f)(mm)	10			
Opt. Mag. Range	0.02x～0.1x			
Optical Mag.	0.02x	0.05x	0.08x	0.1x
FOV 2/3" (VxH mm)	–	–	–	–
FOV 1/2" (VxH mm)	240x320	96x128	60x80	48x64
FOV 1/3" (VxH mm)	180x240	72x96	45x60	36x48
WD (mm)	499.8	191.7	114.6	89.0
O/I (mm)	543.0	235.2	158.5	133.0
Working F/#*1	2.24	2.31	2.38	2.42
DOF*2(mm)	448	73.9	29.8	19.4
TV Distortion (max.)	0.08%	0.04%	-0.05%	-0.08%
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	46g			
Sensor Size(max.)/Mount	1/2" / C-mount			
Lens shift (max.)	0.7mm			

VS-LD15



Focal Length (f)(mm)	15			
Opt. Mag. Range	0.03x～0.15x			
Optical Mag.	0.03x	0.06x	0.1x	0.15x
FOV 2/3" (VxH mm)	220x293.3	110x146.7	66x88	44x58.7
FOV 1/2" (VxH mm)	160x213.3	80x106.7	48x64	32x42.7
FOV 1/3" (VxH mm)	120x160	60x80	36x48	24x32
WD (mm)	491.8	241.8	141.8	91.8
O/I (mm)	535.3	285.7	186.3	137.1
Working F/#*1	2.06	2.12	2.2	2.3
DOF*2(mm)	183.1	47.1	17.6	8.2
TV Distortion (max.)	0.11%	0.09%	0.03%	0.00%
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	46g			
Sensor Size(max.)/Mount	2/3" / C-mount			
Lens shift (max.)	1.8mm			

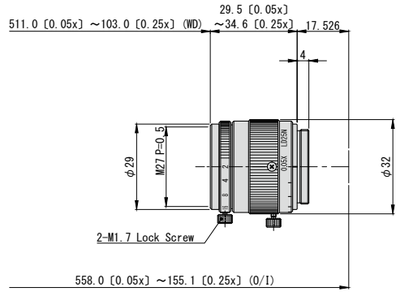
VS-LD20



Focal Length (f)(mm)	20			
Opt. Mag. Range	0.04x～0.22x			
Optical Mag.	0.04x	0.08x	0.15x	0.22x
FOV 2/3" (VxH mm)	165x220	82.5x110	44x58.7	30x40
FOV 1/2" (VxH mm)	120x160	60x80	32x42.7	21.8x29.1
FOV 1/3" (VxH mm)	90x120	45x60	24x32	16.4x21.8
WD (mm)	511.0	251.7	130.7	86.8
O/I (mm)	557.0	298.6	179.0	136.5
Working F/#*1	2.22	2.30	2.45	2.60
DOF*2(mm)	102.0	24.1	8.0	4.0
TV Distortion (max.)	0.06%	0.00%	-0.08%	-0.15%
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	45g			
Sensor Size(max.)/Mount	2/3" / C-mount			
Lens shift (max.)	3.7mm			

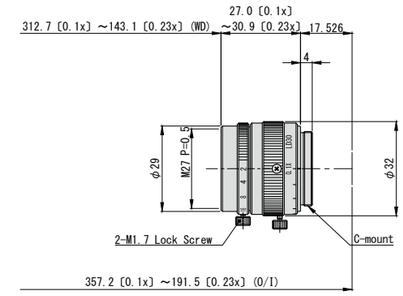
*1 Value at open iris　*2 Permissible COC φ0.04mm and iris open

VS-LD25N



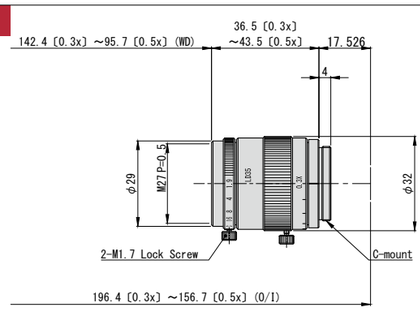
Focal Length (f)(mm)	25			
Opt. Mag. Range	0.05x～0.25x			
Optical Mag.	0.05x	0.1x	0.2x	0.25x
FOV 2/3" (VxH mm)	132x176	66x88	33x44	26.4x35.2
FOV 1/2" (VxH mm)	96x128	48x64	24x32	19.2x25.6
FOV 1/3" (VxH mm)	72x96	36x48	18x24	14.4x19.2
WD (mm)	511.0	255.9	128.4	103.0
O/I (mm)	558.0	304.2	179.2	155.1
Working F/#*1	2.1	2.2	2.4	2.5
DOF*2(mm)	65	17.0	4.6	3.1
TV Distortion (max.)	0.05%	0.00%	-0.06%	-0.09%
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	47g			
Sensor Size(max.)/Mount	2/3" / C-mount			
Lens shift (max.)	5.1mm			

VS-LD30



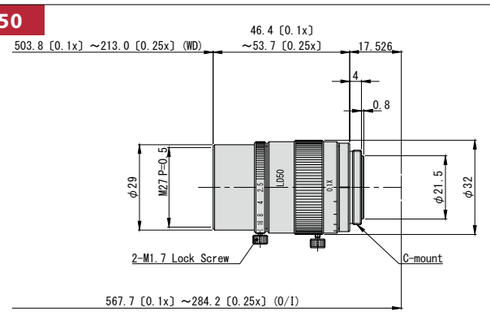
Focal Length (f)(mm)	30			
Opt. Mag. Range	0.1x～0.23x			
Optical Mag.	0.1x	0.13x	0.2x	0.23x
FOV 2/3" (VxH mm)	66x88	50.8x67.7	33x44	28.7x38.3
FOV 1/2" (VxH mm)	48x64	36.9x49.2	24x32	20.9x27.8
FOV 1/3" (VxH mm)	36x48	27.7x36.9	18x24	15.7x20.9
WD (mm)	312.7	243.5	162.7	143.1
O/I (mm)	357.2	288.9	210.2	191.5
Working F/#*1	2.20	2.26	2.40	2.46
DOF*2(mm)	18.5	11.5	5.0	3.9
TV Distortion (max.)	0.03%	0.02%	-0.05%	-0.05%
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	46g			
Sensor Size(max.)/Mount	2/3" / C-mount			
Lens shift (max.)	3.9mm			

VS-LD35



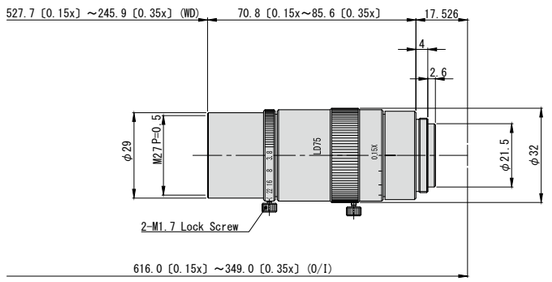
Focal Length (f)(mm)	35			
Opt. Mag. Range	0.3x～0.5x			
Optical Mag.	0.3x	0.35x	0.4x	0.5x
FOV 2/3" (VxH mm)	22x29.3	18.9x25.1	16.5x22	13.2x17.6
FOV 1/2" (VxH mm)	16x21.3	13.7x18.3	12x16	9.6x12.8
FOV 1/3" (VxH mm)	12x16	10.3x13.7	9x12	7.2x9.6
WD (mm)	142.4	125.7	113.2	95.7
O/I (mm)	196.4	181.4	170.7	156.7
Working F/#*1	2.47	2.57	2.66	2.85
DOF*2(mm)	2.2	1.7	1.3	0.9
TV Distortion (max.)	-0.03%以下			
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	58g			
Sensor Size(max.)/Mount	2/3" / C-mount			
Lens shift (max.)	7mm			

VS-LD50



Focal Length (f)(mm)	50			
Opt. Mag. Range	0.1x～0.25x			
Optical Mag.	0.1x	0.15x	0.2x	0.25x
FOV 2/3" (VxH mm)	66x88	44x58.7	33x44	26.4x35.2
FOV 1/2" (VxH mm)	48x64	32x42.7	24.0x32.0	19.2x25.6
FOV 1/3" (VxH mm)	36x48	24x32	18x24	14.4x19.2
WD (mm)	503.8	342.2	261.5	213.0
O/I (mm)	567.7	408.6	330.3	284.2
Working F/#*1	2.70	2.82	2.94	3.06
DOF*2 (mm)	22	10.2	6	4
TV Distortion (max.)	0.05%以下			
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	73g			
Sensor Size(max.)/Mount	2/3" / C-mount			
Lens shift (max.)	7.3mm			

VS-LD75



Focal Length (f)(mm)	75			
Opt. Mag. Range	0.15x～0.35x			
Optical Mag.	0.15x	0.2x	0.3x	0.35x
FOV 2/3" (VxH mm)	44x58.7	33x44	22x29.3	18.9x25.1
FOV 1/2" (VxH mm)	32x42.7	24x32	16x21.3	13.7x18.3
FOV 1/3" (VxH mm)	24x32	18x24	12x16	10.3x13.7
WD (mm)	527.7	404.4	281.1	245.9
O/I (mm)	616.0	496.4	380.5	349.0
Working F/#*1	4.38	4.57	4.95	5.14
DOF*2 (mm)	15.5	9.1	4.4	3.4
TV Distortion (max.)	-0.02%以下			
Iris / Focus Operation	Manual			
Lock Screw	○			
Weight (approx.)	100g			
Sensor Size(max.)/Mount	2/3" / C-mount			
Lens shift (max.)	14.8mm			

*1 Value at open iris　*2 Permissible COC φ0.04mm and iris open

VS-MC Series

Robust design for vibration resistance
For VGA ～3 Megapixel sensors
Compact & Simple for machine use
Distortionless and Reduced shading
Different F/# version available for VS-MC4～75：Open, F5.6 or F8

Improvement of Vibration Resistance

Focus locking system has been changed from point fixing to surface fixing utilizing a ring and internal mechanical structure designed for high vibration resistance.

Conventional CCTV lens

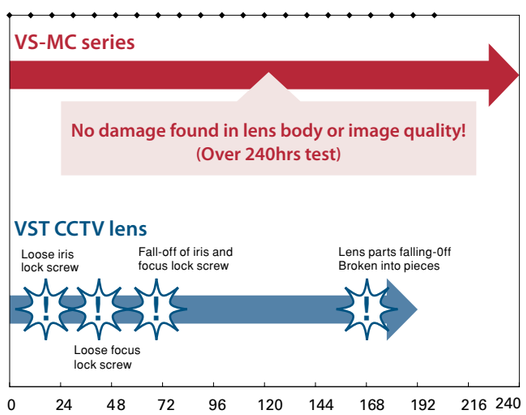
Point fixing

VS-MC series

Surface fixing in larger area

Vibration test result by high speed vibration machine

Condition:Acceleration=57.7m/s2(*1G=9.8m/s2)
From 9.9Hz to 1000Hz (approx.3 minutes interval)

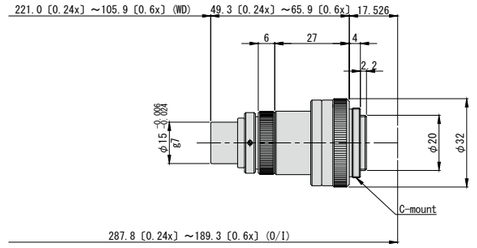


*The test result is caused by the hard test for destructive purpose.

Magnification Changeable

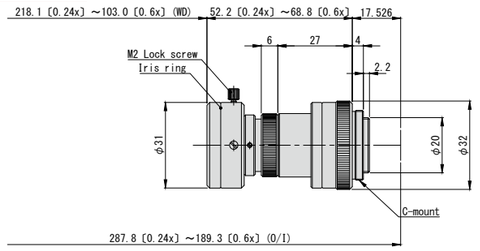
*1 : Permissible COC at φ0.04mm

VS-MC024



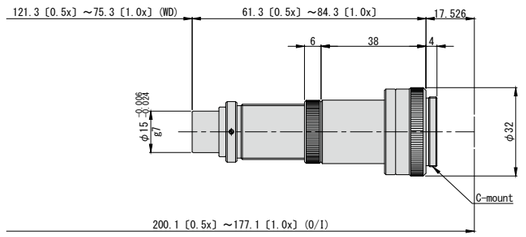
Opt. Mag. Range	0.24x～0.6x		
Optical Mag.	0.25x	0.4x	0.5x
FOV 2/3" (VxH mm)	26.4x35.2	16.5x22	13.2x17.6
FOV 1/2" (VxH mm)	19.2x25.6	12x16	9.6x12.8
FOV 1/3" (VxH mm)	14.4x19.2	9x12	7.2x9.6
Lens Length	49.8	56.7	61.3
WD (mm)	213.3	144.3	121.2
O/I (mm)	280.7	218.5	200.4
Working F/#	4.0	4.4	4.8
NA	0.031	0.045	0.052
DOF*1 (mm)	5.1	2.2	1.5
TV Distortion(max.)	0.1%		
Sensor Size(max.)/Mount	2/3'' / C-mount		

VS-MC024S



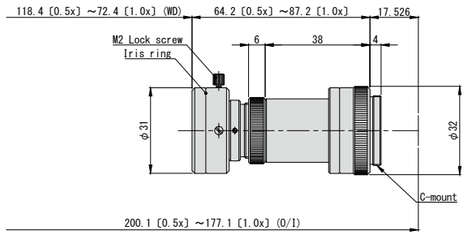
Opt. Mag. Range	0.24x～0.6x		
Optical Mag.	0.25x	0.4x	0.5x
FOV 2/3" (VxH mm)	26.4x35.2	16.5x22	13.2x17.6
FOV 1/2" (VxH mm)	19.2x25.6	12x16	9.6x12.8
FOV 1/3" (VxH mm)	14.4x19.2	9x12	7.2x9.6
Lens Length	52.7	59.6	64.2
WD (mm)	210.4	141.4	118.3
O/I (mm)	280.7	218.5	200.4
Working F/#	4.0	4.4	4.8
NA	0.031	0.045	0.052
DOF*1 (mm)	5.1	2.2	1.5
TV Distortion(max.)	0.1%		
Sensor Size(max.)/Mount	2/3'' / C-mount		

VS-MC0510



Opt. Mag. Range	0.5x～1.0x		
Optical Mag.	0.5x	0.75x	1.0x
FOV 2/3" (VxH mm)	13.2x17.6	8.8x11.7	6.6x8.8
FOV 1/2" (VxH mm)	9.6x12.8	6.4x8.5	4.8x6.4
FOV 1/3" (VxH mm)	7.2x9.6	4.8x6.4	3.6x4.8
Lens Length	61.6	72.8	84.7
WD (mm)	121.3	90.5	75.3
O/I (mm)	200.1	180.8	177.1
Working F/#	4.8	5.9	6.4
NA	0.052	0.063	0.078
DOF*1 (mm)	1.5	0.8	0.5
TV Distortion(max.)	0.00%	0.00%	-0.01%
Sensor Size(max.)/Mount	2/3'' / C-mount		

VS-MC0510S

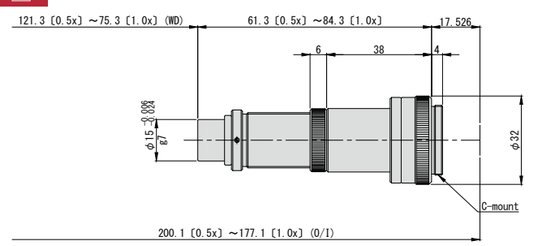


Opt. Mag. Range	0.5x～1.0x		
Optical Mag.	0.5x	0.75x	1.0x
FOV 2/3" (VxH mm)	13.2x17.6	8.8x11.7	6.6x8.8
FOV 1/2" (VxH mm)	9.6x12.8	6.4x8.5	4.8x6.4
FOV 1/3" (VxH mm)	7.2x9.6	4.8x6.4	3.6x4.8
Lens Length	64.2	75.7	87.2
WD (mm)	118.4	87.6	72.4
O/I (mm)	200.1	180.9	177.1
Working F/#	4.8	5.9	6.4
NA	0.052	0.063	0.078
DOF*1 (mm)	1.5	0.83	0.51
TV Distortion(max.)	0.00%	0.00%	-0.01%
Sensor Size(max.)/Mount	2/3'' / C-mount		

Optional Fixed Iris (OEM model)

VS-MC0510-□

*You can choose the iris diameter from 1 to 9mm.



Model	Iris Diameter	DOF*1 0.5x	DOF*1 0.75x	DOF*1 1.0x
VS-MC0510-1	φ1	15.4mm	8mm	5.1mm
VS-MC0510-2	φ2	7.7mm	4mm	2.6mm
VS-MC0510-3	φ3	5.1mm	2.7mm	1.7mm
VS-MC0510-4	φ4	3.8mm	2mm	1.3mm
VS-MC0510-5	φ5	3.0mm	1.6mm	1.0mm
VS-MC0510-6	φ6	2.6mm	1.3mm	0.8mm
VS-MC0510-7	φ7	2.2mm	1.2mm	0.7mm
VS-MC0510-8	φ8	1.9mm	1.0mm	0.6mm
VS-MC0510-9	φ9	1.7mm	0.9mm	0.6mm

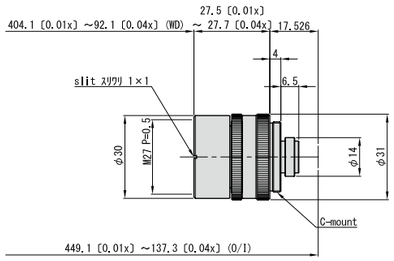
*1 : Permissible COC at φ0.04mm

Model	VS-MC0510-1			VS-MC0510-2			VS-MC0510-3			VS-MC0510-4			VS-MC0510-5			VS-MC0510-6			VS-MC0510-7			VS-MC0510-8			VS-MC0510-9		
Opt. Mag. Range	0.5x～1.0x			0.5x～1.0x			0.5x～1.0x			0.5x～1.0x			0.5x～1.0x			0.5x～1.0x			0.5x～1.0x			0.5x～1.0x			0.5x～1.0x		
Optical Mag.	0.5x	0.75x	1.0x	0.5x	0.75x	1.0x	0.5x	0.75x	1.0x	0.5x	0.75x	1.0x	0.5x	0.75x	1.0x	0.5x	0.75x	1.0x	0.5x	0.75x	1.0x	0.5x	0.75x	1.0x	0.5x	0.75x	1.0x
Working F/#	48.4	56.7	64.1	24.2	28.3	32.0	16.1	18.9	21.3	12.1	14.1	16.0	9.6	11.3	12.8	8.0	9.4	10.0	6.9	8.1	9.1	6.0	7.0	8.0	5.3	6.3	7.1
NA	0.005	0.006	0.007	0.010	0.013	0.015	0.015	0.019	0.023	0.020	0.026	0.031	0.026	0.033	0.039	0.031	0.039	0.050	0.036	0.046	0.054	0.041	0.053	0.062	0.047	0.059	0.070

*WD and O/I are same as VS-MC0510

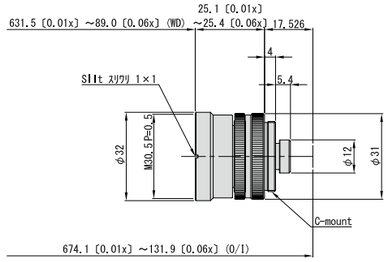
Magnification changeable

VS-MC4 VS-MC4-FNO5.6 VS-MC4-FNO8



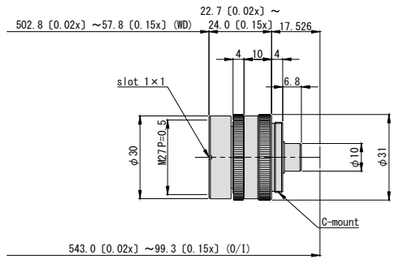
Focal Length (f)(mm)	4								
Opt. Mag. Range	0.01x~0.04x								
Optical Mag.	0.01x			0.02x			0.04x		
FOV 2/3" (VxH mm)	–			–			–		
FOV 1/2" (VxH mm)	480.0x640.0			240.0x320.0			120.0x160.0		
FOV 1/3" (VxH mm)	360.0x480.0			180.0x240.0			90.0x120.0		
WD (mm)	404.1			196.1			92.1		
O/I (mm)	449.1			241.2			137.3		
Working F/#	2.10	5.66	8.08	2.12	5.71	8.16	2.16	5.82	8.32
DOF*1 (mm)	1680.0	4528.0	6464.0	424.0	1142.0	1632.0	108.0	291.0	416.0
TV Distortion (max.)	0.95%			0.94%			0.92%		
Sensor Size (max.)/Mount	1/2" / C-mount								

VS-MC6.5 VS-MC6.5-FNO5.6 VS-MC6.5-FNO8



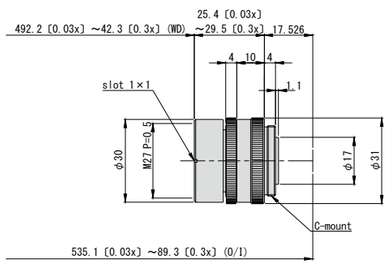
Focal Length (f)(mm)	6.5								
Opt. Mag. Range	0.01x~0.06x								
Optical Mag.	0.01x			0.03x			0.06x		
FOV 2/3" (VxH mm)	–			–			–		
FOV 1/2" (VxH mm)	480.0x640.0			160.0x213.3			80.0x106.7		
FOV 1/3" (VxH mm)	360.0x480.0			120.0x160.0			60.0x80.0		
WD (mm)	631.5			197.5			89.0		
O/I (mm)	674.1			240.2			131.9		
Working F/#	2.28	5.66	8.08	2.33	5.77	8.24	2.39	5.94	8.48
DOF*1 (mm)	1824.0	4528.0	6464.0	207.1	512.9	732.4	53.1	132.0	188.4
TV Distortion (max.)	0.11%			0.06%			-0.01%		
Sensor Size (max.)/Mount	1/2" / C-mount								

VS-MC10 VS-MC10-FNO5.6 VS-MC10-FNO8



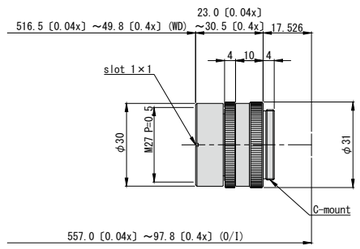
Focal Length (f)(mm)	10								
Opt. Mag. Range	0.02x~0.15x								
Optical Mag.	0.02x			0.1x			0.15x		
FOV 2/3" (VxH mm)	–			–			–		
FOV 1/2" (VxH mm)	240.0x320.0			48.0x64.0			32.0x42.7		
FOV 1/3" (VxH mm)	180.0x240.0			36.0x48.0			24.0x32.0		
WD (mm)	502.8			92.0			57.8		
O/I (mm)	543.0			133.0			99.3		
Working F/#	2.04	5.71	8.16	2.42	6.16	8.80	2.53	6.44	9.20
DOF*1 (mm)	448.8	1142.4	1632.0	19.4	49.3	70.4	9.0	22.9	32.7
TV Distortion (max.)	0.08%			-0.08%			-0.10%		
Sensor Size (max.)/Mount	1/2" / C-mount								

VS-MC15 VS-MC15-FNO5.6 VS-MC15-FNO8



Focal Length (f)(mm)	15								
Opt. Mag. Range	0.03x~0.3x								
Optical Mag.	0.03x			0.2x			0.3x		
FOV 2/3" (VxH mm)	220.0x293.3			33.0x44.0			22.0x29.3		
FOV 1/2" (VxH mm)	160.0x213.3			24.0x32.0			16.0x21.3		
FOV 1/3" (VxH mm)	120.0x160.0			18.0x24.0			12.0x16.0		
WD (mm)	492.2			67.3			42.3		
O/I (mm)	535.1			112.8			89.3		
Working F/#	2.06	5.77	8.24	2.40	6.72	9.60	2.60	7.28	10.40
DOF*1 (mm)	183.1	512.7	732.4	4.8	13.4	19.2	2.3	6.5	9.2
TV Distortion (max.)	0.11%			-0.05%			-0.14%		
Sensor Size (max.)/Mount	2/3" / C-mount								

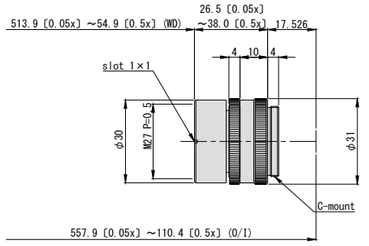
VS-MC20 VS-MC20-FNO5.6 VS-MC20-FNO8



Focal Length (f)(mm)	20								
Opt. Mag. Range	0.04x~0.4x								
Optical Mag.	0.04x			0.25x			0.4x		
FOV 2/3" (VxH mm)	165.0x220.0			26.4x35.2			16.5x22.0		
FOV 1/2" (VxH mm)	120.0x160.0			19.2x25.6			12.0x16.0		
FOV 1/3" (VxH mm)	90.0x120.0			14.4x19.2			9.0x12.0		
WD (mm)	516.5			81.0			49.8		
O/I (mm)	557.0			125.9			97.8		
Working F/#	2.22	5.82	8.32	2.66	7.00	10.00	2.98	7.84	11.20
DOF*1 (mm)	110.8	291.2	416.0	3.4	9.0	12.8	1.5	3.9	5.6
TV Distortion (max.)	0.06%			-0.19%			-0.34%		
Sensor Size (max.)/Mount	2/3" / C-mount								

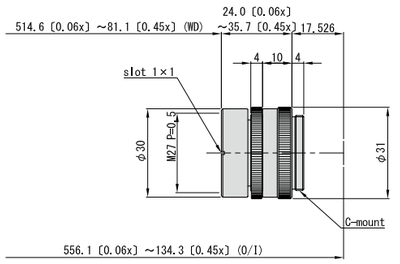
*1 : Permissible COC at φ0.04mm

VS-MC25N VS-MC25N-FNO5.6 VS-MC25N-FNO8



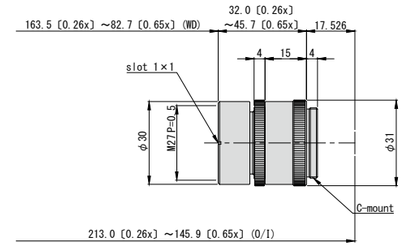
Focal Length (f)(mm)	25.5								
Opt. Mag. Range	0.05x~0.5x								
Optical Mag.	0.05x			0.25x			0.5x		
FOV 2/3" (VxH mm)	132.0x176.0			26.4x35.2			13.2x17.6		
FOV 1/2" (VxH mm)	96.0x128.0			19.2x25.6			9.6x12.8		
FOV 1/3" (VxH mm)	72.0x96.0			14.4x19.2			7.2x9.6		
WD (mm)	513.9			106.0			54.9		
O/I (mm)	557.9			155.1			110.4		
Working F/#	2.10	5.88	8.40	2.50	7.00	10.00	3.00	8.40	12.00
DOF*1 (mm)	67.2	188.2	268.8	3.2	9.0	12.8	1.0	2.7	3.8
TV Distortion (max.)	0.05%			-0.09%			-0.18%		
Sensor Size (max.)/Mount	2/3" / C-mount								

VS-MC30 VS-MC30-FNO5.6 VS-MC30-FNO8



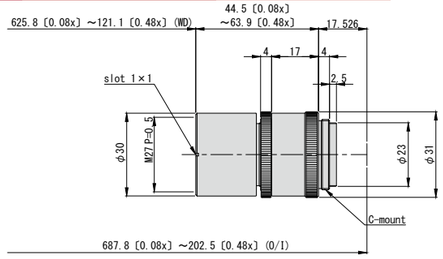
Focal Length (f)(mm)	30								
Opt. Mag. Range	0.06x~0.45x								
Optical Mag.	0.06x			0.15x			0.45x		
FOV 2/3" (VxH mm)	110.0x146.7			44.0x58.7			14.7x19.6		
FOV 1/2" (VxH mm)	80.0x106.7			32.0x42.7			10.7x14.2		
FOV 1/3" (VxH mm)	60.0x80.0			24.0x32.0			8.0x10.7		
WD (mm)	514.6			214.5			81.1		
O/I (mm)	556.1			258.7			134.3		
Working F/#	2.12	5.94	8.48	2.30	6.44	9.20	2.90	8.12	11.60
DOF*1 (mm)	47.1	131.9	188.4	8.2	22.9	32.7	1.1	3.2	4.6
TV Distortion (max.)	0.20%			0.00%			-0.09%		
Sensor Size (max.)/Mount	2/3" / C-mount								

VS-MC35 VS-MC35-FNO5.6 VS-MC35-FNO8



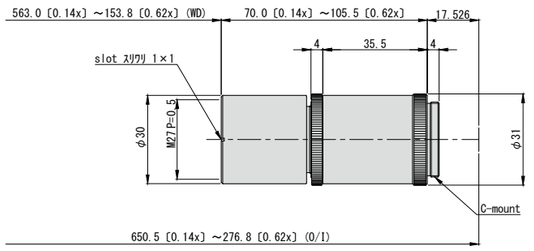
Focal Length (f)(mm)	35								
Opt. Mag. Range	0.26x~0.65x								
Optical Mag.	0.26x			0.3x			0.65x		
FOV 2/3" (VxH mm)	25.4x33.8			22.0x29.3			10.2x13.5		
FOV 1/2" (VxH mm)	18.5x24.6			16.0x21.3			7.4x9.8		
FOV 1/3" (VxH mm)	13.8x18.5			12.0x16.0			5.5x7.4		
WD (mm)	163.5			145.5			82.7		
O/I (mm)	213.0			196.4			145.9		
Working F/#	2.39	7.06	10.08	2.47	7.28	10.40	3.14	9.24	13.20
DOF*1 (mm)	2.8	8.4	11.9	2.2	6.5	9.2	0.6	1.7	2.5
TV Distortion (max.)	-0.03%以下								
Sensor Size (max.)/Mount	2/3" / C-mount								

VS-MC50 VS-MC50-FNO5.6 VS-MC50-FNO8



Focal Length (f)(mm)	50								
Opt. Mag. Range	0.08x~0.48x								
Optical Mag.	0.08x			0.2x			0.48x		
FOV 2/3" (VxH mm)	82.5x110.0			33.0x44.0			13.8x18.3		
FOV 1/2" (VxH mm)	60.0x80.0			24.0x32.0			10.0x13.3		
FOV 1/3" (VxH mm)	45.0x60.0			18.0x24.0			7.5x10.0		
WD (mm)	625.8			262.4			121.1		
O/I (mm)	687.8			330.2			202.5		
Working F/#	2.65	6.05	8.64	2.94	6.72	9.60	3.63	8.29	11.84
DOF*1 (mm)	33.8	75.6	108.0	6.0	13.4	19.2	1.3	2.9	4.1
TV Distortion (max.)	0.05%以下								
Sensor Size (max.)/Mount	2/3" / C-mount								

VS-MC75 VS-MC75-FNO5.6 VS-MC75-FNO8



Focal Length (f)(mm)	75								
Opt. Mag. Range	0.14x~0.62x								
Optical Mag.	0.14x			0.2x			0.62x		
FOV 2/3" (VxH mm)	47.1x62.9			33.0x44.0			10.6x14.2		
FOV 1/2" (VxH mm)	34.3x45.7			24.0x32.0			7.7x10.3		
FOV 1/3" (VxH mm)	25.7x34.3			18.0x24.0			5.8x7.7		
WD (mm)	563.0			404.4			153.8		
O/I (mm)	650.5			496.3			276.8		
Working F/#	4.34	6.38	9.12	4.57	6.72	9.60	6.17	9.07	12.96
DOF*1 (mm)	17.7	26.1	37.2	9.1	13.4	19.2	1.3	1.9	2.7
TV Distortion (max.)	-0.02%以下								
Sensor Size (max.)/Mount	2/3" / C-mount								

*1 : Permissible COC at φ0.04mm

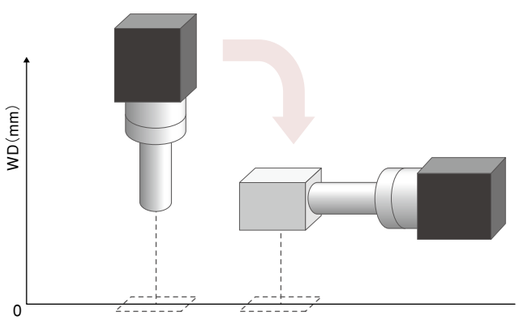
VS-MC Series

Simply body ϕ16mm
Variety of magnifications : 0.1x~2.0x
Distortionless
Optical mirror units available (Please inquire)

Application example

■ Optional prism / mirror unit.

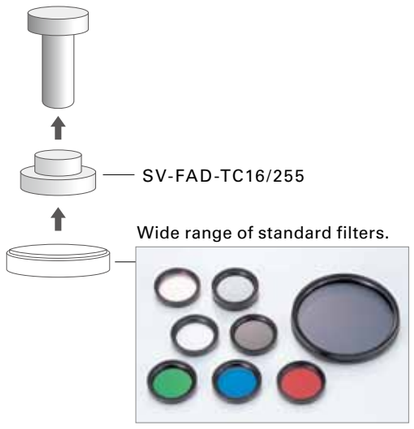
VS-PZ16-1



*Shading or Vignetting may occur, please inquire for more detail

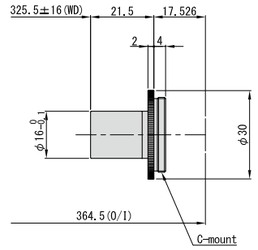
■ Filter adapter

SV-FAD-TC16/255



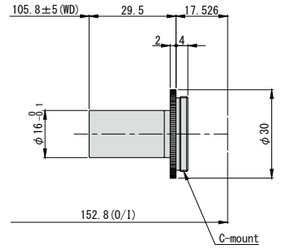
Fixed magnification model

VS-MC01-330



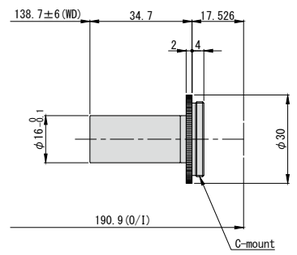
Optical Mag.	0.1x
FOV 2/3" (VxH mm)	66.0x88.0
FOV 1/2" (VxH mm)	48.0x64.0
FOV 1/3" (VxH mm)	36.0x48.0
WD (mm)	325.5
O/I (mm)	364.5
Working F/#	4.43
NA	0.011
DOF*1 (mm)	35.4
TV Distortion (max.)	0.01%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC03-100



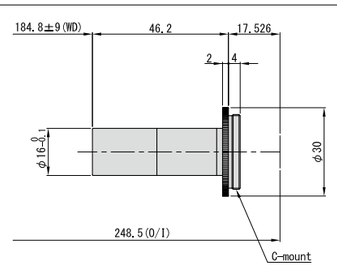
Optical Mag.	0.3x
FOV 2/3" (VxH mm)	22.0x29.3
FOV 1/2" (VxH mm)	16.0x21.3
FOV 1/3" (VxH mm)	12.0x16.0
WD (mm)	105.8
O/I (mm)	152.8
Working F/#	5.16
NA	0.029
DOF*1 (mm)	4.6
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC03-135



Optical Mag.	0.3x
FOV 2/3" (VxH mm)	22.0x29.3
FOV 1/2" (VxH mm)	16.0x21.3
FOV 1/3" (VxH mm)	12.0x16.0
WD (mm)	138.7
O/I (mm)	190.9
Working F/#	5.27
NA	0.028
DOF*1 (mm)	4.7
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

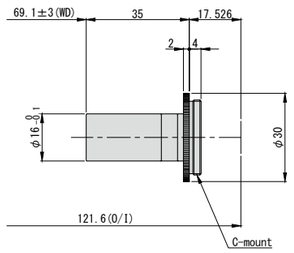
VS-MC03-180



Optical Mag.	0.3x
FOV 2/3" (VxH mm)	22.0x29.3
FOV 1/2" (VxH mm)	16.0x21.3
FOV 1/3" (VxH mm)	12.0x16.0
WD (mm)	184.8
O/I (mm)	248.5
Working F/#	5.29
NA	0.028
DOF*1 (mm)	4.7
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

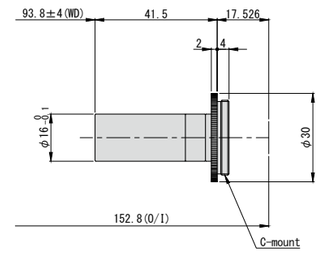
*1 : Permissible COC at ϕ0.04mm

VS-MC05-65



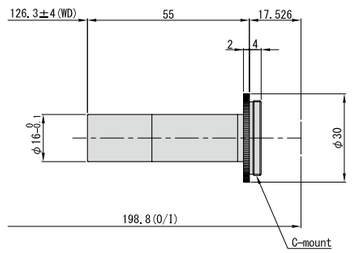
Optical Mag.	0.5x
FOV 2/3" (VxH mm)	13.2x17.6
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	69.1
O/I (mm)	121.6
Working F/#	5.95
NA	0.042
DOF*1 (mm)	1.9
TV Distortion (max.)	-0.02%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC05-90



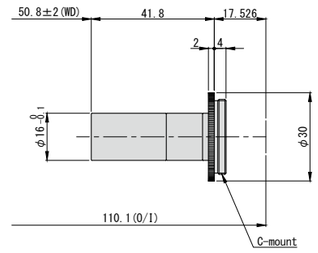
Optical Mag.	0.5x
FOV 2/3" (VxH mm)	13.2x17.6
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	93.8
O/I (mm)	152.8
Working F/#	6.08
NA	0.041
DOF*1 (mm)	1.9
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC05-130



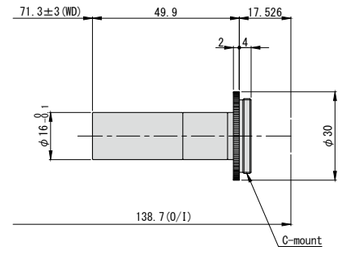
Optical Mag.	0.5x
FOV 2/3" (VxH mm)	13.2x17.6
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	126.3
O/I (mm)	198.8
Working F/#	6.10
NA	0.041
DOF*1 (mm)	2.0
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC075-50



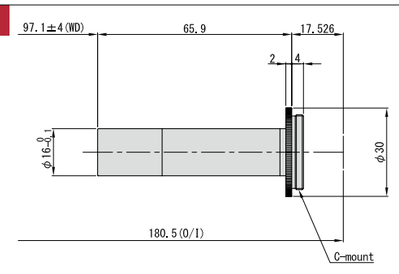
Optical Mag.	0.75x
FOV 2/3" (VxH mm)	8.8x11.7
FOV 1/2" (VxH mm)	6.4x8.5
FOV 1/3" (VxH mm)	4.8x6.4
WD (mm)	50.8
O/I (mm)	110.1
Working F/#	5.75
NA	0.065
DOF*1 (mm)	0.8
TV Distortion (max.)	-0.03%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC075-70



Optical Mag.	0.75x
FOV 2/3" (VxH mm)	8.8x11.7
FOV 1/2" (VxH mm)	6.4x8.5
FOV 1/3" (VxH mm)	4.8x6.4
WD (mm)	71.3
O/I (mm)	138.7
Working F/#	6.80
NA	0.055
DOF*1 (mm)	1.0
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

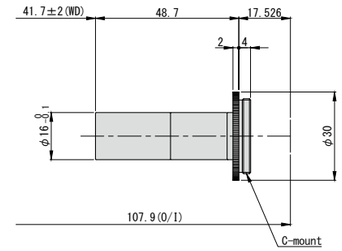
VS-MC075-100



Optical Mag.	0.75x
FOV 2/3" (VxH mm)	8.8x11.7
FOV 1/2" (VxH mm)	6.4x8.5
FOV 1/3" (VxH mm)	4.8x6.4
WD (mm)	97.1
O/I (mm)	180.5
Working F/#	7.10
NA	0.053
DOF*1 (mm)	1.0
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

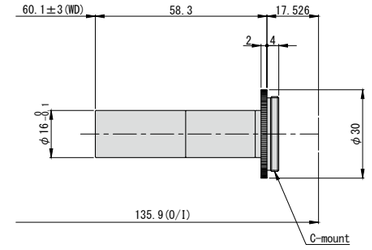
*1 : Permissible COC at φ0.04mm

VS-MC1-40



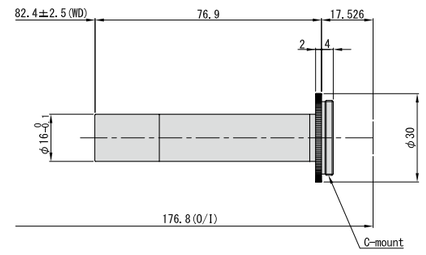
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	41.7
O/I (mm)	107.9
Working F/#	6.58
NA	0.076
DOF*1 (mm)	0.5
TV Distortion (max.)	-0.04%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC1-60



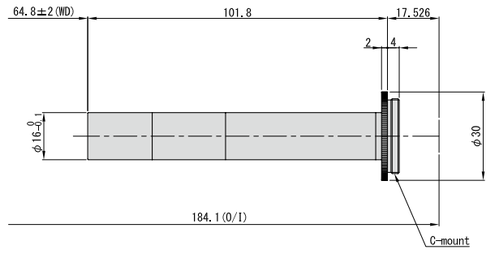
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	60.1
O/I (mm)	135.9
Working F/#	7.80
NA	0.064
DOF*1 (mm)	0.6
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC1-80



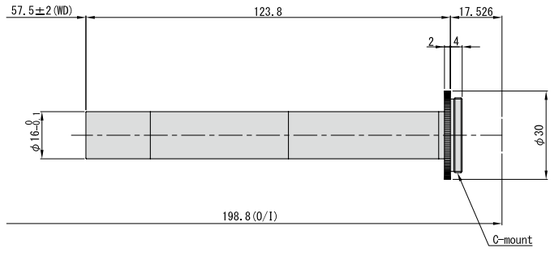
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	82.4
O/I (mm)	176.8
Working F/#	8.14
NA	0.061
DOF*1 (mm)	0.7
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC1.5-65



Optical Mag.	1.5 x
FOV 2/3" (VxH mm)	4.4x5.9
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	64.8
O/I (mm)	184.1
Working F/#	10.00
NA	0.075
DOF*1 (mm)	0.4
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

VS-MC2-60



Optical Mag.	2.0 x
FOV 2/3" (VxH mm)	3.3x4.4
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	57.5
O/I (mm)	198.8
Working F/#	12.10
NA	0.083
DOF*1 (mm)	0.2
TV Distortion (max.)	0.00%
Sensor Size (max.)/Mount	2/3" / C-mount

*1 : Permissible COC at φ0.04mm

VS-MC Series (Super compact model)

Super compact macro lens, camera and lighting
Best for use in small spaces
M10.5P = 0.5 camera mount

Compact Size

Super Compact Lighting

Ring light

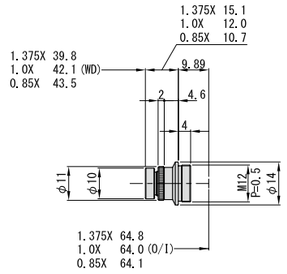
Co-axial light

Back light

Spot light

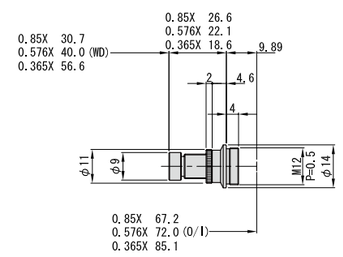
*Please inquire for more details

VS-MC1375-40N



Opt. Mag. Range	0.85x ~ 1.375x		
Optical Mag.	0.85x	1.0x	1.375x
FOV (VxH mm)	2.0x2.7	1.7x2.3	1.3x1.7
WD(mm)	43.5	42.1	39.8
O/I (mm)	64.1	64.0	64.8
Working F/#	7.4	8.5	11.0
NA	0.057	0.059	0.063
DOF*1 (mm)	0.8	0.7	0.5
TV Distortion (max.)	0.53%	0.44%	0.30%
Weight (approx.)	5g		
Sensor Size (max.)/Mount	1/6"/ M12 P=0.5		

VS-MC0576N

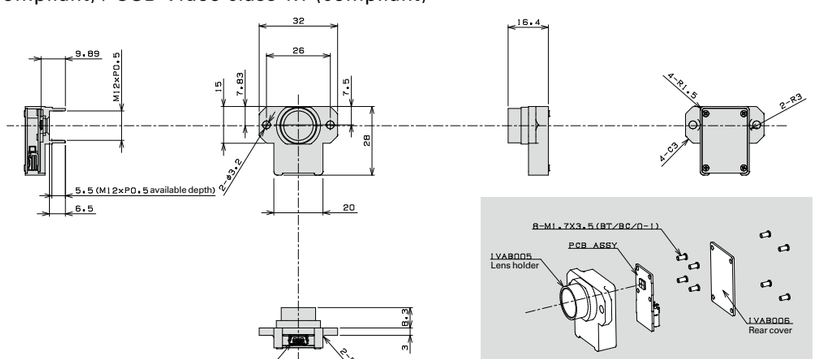


Opt. Mag. Range	0.365x ~ 0.85x		
Optical Mag.	0.365x	0.576x	0.85x
FOV (VxH mm)	4.7x6.3	3.0x4.0	2.0x2.7
WD(mm)	56.6	40.0	30.7
O/I (mm)	85.1	72.0	67.2
Working F/#	9.5	11.0	7.6
NA	0.019	0.026	0.056
DOF*1 (mm)	5.7	2.6	0.8
TV Distortion (max.)	-0.01%	0.00%	0.00%
Weight (approx.)	5g		
Sensor Size (max.)/Mount	1/6"/ M12 P=0.5		

*1PermissibleCOC at φ0.04mm

Super compact Camera

Sensor Size : 1/6" VGA Progressive CMOS (STC-MC36USB-LT)
Video output : USB2.0/1.1 (compliant) / USB-Video class 1.1 (compliant)



VS-UV & IR Series

Specially designed for visible and infrared wavelengths
Machine Vision design
For large format sensor : VS-MC01303IR
Low distortion for all models

Visible lens + Visible lighting

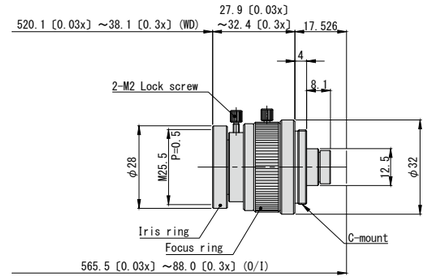
IR lens + IR lighting

Near-UV Changeable Magnification

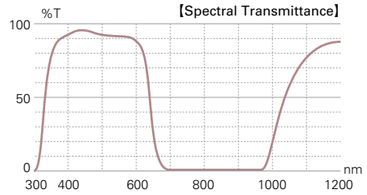
VS-MC00303NS-UV & VS-MC0510S-UV
These models are macro lenses specially designed for Near Ultraviolet (NUV) wavelengths with a peak transmittance of 365nm. Magnification at x0.03～x0.3 (MC0030NS-UV) and x0.4～x1.0 (MC0510-UV) with a low distortion of -0.05～-0.1%

Features
- High resolution and reduced shading
- Simple and robust mechanical design for vibration resistance
- Special coating to eliminate unnecessary wavelengths
- Adjustable iris for contrast and brightness control

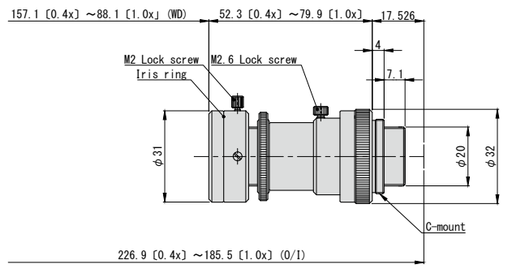
VS-MC00303NS-UV BTO



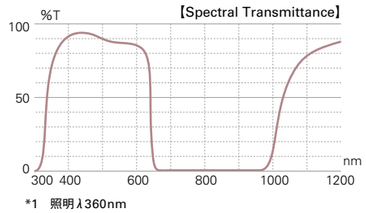
Opt. Mag. Range	0.03x～0.3x		
Optical Mag.	0.03x	0.1x	0.3x
FOV 1/2"(VxH mm)	160.0x213.3	48.0x64.0	16.0x21.3
FOV 1/3"(VxH mm)	120.0x160.0	36.0x48.0	12.0x16.0
WD (mm)	520.1	144.1	38.1
TV Distortion (max.)	-0.01%以下		
Wavelength (nm)	320nm～420nm		
Sensor Size (max.) /Mount	2/3"/C-mount		



VS-MC0510S-UV BTO



Opt. Mag. Range	0.4x～1.0x		
Optical Mag.	0.5x	0.75x	1.0x
FOV 1/2"(VxH mm)	9.6x12.8	6.4x8.5	4.8x6.4
FOV 1/3"(VxH mm)	7.2x9.6	4.8x6.4	3.6x4.8
WD (mm)	134.1	103.4	88.1
TV Distortion (max.)	0.00%		-0.01%
Wavelength (nm)	320nm～420nm		
Sensor Size (max.) /Mount	1/2"/C-mount		

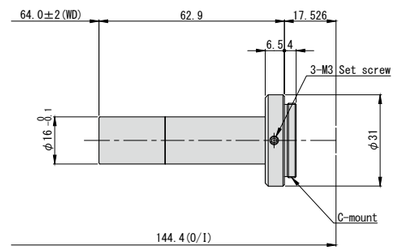


*1 照明λ360nm

Near-UV Fixed Magnification

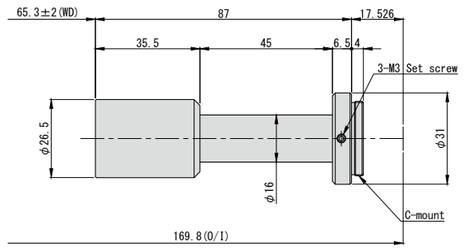
● Short O/I for machine use ● Distortionless ● Reduced Shading ● Small F number to expand your lighting selection

VS-MC2-65UV365 BTO



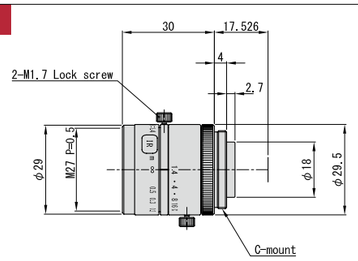
Optical Mag.	2.0x
FOV 1/2" (VxH mm)	2.4x3.2
Working F/#	9.40
WD (mm)	64.0
O/I (mm)	144.4
TV Distortion (max.)	0.1%
Optimized Wavelength (nm)	365nm
Sensor Size (max.)/Mount	1/2"/C-mount

VS-MC3-65UV365 BTO



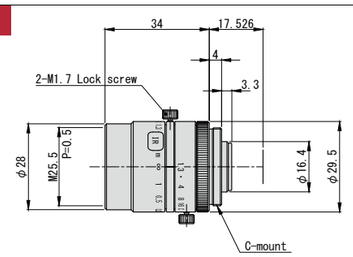
Optical Mag.	3.0x
FOV 1/2" (VxH mm)	1.6x2.1
Working F/#	9.27
WD (mm)	65.3
O/I (mm)	169.8
TV Distortion (max.)	0.1%
Optimized Wavelength (nm)	365nm
Sensor Size (max.)/Mount	1/2"/C-mount

VS-0614V-IR



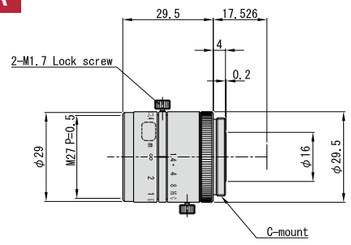
Focal Length (f)(mm)	6
FNO	1.4 ~ (C)
Angle of view (°)(VxH)	42.3x54.6 (1/2")
OD (mm)	200 ~ ∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1/2"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	49g

VS-0813V-IR



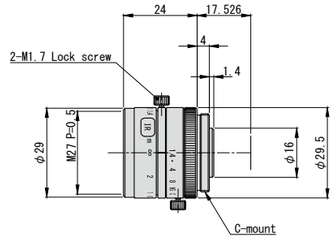
Focal Length (f)(mm)	8
FNO	1.3 ~ (C)
Angle of view (°)(VxH)	44.6x57.3 (2/3")
OD (mm)	200 ~ ∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	2/3"/C-mount
Filter Thread	M25.5 P=0.5
Weight (approx.)	55g

VS-1214V-IR



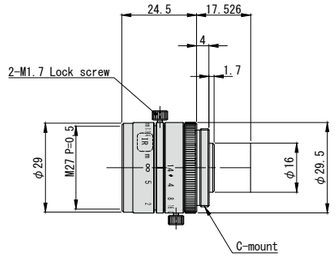
Focal Length (f)(mm)	12
FNO	1.4 ~ (C)
Angle of view (°)(VxH)	21.9x28.9 (1/2")
OD (mm)	300 ~ ∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1/2"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	44g

VS-1614V-IR



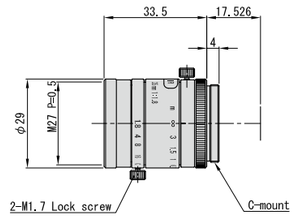
Focal Length (f)(mm)	16
FNO	1.4 ~ (C)
Angle of view (°)(VxH)	22.8x30.1 (2/3")
OD (mm)	400 ~ ∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	2/3"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	34g

VS-2514V-IR



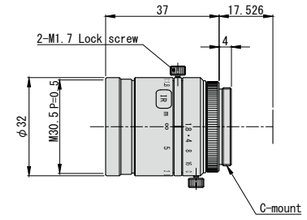
Focal Length (f)(mm)	25
FNO	1.4 ~ (C)
Angle of view (°)(VxH)	14.9x19.8 (2/3")
OD (mm)	500 ~ ∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	1"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	36g

VS-3518V-IR



Focal Length (f)(mm)	35
FNO	1.8 ~ (C)
Angle of view (°)(VxH)	10.8x14.4 (2/3")
OD (mm)	300 ~ ∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	2/3"/C-mount
Filter Thread	M27 P=0.5
Weight (approx.)	47g

VS-5018V-IR

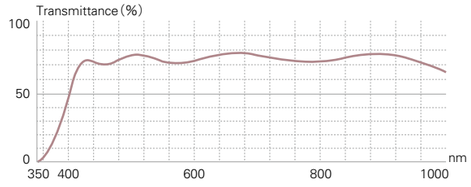


Focal Length (f)(mm)	50
FNO	1.8 ~ (C)
Angle of view (°)(VxH)	7.9x10.5 (2/3")
OD (mm)	1000 ~ ∞
Iris / Focus Operation	Manual
Sensor size (max.)/Mount	2/3"/C-mount
Filter Thread	M30.5 P=0.5
Weight (approx.)	67g

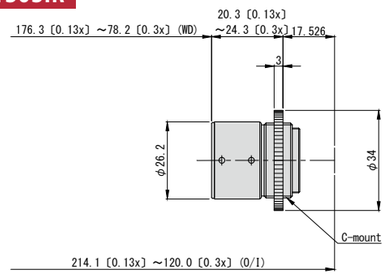
Visible～Near IR (IR Corrected design) Changeable Magnification

VS-MC01303IR Features

VS-MC 01303IR has optically corrected the focusing difference between Visible and Near-IR range (400～950nm). If not optically corrected, WD needs to be changed between visible and NIR, which also requires a machine design change.
VS-MC01303IR will fit in any application. This lens also has a large image circle of φ22mm and is suitable for large format sensors.



VS-MC01303IR



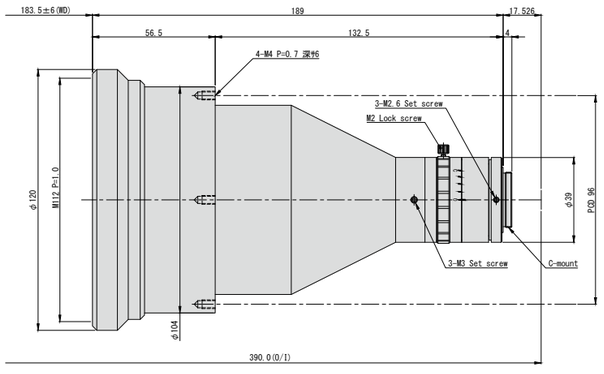
Opt. Mag. Range	0.13x~0.3x		
Optical Mag.	0.13x	0.2x	0.3x
FOV 15.2x15.2 (VxH mm)	116.0x116.0	76.0x76.0	50.7x50.7
FOV 2/3" (VxH mm)	50.4x67.2	33.0x44.0	22.0x29.3
FOV 1/2" (VxH mm)	36.6x48.9	24.0x32.0	16.0x21.3
Lens Length	20.3	23.1	24.3
WD (mm)	176.3	115.7	78.2
O/I (mm)	214.1	156.3	120.0
Working F/#	4.00	4.20	4.60
NA	0.016	0.024	0.033
DOF*1 (mm)	18.7	8.4	4.1
TV Distortion (max.)	0.1%		
Sensor Size (max.)/Mount	φ22/C-mount		

*1 : Permissible COC at φ0.04mm

VS-TCM Series

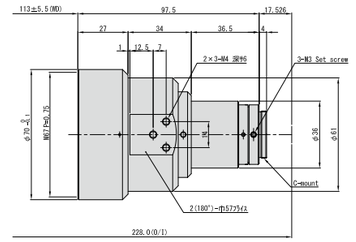
High NA models
Suitable for AOI, high accuracy inspection and measurement
Iris adjustable models allows you to change DOF and contrast

VS-TCM01-180/S



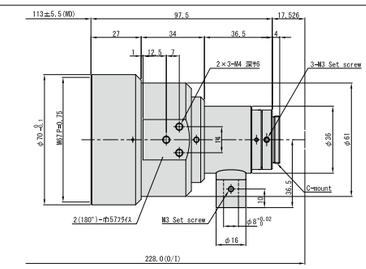
Optical Mag.	0.1x
FOV 1/1.8"(VxH mm)	52.8x70.4
FOV 1/2" (VxH mm)	48.0x64.0
FOV 1/3" (VxH mm)	36.0x48.0
WD (mm)	183.5
O/I (mm)	390.0
Working F/#	5.6
NA	0.009
DOF*1(mm)	44.8
TV Distortion (max.)	0.01%
Co-axial Prism	-
Weight (approx.)	970g
Sensor Size (max.)/Mount	1/1.8"/ C-mount

VS-TCM017-110



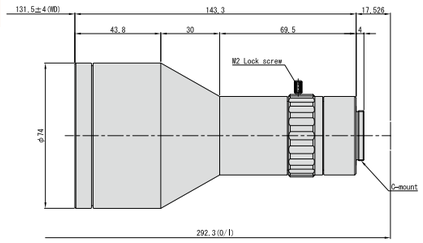
Optical Mag.	0.17x
FOV 1/1.8"(VxH mm)	31.8x42.4
FOV 1/2" (VxH mm)	28.2x37.6
FOV 1/3" (VxH mm)	21.2x28.2
WD (mm)	113.0
O/I (mm)	228.0
Working F/#	4.0
NA	0.021
DOF*1(mm)	11.0
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	440g
Sensor Size (max.)/Mount	1/1.8"/ C-mount

VS-TCM017-110CO



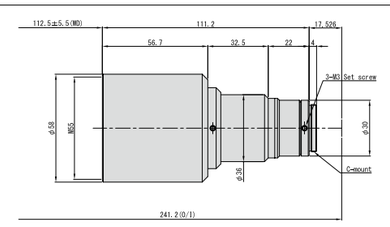
Optical Mag.	0.17x
FOV 1/1.8"(VxH mm)	31.8x42.4
FOV 1/2" (VxH mm)	28.2x37.6
FOV 1/3" (VxH mm)	21.2x28.2
WD (mm)	113.0
O/I (mm)	228.0
Working F/#	4.0
NA	0.021
DOF*1(mm)	11.0
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	445g
Sensor Size (max.)/Mount	1/1.8"/ C-mount

VS-TCM019-130/S



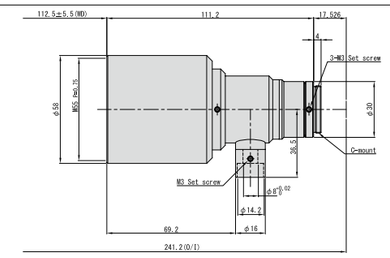
Optical Mag.	0.19x
FOV 2/3" (VxH mm)	34.7x46.3
FOV 1/2" (VxH mm)	25.3x33.7
FOV 1/3" (VxH mm)	18.9x25.3
WD (mm)	131.5
O/I (mm)	292.3
Working F/#	4.3
NA	0.022
DOF*1(mm)	9.5
TV Distortion (max.)	0.01%
Co-axial Prism	-
Weight (approx.)	490g
Sensor Size (max.)/Mount	2/3"/ C-mount

VS-TCM022-110-1/1.8"



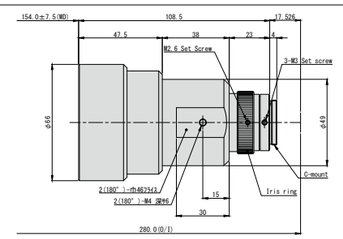
Optical Mag.	0.22x
FOV 1/1.8"(VxH mm)	24.5x32.7
FOV 1/2" (VxH mm)	21.8x29.1
FOV 1/3" (VxH mm)	16.4x21.8
WD (mm)	112.5
O/I (mm)	241.2
Working F/#	5.6
NA	0.020
DOF*1(mm)	9.3
TV Distortion (max.)	0.05%
Co-axial Prism	–
Weight (approx.)	376g
Sensor Size (max.)/Mount	1/1.8"/ C-mount

VS-TCM022-110CO-1/1.8"



Optical Mag.	0.22x
FOV 1/1.8"(VxH mm)	24.5x32.7
FOV 1/2" (VxH mm)	21.8x29.1
FOV 1/3" (VxH mm)	16.4x21.8
WD (mm)	112.5
O/I (mm)	241.2
Working F/#	5.6
NA	0.020
DOF*1(mm)	9.3
TV Distortion (max.)	0.05%
Co-axial Prism	Built-in
Weight (approx.)	377g
Sensor Size (max.)/Mount	1/1.8"/ C-mount

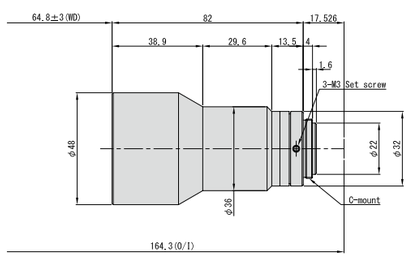
VS-TCM022-150/S



Optical Mag.	0.22x
FOV 2/3" (VxH mm)	30.0x40.0
FOV 1/2" (VxH mm)	21.8x29.1
FOV 1/3" (VxH mm)	16.3x21.8
WD (mm)	154.0
O/I (mm)	280.0
Working F/#	5.50
NA	0.020
DOF*1(mm)	9.1
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	375g
Sensor Size (max.)/Mount	2/3"/ C-mount

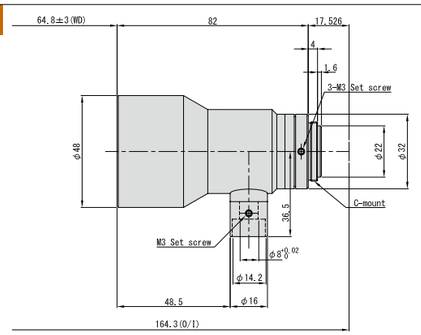
*1 Permissible COC at ϕ0.04mm
* Co-axial lighting diameter isϕ8mm.If you need other diameters, please contact us.

VS-TCM025-65



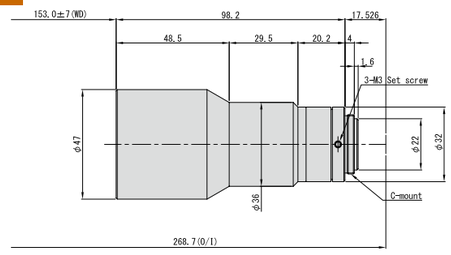
Optical Mag.	0.25x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	19.2x25.6
FOV 1/3" (VxH mm)	14.4x19.2
WD (mm)	64.8
O/I (mm)	164.3
Working F/#	3.66
NA	0.034
DOF*1(mm)	4.7
TV Distortion (max.)	0.05%
Co-axial Prism	–
Weight (approx.)	191g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TCM025-65CO



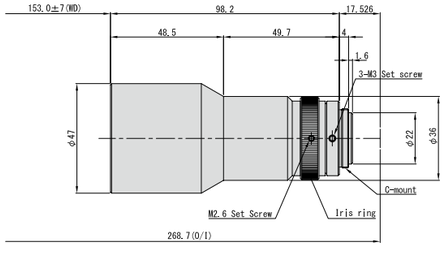
Optical Mag.	0.25x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	19.2x25.6
FOV 1/3" (VxH mm)	14.4x19.2
WD (mm)	64.8
O/I (mm)	164.3
Working F/#	3.66
NA	0.034
DOF*1(mm)	4.7
TV Distortion (max.)	0.05%
Co-axial Prism	Built-in
Weight (approx.)	199g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TCM025-150



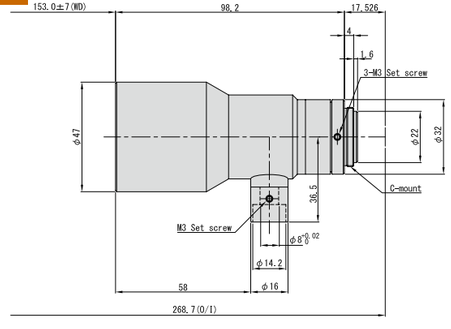
Optical Mag.	0.25x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	19.2x25.6
FOV 1/3" (VxH mm)	14.4x19.2
WD (mm)	153.0
O/I (mm)	268.7
Working F/#	3.91
NA	0.032
DOF*1(mm)	5.0
TV Distortion (max.)	0.05%
Co-axial Prism	–
Weight (approx.)	195g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TCM025-150/S



Optical Mag.	0.25x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	19.2×25.6
FOV 1/3" (VxH mm)	14.4x19.2
WD (mm)	153.0
O/I (mm)	268.7
Working F/#	3.91
NA	0.032
DOF*1(mm)	5.0
TV Distortion (max.)	0.05%
Co-axial Prism	–
Weight (approx.)	200 g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TCM025-150CO

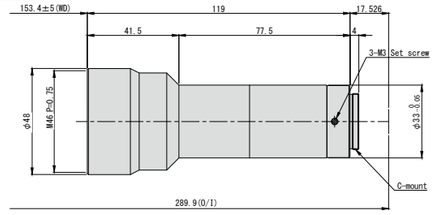


Optical Mag.	0.25x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	19.2×25.6
FOV 1/3" (VxH mm)	14.4x19.2
WD (mm)	153.0
O/I (mm)	268.7
Working F/#	3.91
NA	0.032
DOF*1(mm)	5.0
TV Distortion (max.)	0.05%
Co-axial Prism	Built-in
Weight (approx.)	206 g
Sensor Size (max.)/Mount	1/2"/C-mount

*1 Permissible COC at ϕ0.04mm

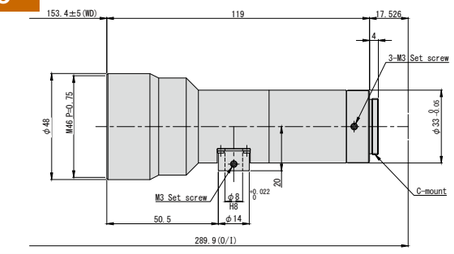
* Co-axial lighting diameter is ϕ8mm.If you need other diameters, please contact us.

VS-TCM03-150



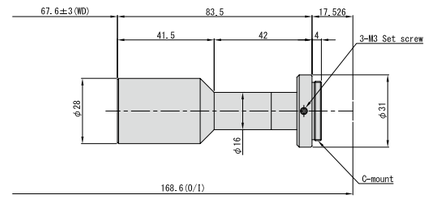
Optical Mag.	0.3x
FOV 2/3" (VxH mm)	22.0x29.3
FOV 1/2" (VxH mm)	16.0x21.3
FOV 1/3" (VxH mm)	12.0x16.0
WD (mm)	153.4
O/I (mm)	289.9
Working F/#	7.50
NA	0.020
DOF*1(mm)	6.7
TV Distortion (max.)	0.03%
Co-axial Prism	–
Weight (approx.)	230g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCM03-150CO



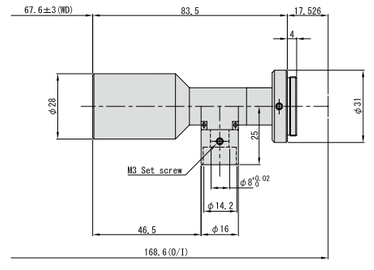
Optical Mag.	0.3x
FOV 2/3" (VxH mm)	22.0x29.3
FOV 1/2" (VxH mm)	16.0x21.3
FOV 1/3" (VxH mm)	12.0x16.0
WD (mm)	153.4
O/I (mm)	289.9
Working F/#	7.50
NA	0.020
DOF*1(mm)	6.7
TV Distortion (max.)	0.03%
Co-axial Prism	Built-in
Weight (approx.)	230g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCM05-65



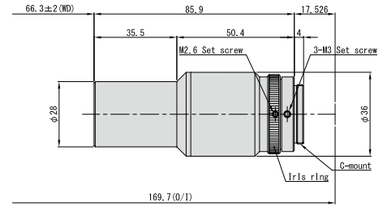
Optical Mag.	0.5x
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	67.6
O/I (mm)	168.6
Working F/#	6.25
NA	0.040
DOF*1(mm)	2.0
TV Distortion (max.)	0.05%
Co-axial Prism	-
Weight (approx.)	83g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TCM05-65CO



Optical Mag.	0.5x
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	67.6
O/I (mm)	168.6
Working F/#	6.25
NA	0.040
DOF*1(mm)	2.0
TV Distortion (max.)	0.05%
Co-axial Prism	Built-in
Weight (approx.)	88g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TCM075-65/S



Optical Mag.	0.75x
FOV 1/2" (VxH mm)	6.4x8.5
FOV 1/3" (VxH mm)	4.8x6.4
WD (mm)	66.3
O/I (mm)	169.7
Working F/#	4.96
NA	0.076
DOF*1(mm)	0.7
TV Distortion (max.)	0.05%
Co-axial Prism	-
Weight (approx.)	144g
Sensor Size (max.)/Mount	1/2"/C-mount

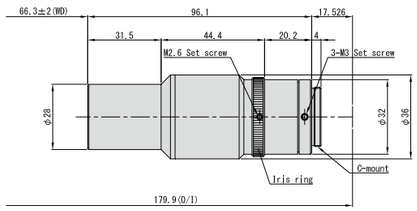
VS-TCM075-65CO/S

Optical Mag.	0.75x
FOV 1/2" (VxH mm)	6.4x8.5
FOV 1/3" (VxH mm)	4.8x6.4
WD (mm)	66.3
O/I (mm)	169.7
Working F/#	4.96
NA	0.076
DOF*1(mm)	0.7
TV Distortion (max.)	0.05%
Co-axial Prism	Built-in
Weight (approx.)	152g
Sensor Size (max.)/Mount	1/2"/C-mount

*1 Permissible COC at ϕ0.04mm

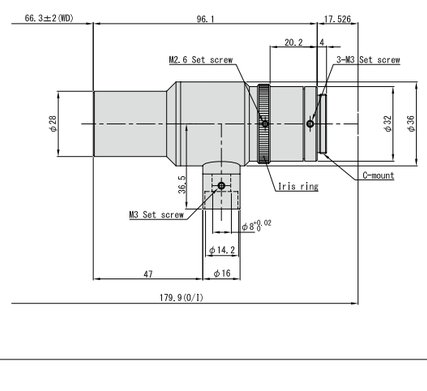
* Co-axial lighting diameter is ϕ8mm.If you need other diameters, please contact us.

VS-TCM1-65/S



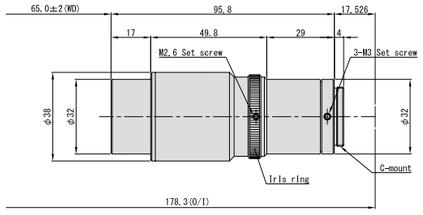
Optical Mag.	1.0x
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6×4.8
WD(mm)	66.3
O/I (mm)	179.9
Working F/#	6.17
NA	0.081
DOF*1(mm)	0.5
TV Distortion (max.)	0.05%
Co-axial Prism	-
Weight (approx.)	155g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TCM1-65CO/S



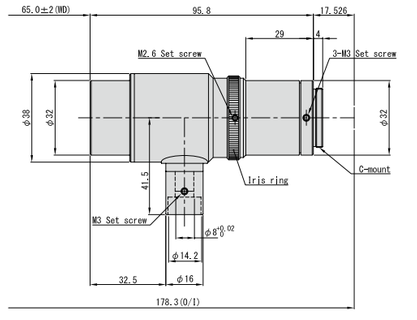
Optical Mag.	1.0x
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD(mm)	66.3
O/I (mm)	179.9
Working F/#	6.17
NA	0.081
DOF*1(mm)	0.5
TV Distortion (max.)	0.05%
Co-axial Prism	Built-in
Weight (approx.)	163g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TCM2-65/S



Optical Mag.	2.0x
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8×2.4
WD(mm)	65.0
O/I (mm)	178.3
Working F/#	6.60
NA	0.152
DOF*1(mm)	0.13
TV Distortion (max.)	0.10%
Co-axial Prism	-
Weight (approx.)	208g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TCM2-65CO/S



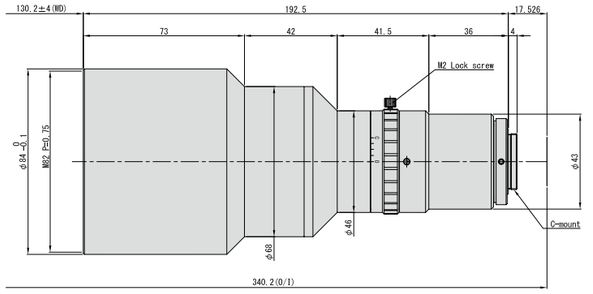
Optical Mag.	2.0x
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD(mm)	65.0
O/I(mm)	178.3
Working F/#	6.60
NA	0.152
DOF*1(mm)	0.13
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	216g
Sensor Size (max.)/Mount	1/2"/C-mount

*1 Permissible COC at ϕ0.04mm

* Co-axial lighting diameter isϕ8mm.If you need other diameters, please contact us.

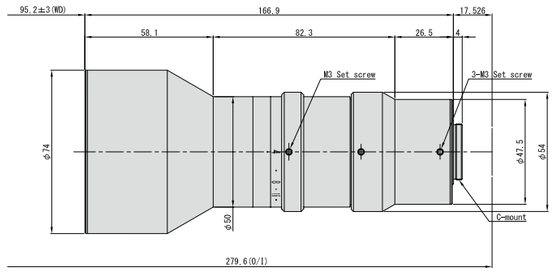
Large Format

VS-TCM03-130/S Double-sided Telecentric Lens



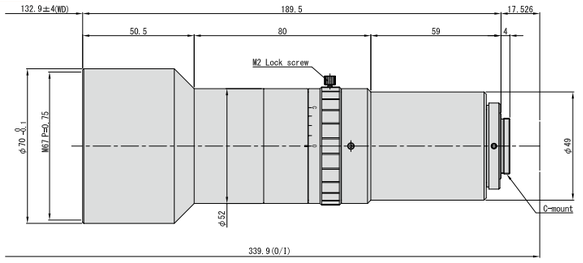
Optical Mag.	0.3x
FOV 4/3" (VxH mm)	45.3 x 60.4
FOV 2/3" (VxH mm)	22.0x29.3
FOV 1/2" (VxH mm)	16.0x21.3
WD(mm)	130.2
O/I (mm)	340.2
Working F/#	5.77
NA	0.026
DOF*1(mm)	5.1
TV Distortion (max.)	0.01%
Co-axial Prism	–
Sensor Size (max.)/Mount	ϕ22/C-mount

VS-TCM04-100/S Double-sided Telecentric Lens



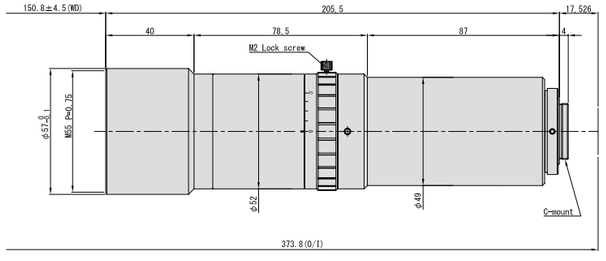
Optical Mag.	0.4x
FOV 4/3" (VxH mm)	34.0 x 45.3
FOV 2/3" (VxH mm)	16.5x22
FOV 1/2" (VxH mm)	12.0x16.0
WD(mm)	95.2
O/I (mm)	279.6
Working F/#	4.00
NA	0.050
DOF*1(mm)	2.0
TV Distortion (max.)	0.02%
Co-axial Prism	–
Sensor Size (max.)/Mount	ϕ22/C-mount

VS-TCM05-130/S Double-sided Telecentric Lens



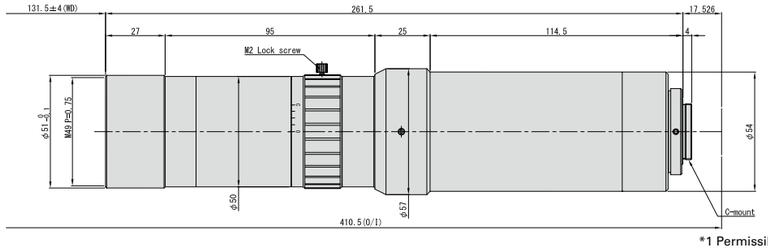
Optical Mag.	0.5x
FOV 4/3" (VxH mm)	27.2 x 36.3
FOV 2/3" (VxH mm)	13.2x17.6
FOV 1/2" (VxH mm)	9.6x12.8
WD(mm)	132.9
O/I (mm)	339.9
Working F/#	4.57
NA	0.055
DOF*1(mm)	1.5
TV Distortion (max.)	-0.02%
Co-axial Prism	–
Sensor Size (max.)/Mount	ϕ22/C-mount

VS-TCM07-150/S Double-sided Telecentric Lens



Optical Mag.	0.7x
FOV 4/3" (VxH mm)	19.4 x 25.9
FOV 2/3" (VxH mm)	9.43x12.6
FOV 1/2" (VxH mm)	6.86x9.14
WD(mm)	150.8
O/I (mm)	373.8
Working F/#	5.29
NA	0.066
DOF*1(mm)	0.9
TV Distortion (max.)	0.01%
Co-axial Prism	–
Sensor Size (max.)/Mount	ϕ22/C-mount

VS-TCM1-130/S Double-sided Telecentric Lens

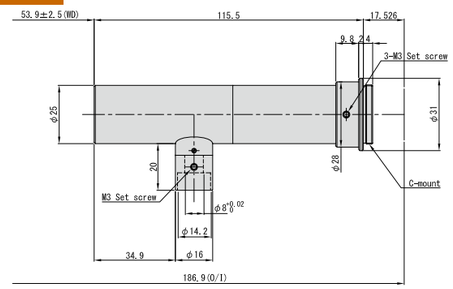


Optical Mag.	1.0x
FOV 4/3" (VxH mm)	13.6 x 18.1
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
WD(mm)	131.5
O/I (mm)	410.5
Working F/#	6.25
NA	0.080
DOF*1(mm)	0.5
TV Distortion (max.)	0.00%
Co-axial Prism	–
Sensor Size (max.)/Mount	ϕ22/C-mount

*1 Permissible COC at ϕ0.04mm

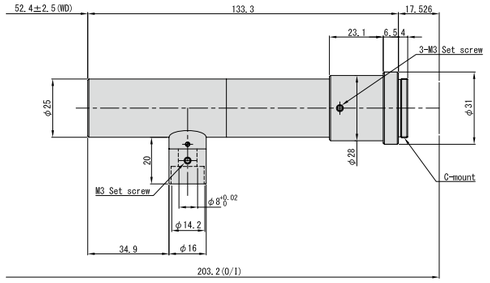
* Co-axial lighting diameter isϕ8mm.If you need other diameters, please contact us.

VS-TCM3-50CO



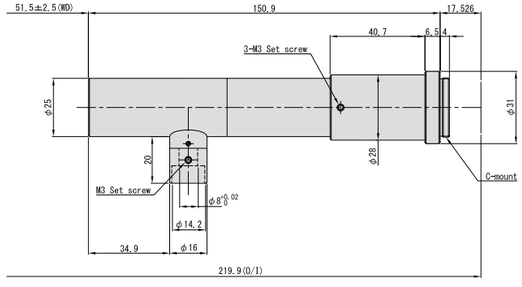
Optical Mag.	3.0x
FOV 4/3" (VxH mm)	4.5 x 6.0
FOV 2/3" (VxH mm)	2.2x2.9
FOV 1/2" (VxH mm)	1.6x2.1
WD(mm)	53.9
O/I (mm)	186.9
Working F/#	15.0
NA	0.10
DOF*1(mm)	0.13
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Sensor Size (max.)/Mount	φ22/C-mount

VS-TCM4-50CO



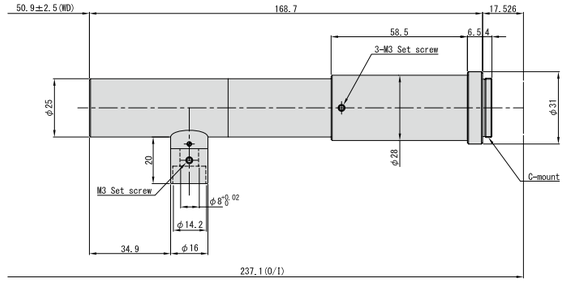
Optical Mag.	4.0x
FOV 4/3" (VxH mm)	3.4 x 4.5
FOV 2/3" (VxH mm)	1.7x2.2
FOV 1/2" (VxH mm)	1.2x1.6
WD(mm)	52.4
O/I (mm)	203.2
Working F/#	20.0
NA	0.10
DOF*1(mm)	0.10
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Sensor Size (max.)/Mount	φ22/C-mount

VS-TCM5-50CO



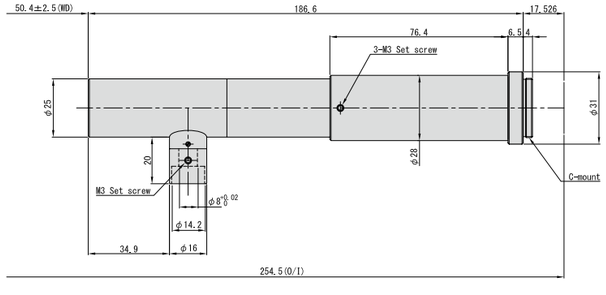
Optical Mag.	5.0x
FOV 4/3" (VxH mm)	2.7 x 3.6
FOV 2/3" (VxH mm)	1.3x1.8
FOV 1/2" (VxH mm)	1.0x1.3
WD(mm)	51.5
O/I (mm)	219.9
Working F/#	25.0
NA	0.10
DOF*1(mm)	0.08
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Sensor Size (max.)/Mount	φ22/C-mount

VS-TCM6-50CO



Optical Mag.	6.0x
FOV 4/3" (VxH mm)	2.3 x 3.0
FOV 2/3" (VxH mm)	1.1x1.5
FOV 1/2" (VxH mm)	0.8x1.1
WD(mm)	50.9
O/I (mm)	237.1
Working F/#	30.0
NA	0.10
DOF*1(mm)	0.066
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Sensor Size (max.)/Mount	φ22/C-mount

VS-TCM7-50CO



Optical Mag.	7.0x
FOV 4/3" (VxH mm)	1.9 x 2.6
FOV 2/3" (VxH mm)	0.9x1.3
FOV 1/2" (VxH mm)	0.7x0.9
WD(mm)	50.4
O/I (mm)	254.5
Working F/#	35.0
NA	0.10
DOF*1(mm)	0.06
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Sensor Size (max.)/Mount	φ22/C-mount

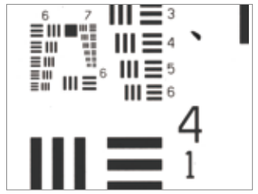
*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter isφ8mm.If you need other diameters, please contact us.

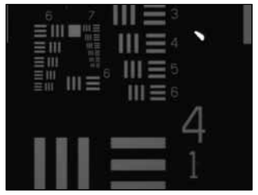
Telecentric Micro Scope

VS-TM Series

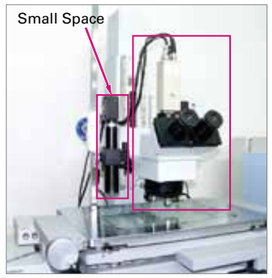
Magnification 10x with High NA0.23
Long WD 55mm
Higher Magnification(15x/20x)available with
Rear Converter lens

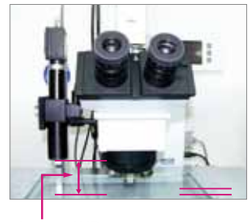
High Resolution



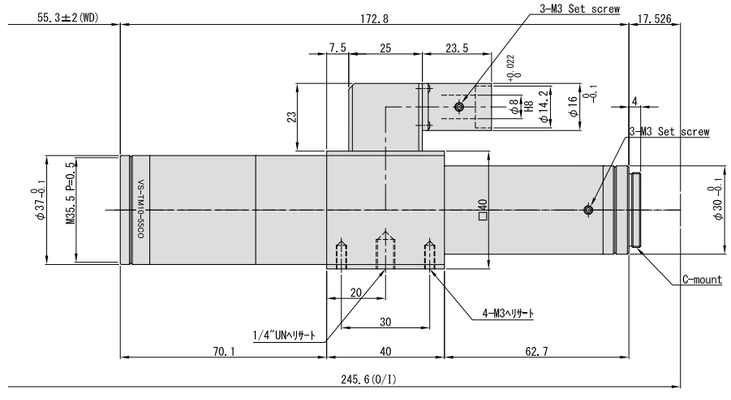


Compact Size





VS-TM10-55CO

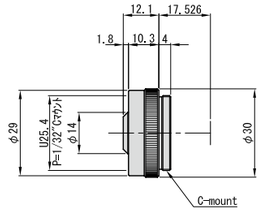


Optical Mag.	10x
FOV 2/3" (VxH mm)	0.66x0.88
FOV 1/2" (VxH mm)	0.48x0.64
FOV 1/3" (VxH mm)	0.36x0.48
WD(mm)	55.3
O/I (mm)	245.6
Working F/#	22
NA	0.23
DOF*1(mm)	0.02
Co-axial Prism	Built-in
Sensor Size (max.)/Mount	2/3"/C-mount

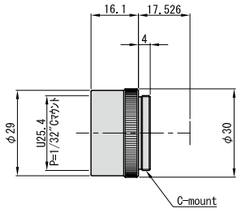
*1 Permissible COC at φ0.04mm

Rear Converter Lens

VS-TM1.5X



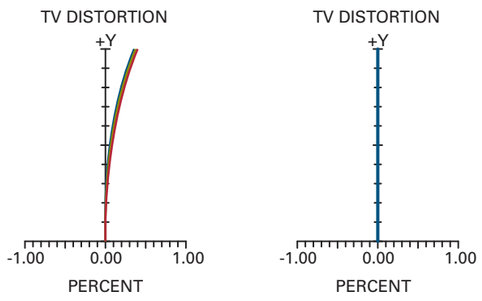
VS-TM2.0X



VS-TCH Series

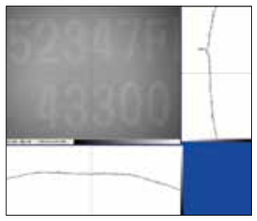
A New Telocentric series designed for WD65, 110mm and Mega Pixel Sensors with high resolution.
Distortionless images and light intensity differences.
Can accommodate Mega Pixel Cameras with low distortion and high contrast.

Low distortion

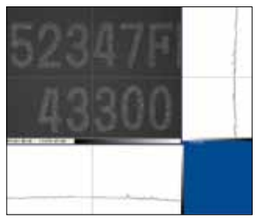


High contrast in entire Filed of View

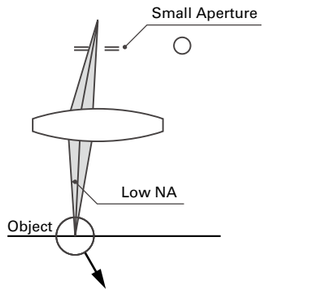
Other product

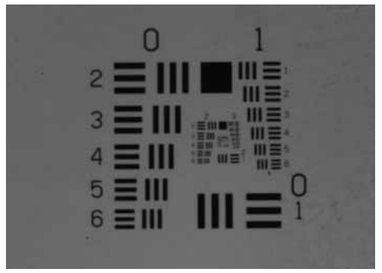


VS-TCH Series

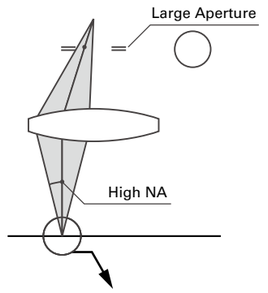


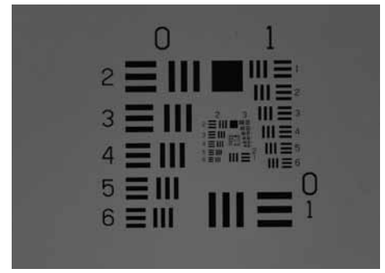
Lens Resolution, NA and Depth of Field (DOF)



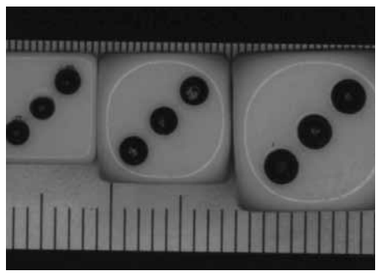


Low Resolution

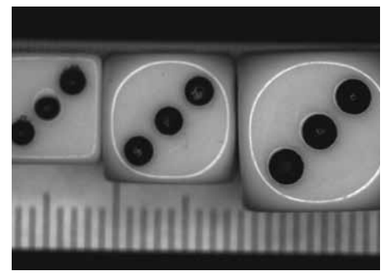




High Resolution



In focus small dice



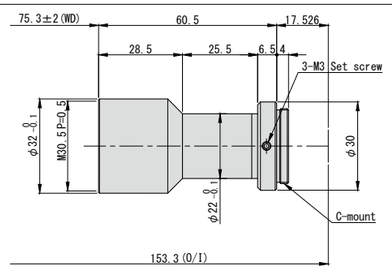
Out of focus small dice

〈 Testing Environment 〉	Camera : STC-A152A Lens: NA High VS-TC M022-150/S (Open) NA Low VS-TCM022-150/S (Close) Lighting: Chart: UEB-70W50 Dice: UNSL-73W100

Note: Brightness is adjusted by camera shutter speed and lighting

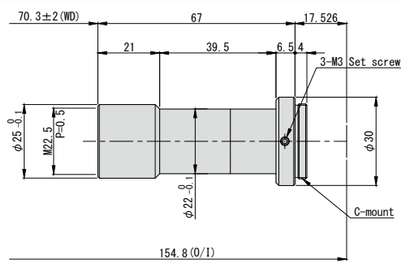
VS Technology has a lineup of variable iris models to modify the depth of field easily.
In addition, we can customize a fixed iris to suit your needs.

VS-TCH05-65



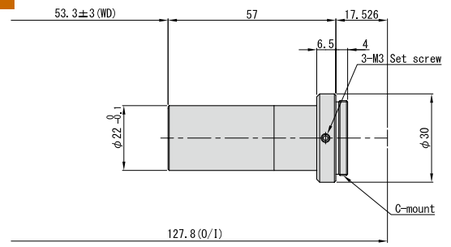
Optical Mag.	0.5x
FOV 2/3" (VxH mm)	13.2x17.6
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	75.3
O/I (mm)	153.3
Working F/#	9.42
NA	0.027
DOF*1(mm)	3.0
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	62g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH08-65



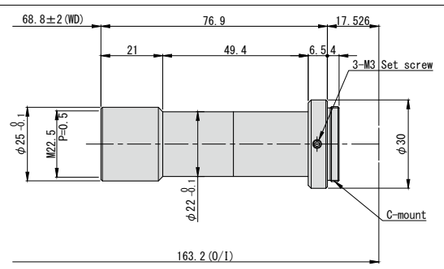
Optical Mag.	0.8x
FOV 2/3" (VxH mm)	8.3x11.0
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	70.3
O/I (mm)	154.8
Working F/#	9.57
NA	0.042
DOF*1(mm)	1.2
TV Distortion (max.)	0.01%
Co-axial Prism	–
Weight (approx.)	58g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH1-50



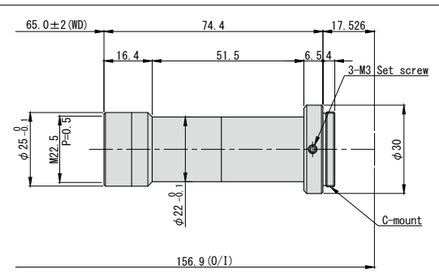
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	53.3
O/I (mm)	127.8
Working F/#	9.94
NA	0.050
DOF*1(mm)	0.8
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	46g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH1-65



Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	68.8
O/I (mm)	163.2
Working F/#	9.94
NA	0.050
DOF*1(mm)	0.8
TV Distortion (max.)	0.01%
Co-axial Prism	–
Weight (approx.)	62g
Sensor Size (max.)/Mount	2/3"/C-mount

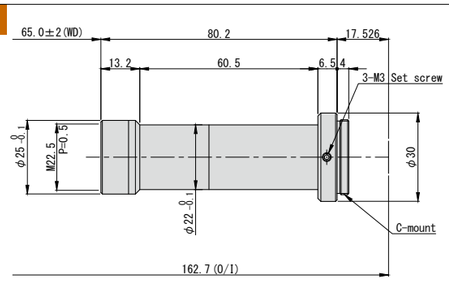
VS-TCH1.5-65



Optical Mag.	1.5x
FOV 2/3" (VxH mm)	4.4x5.9
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	65
O/I (mm)	156.9
Working F/#	11.80
NA	0.064
DOF*1(mm)	0.4
TV Distortion (max.)	0.01%
Co-axial Prism	–
Weight (approx.)	62g
Sensor Size (max.)/Mount	2/3"/C-mount

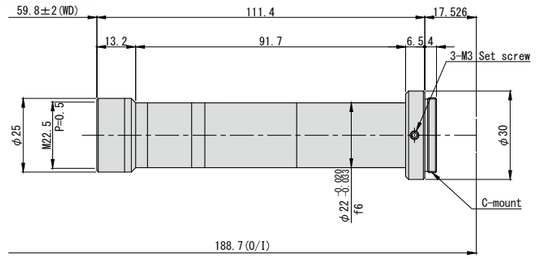
*1 Permissible COC at φ0.04mm

VS-TCH2-65



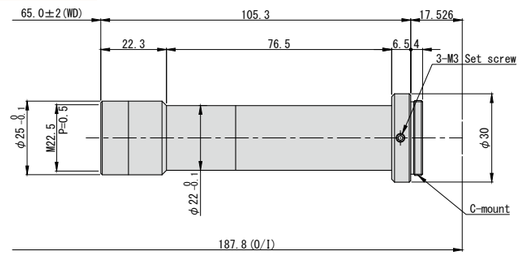
Optical Mag.	2.0x
FOV 2/3" (VxH mm)	3.3x4.4
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	65
O/I (mm)	162.7
Working F/#	13.60
NA	0.074
DOF*1(mm)	0.3
TV Distortion (max.)	0.03%
Co-axial Prism	–
Weight (approx.)	58g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH3-60



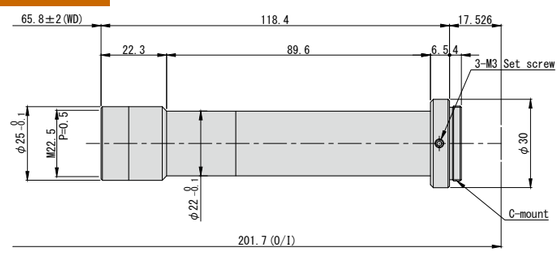
Optical Mag.	3.0x
FOV 2/3" (VxH mm)	2.2x2.9
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD (mm)	59.8
O/I (mm)	188.7
Working F/#	16.46
NA	0.091
DOF*1(mm)	0.1
TV Distortion (max.)	0.01%
Co-axial Prism	–
Weight (approx.)	75g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH4-65



Optical Mag.	4.0x
FOV 2/3" (VxH mm)	1.7x2.2
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	65
O/I (mm)	187.8
Working F/#	17.91
NA	0.112
DOF*1(mm)	0.09
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	80g
Sensor Size (max.)/Mount	2/3"/C-mount

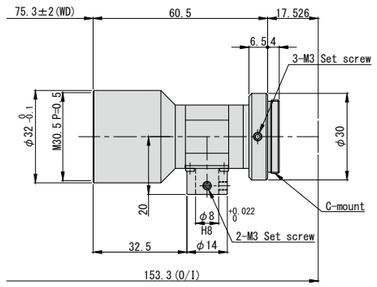
VS-TCH6-65



Optical Mag.	6.0x
FOV 2/3" (VxH mm)	1.1x1.5
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	65.8
O/I (mm)	201.7
Working F/#	27.0
NA	0.111
DOF*1(mm)	0.06
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	89g
Sensor Size (max.)/Mount	2/3"/C-mount

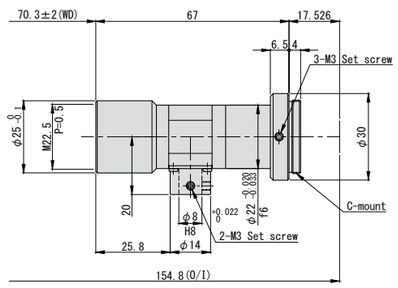
*1 Permissible COC at φ0.04mm

VS-TCH05-65CO



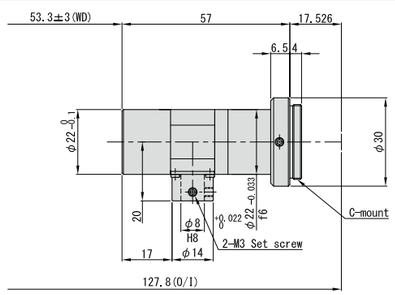
Optical Mag.	0.5x
FOV 2/3" (VxH mm)	13.2x17.6
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	75.3
O/I (mm)	153.3
Working F/#	9.42
NA	0.027
DOF*1(mm)	3.0
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	74.5g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH08-65CO



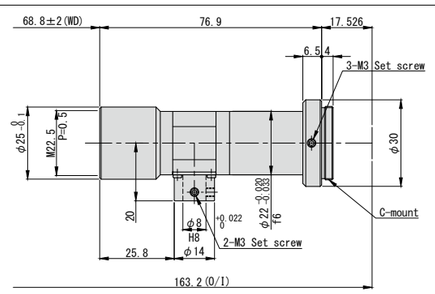
Optical Mag.	0.8x
FOV 2/3" (VxH mm)	8.3x11.0
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	70.3
O/I (mm)	154.8
Working F/#	9.57
NA	0.042
DOF*1(mm)	1.2
TV Distortion (max.)	0.01%
Co-axial Prism	Built-in
Weight (approx.)	70g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH1-50CO



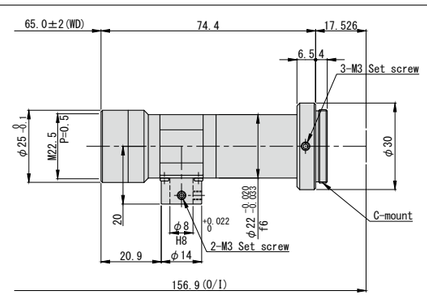
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	53.3
O/I (mm)	127.8
Working F/#	9.94
NA	0.050
DOF*1(mm)	0.8
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	-g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH1-65CO



Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	68.8
O/I (mm)	163.2
Working F/#	9.94
NA	0.050
DOF*1(mm)	0.8
TV Distortion (max.)	0.01%
Co-axial Prism	Built-in
Weight (approx.)	74g
Sensor Size (max.)/Mount	2/3"/C-mount

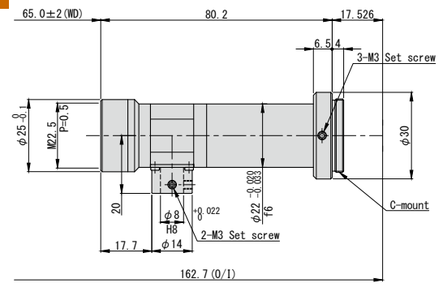
VS-TCH1.5-65CO



Optical Mag.	1.5x
FOV 2/3" (VxH mm)	4.4x5.9
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	65
O/I (mm)	156.9
Working F/#	11.80
NA	0.064
DOF*1(mm)	0.4
TV Distortion (max.)	0.01%
Co-axial Prism	Built-in
Weight (approx.)	74g
Sensor Size (max.)/Mount	2/3"/C-mount

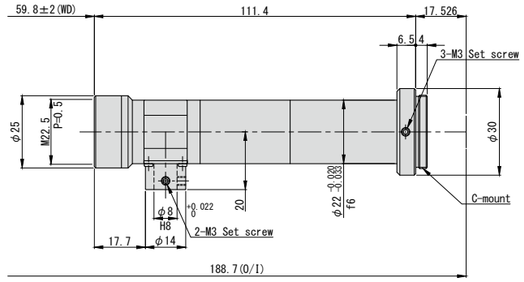
*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter is φ8mm.
If you need other diameters, please contact us.

VS-TCH2-65CO



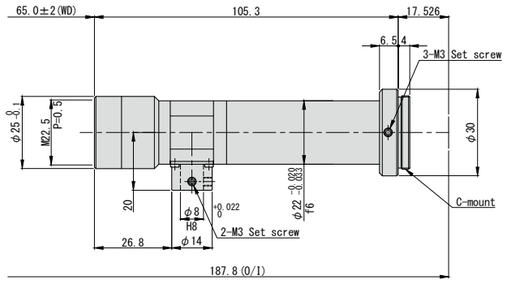
Optical Mag.	2.0x
FOV 2/3" (VxH mm)	3.3x4.4
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	65
O/I (mm)	162.7
Working F/#	13.60
NA	0.074
DOF*1(mm)	0.3
TV Distortion (max.)	0.03%
Co-axial Prism	Built-in
Weight (approx.)	71g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH3-60CO



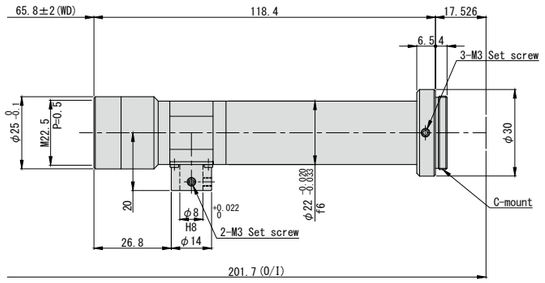
Optical Mag.	3.0x
FOV 2/3" (VxH mm)	2.2x2.9
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD (mm)	59.8
O/I (mm)	188.7
Working F/#	16.46
NA	0.091
DOF*1(mm)	0.1
TV Distortion (max.)	0.01%
Co-axial Prism	Built-in
Weight (approx.)	80g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH4-65CO



Optical Mag.	4.0x
FOV 2/3" (VxH mm)	1.7x2.2
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	65
O/I (mm)	187.8
Working F/#	17.91
NA	0.112
DOF*1(mm)	0.09
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	95g
Sensor Size (max.)/Mount	2/3"/C-mount

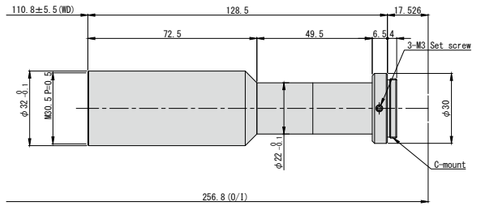
VS-TCH6-65CO



Optical Mag.	6.0x
FOV 2/3" (VxH mm)	1.1x1.5
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	65.8
O/I (mm)	201.7
Working F/#	27.0
NA	0.111
DOF*1(mm)	0.06
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	93g
Sensor Size (max.)/Mount	2/3"/C-mount

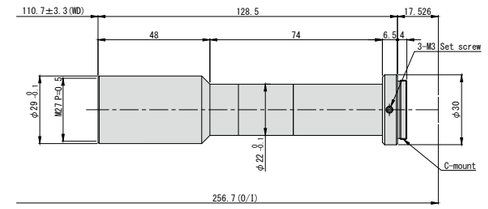
*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter is φ8mm.
If you need other diameters, please contact us.

VS-TCH05-110



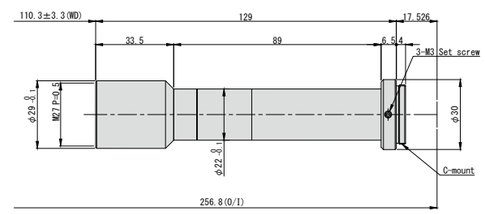
Optical Mag.	0.5x
FOV 2/3" (VxH mm)	13.2x17.6
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	110.8
O/I (mm)	256.8
Working F/#	9.49
NA	0.026
DOF*1(mm)	3.04
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	93g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH08-110



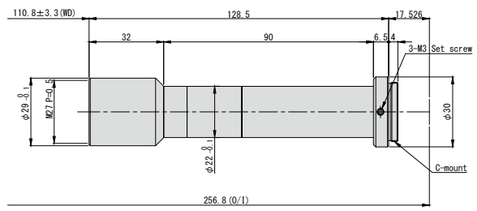
Optical Mag.	0.8x
FOV 2/3" (VxH mm)	8.3x11.0
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	110.7
O/I (mm)	256.7
Working F/#	10.95
NA	0.036
DOF*1(mm)	1.37
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	93g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH1-110



Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	110.3
O/I (mm)	256.8
Working F/#	10.49
NA	0.048
DOF*1(mm)	0.84
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	92g
Sensor Size (max.)/Mount	2/3"/C-mount

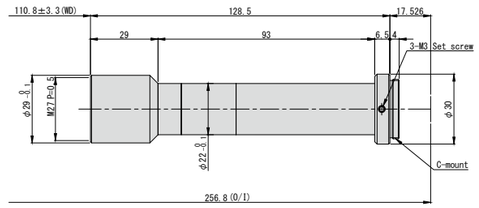
VS-TCH1.5-110



Optical Mag.	1.5x
FOV 2/3" (VxH mm)	4.4x5.9
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	110.8
O/I (mm)	256.8
Working F/#	11.97
NA	0.063
DOF*1(mm)	0.43
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	85g
Sensor Size (max.)/Mount	2/3"/C-mount

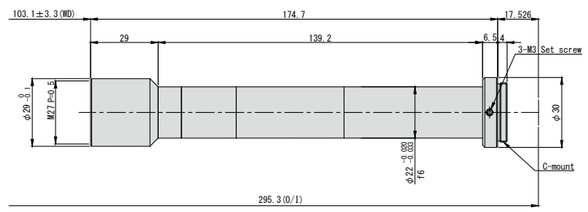
*1 Permissible COC at φ0.04mm

VS-TCH2-110



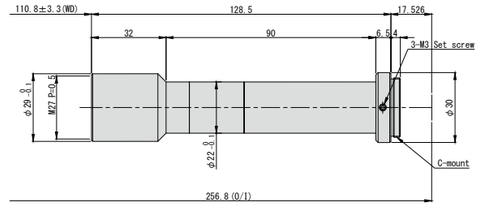
Optical Mag.	2.0x
FOV 2/3" (VxH mm)	3.3x4.4
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	110.8
O/I (mm)	256.8
Working F/#	13.5
NA	0.074
DOF*1(mm)	0.27
TV Distortion (max.)	0.03%
Co-axial Prism	–
Weight (approx.)	89g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH3-100



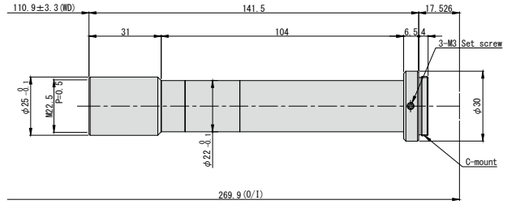
Optical Mag.	3.0x
FOV 2/3" (VxH mm)	2.2x2.9
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD (mm)	103.1
O/I (mm)	295.3
Working F/#	17.13
NA	0.088
DOF*1(mm)	0.15
TV Distortion (max.)	0.01%
Co-axial Prism	–
Weight (approx.)	115g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH4-110



Optical Mag.	4.0x
FOV 2/3" (VxH mm)	1.7x2.2
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	110.8
O/I (mm)	256.8
Working F/#	22.2
NA	0.090
DOF*1(mm)	0.11
TV Distortion (max.)	0.03%
Co-axial Prism	–
Weight (approx.)	92g
Sensor Size (max.)/Mount	2/3"/C-mount

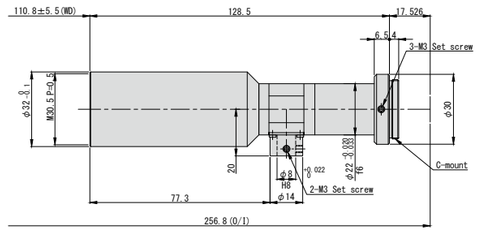
VS-TCH6-110



Optical Mag.	6.0x
FOV 2/3" (VxH mm)	1.1x1.5
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	110.9
O/I (mm)	269.9
Working F/#	39.29
NA	0.076
DOF*1(mm)	0.09
TV Distortion (max.)	0.03%
Co-axial Prism	–
Weight (approx.)	90g
Sensor Size (max.)/Mount	2/3"/C-mount

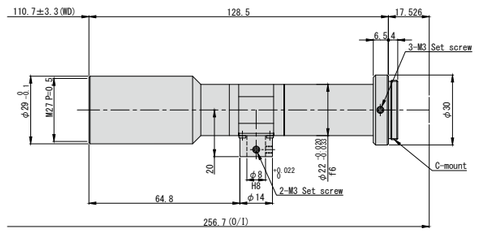
*1 Permissible COC at φ0.04mm

VS-TCH05-110CO



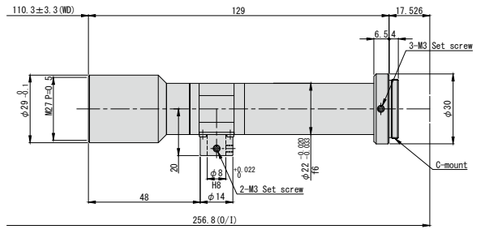
Optical Mag.	0.5x
FOV 2/3" (VxH mm)	13.2x17.6
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD(mm)	110.8
O/I (mm)	256.8
Working F/#	9.49
NA	0.026
DOF*1(mm)	3.04
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	106g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH08-110CO



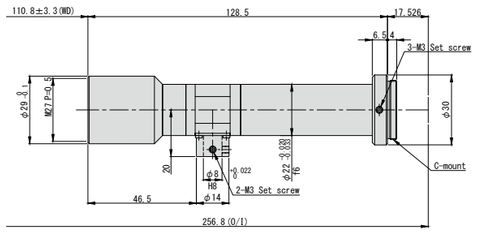
Optical Mag.	0.8x
FOV 2/3" (VxH mm)	8.3x11.0
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD(mm)	110.7
O/I (mm)	256.7
Working F/#	10.95
NA	0.036
DOF*1(mm)	1.37
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	106g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH1-110CO



Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD(mm)	110.3
O/I (mm)	256.8
Working F/#	10.49
NA	0.048
DOF*1(mm)	0.84
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	105g
Sensor Size (max.)/Mount	2/3"/C-mount

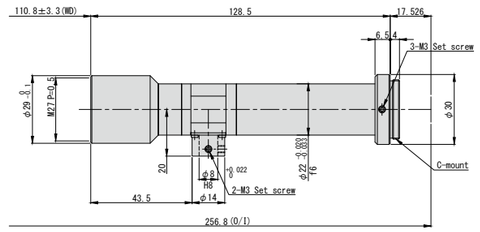
VS-TCH1.5-110CO



Optical Mag.	1.5x
FOV 2/3" (VxH mm)	4.4x5.9
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD(mm)	110.8
O/I (mm)	256.8
Working F/#	11.97
NA	0.063
DOF*1(mm)	0.43
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	99g
Sensor Size (max.)/Mount	2/3"/C-mount

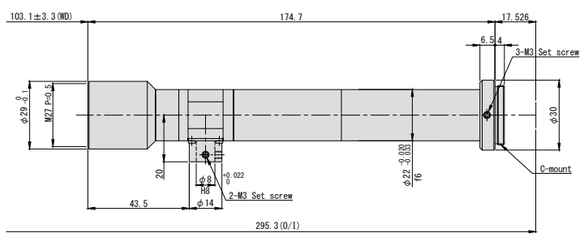
*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter isφ8mm.
If you need other diameters, please contact us.

VS-TCH2-110CO



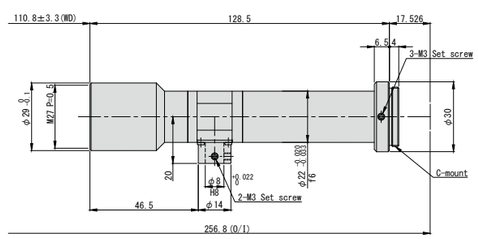
Optical Mag.	2.0x
FOV 2/3" (VxH mm)	3.3x4.4
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD(mm)	110.8
O/I (mm)	256.8
Working F/#	13.5
NA	0.074
DOF*1(mm)	0.27
TV Distortion (max.)	0.03%
Co-axial Prism	Built-in
Weight (approx.)	102g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH3-100CO



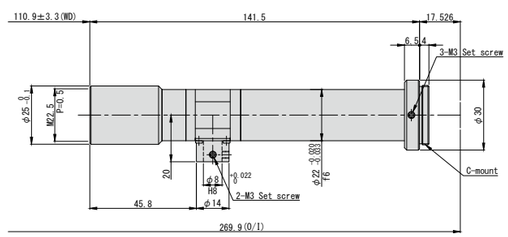
Optical Mag.	3.0x
FOV 2/3" (VxH mm)	2.2x2.9
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD(mm)	103.1
O/I (mm)	295.3
Working F/#	17.13
NA	0.088
DOF*1(mm)	0.15
TV Distortion (max.)	0.01%
Co-axial Prism	Built-in
Weight (approx.)	120g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH4-110CO



Optical Mag.	4.0x
FOV 2/3" (VxH mm)	1.7x2.2
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD(mm)	110.8
O/I (mm)	256.8
Working F/#	22.2
NA	0.090
DOF*1(mm)	0.11
TV Distortion (max.)	0.03%
Co-axial Prism	Built-in
Weight (approx.)	104g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TCH6-110CO



Optical Mag.	6.0x
FOV 2/3" (VxH mm)	1.1x1.5
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD(mm)	110.9
O/I (mm)	269.9
Working F/#	39.29
NA	0.076
DOF*1(mm)	0.09
TV Distortion (max.)	0.03%
Co-axial Prism	Built-in
Weight (approx.)	103g
Sensor Size (max.)/Mount	2/3"/C-mount

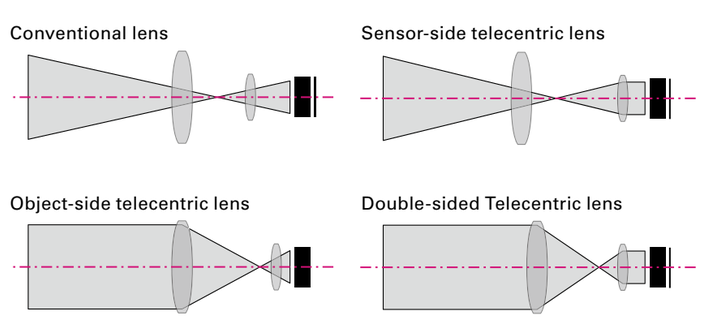
*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter isφ8mm.
If you need other diameters, please contact us.

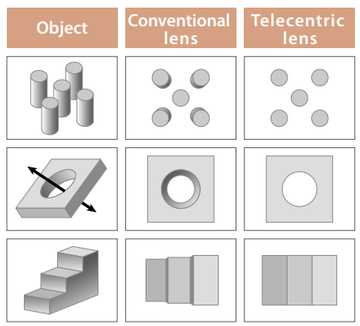
VS-TC Series

Compact size and light weight
Wide range of WD from 40mm~340mm
Variety of magnifications 0.5x~10x : 1.5x / 3.0x / 5.0x also available
Built-in Co-axial models (model number : VS-TC□□-□□CO)
Optical mirror units available

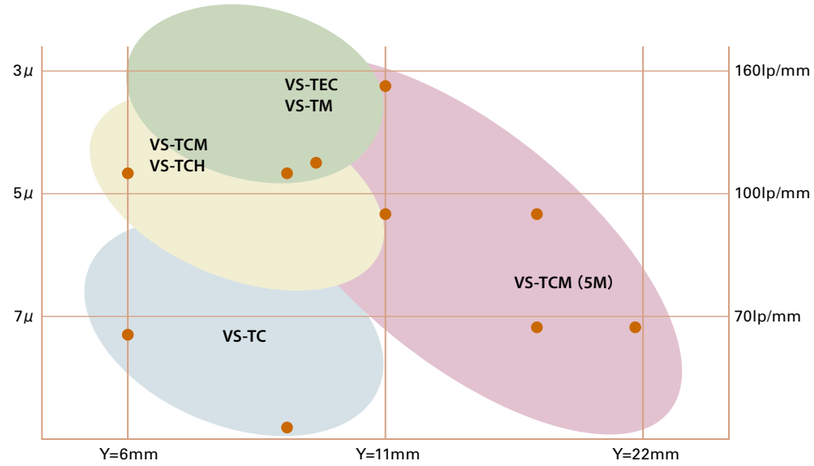
Telecentric Lens

Telecentric lens has parallel chief ray with its optical axis and is ideal for co-axial lighting. Telecentric lenses eliminate perspective errors in your image and do not change magnification when the WD changed. This allows accurate measurement of 3D objects or even objects that move up and down.





Telecentric Lens LINE UP



● Camera pixel size

Lately there have been great changes in the image sensor market and of which one has been for a ever larger sensor size and smaller pixel size. Consequently, a sensor of the same size but with a greater pixel number could yield a picture with a much higher resolution.

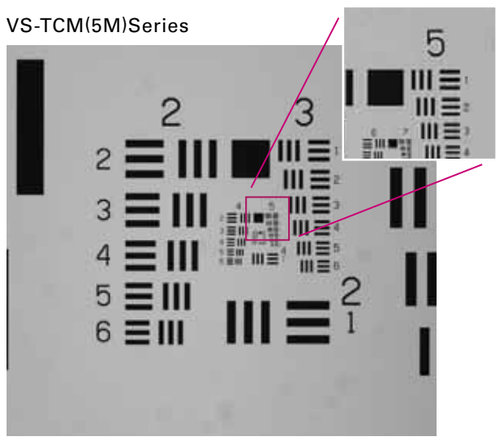
The advantage of a reduced pixel size could dramatically increase the number of pixels that could fit into a sensor of the same size. However, a reduced pixel size translates into a reduced surface area for light signals. In this case, the ability of a lens to collect as completely as possible the light signals from the sources and therefore give a higher resolution is readily pursued.

On the other hand, when the pixel size remains the same but the total sensor size is increased to include a much greater pixel number for high resolution purposes, a larger sensor size is needed for a larger image circle.

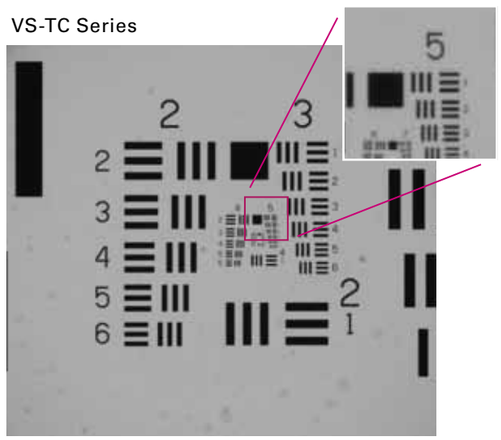
It is a daunting task to reconcile between pixel size and sensor size with respect to lens light throughput optimization, and is often easily said than done. Nevertheless, VST has successfully elevated the industry benchmark by adding many new models to the lineup for high mega-pixel telecentric lenses in a relatively short period of time.

Figures comparing among different VST Telecentric lens models.

VS-TCM(5M)Series

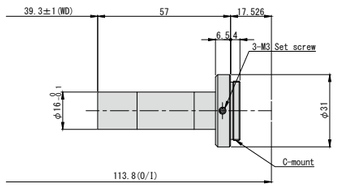


VS-TC Series



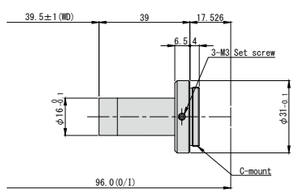
Short WD

VS-TC1.5-40



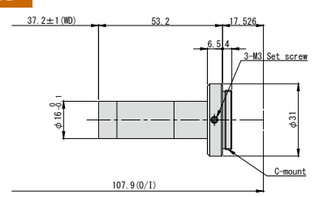
Optical Mag.	1.5x
FOV 1/2" (VxH mm)	3.2x4.2
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	39.3
O/I (mm)	113.8
Working F/#	11.15
NA	0.067
DOF*1 (mm)	0.4
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	37g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC2-40



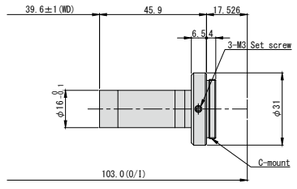
Optical Mag.	2.0x
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	39.5
O/I (mm)	96.0
Working F/#	15.03
NA	0.067
DOF*1 (mm)	0.3
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	32g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC3-40-LD



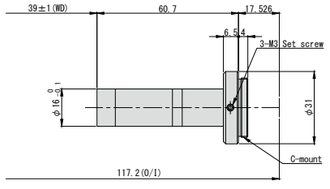
Optical Mag.	3.0x
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD (mm)	37.2
O/I (mm)	107.9
Working F/#	23.52
NA	0.064
DOF*1 (mm)	0.2
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	35g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC4-40



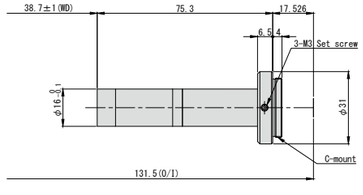
Optical Mag.	4.0x
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	39.6
O/I (mm)	103.0
Working F/#	29.39
NA	0.068
DOF*1 (mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	33g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC6-40-LD



Optical Mag.	6.0x
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	39.0
O/I (mm)	117.2
Working F/#	43.32
NA	0.069
DOF*1 (mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	40g
Sensor Size (max.)/Mount	1/2"/C-mount

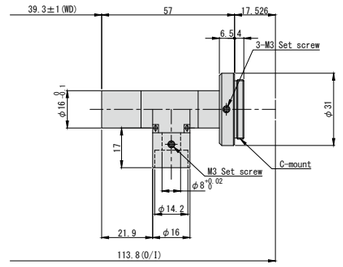
VS-TC8-40-LD



Optical Mag.	8.0x
FOV 1/2" (VxH mm)	0.6x0.8
FOV 1/3" (VxH mm)	0.5x0.6
WD (mm)	38.7
O/I (mm)	131.5
Working F/#	57.03
NA	0.070
DOF*1 (mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	45g
Sensor Size (max.)/Mount	1/2"/C-mount

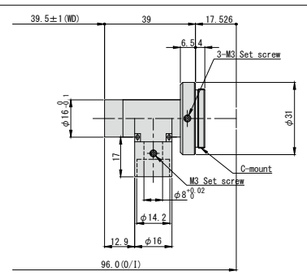
*1 Permissible COC at φ0.04mm

VS-TC1.5-40CO



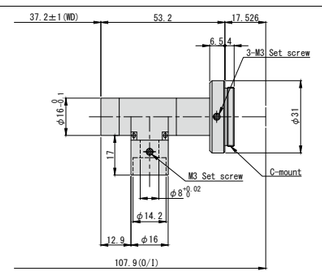
Optical Mag.	1.5x
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	39.3
O/I (mm)	113.8
Working F/#	11.15
NA	0.067
DOF*1 (mm)	0.4
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	45g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC2-40CO



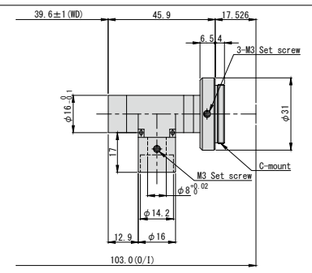
Optical Mag.	2.0x
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	39.5
O/I (mm)	96.0
Working F/#	15.03
NA	0.067
DOF*1 (mm)	0.3
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	40g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC3-40CO-LD



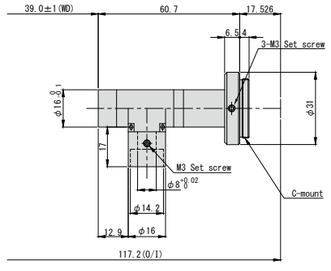
Optical Mag.	3.0x
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD (mm)	37.2
O/I (mm)	107.9
Working F/#	23.52
NA	0.064
DOF*1 (mm)	0.2
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	40g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC4-40CO



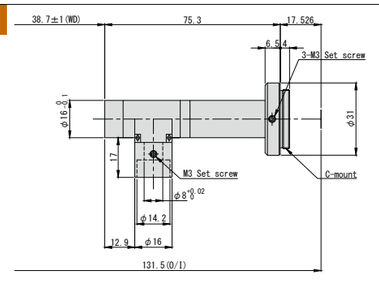
Optical Mag.	4.0x
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	39.6
O/I (mm)	103.0
Working F/#	29.39
NA	0.068
DOF*1 (mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	41g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC6-40CO-LD



Optical Mag.	6.0x
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	39.0
O/I (mm)	117.2
Working F/#	43.32
NA	0.069
DOF*1 (mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	45g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC8-40CO-LD

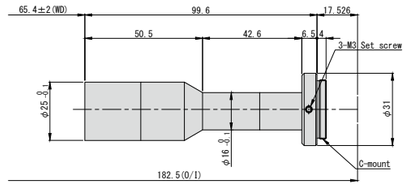


Optical Mag.	8.0x
FOV 1/2" (VxH mm)	0.6x0.8
FOV 1/3" (VxH mm)	0.5x0.6
WD (mm)	38.7
O/I (mm)	131.5
Working F/#	57.03
NA	0.070
DOF*1 (mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	50g
Sensor Size (max.)/Mount	1/2"/C-mount

*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter isφ8mm. If you need other diameters, please contact us.

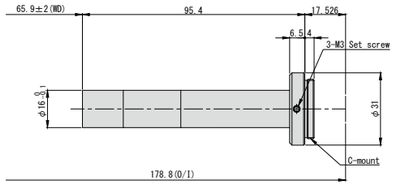
Middle WD 65～70mm

VS-TC08-65



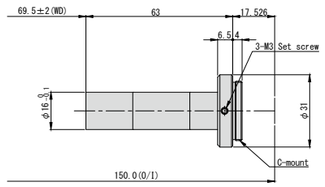
Optical Mag.	0.8x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	65.4
O/I (mm)	182.5
Working F/#	10.0
NA	0.040
DOF*1(mm)	1.3
TV Distortion (max.)	0.05%
Co-axial Prism	–
Weight (approx.)	68g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1-65-16



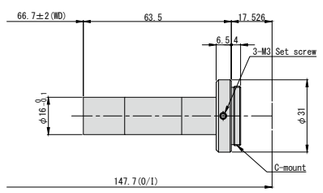
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	65.9
O/I (mm)	178.8
Working F/#	14.2
NA	0.035
DOF*1(mm)	1.1
TV Distortion (max.)	0.1%
Co-axial Prism	–
Weight (approx.)	60g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1.5-70



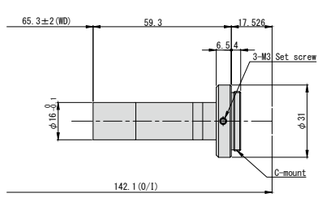
Optical Mag.	1.5x
FOV 2/3" (VxH mm)	4.4x5.9
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	69.5
O/I (mm)	150.0
Working F/#	15.6
NA	0.048
DOF*1(mm)	0.6
TV Distortion (max.)	0.1%
Co-axial Prism	–
Weight (approx.)	38g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC2-65



Optical Mag.	2.0x
FOV 2/3" (VxH mm)	3.3x4.4
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	66.7
O/I (mm)	147.7
Working F/#	15.6
NA	0.064
DOF*1(mm)	0.3
TV Distortion (max.)	0.04%
Co-axial Prism	–
Weight (approx.)	38g
Sensor Size (max.)/Mount	2/3"/C-mount

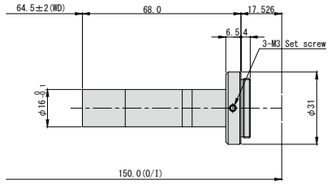
VS-TC3-65



Optical Mag.	3.0x
FOV 2/3" (VxH mm)	2.2x2.9
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD (mm)	65.3
O/I (mm)	142.1
Working F/#	22.0
NA	0.068
DOF*1(mm)	0.2
TV Distortion (max.)	0.04%
Co-axial Prism	–
Weight (approx.)	38g
Sensor Size (max.)/Mount	2/3"/C-mount

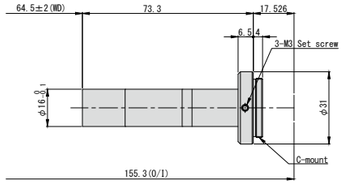
*1 Permissible COC at φ0.04mm

VS-TC4-65



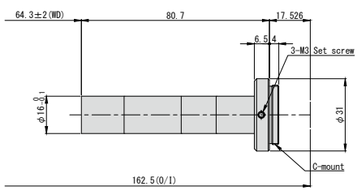
Optical Mag.	4.0x
FOV 2/3" (VxH mm)	1.7x2.2
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	64.5
O/I (mm)	150.0
Working F/#	29.1
NA	0.069
DOF*1(mm)	0.15
TV Distortion (max.)	-0.01%
Co-axial Prism	–
Weight (approx.)	40g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC5-65



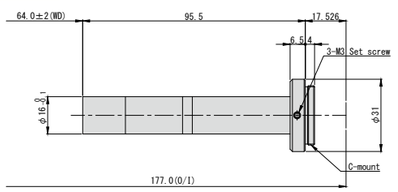
Optical Mag.	5.0x
FOV 2/3" (VxH mm)	1.3x1.8
FOV 1/2" (VxH mm)	1.0x1.3
FOV 1/3" (VxH mm)	0.7x1.0
WD (mm)	64.5
O/I (mm)	155.3
Working F/#	36.2
NA	0.069
DOF*1(mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	46g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC6-65



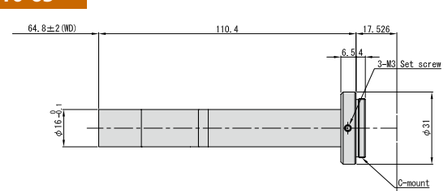
Optical Mag.	6.0x
FOV 2/3" (VxH mm)	1.1x1.5
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	64.3
O/I (mm)	162.5
Working F/#	43.1
NA	0.070
DOF*1(mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	51g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC8-65



Optical Mag.	8.0x
FOV 2/3" (VxH mm)	0.8x1.1
FOV 1/2" (VxH mm)	0.6x0.8
FOV 1/3" (VxH mm)	0.4x0.6
WD (mm)	64.0
O/I (mm)	177.0
Working F/#	57.1
NA	0.070
DOF*1(mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	49g
Sensor Size (max.)/Mount	2/3"/C-mount

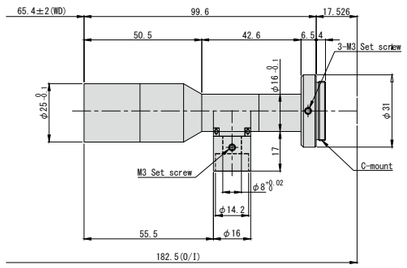
VS-TC10-65



Optical Mag.	10.0x
FOV 2/3" (VxH mm)	0.66x0.88
FOV 1/2" (VxH mm)	0.48x0.64
FOV 1/3" (VxH mm)	0.36x0.48
WD (mm)	64.8
O/I (mm)	192.7
Working F/#	73.2
NA	0.068
DOF*1(mm)	0.06
TV Distortion (max.)	0.00%
Co-axial Prism	-
Weight (approx.)	50g
Sensor Size (max.)/Mount	2/3"/C-mount

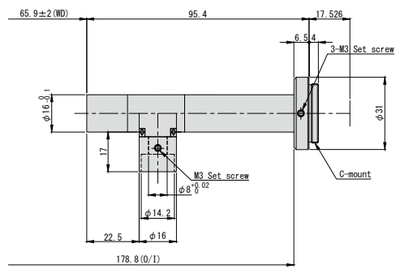
*1 Permissible COC at φ0.04mm

VS-TC08-65CO



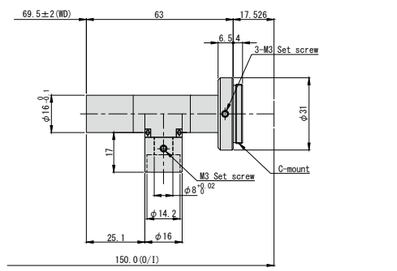
Optical Mag.	0.8x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	65.4
O/I (mm)	182.5
Working F/#	10.0
NA	0.040
DOF*1(mm)	1.3
TV Distortion (max.)	0.05%
Co-axial Prism	Built-in
Weight (approx.)	85g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1-65CO-16



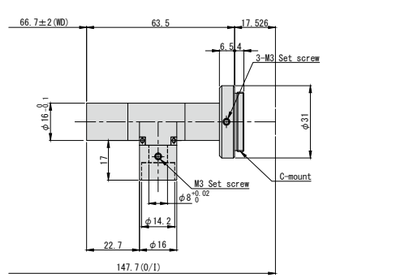
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	65.9
O/I (mm)	178.8
Working F/#	14.2
NA	0.035
DOF*1(mm)	1.1
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	68g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1.5-70CO



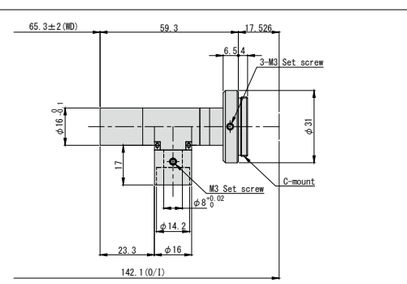
Optical Mag.	1.5x
FOV 2/3" (VxH mm)	4.4x5.9
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	69.5
O/I (mm)	150.0
Working F/#	15.6
NA	0.048
DOF*1(mm)	0.6
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	41g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC2-65CO



Optical Mag.	2.0x
FOV 2/3" (VxH mm)	3.3x4.4
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	66.7
O/I (mm)	147.7
Working F/#	15.6
NA	0.064
DOF*1(mm)	0.3
TV Distortion (max.)	0.04%
Co-axial Prism	Built-in
Weight (approx.)	44g
Sensor Size (max.)/Mount	2/3"/C-mount

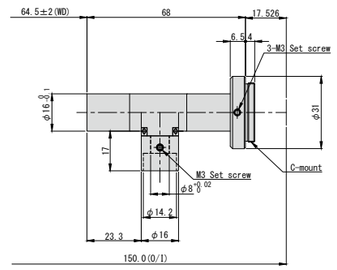
VS-TC3-65CO



Optical Mag.	3.0x
FOV 2/3" (VxH mm)	2.2x2.9
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD (mm)	65.3
O/I (mm)	142.1
Working F/#	22.0
NA	0.068
DOF*1(mm)	0.2
TV Distortion (max.)	0.04%
Co-axial Prism	Built-in
Weight (approx.)	44g
Sensor Size (max.)/Mount	2/3"/C-mount

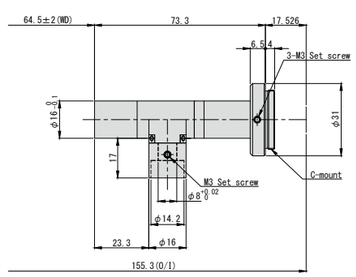
*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter isφ8mm. If you need other diameters, please contact us.

VS-TC4-65CO



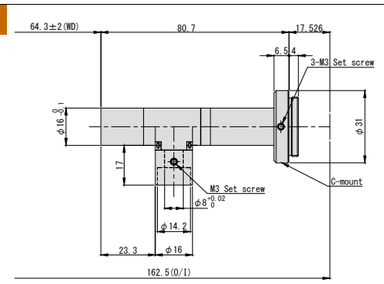
Optical Mag.	4.0x
FOV 2/3" (VxH mm)	1.6x2.2
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	64.5
O/I (mm)	150.0
Working F/#	29.1
NA	0.069
DOF*1(mm)	0.15
TV Distortion (max.)	-0.01%
Co-axial Prism	Built-in
Weight (approx.)	46g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC5-65CO



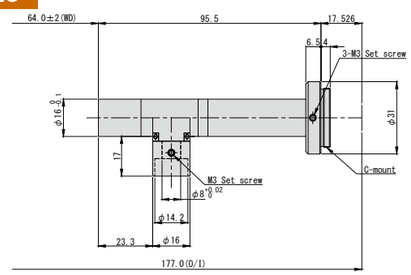
Optical Mag.	5.0x
FOV 2/3" (VxH mm)	1.3x1.8
FOV 1/2" (VxH mm)	1.0x1.3
FOV 1/3" (VxH mm)	0.7x1.0
WD (mm)	64.5
O/I (mm)	155.3
Working F/#	36.2
NA	0.069
DOF*1(mm)	0.11
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	50g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC6-65CO



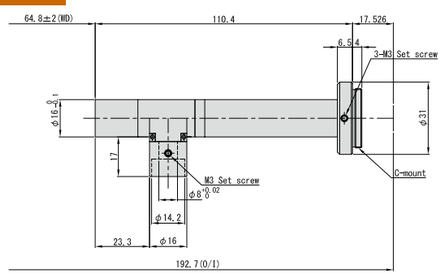
Optical Mag.	6.0x
FOV 2/3" (VxH mm)	1.1x1.5
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	64.3
O/I (mm)	162.5
Working F/#	43.1
NA	0.070
DOF*1(mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	51g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC8-65CO



Optical Mag.	8.0x
FOV 2/3" (VxH mm)	0.8x1.1
FOV 1/2" (VxH mm)	0.6x0.8
FOV 1/3" (VxH mm)	0.4x0.6
WD (mm)	64.0
O/I (mm)	177.0
Working F/#	57.1
NA	0.070
DOF*1(mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	55g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC10-65CO

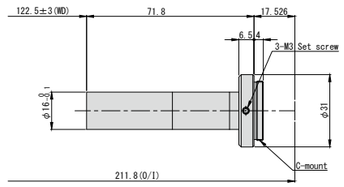


Optical Mag.	10.0x
FOV 2/3" (VxH mm)	0.66x0.88
FOV 1/2" (VxH mm)	0.48x0.64
FOV 1/3" (VxH mm)	0.36x0.48
WD (mm)	64.8
O/I (mm)	192.7
Working F/#	73.2
NA	0.068
DOF*1(mm)	0.06
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	59g
Sensor Size (max.)/Mount	2/3"/C-mount

*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter isφ8mm. If you need other diameters, please contact us.

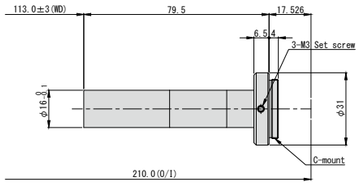
Long WD 110～170mm

VS-TC08-120



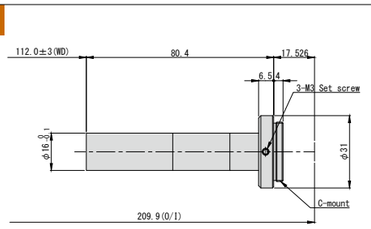
Optical Mag.	0.8x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	122.5
O/I (mm)	211.8
Working F/#	18.0
NA	0.022
DOF*1(mm)	2.3
TV Distortion (max.)	0.10%
Co-axial Prism	–
Weight (approx.)	41g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1-110



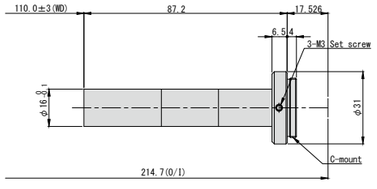
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	113.0
O/I (mm)	210.0
Working F/#	20.0
NA	0.025
DOF*1(mm)	1.6
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	44g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1.5N-110



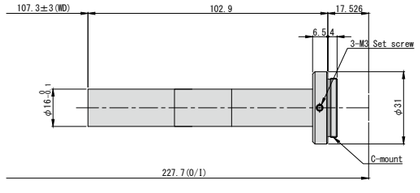
Optical Mag.	1.5x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	112.0
O/I (mm)	209.9
Working F/#	18.8
NA	0.040
DOF*1(mm)	0.7
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	39g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC2-110-LD



Optical Mag.	2.0x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	110.0
O/I (mm)	214.7
Working F/#	24.9
NA	0.040
DOF*1(mm)	0.5
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	47g
Sensor Size (max.)/Mount	1/2"/C-mount

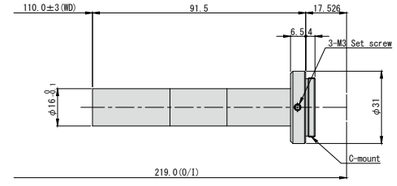
VS-TC3-110



Optical Mag.	3.0x
FOV 2/3" (VxH mm)	2.2x2.9
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD (mm)	107.3
O/I (mm)	227.7
Working F/#	37.5
NA	0.040
DOF*1(mm)	0.3
TV Distortion (max.)	0.10%
Co-axial Prism	–
Weight (approx.)	52g
Sensor Size (max.)/Mount	2/3"/C-mount

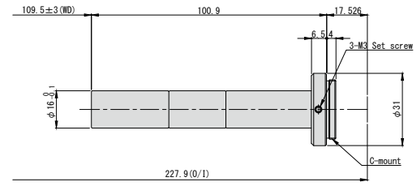
*1 Permissible COC at φ0.04mm

VS-TC4-110-LD



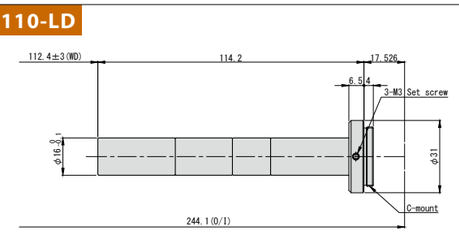
Optical Mag.	4.0x
FOV 2/3" (VxH mm)	1.65x2.2
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	110.0
O/I (mm)	219.0
Working F/#	41.7
NA	0.048
DOF*1(mm)	0.2
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	50g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC5-110



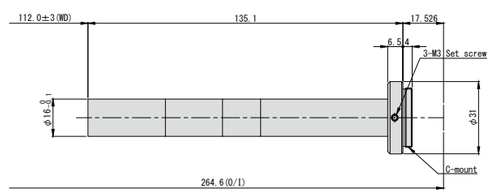
Optical Mag.	5.0x
FOV 2/3" (VxH mm)	1.3x1.8
FOV 1/2" (VxH mm)	1.0x1.3
FOV 1/3" (VxH mm)	0.7x1.0
WD (mm)	109.5
O/I (mm)	227.9
Working F/#	51.8
NA	0.048
DOF*1(mm)	0.2
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	60g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC6-110-LD



Optical Mag.	6.0x
FOV 2/3" (VxH mm)	1.1x1.5
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	112.4
O/I (mm)	244.1
Working F/#	67.3
NA	0.045
DOF*1(mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	62g
Sensor Size (max.)/Mount	2/3"/C-mount

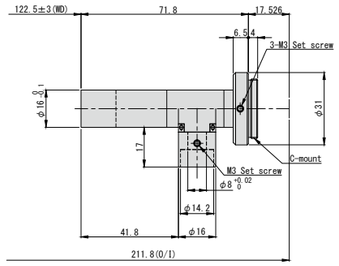
VS-TC8-110-LD



Optical Mag.	8.0x
FOV 2/3" (VxH mm)	0.8x1.1
FOV 1/2" (VxH mm)	0.6x0.8
FOV 1/3" (VxH mm)	0.5x0.6
WD (mm)	112.0
O/I (mm)	264.6
Working F/#	89.3
NA	0.045
DOF*1(mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	–
Weight (approx.)	62g
Sensor Size (max.)/Mount	2/3"/C-mount

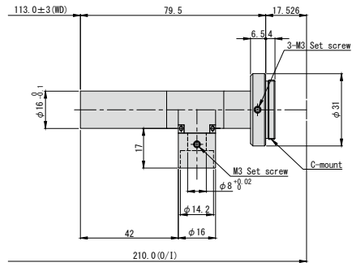
*1 Permissible COC at φ0.04mm

VS-TC08-120CO



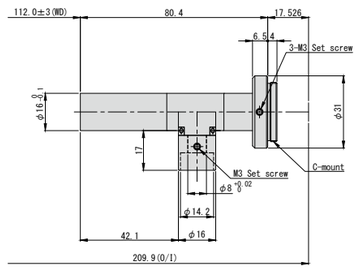
Optical Mag.	0.8x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	122.5
O/I (mm)	211.3
Working F/#	18.0
NA	0.022
DOF*1(mm)	2.3
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	42g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1-110CO



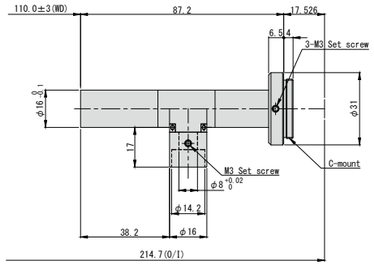
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	113.0
O/I (mm)	210.0
Working F/#	20.0
NA	0.025
DOF*1(mm)	1.6
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	49g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1.5N-110CO



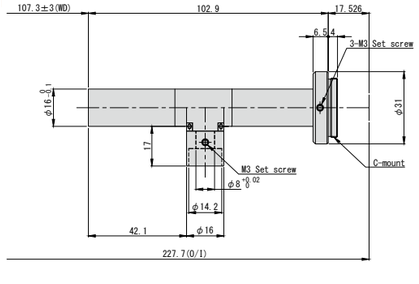
Optical Mag.	1.5x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	112.0
O/I (mm)	209.9
Working F/#	18.8
NA	0.040
DOF*1(mm)	0.7
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	49g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC2-110CO-LD



Optical Mag.	2.0x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	110.0
O/I (mm)	214.7
Working F/#	24.9
NA	0.040
DOF*1(mm)	0.5
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	53g
Sensor Size (max.)/Mount	1/2"/C-mount

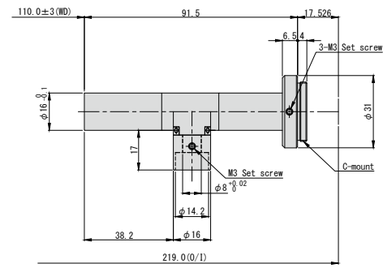
VS-TC3-110CO



Optical Mag.	3.0x
FOV 2/3" (VxH mm)	2.2x2.9
FOV 1/2" (VxH mm)	1.6x2.1
FOV 1/3" (VxH mm)	1.2x1.6
WD (mm)	107.3
O/I (mm)	227.7
Working F/#	37.5
NA	0.040
DOF*1(mm)	0.3
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	52g
Sensor Size (max.)/Mount	2/3"/C-mount

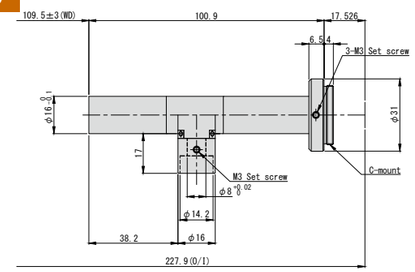
*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter isφ8mm. If you need other diameters, please contact us.

VS-TC4-110CO-LD



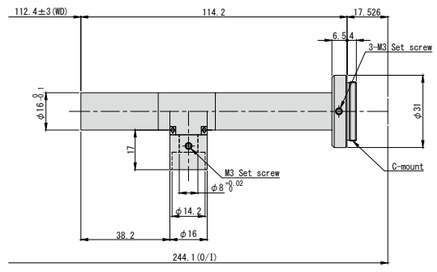
Optical Mag.	4.0x
FOV 2/3" (VxH mm)	1.65x2.2
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	110.0
O/I (mm)	219.0
Working F/#	41.7
NA	0.048
DOF*1(mm)	0.2
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	54g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC5-110CO



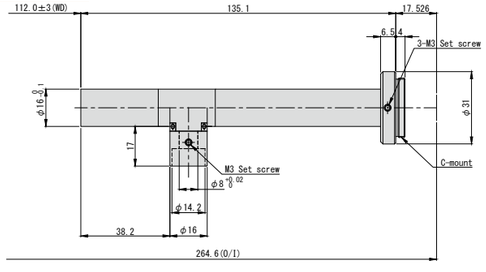
Optical Mag.	5.0x
FOV 2/3" (VxH mm)	1.3x1.8
FOV 1/2" (VxH mm)	1.0x1.3
FOV 1/3" (VxH mm)	0.7x1.0
WD (mm)	109.5
O/I (mm)	227.9
Working F/#	51.8
NA	0.048
DOF*1(mm)	0.2
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	66g
Sensor Size (max.)/Mount	2/3"/C-mount

VS-TC6-110CO-LD



Optical Mag.	6.0x
FOV 2/3" (VxH mm)	1.1x1.5
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	112.4
O/I (mm)	244.1
Working F/#	67.3
NA	0.045
DOF*1(mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	68g
Sensor Size (max.)/Mount	2/3"/C-mount

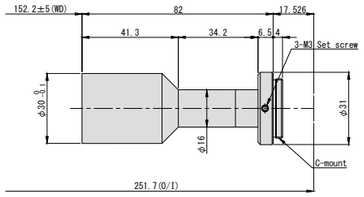
VS-TC8-110CO-LD



Optical Mag.	8.0x
FOV 2/3" (VxH mm)	0.8x1.1
FOV 1/2" (VxH mm)	0.6x0.8
FOV 1/3" (VxH mm)	0.5x0.6
WD (mm)	112.0
O/I (mm)	264.6
Working F/#	89.3
NA	0.045
DOF*1(mm)	0.1
TV Distortion (max.)	0.00%
Co-axial Prism	Built-in
Weight (approx.)	68g
Sensor Size (max.)/Mount	2/3"/C-mount

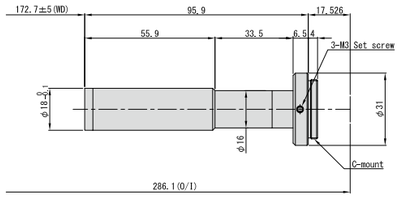
*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter isφ8mm. If you need other diameters, please contact us.

VS-TC05-150



Optical Mag.	0.5x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	152.2
O/I (mm)	251.7
Working F/#	12.5
NA	0.020
DOF*1(mm)	4.0
TV Distortion (max.)	0.10%
Co-axial Prism	–
Weight (approx.)	86g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC06-170

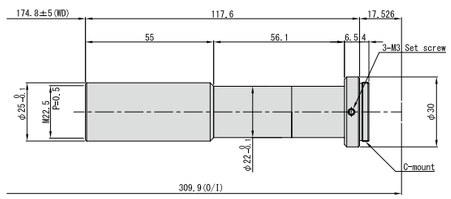


Optical Mag.	0.6x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	–
FOV 1/3" (VxH mm)	6.0x8.0
WD (mm)	172.7
O/I (mm)	286.1
Working F/#	30.0
NA	0.010
DOF*1(mm)	6.7
TV Distortion (max.)	0.10%
Co-axial Prism	–
Weight (approx.)	53g
Sensor Size (max.)/Mount	1/3"/C-mount

VS-TC06-170-F15

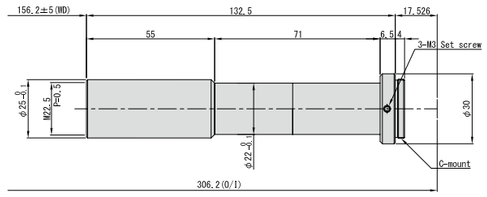
Optical Mag.	0.6x
FOV 1/3" (VxH mm)	6.0x8.0
WD (mm)	172.7
O/I (mm)	286.1
Working F/#	15
NA	0.02
DOF*1(mm)	3.3
TV Distortion (max.)	0.1%
Co-axial Prism	-
Weight (approx.)	53g
Sensor Size (max.)/Mount	1/3"/C-mount

VS-TC08-170



Optical Mag.	0.8x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	174.8
O/I (mm)	309.9
Working F/#	13.91
NA	0.029
DOF*1(mm)	1.8
TV Distortion (max.)	0.02%
Co-axial Prism	–
Weight (approx.)	68g
Sensor Size (max.)/Mount	1/2"/C-mount

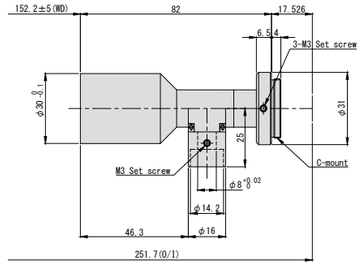
VS-TC1-150



Optical Mag.	1.0x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	156.2
O/I (mm)	306.2
Working F/#	12.98
NA	0.038
DOF*1(mm)	1.0
TV Distortion (max.)	0.01%
Co-axial Prism	–
Weight (approx.)	73g
Sensor Size (max.)/Mount	1/2"/C-mount

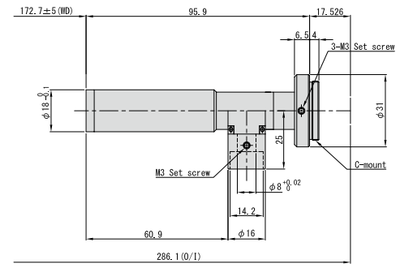
*1 Permissible COC at ϕ0.04mm

VS-TC05-150CO



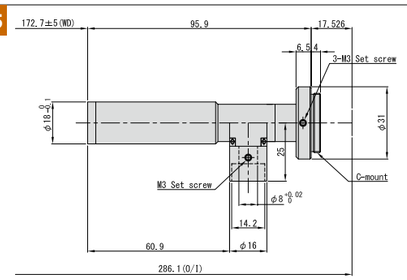
Optical Mag.	0.5x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	152.2
O/I (mm)	251.7
Working F/#	12.5
NA	0.020
DOF*1(mm)	4.0
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	91g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC06-170CO



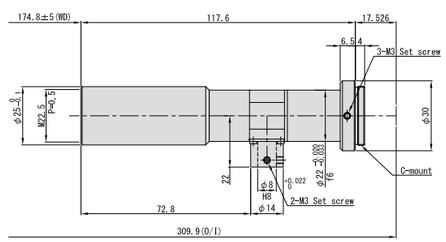
Optical Mag.	0.6x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	–
FOV 1/3" (VxH mm)	6.0x8.0
WD (mm)	172.7
O/I (mm)	286.1
Working F/#	30.0
NA	0.01
DOF*1(mm)	6.7
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	61g
Sensor Size (max.)/Mount	1/3"/C-mount

VS-TC06-170CO-F15



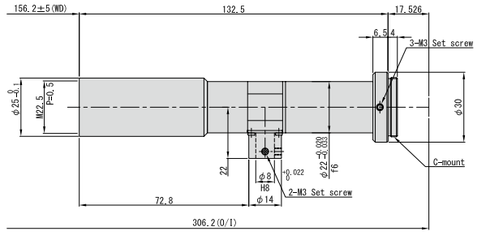
Optical Mag.	0.6x
FOV 1/3" (VxH mm)	6.0x8.0
WD (mm)	172.7
O/I (mm)	286.1
Working F/#	15
NA	0.02
DOF*1(mm)	3.3
TV Distortion (max.)	0.1%
Co-axial Prism	Built-in
Weight (approx.)	61g
Sensor Size (max.)/Mount	1/3"/C-mount

VS-TC08-170CO



Optical Mag.	0.8x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	174.8
O/I (mm)	309.9
Working F/#	13.91
NA	0.029
DOF*1(mm)	1.8
TV Distortion (max.)	0.02%
Co-axial Prism	Built-in
Weight (approx.)	77g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1-150CO

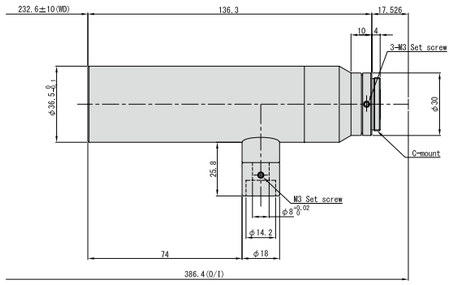


Optical Mag.	1.0x
FOV 2/3" (VxH mm)	–
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	156.2
O/I (mm)	306.2
Working F/#	12.98
NA	0.038
DOF*1(mm)	1.0
TV Distortion (max.)	0.01%
Co-axial Prism	Built-in
Weight (approx.)	82g
Sensor Size (max.)/Mount	1/2"/C-mount

*1 Permissible COC at ϕ0.04mm
* Co-axial lighting diameter isϕ8mm. If you need other diameters, please contact us.

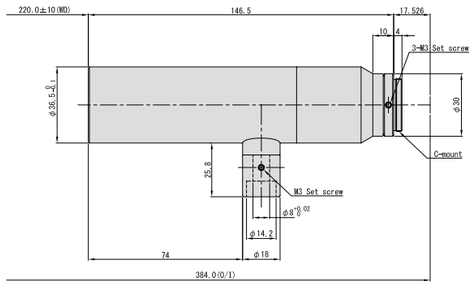
Super Long WD

VS-TC08-220CO



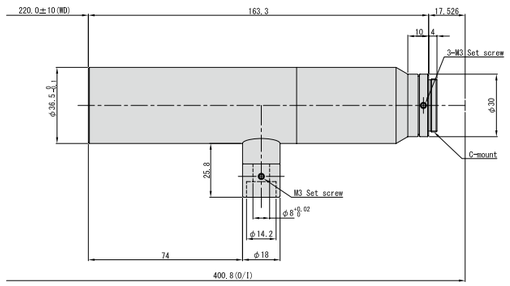
Optical Mag.	0.8x
FOV 1/2" (VxH mm)	6.0x8.0
FOV 1/3" (VxH mm)	4.5x6.0
WD (mm)	232.6
O/I (mm)	386.4
Working F/#	8.0
NA	0.050
DOF*1(mm)	1.0
TV Distortion (max.)	-0.15%
Co-axial Prism	Built-in
Weight (approx.)	251g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1-220CO



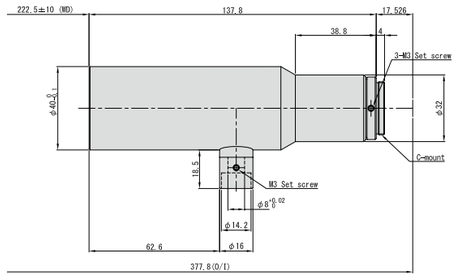
Optical Mag.	1.0x
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	220.0
O/I (mm)	384.0
Working F/#	10.0
NA	0.050
DOF*1(mm)	0.8
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	270g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC2-220CO



Optical Mag.	2.0x
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	220.0
O/I (mm)	400.8
Working F/#	20.0
NA	0.050
DOF*1(mm)	0.4
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	272g
Sensor Size (max.)/Mount	1/2"/C-mount

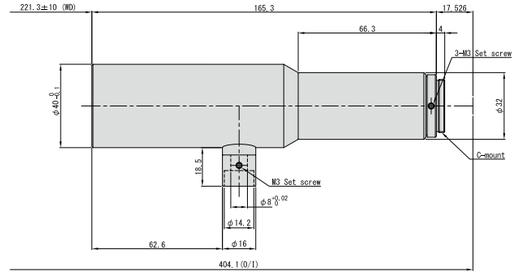
VS-TC4-220CO



Optical Mag.	4.0x
FOV 1/2" (VxH mm)	1.2x1.6
FOV 1/3" (VxH mm)	0.9x1.2
WD (mm)	222.5
O/I (mm)	377.8
Working F/#	29.4
NA	0.068
DOF*1(mm)	0.15
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	340g
Sensor Size (max.)/Mount	1/2"/C-mount

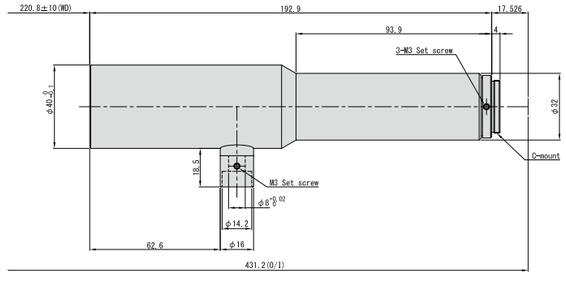
*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter is φ8mm. If you need other diameters, please contact us.

VS-TC6-220CO



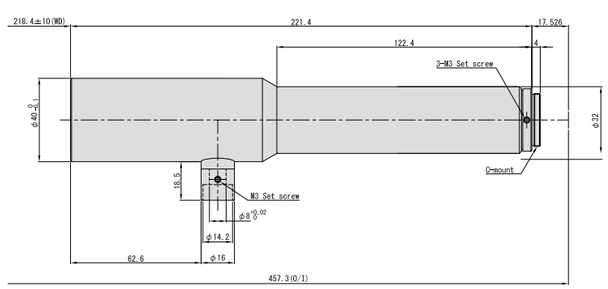
Optical Mag.	6.0x
FOV 1/2" (VxH mm)	0.8x1.1
FOV 1/3" (VxH mm)	0.6x0.8
WD (mm)	221.3
O/I (mm)	404.1
Working F/#	44.1
NA	0.068
DOF*1(mm)	0.1
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	390g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC8-220CO



Optical Mag.	8.0x
FOV 1/2" (VxH mm)	0.6x0.8
FOV 1/3" (VxH mm)	0.45x0.6
WD (mm)	220.8
O/I (mm)	431.2
Working F/#	58.8
NA	0.068
DOF*1(mm)	0.07
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	390g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC10-220CO

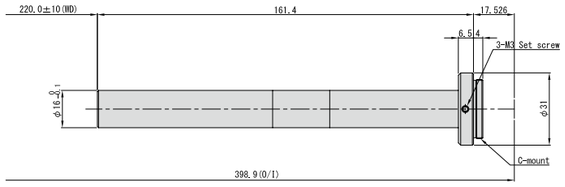


Optical Mag.	10.0x
FOV 1/2" (VxH mm)	0.48x0.64
FOV 1/3" (VxH mm)	0.36x0.48
WD (mm)	218.4
O/I (mm)	457.3
Working F/#	73.5
NA	0.068
DOF*1(mm)	0.1
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	420g
Sensor Size (max.)/Mount	1/2"/C-mount

*1 Permissible COC at φ0.04mm
* Co-axial lighting diameter is φ8mm. If you need other diameters, please contact us.

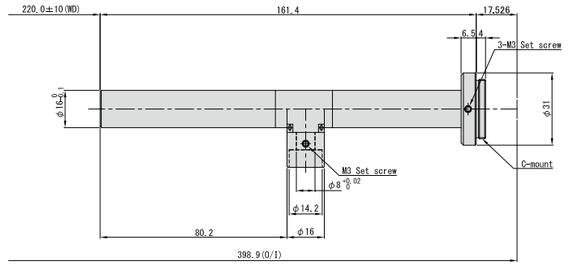
Super Long WD 220mm ϕ16

VS-TC2-220-16



Optical Mag.	2.0x
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	220.0
O/I (mm)	398.9
Working F/#	43.5
NA	0.023
DOF*1(mm)	0.9
TV Distortion (max.)	0.10%
Co-axial Prism	–
Weight (approx.)	70g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC2-220CO-16

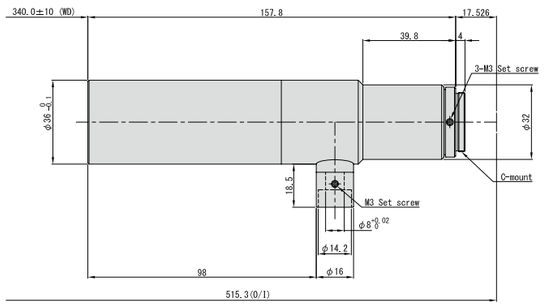


Optical Mag.	2.0x
FOV 1/2" (VxH mm)	2.4x3.2
FOV 1/3" (VxH mm)	1.8x2.4
WD (mm)	220.0
O/I (mm)	398.9
Working F/#	43.5
NA	0.023
DOF*1(mm)	0.9
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	78g
Sensor Size (max.)/Mount	1/2"/C-mount

*1 Permissible COC at ϕ0.04mm
* Co-axial lighting diameter is ϕ8mm.
If you need other diameters,please contact us.

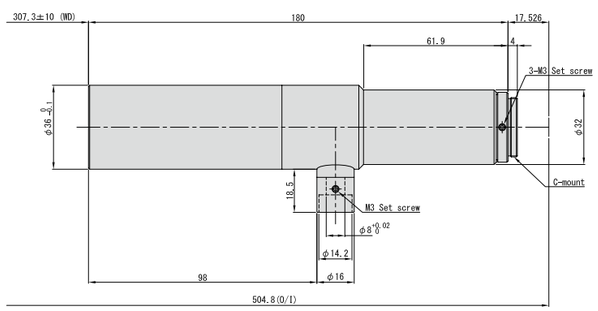
Ultra Super Long WD 300～340mm

VS-TC07-340CO



Optical Mag.	0.7x
FOV 1/2" (VxH mm)	6.9x9.1
FOV 1/3" (VxH mm)	5.1x6.9
WD (mm)	340.0
O/I (mm)	515.3
Working F/#	10.9
NA	0.032
DOF*1(mm)	1.8
TV Distortion (max.)	0.1%
Co-axial Prism	Built-in
Weight (approx.)	240g
Sensor Size (max.)/Mount	1/2"/C-mount

VS-TC1-300CO



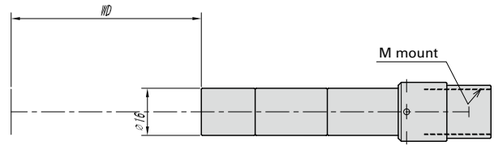
Optical Mag.	1.0x
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	307.3
O/I (mm)	504.8
Working F/#	15.6
NA	0.032
DOF*1(mm)	1.2
TV Distortion (max.)	0.10%
Co-axial Prism	Built-in
Weight (approx.)	265g
Sensor Size (max.)/Mount	1/2"/C-mount

*1 Permissible COC at ϕ0.04mm
* Co-axial lighting diameter is ϕ8mm.
If you need other diameters,please contact us.

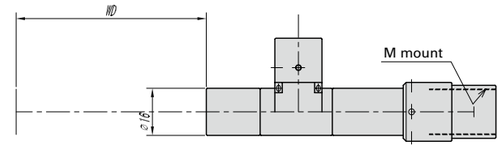
Custom model

For remote head CCD model (M15.5. P0.5 mount)

ϕ16mm Non Co-axial model



ϕ16mm Co-axial built in model

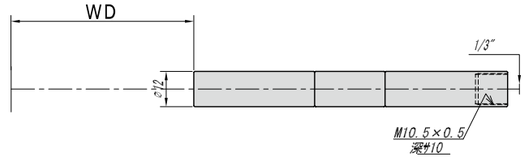


Mag.	0.8x	1.0x	1.5x	2.0x	3.0x	4.0x	5.0x	6.0x	8.0x	10.0x
WD40 Series			○	○	○	○		○	○	
WD65 Series		○	○	○	○	○	○	○	○	○
WD110 Series	○	○	○	○	○	○	○	○	○	

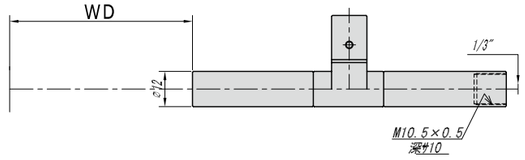
Customized small diameter lenses are also available.

For example, remote head camera lens for M10.5 P0.5 or C-mount lens with compact prism and LED co-axial lighting. Please ask us for your special requirement.

For remote head camera M10.5 P0.5

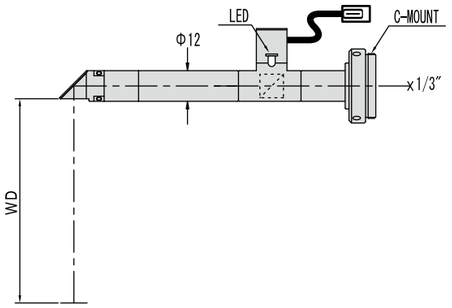


Co-axial model for M10.5 P0.5

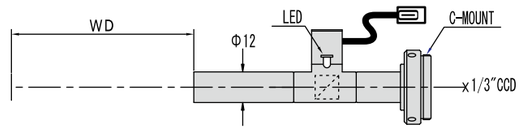


Custom-example

ϕ12mm lens Right angle C-mount model



ϕ12mm lens C-mount model

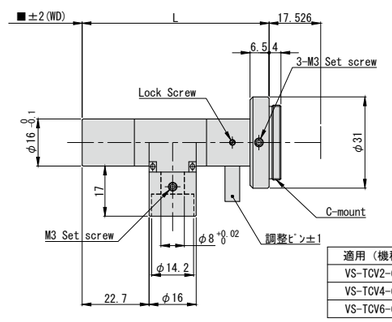


*LED : 0.3A/12V

Vari-Focal Telecentric Lens (Adjustable WD & Mag.)

VS-TCV series with focus adjustable lever allows you to adjust WD after you fixed the lens position. You don't need a complicated moving stage for focusing.

VS-TCV□-65CO



適用（機種名）	L
VS-TCV2-65CO	63.5
VS-TCV4-65CO	67.8
VS-TCV6-65CO	80.6

Model	VS-TCV2-65CO	VS-TCV4-65CO	VS-TCV6-65CO
Optical Mag. *1	1.9x～2.1x	3.8x～4.2x	5.7x～6.3x
FOV 2/3" (VxH mm) *2	3.3x4.4	1.65x2.2	1.1x1.46
FOV 1/2" (VxH mm) *2	2.4x3.2	1.2x1.6	0.8x1.06
FOV 1/3" (VxH mm) *2	1.8x2.4	0.9x1.2	0.6x0.8
WD (mm)	66.7 ±2	64.5 ±2	64.5 ±2
O/I (mm)	147.7	150	162.5
Working F/#	15.2	27.8	39.5
NA	0.066	0.072	0.076
DOF*1(mm) *3	0.3mm	0.14mm	0.09mm
TV Distortion (max.)	0.1%		
Co-axial Prism	Built-in		
Sensor Size (max.)/Mount	2/3"/C-mount		

*1 Magnification changes when WD adjusted. There will be some tolerance in magnification.
*2 FOV shows when magnification is at center value.
*3 Permissible COC ϕ0.04mm

VS-TEC Series

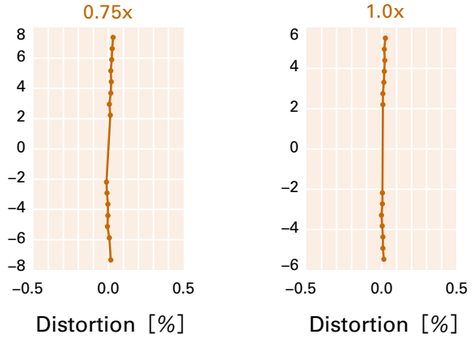
For 5 Megapixel sensor (2/3")
Improved distortion and brightness
Changeable Magnification and Iris (Fixed models available)
For wide range of applications / inspection of electronic parts, semiconductor manufacturing equipment etc.

Combination with optional unit

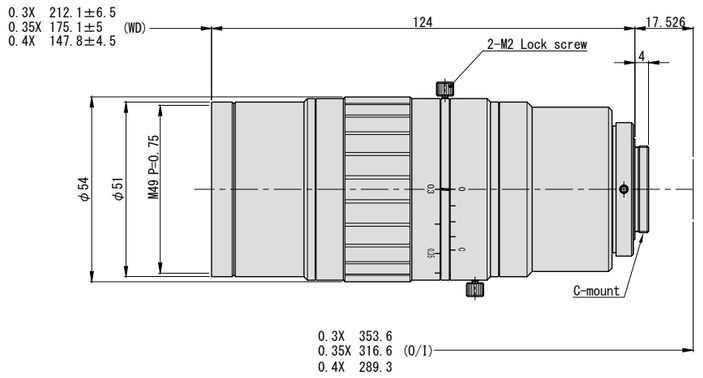
Mirror unit (picture①/②)
VS-PZ-C305NF : Allows you to set up for limited space.

Co-axial unit (picture③)
VS-HM305 : Easy to set up co-axial lighting in front of the lens.
* for Mag. above0.5x model.

Distortion (measured value)

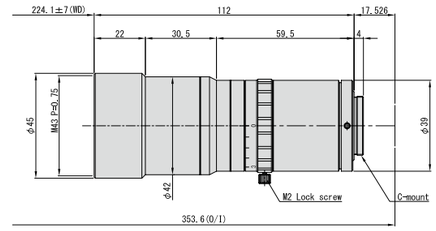


VS-TEC0304



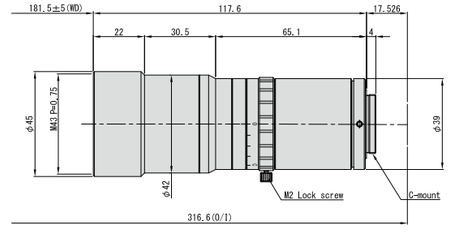
Opt. Mag. Range	0.3x ~ 0.4x		
Optical Mag.	0.3x	0.35x	0.4x
FOV 2/3" (VxH mm)	22.0×29.3	18.9×25.1	16.5×22.0
FOV 1/2" (VxH mm)	16.0×21.3	13.7×18.3	12.0×16.0
FOV 1/3" (VxH mm)	12.0×16.0	10.3×13.7	9.0×12.0
WD(mm)	212.1	175.1	147.8
O/I (mm)	353.6	316.6	289.3
Working F/#	4.32	4.66	5.00
NA	0.035	0.038	0.040
DOF*1(mm)	3.8	3.0	2.5
TV Distortion (max.)	0.02%	-0.01%	-0.03%
Weight (approx.)	360g		
Sensor Size (max.)/Mount	2/3"/ C-mount		

VS-TEC03/S



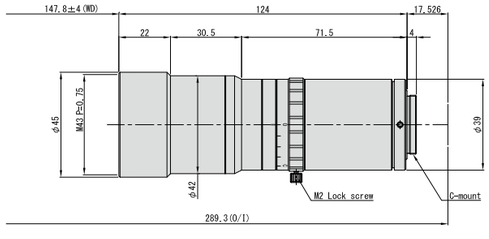
Optical Mag.	0.3x
FOV 2/3" (VxH mm)	22.0x29.3
FOV 1/2" (VxH mm)	16.0x21.3
FOV 1/3" (VxH mm)	12.0x16.0
WD(mm)	224.1
O/I (mm)	353.6
Working F/#	4.32
NA	0.035
DOF*1(mm)	3.8
TV Distortion (max.)	0.02%
Weight (approx.)	270g
Sensor Size (max.)/Mount	2/3"/ C-mount

VS-TEC035/S



Optical Mag.	0.35x
FOV 2/3" (VxH mm)	18.9x25.1
FOV 1/2" (VxH mm)	13.7x18.3
FOV 1/3" (VxH mm)	10.3x13.7
WD(mm)	181.5
O/I (mm)	316.6
Working F/#	4.66
NA	0.038
DOF*1(mm)	3.0
TV Distortion (max.)	-0.01%
Weight (approx.)	–
Sensor Size (max.)/Mount	2/3"/ C-mount

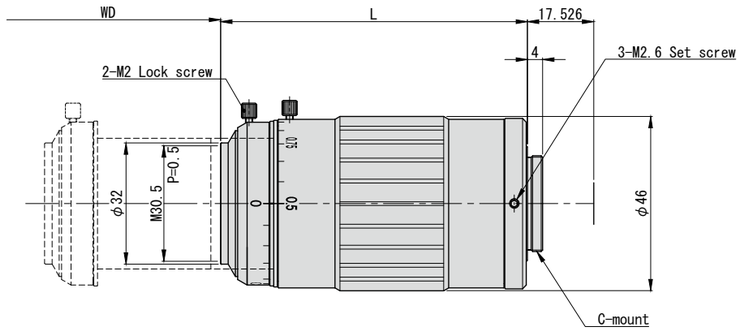
VS-TEC04/S



Optical Mag.	0.4x
FOV 2/3" (VxH mm)	16.5x22.0
FOV 1/2" (VxH mm)	12.0x16.0
FOV 1/3" (VxH mm)	9.0x12.0
WD(mm)	147.8
O/I (mm)	289.3
Working F/#	5.00
NA	0.040
DOF*1(mm)	2.5
TV Distortion (max.)	-0.03%
Weight (approx.)	–
Sensor Size (max.)/Mount	2/3"/ C-mount

*1 Permissible COC at φ0.04mm

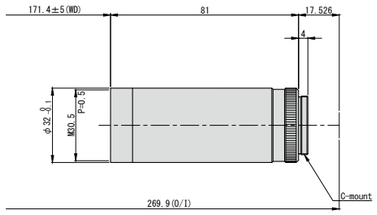
VS-TEC0513



倍 率	WD	L
X0.5	171.7	81
X0.6	151.3	86.8
X0.7	136.7	92.9
X0.8	125.6	99.2
X0.9	117.1	105.3
X1.0	110.3	111.4
X1.1	104.6	117.6
X1.2	100	123.8
X1.3	95.9	130.1

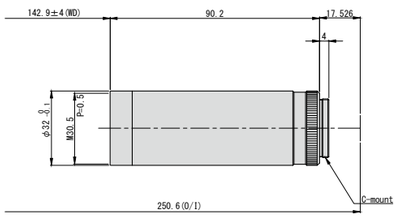
Opt. Mag. Range	0.5x ~ 1.3x		
Optical Mag.	0.5x	0.75x	1.3x
FOV 2/3" (VxH mm)	13.2×17.6	8.8×11.7	5.1×6.8
FOV 1/2" (VxH mm)	9.6×12.8	6.4×8.5	3.7×4.9
FOV 1/3" (VxH mm)	7.2×9.6	4.8×6.4	2.8×3.7
WD (mm)	171.7	130.7	95.9
O/I (mm)	270.2	244.3	243.5
Working F/#	5.27	6.8	10.18
NA	0.047	0.055	0.064
DOF*1(mm)	1.7	1.0	0.5
TV Distortion (max.)	0.03%	0.02%	0.01%
Weight (approx.)	260g		
Sensor Size (max.)/Mount	2/3"/ C-mount		

VS-TEC05



Optical Mag.	0.5x
FOV 2/3" (VxH mm)	13.2x17.6
FOV 1/2" (VxH mm)	9.6x12.8
FOV 1/3" (VxH mm)	7.2x9.6
WD (mm)	171.4
O/I (mm)	269.9
Working F/#	5.27
NA	0.047
DOF*1(mm)	1.7
TV Distortion (max.)	0.03%
Weight (approx.)	85g
Sensor Size (max.)/Mount	2/3"/ C-mount

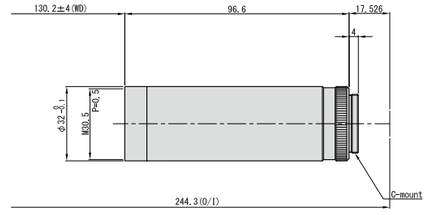
VS-TEC065



Optical Mag.	0.65x
FOV 2/3" (VxH mm)	10.2x13.5
FOV 1/2" (VxH mm)	7.4x9.8
FOV 1/3" (VxH mm)	5.5x7.4
WD (mm)	142.9
O/I (mm)	250.6
Working F/#	6.18
NA	0.053
DOF*1(mm)	1.2
TV Distortion (max.)	0.02%
Weight (approx.)	90g
Sensor Size (max.)/Mount	2/3"/ C-mount

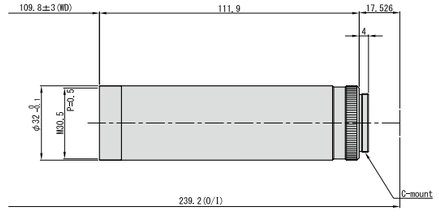
*1 Permissible COC at φ0.04mm

VS-TEC075



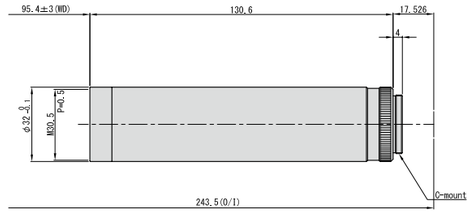
Optical Mag.	0.75x
FOV 2/3" (VxH mm)	8.8x11.7
FOV 1/2" (VxH mm)	6.4x8.5
FOV 1/3" (VxH mm)	4.8x6.4
WD (mm)	130.2
O/I (mm)	244.3
Working F/#	6.8
NA	0.055
DOF*1(mm)	1.0
TV Distortion (max.)	0.02%
Weight (approx.)	95g
Sensor Size (max.)/Mount	2/3"/ C-mount

VS-TEC10



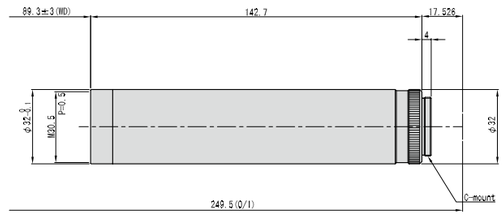
Optical Mag.	1.0x
FOV 2/3" (VxH mm)	6.6x8.8
FOV 1/2" (VxH mm)	4.8x6.4
FOV 1/3" (VxH mm)	3.6x4.8
WD (mm)	109.8
O/I (mm)	239.2
Working F/#	8.31
NA	0.060
DOF*1(mm)	0.7
TV Distortion (max.)	0.01%
Weight (approx.)	105g
Sensor Size (max.)/Mount	2/3"/ C-mount

VS-TEC13



Optical Mag.	1.3x
FOV 2/3" (VxH mm)	5.1x6.8
FOV 1/2" (VxH mm)	3.7x4.9
FOV 1/3" (VxH mm)	2.8x3.7
WD (mm)	95.4
O/I (mm)	243.5
Working F/#	10.18
NA	0.064
DOF*1(mm)	0.5
TV Distortion (max.)	0.01%
Weight (approx.)	110g
Sensor Size (max.)/Mount	2/3"/ C-mount

VS-TEC15



Optical Mag.	1.5x
FOV 2/3" (VxH mm)	4.4x5.9
FOV 1/2" (VxH mm)	3.2x4.3
FOV 1/3" (VxH mm)	2.4x3.2
WD (mm)	89.3
O/I (mm)	249.5
Working F/#	11.44
NA	0.066
DOF*1(mm)	0.4
TV Distortion (max.)	0.02%
Weight (approx.)	115g
Sensor Size (max.)/Mount	2/3"/ C-mount

*1 Permissible COC at φ0.04mm

Line Sensor Telecentric Lens

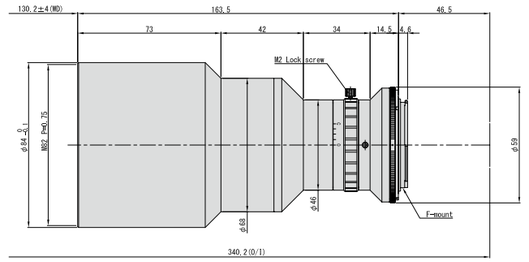
VS-LTC Series

For sensors 21mm ~ 35mm long
Specially designed for large format line scan sensors
Adjustable DOF and contrast with iris control: 0.3x – 2.0x
Reduce shading
High Resolution, Contrast and Telecentricity

Product overview

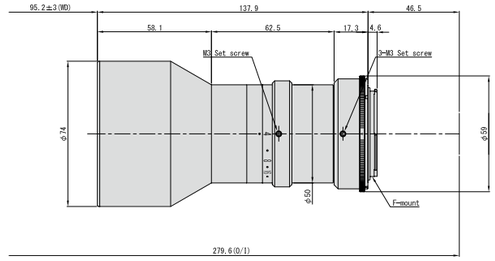
bit	2048	2048	4096	7450	4096	6144
Pixel Size (μm)	10	14	7	4.7	10	7
Image Circle φ(mm)	21	29	29	35	41	43
VS-LTC03-130/FS	●					
VS-LTC04-100-21/FS	●					
VS-LTC05-130/FS	●					
VS-LTC07-150/FS	●					
VS-LTC1-130/FS	●					
VS-LTC075-70(CO)-35/FS	●	●	●	●		
VS-LTC1-70(CO)-35/FS	●	●	●	●		
VS-LTC2-70(CO)/FSN	●	●	●	●		
VS-LTC4-50CO-28/F	●	●	●			
VS-LTC5-50CO-28/F	●	●	●			
VS-LTC6-50CO-28/F	●	●	●			
VS-LTC7-50CO-28/F	●	●	●			

VS-LTC03-130/FS Double-sided Telecentric Lens



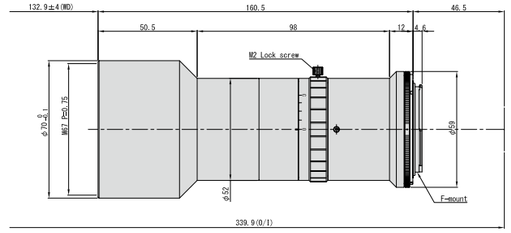
Optical Mag.	0.3x
FOV*1 (mm)	73.3
WD (mm)	130.2
O/I (mm)	340.2
Working F/#	5.77
NA	0.026
DOF*2 (mm)	5.1
TV Distortion (max.)	0.01%
Weight (approx.)	960g
Mount	F-mount
Image Circle (mm)	φ22

VS-LTC04-100-21/FS Double-sided Telecentric Lens



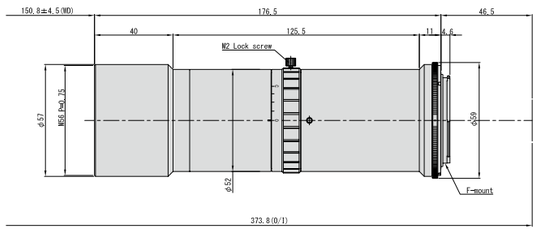
Optical Mag.	0.4x
FOV*1 (mm)	51.2mm
WD (mm)	95.2
O/I (mm)	279.6
Working F/#	4~32 (Adjustable)
NA	0.050
DOF*2 (mm)	2.0
TV Distortion (max.)	0.02%
Weight (approx.)	646g
Mount	F-mount
Image Circle (mm)	φ20.48

VS-LTC05-130/FS Double-sided Telecentric Lens



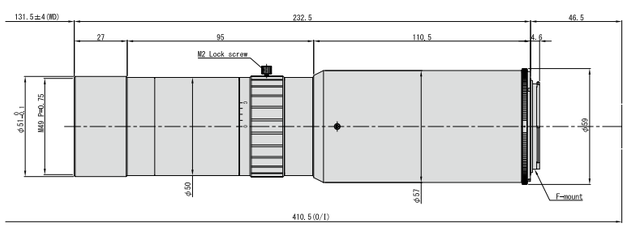
Optical Mag.	0.5x
FOV*1 (mm)	44.0
WD (mm)	132.9
O/I (mm)	339.9
Working F/#	4.57
NA	0.055
DOF*2 (mm)	1.5
TV Distortion (max.)	-0.04%
Weight (approx.)	730g
Mount	F-mount
Image Circle (mm)	φ22

VS-LTC07-150/FS Double-sided Telecentric Lens



Optical Mag.	0.7x
FOV*1 (mm)	30.0
WD (mm)	150.8
O/I (mm)	373.8
Working F/#	5.29
NA	0.066
DOF*2 (mm)	0.9
TV Distortion (max.)	0.01%
Weight (approx.)	585g
Mount	F-mount
Image Circle (mm)	φ21

VS-LTC1-130/FS Double-sided Telecentric Lens

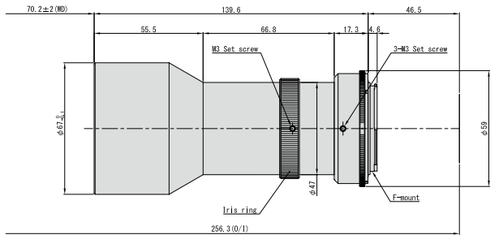


Optical Mag.	1.0x
FOV*1 (mm)	22.0
WD (mm)	131.5
O/I (mm)	410.5
Working F/#	6.25
NA	0.080
DOF*2 (mm)	0.5
TV Distortion (max.)	0.00%
Weight (approx.)	620g
Mount	F-mount
Image Circle (mm)	φ22

*1 The FOV is calculated from the maximum Image circle.
*2 Permissible COC at φ0.04mm

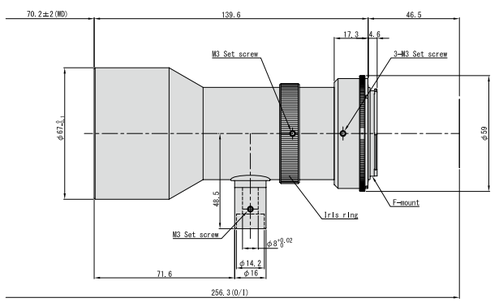
Line Sensor Camera

VS-LTC075-70-35/FS



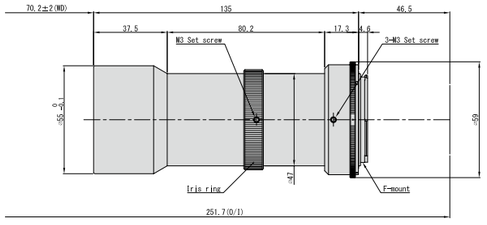
Optical Mag.	0.75x
FOV*1 (mm)	46.7
WD (mm)	70.2
O/I (mm)	256.3
Working F/#	5.40
NA	0.070
DOF*2 (mm)	0.77
TV Distortion (max.)	0.1%
Co-axial Prism	–
Weight (approx.)	754 g
Mount	F -mount
Image Circle (mm)	ϕ35mm

VS-LTC075-70CO-35/FS



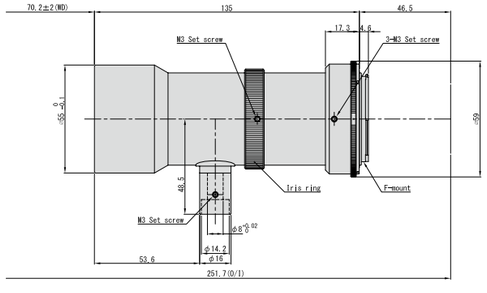
Optical Mag.	0.75x
FOV*1 (mm)	46.7
WD (mm)	70.2
O/I (mm)	256.3
Working F/#	5.40
NA	0.070
DOF*2 (mm)	0.77
TV Distortion (max.)	0.1%
Co-axial Prism	Built-in
Weight (approx.)	762 g
Mount	F -mount
Image Circle (mm)	ϕ35mm

VS-LTC1-70-35/FS



Optical Mag.	1.0x
FOV*1 (mm)	35
WD (mm)	70.2
O/I (mm)	251.7
Working F/#	6.25
NA	0.080
DOF*2 (mm)	0.5
TV Distortion (max.)	0.1%
Co-axial Prism	–
Weight (approx.)	560 g
Mount	F -mount
Image Circle (mm)	ϕ35mm

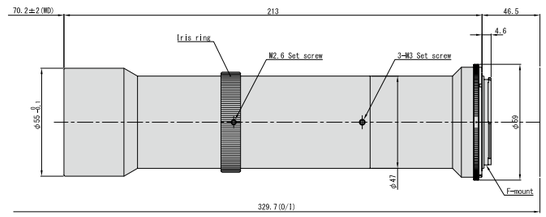
VS-LTC1-70CO-35/FS



Optical Mag.	1.0x
FOV*1 (mm)	35
WD (mm)	70.2
O/I (mm)	251.7
Working F/#	6.25
NA	0.080
DOF*2 (mm)	0.5
TV Distortion (max.)	0.1%
Co-axial Prism	Built-in
Weight (approx.)	568 g
Mount	F -mount
Image Circle (mm)	ϕ35mm

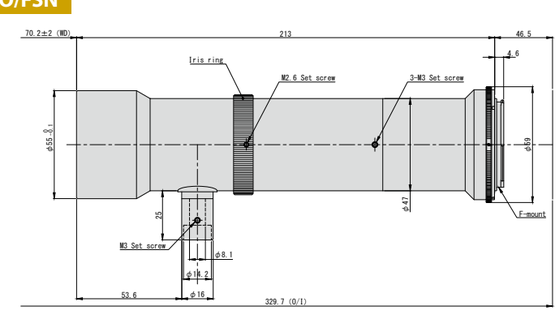
*1 The FOV is calculated from the maximum Image circle.
*2 Permissible COC at ϕ0.04mm

VS-LTC2-70/FSN



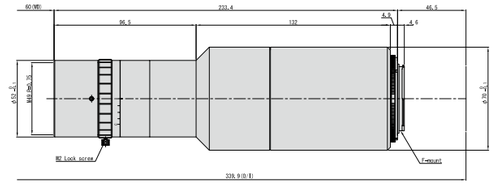
Optical Mag.	2.0x
FOV*1 (mm)	17.5
WD (mm)	70.2
O/I (mm)	329.7
Working F/#	12.50
NA	0.080
DOF*2 (mm)	0.25
TV Distortion (max.)	0.05%
Co-axial Prism	–
Weight (approx.)	–
Mount	F -mount
Image Circle (mm)	ϕ35mm

VS-LTC2-70CO/FSN



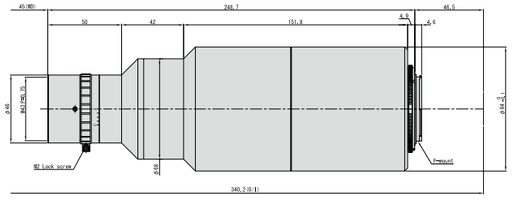
Optical Mag.	2.0x
FOV*1 (mm)	17.5
WD (mm)	70.2
O/I (mm)	329.7
Working F/#	12.50
NA	0.080
DOF*2 (mm)	0.25
TV Distortion (max.)	0.05%
Co-axial Prism	Built-in
Weight (approx.)	–
Mount	F -mount
Image Circle (mm)	ϕ35mm

VS-LTC2-60/FS Double-sided Telecentric Lens



Optical Mag.	2.0x
FOV*1 (mm)	22
WD (mm)	60.0
O/I (mm)	339.9
Working F/#	9.1
NA	0.110
DOF*2 (mm)	0.2
TV Distortion (max.)	0.02%
Image Circle (mm)	ϕ44
Mount	F -mount

VS-LTC3.3-45/FS Double-sided Telecentric Lens



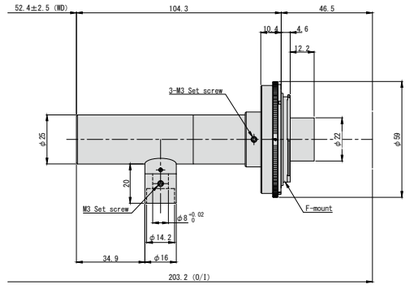
Optical Mag.	3.3x
FOV*1 (mm)	13.3
WD (mm)	45.0
O/I (mm)	340.2
Working F/#	19.2
NA	0.086
DOF*2 (mm)	0.14
TV Distortion (max.)	-0.04%
Image Circle (mm)	ϕ44
Mount	F -mount

*1 The FOV is calculated from the maximum Image circle.
*2 Permissible COC at ϕ0.04mm

Line Sensor Telecentric Lens VS-LTC Series

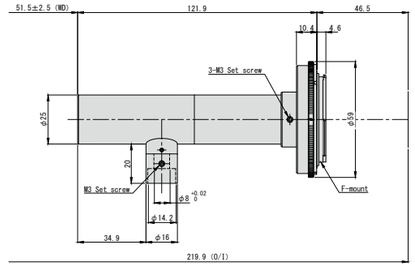
Line Sensor Camera

VS-LTC4-50CO-28/F



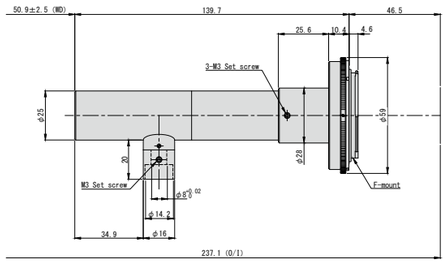
Optical Mag.	4.0x
FOV*1 (mm)	7.1
WD (mm)	52.4
O/I (mm)	203.2
Working F/#	20.0
NA	0.100
DOF*2 (mm)	0.10
TV Distortion (max.)	0.1%
Image Circle (mm)	ϕ28.6
Co-axial Prism	Built-in
Mount	F-mount

VS-LTC5-50CO-28/F



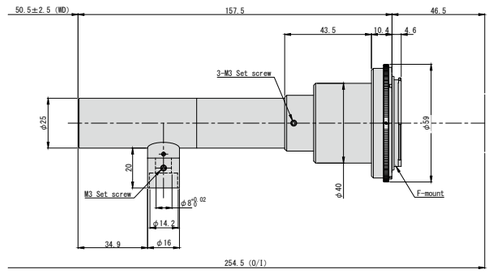
Optical Mag.	5.0x
FOV*1 (mm)	5.7
WD (mm)	51.5
O/I (mm)	219.9
Working F/#	25.0
NA	0.100
DOF*2 (mm)	0.08
TV Distortion (max.)	0.1%
Image Circle (mm)	ϕ28.6
Co-axial Prism	Built-in
Mount	F-mount

VS-LTC6-50CO-28F



Optical Mag.	6.0x
FOV*1 (mm)	4.7
WD (mm)	50.9
O/I (mm)	237.1
Working F/#	30.0
NA	0.100
DOF*2 (mm)	0.066
TV Distortion (max.)	0.1%
Image Circle (mm)	ϕ28.6
Co-axial Prism	Built-in
Mount	F-mount

VS-LTC7-50CO-28/F



Optical Mag.	7.0x
FOV*1 (mm)	4.1
WD (mm)	50.5
O/I (mm)	254.5
Working F/#	35.0
NA	0.100
DOF*2 (mm)	0.056
TV Distortion (max.)	0.1%
Image Circle (mm)	ϕ28.6
Co-axial Prism	Built-in
Mount	F-mount

*1 The FOV is calculated from the maximum Image circle.
*2 Permissible COC at ϕ0.04mm

VS-L (F) Series

With respect to low magnification lenses, the use of a helicoid design ensures easy adjustment for a wide range of lenses from 18mm super wide angle lenses to 185mm super telescopic lenses.

With respect to high magnification lenses, the adoption of ring locks strengthens the lenses' anti-vibration properties.

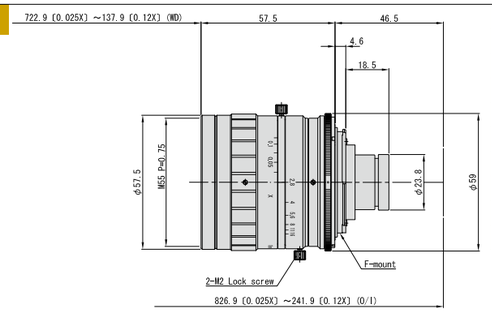
All models are designed with low light and low distortion properties giving very bright and high resolution images as a result.

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	P65	722.9mm (0.025x)	⟷	137.9mm (0.12x)							
VS-L2526/F	P65	1010.8mm (0.025x)	⟷	198.1mm (0.12x)							
VS-L3528/F	P65		706.9mm (0.05x)	⟷	⟷	⟷	⟷	112.8mm (0.3x)			
VS-L3528LM/F	P65	1795.2mm (0.02x)	⟷	289.0mm (0.12x)							
VS-L3528FL/F	P65		884.5mm (0.04x)	⟷	225.9mm (0.15x)						
VS-L5018FL/F	P66	1123.7mm (0.05x)	⟷	⟷	388.6mm (0.14x)						
VS-L5028/F	P66		1025.0mm (0.05x)	⟷	⟷	⟷	⟷	181.4mm (0.3x)			
VS-L5028FL/F	P66		1294.7mm (0.04x)	⟷	356.1mm (0.15x)						
VS-L8540/F	P66			864.2mm (0.1x)	⟷	⟷	⟷	⟷	285.0mm (0.35x)		
VS-L10028/F	P66		2050.7mm (0.05x)	⟷	⟷	⟷	⟷	409mm (0.3x)			
VS-L18556/F	P67			1951.7mm (0.108x)	⟷	1404.4mm (0.159x)					
VS-LZ2035/F	P67	∞ ⟷	130.0mm (0.2x)								
VS-LZ0510/F	P67									111.6mm (0.5x) ⟷	111.6mm (1.0x)

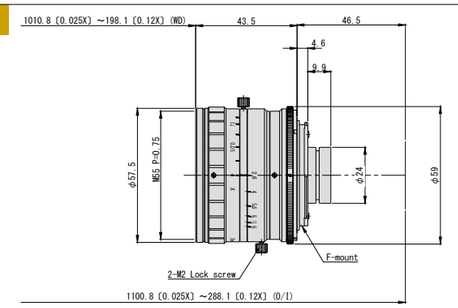
Low magnification model

VS-L1828/F



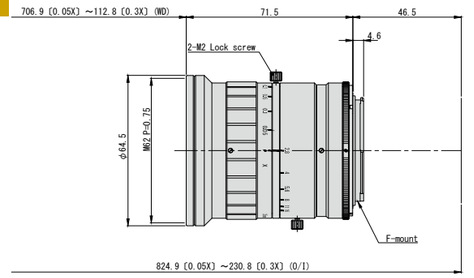
Opt. Mag. Range	(∞)0.025x~0.12x			
Optical Mag.	0.025x	0.05x	0.1x	0.12x
WD (mm)	722.9	352.8	168.4	137.9
O/I (mm)	826.9	456.8	272.4	241.9
Focal length (f)(mm)	18			
Working F/#*1	2.88	2.95	3.09	3.15
DOF*2 (mm)	368.6	94.4	24.7	17.5
Optical Distortion (max.)	-2.14%			
Image Circle (mm)	φ29			
Mount	F-mount			

VS-L2526/F



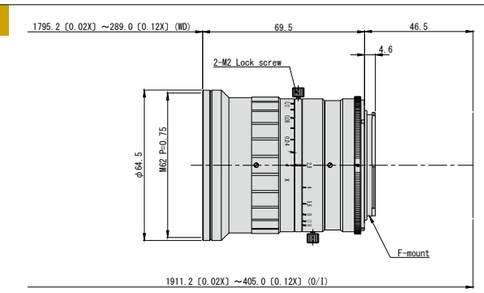
Opt. Mag. Range	(∞)0.025x~0.12x			
Optical Mag.	0.025x	0.05x	0.1x	0.12x
WD (mm)	1010.8	496.6	240.5	198.1
O/I (mm)	1100.8	586.6	330.5	288.1
Focal length (f)(mm)	25			
Working F/#*1	2.69	2.76	2.89	2.94
DOF*2 (mm)	344.3	88.3	23.1	16.3
Optical Distortion (max.)	-1.64%			
Image Circle (mm)	φ29			
Mount	F-mount			

VS-L3528/F



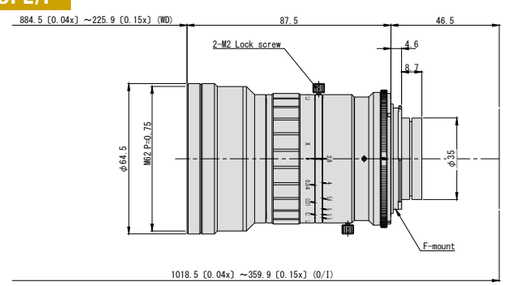
Opt. Mag. Range	(∞)0.05x~0.3x			
Optical Mag.	0.05x	0.1x	0.2x	0.3x
WD (mm)	706.9	346.8	169.5	112.8
O/I (mm)	824.9	464.8	287.5	230.8
Focal length (f)(mm)	35			
Working F/#*1	2.84	2.98	3.25	3.52
DOF*2 (mm)	90.9	23.8	6.5	3.1
Optical Distortion (max.)	-0.53%			
Image Circle (mm)	φ45			
Mount	F-mount			

VS-L3528LM/F



Opt. Mag. Range	(∞)0.02x~0.12x			
Optical Mag.	0.02x	0.04x	0.08x	0.12x
WD (mm)	1795.2	890.0	438.5	289.0
O/I (mm)	1911.2	1006.0	554.5	405.0
Focal length (f)(mm)	35			
Working F/#*1	2.87	2.92	3.04	3.15
DOF*2 (mm)	574.0	146.0	38.0	17.5
Optical Distortion (max.)	-0.56%			
Image Circle (mm)	φ45			
Mount	F-mount			

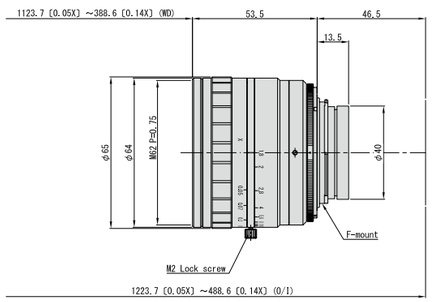
VS-L3528FL/F



Opt. Mag. Range	(∞)0.04x~0.15x			
Optical Mag.	0.04x	0.07x	0.10x	0.15x
WD (mm)	884.5	498.5	344.7	225.9
O/I (mm)	1018.5	632.8	479.0	359.9
Focal length (f)(mm)	35			
Working F/#*1	2.93	2.98	3.04	3.13
DOF*2 (mm)	146.5	48.6	24.3	11.1
Optical Distortion (max.)	-0.98%			
Image Circle (mm)	φ43			
Mount	F-mount			

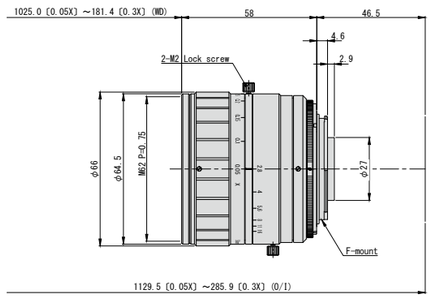
*1 Value at open Iris *2 Permissible COC at φ0.04mm

VS-L5018FL/F



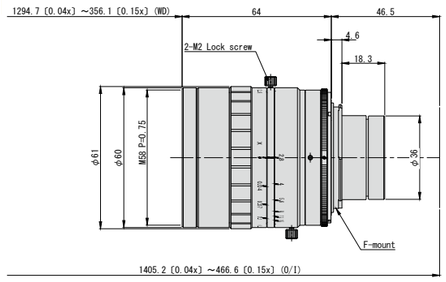
Opt. Mag. Range	(∞) 0.05x ~ 0.14x		
Optical Mag.	0.05x	0.10x	0.14x
WD (mm)	1123.7	533.6	388.6
O/I (mm)	51.6		
Focal length (f)(mm)	1223.7	633.6	488.6
Working F/#*1	1.95	2.07	2.16
DOF*2 (mm)	31.2	8.3	4.4
Optical Distortion (max.)	-0.52%		
Image Circle (mm)	φ45		
Mount	F-mount		

VS-L5028/F



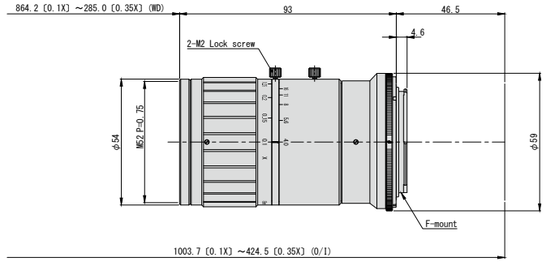
Opt. Mag. Range	0.05x~0.3x			
Optical Mag.	0.05x	0.1x	0.2x	0.3x
WD (mm)	1025.0	513.7	261.9	181.4
O/I (mm)	1129.5	618.2	366.4	285.9
Focal length (f)(mm)	50			
Working F/#*1	3.05	3.20	3.49	3.78
DOF*2 (mm)	97.6	25.5	7.0	3.4
Optical Distortion (max.)	-0.02%			
Image Circle (mm)	φ45			
Mount	F-mount			

VS-L5028FL/F



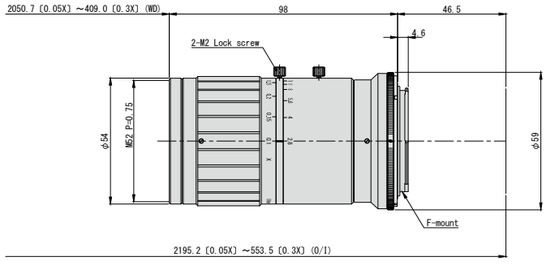
Opt. Mag. Range	(∞)0.04x~0.15x			
Optical Mag.	0.04x	0.07x	0.10x	0.15x
WD (mm)	1294.7	744.2	525.2	356.1
O/I (mm)	1405.2	854.7	635.7	466.6
Focal length (f)(mm)	50			
Working F/#*1	2.98	3.08	3.18	3.34
DOF*2 (mm)	149.0	50.3	25.4	11.9
Optical Distortion (max.)	0.02%			
Image Circle (mm)	φ43			
Mount	F-mount			

VS-L8540/F



Opt. Mag. Range	0.1x~0.35x			
Optical Mag.	0.1x	0.2x	0.3x	0.35x
WD (mm)	864.2	452.5	320.8	285.0
O/I (mm)	1003.7	592.0	460.3	424.5
Focal length (f)(mm)	85			
Working F/#*1	4.40	4.80	5.20	5.40
DOF*2 (mm)	35.2	9.6	4.6	3.5
Optical Distortion (max.)	0.00%			
Image Circle (mm)	φ50			
Mount	F-mount			

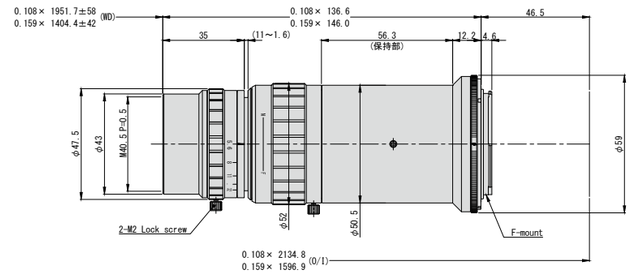
VS-L10028/F



Opt. Mag. Range	0.05x~0.3x			
Optical Mag.	0.05x	0.1x	0.2x	0.3x
WD (mm)	2050.7	1055.7	565.7	409.0
O/I (mm)	2195.2	1200.2	710.2	553.5
Focal length (f)(mm)	100			
Working F/#*1	3.20	3.36	3.66	3.97
DOF*2 (mm)	102.4	26.9	7.3	3.5
Optical Distortion (max.)	-0.10%			
Image Circle (mm)	φ45			
Mount	F-mount			

*1 Value at open Iris *2 Permissible COC at φ0.04mm

VS-L18556/F

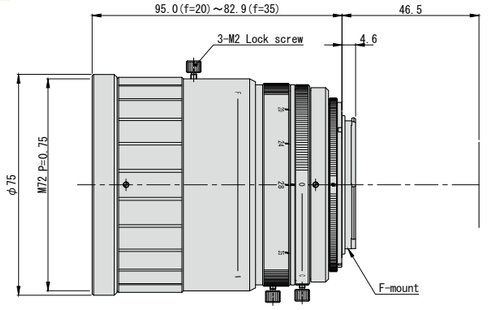


Opt. Mag. Range	0.108x~0.159x	
Optical Mag.	0.108x	0.159x
WD (mm)	1951.7	1404.4
O/I (mm)	2134.8	1596.9
Focal length (f)(mm)	185.0	
Working F/#*1	7.07	7.39
DOF*2 (mm)	48.5	23.4
Optical Distortion (max.)	-0.48%	
Image Circle (mm)	φ45	
Mount	F-mount	

*1 Value at open Iris *2 Permissible COC at φ0.04mm

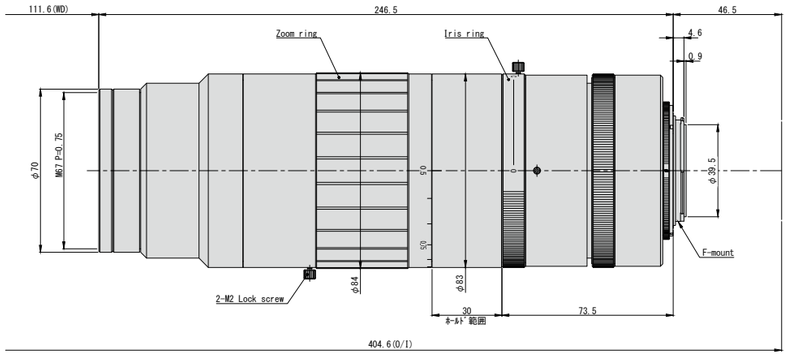
BTO Model

VS-LZ2035/F BTO



Focal length (f)(mm)	20	24	28	35
Opt. Mag. Range	~ 0.11x	~ 0.13x	~ 0.16x	~ 0.2x
WD (mm)	∞~ 130.0			
F.No	2.54	2.68	2.8	3.2
Flange Back (mm)	46.5mm			
Optical Distortion (max.)	-1.60%	-2.68%	-2.11%	-1.03%
Image Circle (mm)	φ29			
Filter thread	M72 P=0.75			
Weight (approx.)	620g			
Mount	F-mount			

VS-LZ0510/F BTO

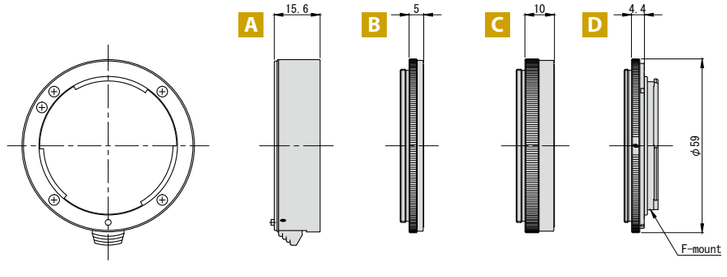


Opt. Mag. Range	0.5x ~ 1.0x		
Optical Mag.	0.5x	0.75x	1.0x
WD (mm)	111.6		
O/I (mm)	404.6		
Working F/#*1	2.6	3.6	4.5
NA	0.096	0.104	0.111
DOF*2 (mm)	0.8	0.5	0.4
Optical Distortion (max.)	-0.49%	0.33%	0.04%
Image Circle (mm)	φ42		
Mount	F-mount		

*1:Value at iris open
*2:Permissible COC at φ0.04mm

F-mount Extension Tube set

VS-EXR/F



Can 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

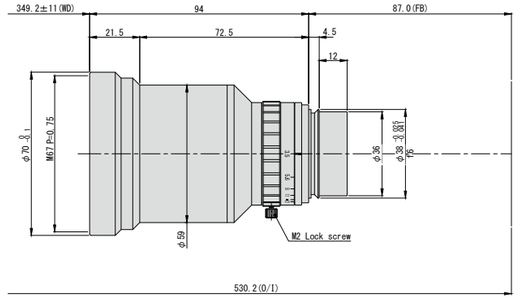
VS-L(V) Series

Specially designed for large sensors up to 90mm long
Designed for machine vision with vibration resistance
High Resolution & High Contrast
Low Distortion
All models have lens shifting changeable magnification structures

Image Circle		Line Up					
		21Φ	28.6Φ	35Φ	45Φ	65Φ	90Φ
Line Sensor Size	1024bit×14μ=14.33mm	●	●	●	●	●	●
	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					●	●
	12288bit×7μ=86.01mm						●
Area Sensor Seize	2048×2048(7.4μ)=15.15×15.15(dia21.43mm)		●	●	●	●	●
	4096×3072(6μ)=24.57×18.43(dia30.72mm)			●	●	●	●
	4008×2672(19μ×9μ)=76.15×24.04(dia79.86mm)						●

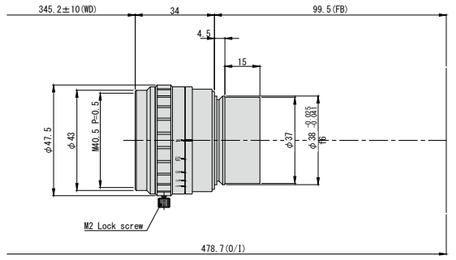
*Accurate sensor size may be slightly different depends on the camera manufacturer.

VS-L6035/V



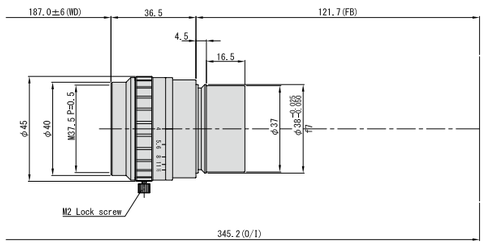
Optical Mag.	0.165x
WD (mm)	349.2
O/I (mm)	530.2
Focal length (f)(mm)	60.03
Working F/#*1	4.06
NA	0.020
DOF*2 (mm)	11.9
Optical Distortion (max.)	-0.15%
Flange back (mm)	87.0
Image Circle (mm)	φ62
Mount	V-mount

VS-L8540/V



Optical Mag.	0.28x
WD (mm)	345.2
O/I (mm)	478.7
Focal length (f)(mm)	84.03
Working F/#*1	5.11
NA	0.027
DOF*2 (mm)	5.2
Optical Distortion (max.)	0.00%
Flange back (mm)	99.5
Image Circle (mm)	φ62
Mount	V-mount

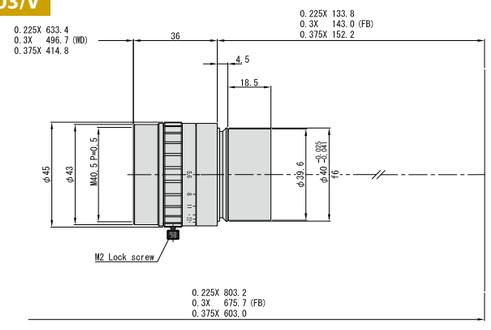
VS-L8540-06/V



Optical Mag.	0.6x
WD (mm)	187.0
O/I (mm)	345.2
Focal length (f)(mm)	85.72
Working F/#*1	6.40
NA	0.047
DOF*2 (mm)	1.4
Optical Distortion (max.)	-0.04%
Flange back (mm)	121.7
Image Circle (mm)	φ62
Mount	V-mount

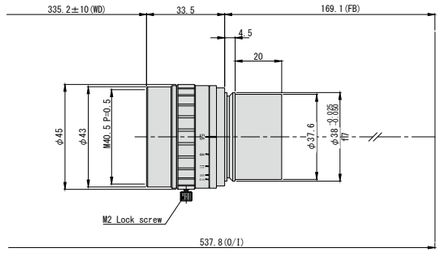
*1 Value at iris open *2 Permissible COC at φ0.04mm

VS-L12056-03/V



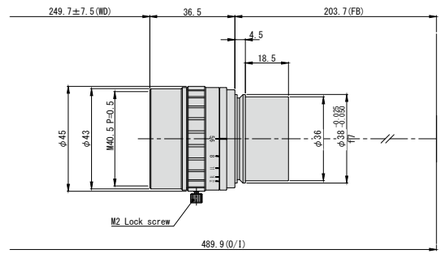
Optical Mag.	0.3x (0.225 ~ 0.375x)
WD (mm)	496.7
O/I (mm)	675.7
Focal length (f)(mm)	123
Working F/#*1	7.3
NA	0.02
DOF*2 (mm)	6.5
Optical Distortion (max.)	-0.02%
Flange back(mm)	143
Image Circle (mm)	ϕ90
Weight (approx.)	180g
Mount	V-mount

VS-L12056-05/V



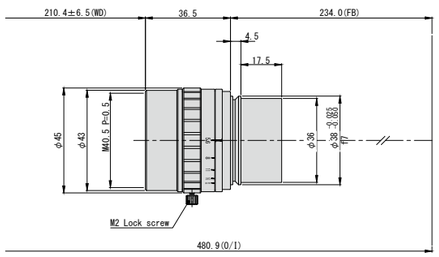
Optical Mag.	0.5x (0.375 ~ 0.625x)
WD (mm)	335.2
O/I (mm)	537.8
Focal length (f)(mm)	123.15
Working F/#*1	8.34
NA	0.030
DOF*2 (mm)	2.7
Optical Distortion (max.)	0.01%
Flange back(mm)	169.1
Image Circle (mm)	ϕ90
Weight (approx.)	160g
Mount	V-mount

VS-L12056-075/V



Optical Mag.	0.75x (0.625 ~ 0.875x)
WD (mm)	249.7
O/I (mm)	489.9
Focal length (f)(mm)	124.30
Working F/#*1	9.62
NA	0.039
DOF*2 (mm)	1.4
Optical Distortion (max.)	-0.02%
Flange back(mm)	203.7
Image Circle (mm)	ϕ90
Weight (approx.)	164g
Mount	V-mount

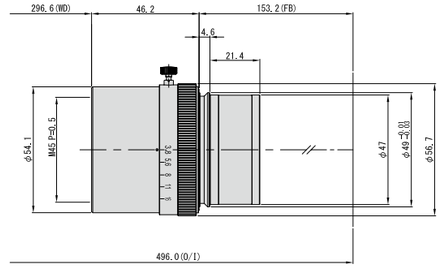
VS-L12056-1/V



Optical Mag.	1.0x (0.875 ~ 1.125x)
WD (mm)	210.4
O/I (mm)	480.9
Focal length (f)(mm)	124.44
Working F/#*1	11.00
NA	0.045
DOF*2 (mm)	0.9
Optical Distortion (max.)	0.00%
Flange back(mm)	234.0
Image Circle (mm)	ϕ90
Weight (approx.)	162g
Mount	V-mount

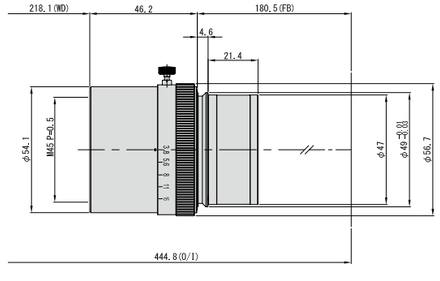
*1 Value at iris open *2 Permissible COC at ϕ0.04mm

VS-CL12056-05/V



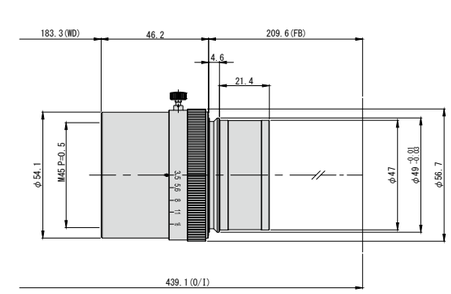
Optical Mag.	0.5x
WD (mm)	296.6
O/I (mm)	496.0
Focal length (f)(mm)	116.0
Working F/#*1	5.70
NA	0.044
DOF*2 (mm)	1.8
Flange back(mm)	153.2
Image Circle (mm)	ϕ66
Weight (approx.)	40g
Mount	V-mount

VS-CL12056-075/V



Optical Mag.	0.75x
WD (mm)	218.1
O/I (mm)	444.8
Focal length (f)(mm)	116.0
Working F/#*1	6.65
NA	0.056
DOF*2 (mm)	0.95
Flange back(mm)	180.5
Image Circle (mm)	ϕ66
Weight (approx.)	41g
Mount	V-mount

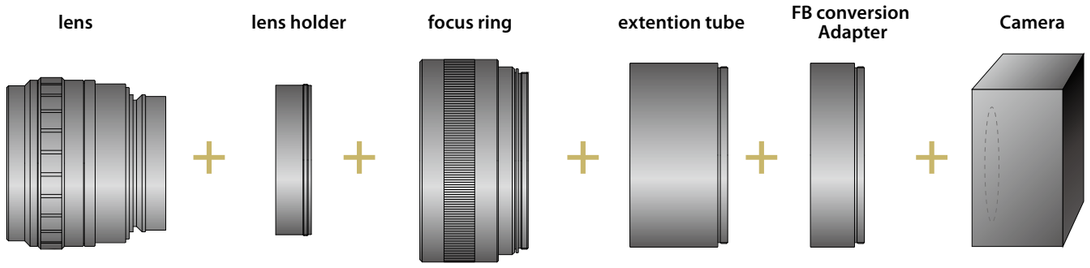
VS-CL12056-1/V



Optical Mag.	1.0x
WD (mm)	183.3
O/I (mm)	439.1
Focal length (f)(mm)	116.0
Working F/#*1	7.00
NA	0.071
DOF*2 (mm)	0.56
Flange back(mm)	209.6
Image Circle (mm)	ϕ66
Weight (approx.)	41g
Mount	V-mount

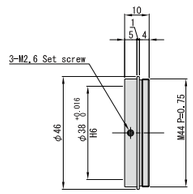
*1 Value at iris open *2 Permissible COC at ϕ0.04mm

V-mount adapter

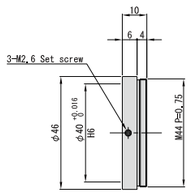


lens	Recommended components				FB Adapter				Magnification	Magnification Range	WD (mm)
	lens holder	focus ring	extention tube		N (31.8mm)	D (6.56mm)	E (9.4mm)	O (19.55mm)			
VS-L6035/V	VS-LH/V	VS-FR20							0.165	×0.01-×0.33	6000-460
VS-L8540/V	VS-LH/V	VS-FR20	VS-MT-FB19.55						0.28	×0.16-×0.39	570-260
VS-L8540-06/V	VS-LH/V	VS-FR20	VS-EXR35/M72						0.6	×0.48-×0.71	220-165
VS-L12056-03/V	VS-LH/V2	VS-FR32				VS-MT-FB6.56	VS-MT-FB9.4	VS-MT-FB19.55	0.3	×0.17-×0.43	810-375
VS-L12056-05/V	VS-LH/V	VS-FR32	VS-MT-FB6.56						0.5	×0.36-×0.62	430-285
VS-L12056-075/V	VS-LH/V	VS-FR32	VS-EXR65/M72						0.75	×0.65-×0.91	275-220
VS-L12056-1/V	VS-LH/V	VS-FR32	VS-MT-FB6.56	VS-EXR65/M72					1	×0.86-×1.1	230-195

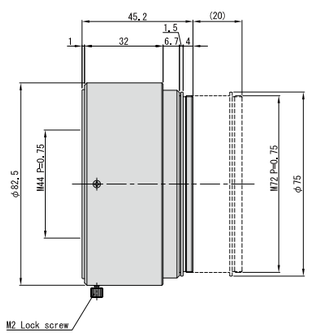
VS-LH/V



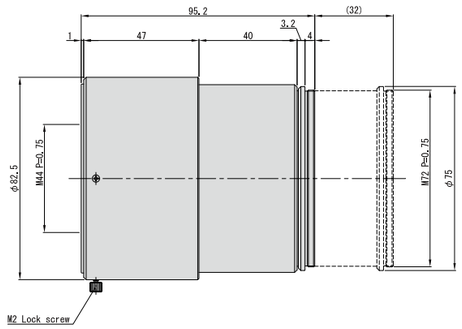
VS-LH/V2



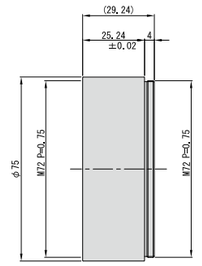
VS-FR20



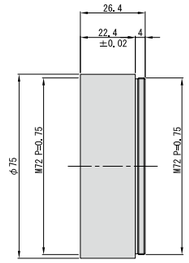
VS-FR32



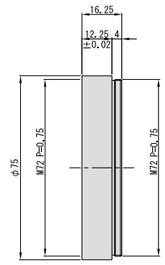
VS-MT-FB6.56



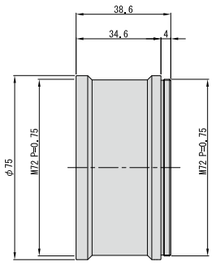
VS-MT-FB9.4



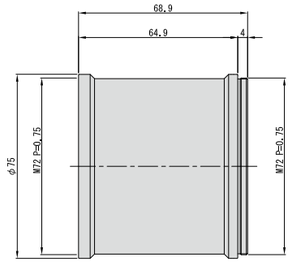
VS-MT-FB19.55



VS-EXR35/M72



VS-EXR65/M72



VS-L(V) WD・Magnification chart

		0.1x	0.2x	0.3x	0.4x	0.5x	0.6x	0.7x	0.8x	0.9x	1x	1.1x
VS-L6035/V	P	6000mm	⟷	460mm								
VS-L8540/V	P		570mm	⟷	260mm							
VS-L8540-06/V	P					220mm	⟷	165mm				
VS-L12056-03/V	P	810mm	⟷	⟷	375mm							
VS-L12056-05/V	P				430mm	⟷	285mm					
VS-L12056-075/V	P						275mm	⟷	⟷	220mm		
VS-L12056-1/V	P								230mm	⟷	⟷	195mm

Macro Zoom Lens

VSZ Series

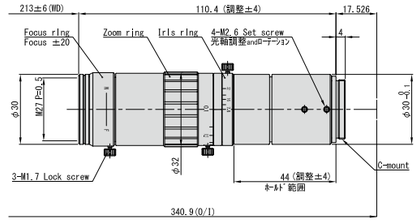
All models are designed for compact size and long WD.
Telecentric models, Motorized models and Attachable objective lenses are available.
General purpose zoom lenses will meet the needs for various applications

VSZ Magnification and WD correlation Chart

		Zoom Ratio	WD	0.1x	0.3x	0.5x	0.7x	1.0x	1.5x	2.0x	2.5x	3.0x	4.0x	4.5x	5.0x	6.0x	7.0x	8.0x	9.0x	10.0x
VSZ-M0108S	P81	1:8	213mm																	
VSZ-M0324S	P81	1:8	213mm																	
VSZ-10100	P81	1:10	95mm																	
VSZ-0770	P81	1:10																		
VSZ-0745(CO)	P82	1:6	100mm																	
VSZ-0530(CO)	P82	1:6	100mm																	

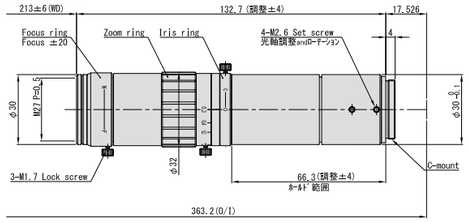
8x Zoom

VSZ-M0108S



Opt. Mag. Range	0.1x ~ 0.8x		
Zoom Ratio	1 : 8		
Optical Mag.	0.1x	0.4x	0.8x
FOV 1/2"(VxH mm)	48.0x64.0	12.0x16.0	6.0x8.0
FOV 1/3"(VxH mm)	36.0x48.0	9.0x12.0	4.5x6.0
WD (mm)	212		
O/I (mm)	339.9		
Working F/#*1	7.8	7.8	8.8
NA	0.0064	0.026	0.045
DOF*2 (mm)	62.4	3.9	1.1
TV Distortion (max.)	-0.16%	0.04%	0.05%
Weight (approx.)	167g		
Flange Back (mm)	17.526		
Sensor Size (max.)/Mount	1/2"/C-mount		

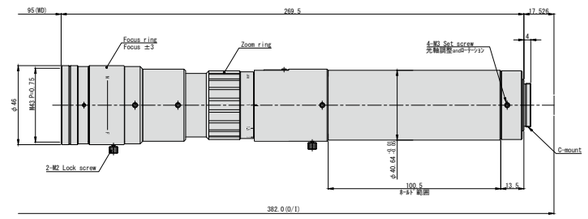
VSZ-M0324S



Opt. Mag. Range	0.3x ~ 2.4x		
Zoom Ratio	1 : 8		
Optical Mag.	0.3x	1.2x	2.4x
FOV 1/2"(VxH mm)	16.0x21.3	4.0x5.3	2.0x2.7
FOV 1/3"(VxH mm)	12.0x16.0	3.0x4.0	1.5x2.0
WD (mm)	213		
O/I (mm)	363.2		
Working F/#*1	23.2	24.5	26.0
NA	0.006	0.024	0.046
DOF*2 (mm)	20.6	1.4	0.4
TV Distortion (max.)	-0.16%	0.04%	0.05%
Weight (approx.)	約165g		
Flange Back (mm)	17.526		
Sensor Size (max.)/Mount	1/2"/C-mount		

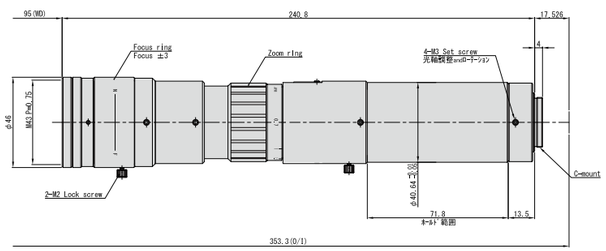
10x Zoom

VSZ-10100



Opt. Mag. Range	1.0x ~ 10.0x		
Zoom Ratio	1 : 10		
Optical Mag.	1.0x	4.0x	10.0x
FOV 2/3"(VxH mm)	6.6 x 8.8	1.7 x 2.2	0.7 x 0.9
FOV 1/2"(VxH mm)	4.8 x 6.4	1.2 x 1.6	0.5 x 0.6
FOV 1/3"(VxH mm)	3.6 x 4.8	0.9 x 1.2	0.4 x 0.5
WD (mm)	95		
O/I (mm)	382.0		
Working F/#*1	13.3	15.4	36.7
NA	0.038	0.130	0.136
DOF*2 (mm)	1.1	0.08	0.03
TV Distortion (max.)	0.19%	0.01%	0.01%
Weight (approx.)	830g		
Flange Back (mm)	17.526		
Sensor Size (max.)/Mount	2/3"/C-mount		

VSZ-0770

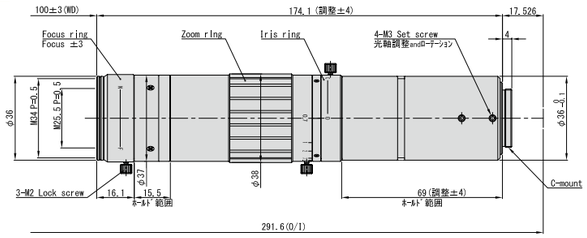


Opt. Mag. Range	0.7x ~ 7.0x		
Zoom Ratio	1 : 10		
Optical Mag.	0.7x	4.0x	7.0x
FOV 1/1.8"(VxH mm)	7.5 x 10.1	1.3 x 1.8	0.8 x 1.0
FOV 1/2"(VxH mm)	6.9 x 9.1	1.2 x 1.6	0.7 x 0.9
FOV 1/3"(VxH mm)	5.1 x 6.9	0.9 x 1.2	0.5 x 0.7
WD (mm)	95		
O/I (mm)	353.3		
Working F/#*1	9.2	14.8	25.7
NA	0.038	0.135	0.136
DOF*2 (mm)	1.5	0.07	0.04
TV Distortion (max.)	0.10%	-0.12%	-0.06%
Weight (approx.)	790g		
Flange Back (mm)	17.53		
Sensor Size (max.)/Mount	1/1.8"/C-mount		

*1 Value at open iris
*2 Permissible COC at ϕ0.04mm

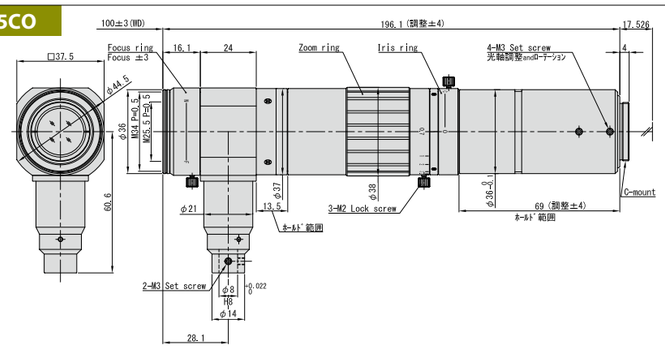
Telecentric Zoom Lens 6x Zoom

VSZ-0745



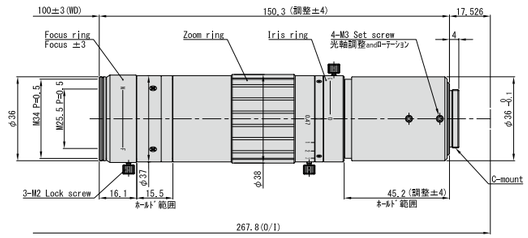
Opt. Mag. Range	0.7x ～ 4.5x	
Zoom Ratio	1 : 6	
Optical Mag.	0.7x	4.5x
FOV (V×H) 2/2"	9.4x12.6	1.5x2.0
FOV (V×H) 1/2"	6.9x9.1	1.1x1.4
FOV (V×H) 1/3"	5.1x6.9	0.8x1.1
WD (mm)	100	
O/I(mm)	291.6	
Working F/#*1	10.3	29.0
NA	0.034	0.078
DOF*2 (mm)	1.7	0.1
TV Distortion (max.)	-0.04%	0.08%
Weight (approx.)	252g	
Flange Back (mm)	17.526	
Sensor Size (max.) /Mount	2/3"/C-mount	
Co-axial Prism	-	

VSZ-0745CO



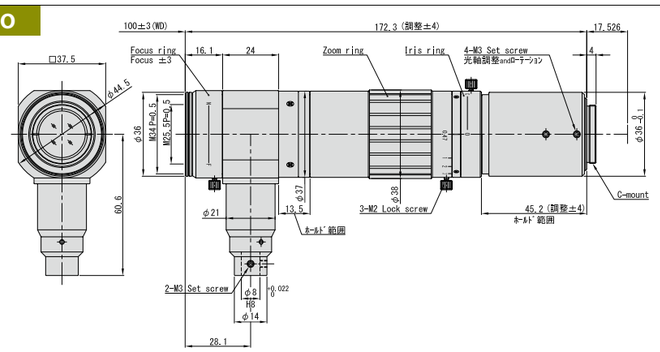
Opt. Mag. Range	0.7x ～ 4.5x	
Zoom Ratio	1 : 6	
Optical Mag.	0.7x	4.5x
FOV (V×H) 2/2"	9.4x12.6	1.5x2.0
FOV (V×H) 1/2"	6.9x9.1	1.1x1.4
FOV (V×H) 1/3"	5.1x6.9	0.8x1.1
WD (mm)	100	
O/I(mm)	313.6	
Working F/#*1	10.3	29.0
NA	0.034	0.078
DOF*2 (mm)	1.7	0.1
TV Distortion (max.)	-0.04%	0.08%
Weight (approx.)	332g	
Flange Back (mm)	17.526	
Sensor Size (max.) /Mount	2/3"/C-mount	
Co-axial Prism	Built-in	

VSZ-0530



Opt. Mag. Range	0.47x ～ 3.0x	
Zoom Ratio	1 : 6	
Optical Mag.	0.47x	3.0x
FOV (V×H) 1/2"	10.2x13.6	1.6x2.1
FOV (V×H) 1/3"	7.7x10.2	1.2x1.6
WD (mm)	100	
O/I(mm)	267.8	
Working F/#*1	6.9	19.8
NA	0.034	0.078
DOF*2 (mm)	2.5	0.2
TV Distortion (max.)	-0.09%	0.11%
Weight (approx.)	240g	
Flange Back (mm)	17.526	
Sensor Size (max.) /Mount	1/1.8"/C-mount	
Co-axial Prism	-	

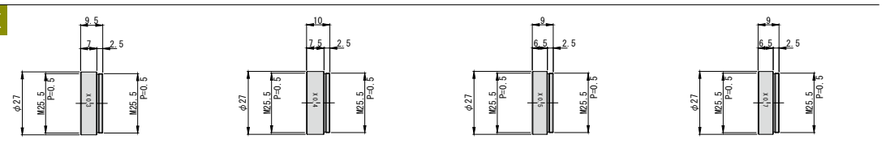
VSZ-0530CO



Opt. Mag. Range	0.47x ～ 3.0x	
Zoom Ratio	1 : 6	
Optical Mag.	0.47x	3.0x
FOV (V×H) 1/2"	10.2x13.6	1.6x2.1
FOV (V×H) 1/3"	7.7x10.2	1.2x1.6
WD (mm)	100	
O/I(mm)	289.8	
Working F/#*1	6.9	19.8
NA	0.034	0.078
DOF*2 (mm)	2.5	0.2
TV Distortion (max.)	-0.09%	0.11%
Weight (approx.)	320g	
Flange Back (mm)	17.526	
Sensor Size (max.) /Mount	1/1.8"/C-mount	
Co-axial Prism	Built-in	

*1 Value at open iris
*2 Permissible COC at φ0.04mm

VSZ-03X/04X/05X/07X



Model	VSZ-03X	VSZ-04X	VSZ-05X	VSZ-07X
Converter Mag.	0.3x	0.4x	0.5x	0.7x
Zoom Lens	VSZ-0745 and VSZ-0530	VSZ-0745 and VSZ-0530	VSZ-0745 and VSZ-0530	VSZ-0745 and VSZ-0530
Mag. range with Zoom Lens	0.21x～1.35x　0.141x～0.9x	0.28x～1.8x　0.188x～1.2x	0.35x～2.25x　0.235x～1.5x	0.49x～3.15x　0.329x～2.1x
WD *at Focus center	337.6mm	250.6mm	201.0mm	140.0mm

Zoom Lens Diagram

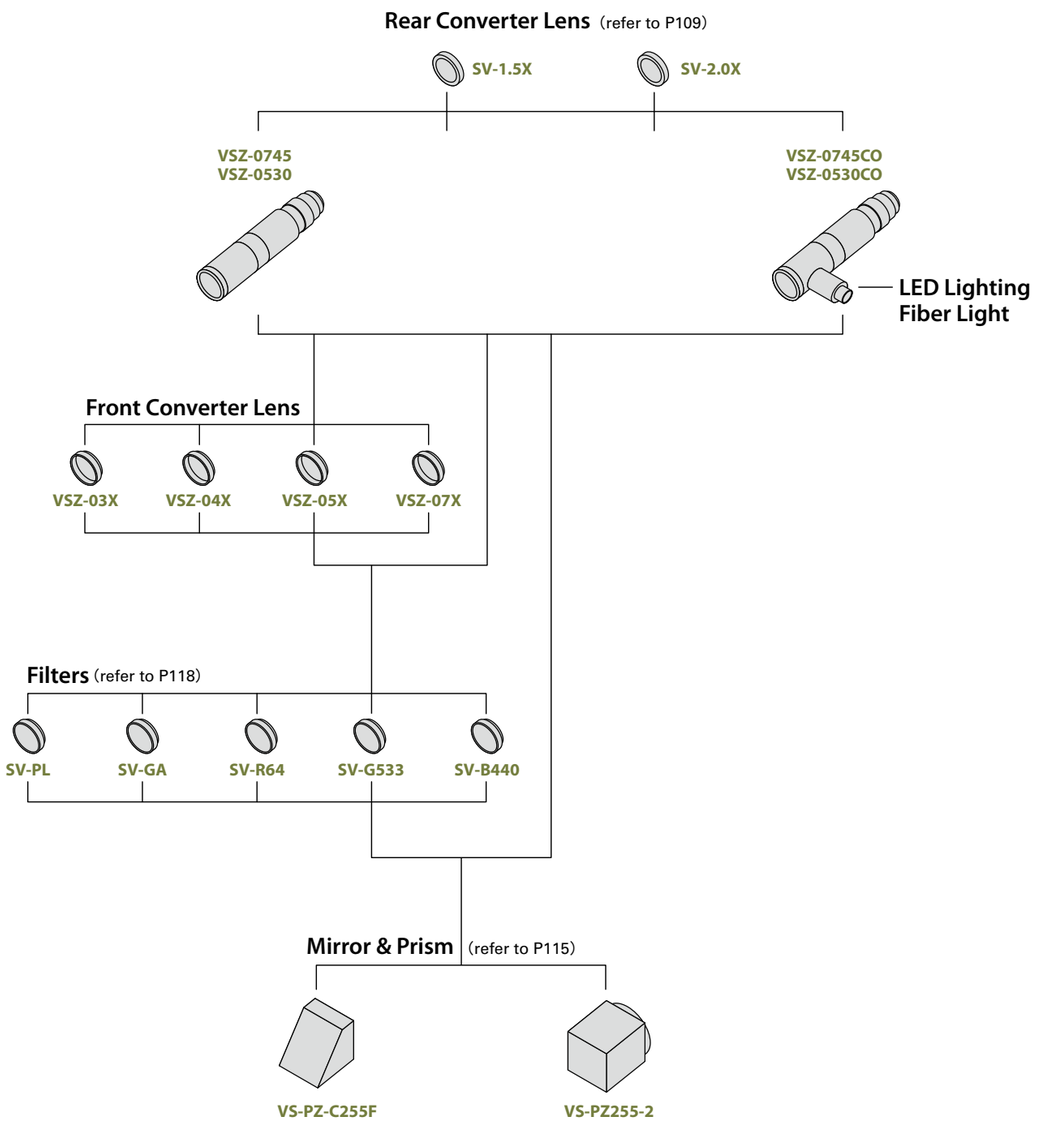


Table for WD. FOV and Extension Tube Length

Suitable configurations for applications can be found in this chart.

Configurations		FOV* (mm)		WD	Mag Range		FOV*1 (mm) with Rear Converter			
							SV-1.5X		SV-2.0X	
F.C*2 + Zoom Lens	Camera	Low Mag	High Mag	(mm)	Low Mag	High Mag	Low Mag	High Mag	Low Mag	High Mag
None + VSZ-0745	1/3"	5.1x 6.9	0.8x 1.1	100	0.7X	4.5X	3.4x 4.6	0.5x 0.7	2.6x 3.5	0.4x 0.6
	1/2"	6.9x 9.1	1.1x 1.4				4.6x 6.1	0.7x 0.9	3.5x 4.6	0.6x 0.7
	1/1.8"	7.5x 10.1	1.2x 1.6				5.0x 6.7	0.8x 1.0	3.8x 5.6	0.6x 0.8
	2/3"	9.4x 12.6	1.0 x 2.0				6.3x 8.4	1.0x 1.3	4.7x 6.3	0.5x 1.0
VSZ-07X + VSZ-0745	1/3"	7.3x 9.8	1.1x 1.5	140	0.49X	3.15X	4.9x 6.5	0.8x 1.0	3.7x 4.9	0.6x 0.8
	1/2"	9.8x 13.1	1.5x 2.0				6.5x 8.7	1.0x 1.4	4.9x 6.5	0.8x 1.0
	1/1.8"	10.8x14.4	1.7x 2.2				7.2x 9.6	1.1x 1.5	5.4x 7.2	0.8x 1.1
	2/3"	13.5x 18	2.1x 2.8				9.0x 12.0	1.4x 1.9	6.7x 9.0	1.0x 1.4
VSZ-05X + VSZ-0745	1/3"	10.3x13.7	1.6x 2.1	201	0.35X	2.25X	6.9x 9.1	1.1x 1.4	5.1x 6.9	0.8x 1.1
	1/2"	13.7x18.3	2.1x 2.8				9.1x 12.2	1.4x 1.9	6.9x 9.1	1.1x 1.4
	1/1.8"	15.1x20.1	2.3x 3.1				10.1x 13.4	1.6x 2.1	7.5x 10.1	1.2x 1.6
	2/3"	18.9x25.1	2.9x 3.9				12.6x 16.8	2.0x 2.6	9.4x 12.6	1.5x 2.0
VSZ-04X + VSZ-0745	1/3"	12.9x17.1	2.0x 2.7	250.6	0.28X	1.8X	8.6x 11.4	1.3x 1.8	6.4x 8.6	1.0x 1.3
	1/2"	17.1x22.9	2.7x 3.6				11.4x 15.2	1.8x 2.4	8.6x 11.4	1.3x 1.8
	1/1.8"	18.9x25.1	2.9x 3.9				12.6x 16.8	2.0x 2.6	9.4x 12.6	1.5x 2.0
	2/3"	23.6x31.4	3.7x 4.9				15.7x 21.0	2.4x 3.3	11.8x 15.7	1.8x 2.4
VSZ-03X + VSZ-0745	1/3"	17.1x22.9	2.7x 3.6	337.6	0.21X	1.35X	11.4x 15.2	1.8x 2.4	8.6x 11.4	1.3x 1.8
	1/2"	22.9x30.5	3.6x 4.7				15.2x 20.3	2.4x 3.3	11.4x 15.2	1.8x 2.4
	1/1.8"	25.1x33.5	3.9x 5.2				16.8x 22.3	2.6x 3.5	12.6x 16.8	2.0x 2.6
	2/3"	31.4x41.9	4.9x 6.5				21.0x 27.9	3.3x 4.3	15.7x 21.0	2.4x 3.3
None + VSZ-0530	1/3"	7.7x 10.2	1.2x 1.6	100	0.47X	3.0X	5.1x 6.8	0.8x 1.1	3.8x 5.1	0.6x 0.8
	1/2"	10.2x 13.6	1.6x 2.1				6.8x 9.1	1.1x 1.4	5.1x 6.8	0.8x 1.1
	1/1.8"	11.2x15.0	1.8x 2.3				7.5x 10.0	1.2x 1.6	5.6x 7.5	0.9x 1.2
	2/3"	-	-				-	-	-	-
VSZ-07X + VSZ-0530	1/3"	10.9x14.6	1.7x 2.3	140	0.329X	2.1X	7.3x 9.7	1.1x 1.5	5.5x 7.3	0.9x 1.1
	1/2"	14.6x19.5	2.3x 3.0				9.7x 13.0	1.5x 2.0	7.3x 9.7	1.1x 1.5
	1/1.8"	16.0x21.4	2.5x 3.4				10.7x 14.3	1.7x 2.2	8.0x 10.7	1.3x 1.7
	2/3"	-	-				-	-	-	-
VSZ-05X + VSZ-0530	1/3"	15.3x20.4	2.4x 3.2	201	0.235X	1.5X	10.2x 13.6	1.6x 2.1	7.7x 10.2	1.2x 1.6
	1/2"	20.4x27.2	3.2x 4.3				13.6x 18.2	2.1x 2.8	10.2x 13.6	1.6x 2.1
	1/1.8"	22.5x 30.0	3.5x 4.7				15.0x 20.0	2.3x 3.1	11.1x 15.0	1.8x 2.3
	2/3"	-	-				-	-	-	-
VSZ-04X + VSZ-0530	1/3"	19.1x25.5	3.0x 4.0	250.6	0.188X	1.2X	12.8x 17.0	2.0x 2.7	9.6x 12.8	1.5x 2.0
	1/2"	25.5x 34.0	4.0x 5.3				17.0x 22.7	2.7x 3.6	12.8x 17.0	2.0x 2.7
	1/1.8"	28.1x37.4	4.4x 5.9				18.7x 25.0	2.9x 3.9	14.0x 18.7	2.2x 2.9
	2/3"	-	-				-	-	-	-
VSZ-03X + VSZ-0530	1/3"	25.5x 34.0	4.0x 5.3	337.6	0.141X	0.9X	17.0x 22.7	2.7x 3.6	12.8x 17.0	2.0x 2.7
	1/2"	34.0x 45.4	5.3x 7.1				22.7x 30.3	3.6x 4.7	17.0x 22.7	2.7x 3.6
	1/1.8"	37.4x49.9	5.9x 7.8				25.0x 33.3	3.9x 5.2	18.7x 25.0	2.9x 3.9
	2/3"	-	-				-	-	-	-

*1 FOV is calculated from the camera sensor sizes (mm) below.
1/3"= 3.6x 4.8 : 1/2"= 4.8x 6.4 : 1/1.8"= 5.28x 7.04 : 2/3"= 6.6x 8.8
If you use different sensor size, above FOV will change.

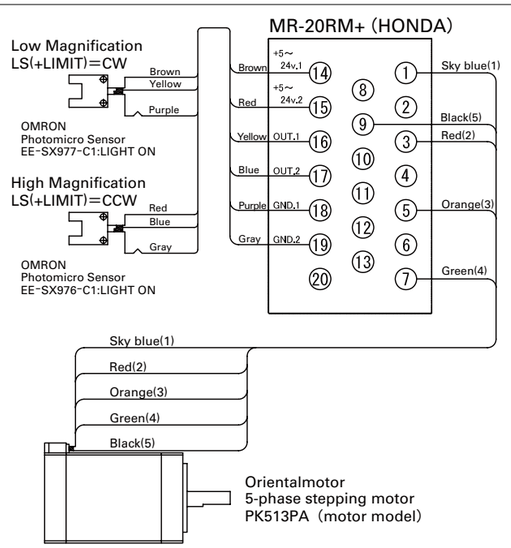
*2 F.C = Front Converter lens

Telecentric Zoom Lens VSZ Series

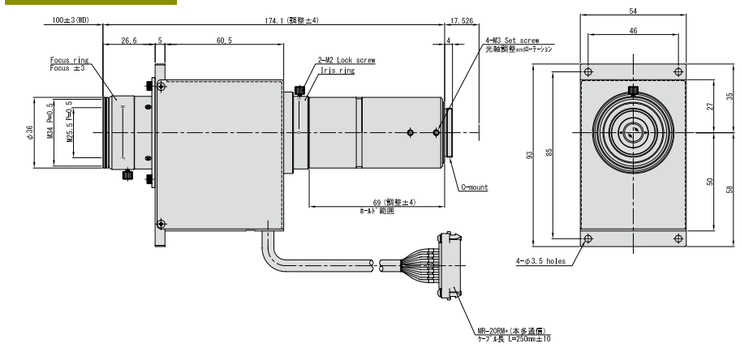
VSZ-MR Series

Motorized Zoom
1:6.5 Zoom ratio
Long WD 100mm
Adjustable Focus ±3mm

Circuit diagram

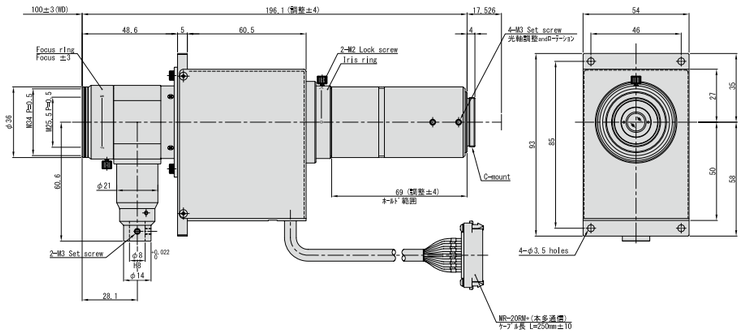


VSZ-0745-MR



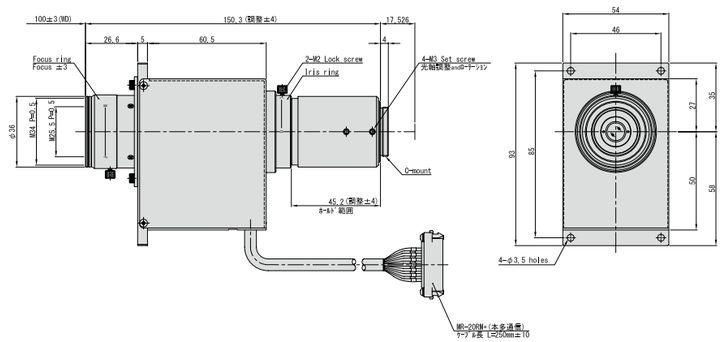
Opt. Mag. Range	0.7x~4.5x		
Optical Mag.	0.7x	1.8x	4.5x
Working F/#*1	10.3	13.8	29.0
FOV (V×H) 2/3"	9.4x12.6	3.7x4.9	1.5x2.0
FOV (V×H) 1/2"	6.9x9.1	2.7x3.5	1.1x1.4
FOV (V×H) 1/3"	5.1x6.9	2.0x2.7	0.8x1.1
NA	0.034	0.065	0.078
DOF*2 (mm)	1.7	0.3	0.1
TV Distortion (max.)	-0.04%	0.10%	0.08%
WD (mm)	100.0		
Iris Operation	Manual		
O/I(mm)	291.6		
Sensor Size (max.) /Mount	2/3"/C-mount		
Flange Back (mm)	17.526		
Co-axial Prism	–		

VSZ-0745CO-MR



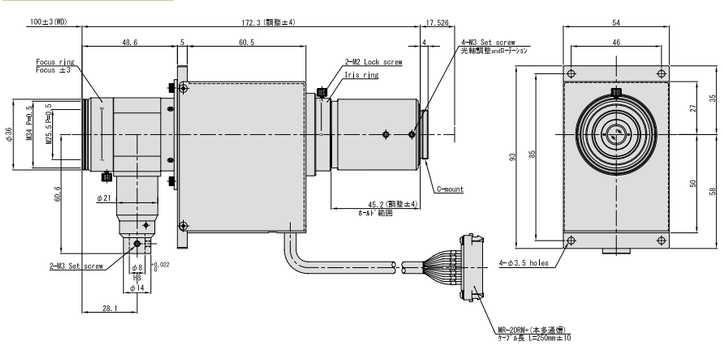
Opt. Mag. Range	0.7x~4.5x		
Optical Mag.	0.7x	1.8x	4.5x
Working F/#*1	10.3	13.8	29.0
FOV (V×H) 2/3"	9.4x12.6	3.7x4.9	1.5x2.0
FOV (V×H) 1/2"	6.9x9.1	2.7x3.5	1.1x1.4
FOV (V×H) 1/3"	5.1x6.9	2.0x2.7	0.8x1.1
NA	0.034	0.065	0.078
DOF*2 (mm)	1.7	0.3	0.1
TV Distortion (max.)	-0.04%	0.10%	0.08%
WD (mm)	100.0		
Iris Operation	Manual		
O/I(mm)	313.6		
Sensor Size (max.) /Mount	2/3"/C-mount		
Flange Back (mm)	17.526		
Co-axial Prism	Built in		

VSZ-0530-MR



Opt. Mag. Range	0.47x~3.0x		
Optical Mag.	0.47x	1.2x	3.0x
Working F/#*1	6.9	9.3	19.8
FOV (V×H) 1/2"	10.2x13.6	4.0x5.3	1.6x2.1
FOV (V×H) 1/3"	7.7x10.2	3.0x4.0	1.2x1.6
NA	0.034	0.065	0.078
DOF*2 (mm)	2.5	0.5	0.2
TV Distortion (max.)	-0.09%	0.12%	0.11%
WD (mm)	100.0		
Iris Operation	Manual		
O/I(mm)	267.8		
Sensor Size (max.) /Mount	1/1.8"/C-mount		
Flange Back (mm)	17.526		
Co-axial Prism	–		

VSZ-0530CO-MR



Opt. Mag. Range	0.47x~3.0x		
Optical Mag.	0.47x	1.2x	3.0x
Working F/#*1	6.9	9.3	19.8
FOV (V×H) 1/2"	10.2x13.6	4.0x5.3	1.6x2.1
FOV (V×H) 1/3"	7.7x10.2	3.0x4.0	1.2x1.6
NA	0.034	0.065	0.078
DOF*2 (mm)	2.5	0.5	0.2
TV Distortion (max.)	-0.09%	0.12%	0.11%
WD (mm)	100.0		
Iris Operation	Manual		
O/I(mm)	289.8		
Sensor Size (max.) /Mount	1/1.8"/C-mount		
Flange Back (mm)	17.526		
Co-axial Prism	Built in		

*1 Value at open iris
*2 Permissible COC at φ0.04mm

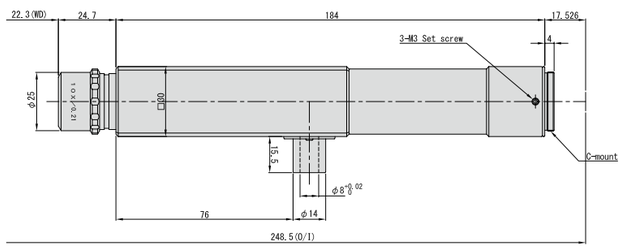
VS-MS Series

High NA Objective lens
Co-axial unit
Infinity-corrected objective lens adapters
High Contrast image
Suitable for high precision alignment and inspection

Example of customized model

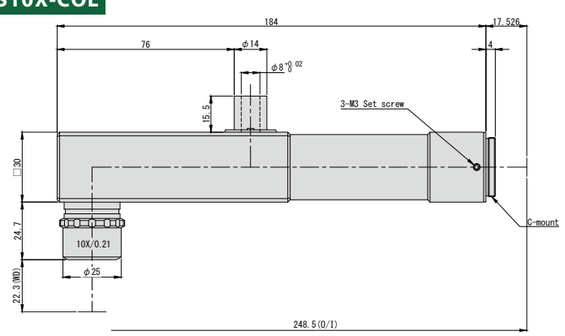
10x Machine vision model (Light weight and slim size 10x objective lens unit)

VS-MS10X-CO



Optical Mag.	10.0x
FOV (V x Hmm) 1/2"	0.48x0.64
FOV (V x Hmm) 1/3"	0.36x0.48
WD (mm)	22.3
Working F/#	23.8
NA	0.210
Resolution (μ) λ 550nm	1.6
DOF Permissible COC φ0.04mm	0.019
DOF Permissible COC φ0.01mm	0.004
Co-axial Prism	Built-in
Weight (approx.)	320g (incl. 10x Objective Lens)
Objective Lens	For f200mm Infinity-corrected Objective Lens
Sensor Size (max.)/Mount	1/2"/C-mount

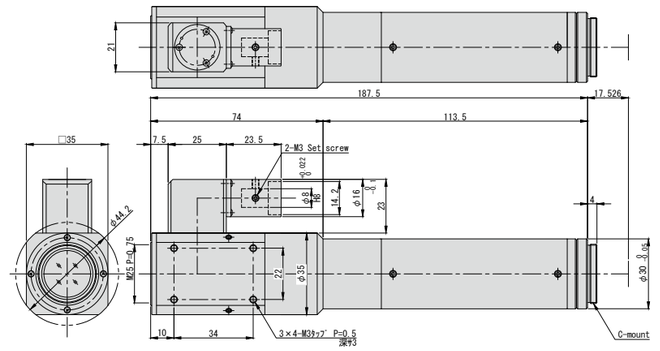
VS-MS10X-COL



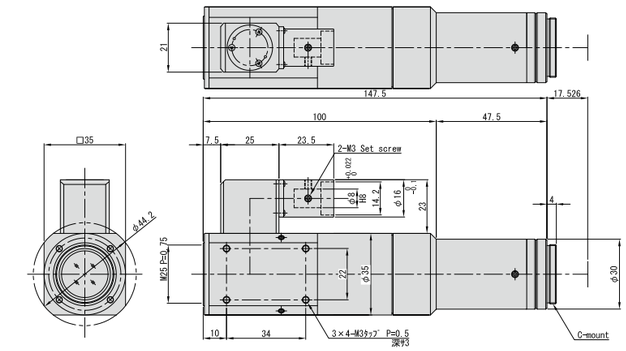
Optical Mag.	10.0x
FOV (V x Hmm) 1/2"	0.48x0.64
FOV (V x Hmm) 1/3"	0.36x0.48
WD (mm)	22.3
Working F/#	23.8
NA	0.210
Resolution (μ) λ 550nm	1.6
DOF Permissible COC φ0.04mm	0.019
DOF Permissible COC φ0.01mm	0.004
Co-axial Prism	Built-in
Weight (approx.)	320g (incl. 10x Objective Lens)
Objective Lens	For f200mm Infinity-corrected Objective Lens
Sensor Size (max.)/Mount	1/2"/C-mount

VS-MS1N Standard model

VS-MS1N



VS-MS05N



Objective Lens

VS-MOS

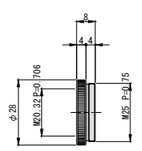
	VS-MOS5X	VS-MOS10X	VS-MOS20X	VS-MOS50X	VS-MOS100X
Mag.	5X	10X	20X	50X	100X
NA	0.1	0.25	0.45	0.55	0.8
WD (mm)	11.4	6.5	11	8.2	2
Focal length (f)(mm)	40	20	10	4	2
DOF	14	3.5	1.6	0.9	0.4
FOV (mm) 1/2CCD	0.96x1.28	0.4x0.64	0.24x0.32	0.1x0.13	0.05x0.06

VS-MOL

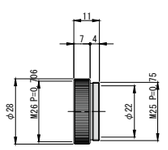
	VS-MOL2X	VS-MOL5X	VS-MOL10X	VS-MOL20X	VS-MOL50X	VS-MOL100X
Mag.	2X	5X	10X	20X	50X	100X
NA	0.055	0.13	0.28	0.29	0.55	0.55
WD (mm)	34.5	45	34	20	13	13
Focal length (f)(mm)	100	40	20	10	4	2
DOF	91	14	3.5	1.6	0.9	0.9
FOV (mm) 1/2CCD	2.4x3.2	0.96x1.28	0.43x0.64	0.24x0.32	0.10x0.13	0.05x0.06

Mount Adapter

AD-MS1N-OL



AD-MS1N-MT



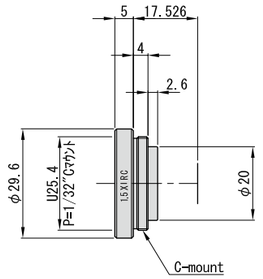
Option

Various optical components, co-axial illumination adapter, prism units for limited work space, (dust filter) and also wide range of optical filters are available for our lenses.

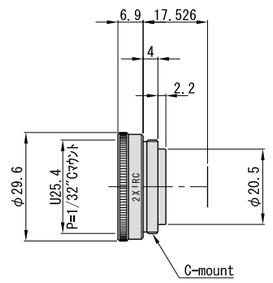
Rear Converter Lens

Rear converter lens is used to increase the magnification without changing WD and simply attached between camera and lens.

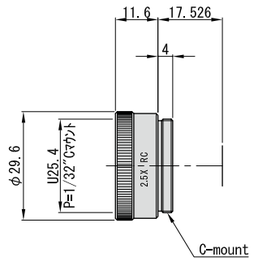
SV-1.5X



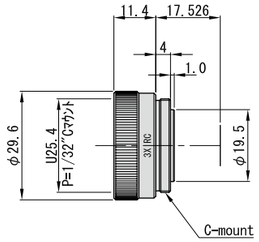
SV-2.0X



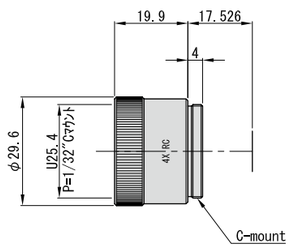
SV-2.5X



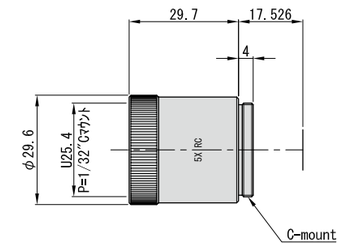
SV-3.0XV



SV-4.0XV



SV-5.0XV

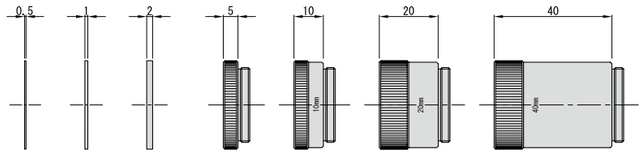


Model	SV-1.5X	SV-2.0X	SV-2.5X	SV-3.0XV	SV-4.0XV	SV-5.0XV
Specification	1.5x	2x	2.5x	3x	4x	5x
Sensor Size (max.)	2/3"	2/3"	2/3"	1/2"	1/2"	1/2"

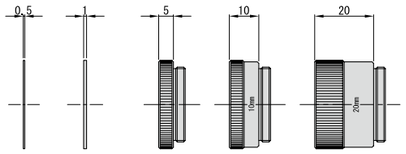
Extension Rings & Tubes

An Extension tube is attached between the camera and lens,
it is used to increase the magnification while decreasing WD.

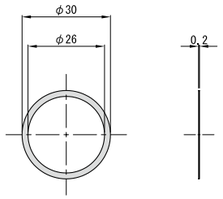
SV-EXR



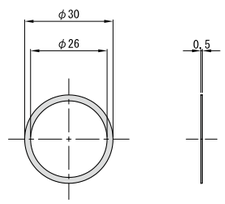
SV-EXR-5set



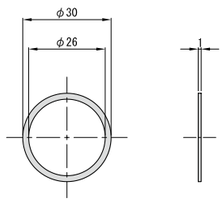
SV-EXR02



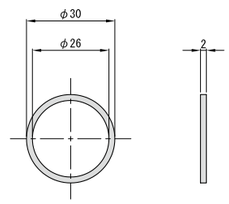
SV-EXR05



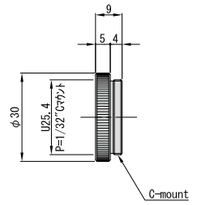
SV-EXR1



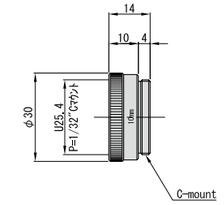
SV-EXR2



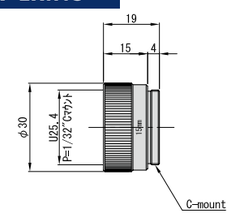
SV-EXR5



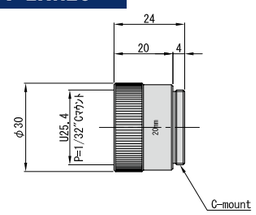
SV-EXR10



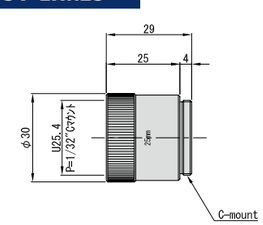
SV-EXR15



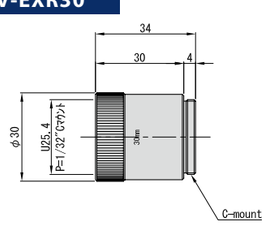
SV-EXR20



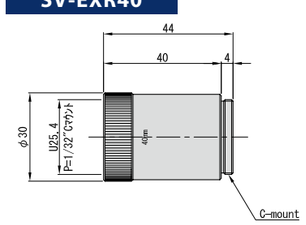
SV-EXR25



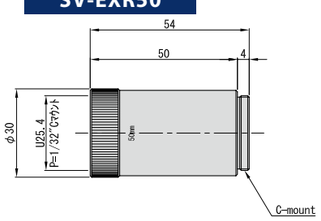
SV-EXR30



SV-EXR40



SV-EXR50



Model	SV-EXR	SV-EXR-5set	SV-EXR02	SV-EXR05	SV-EXR1	SV-EXR2	SV-EXR5
Specification	L=0.5/1/2/5/10/20/40mm Set of 7 rings and tube	L=0.5/1/5/10/20mm Set of 5 rings and tube	t=0.2mm	t=0.5mm	t=1mm	L=2mm	L=5mm

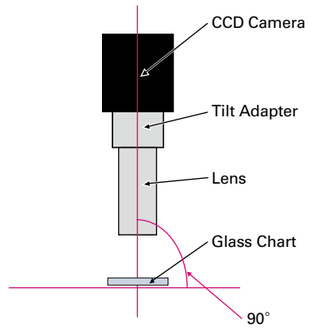
Model	SV-EXR10	SV-EXR15	SV-EXR20	SV-EXR25	SV-EXR30	SV-EXR40	SV-EXR50
Specification	L=10mm	L=15mm	L=20mm	L=25mm	L=30mm	L=40mm	L=50mm

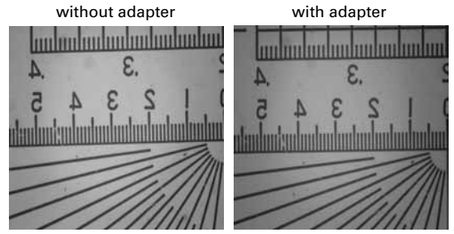
Tilt adapter

In relation to the depth of field with the lens angle position,
the camera cannot focus in back and front of the image at the same time.
Our custom adapter can widen the DOF and brighten the image so that back and front are in focus.
Significant You will notice significant differences in following data. However, each lens requires a separate adapter.

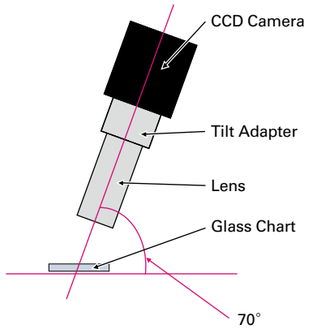
Operating environment

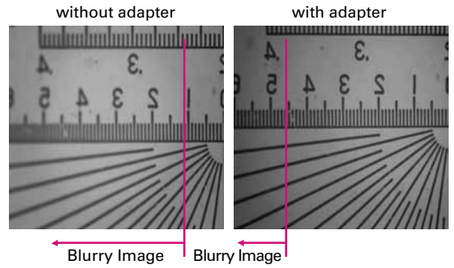
90° Image



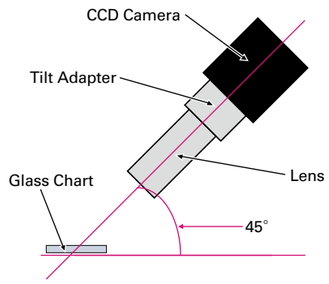


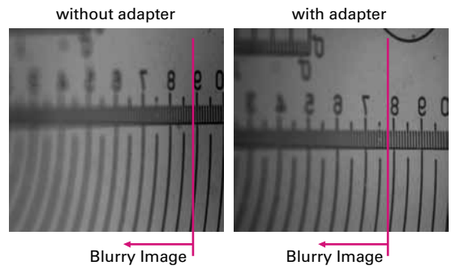
70° Image





45° Image

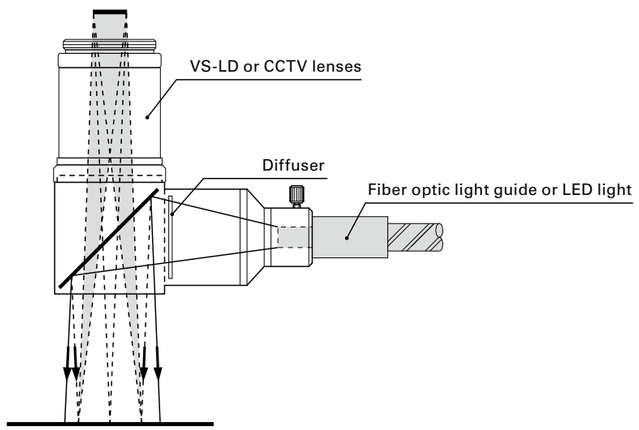




For more details, please contact our sales office.

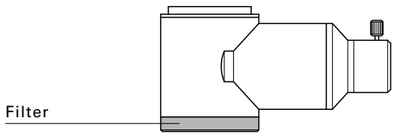
Co-axial Illumination Adapter

- Easy to set-up co-axial illumination
- Compact and lightweight



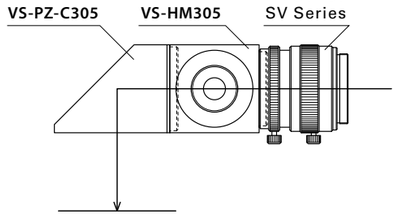
Simple method for co-axial illumination : Easy to mount on filter thread of LD or SD series.
*There might be vignetting depending on the FOV. Please inquire.

Attachable Filter with M30.5 thread



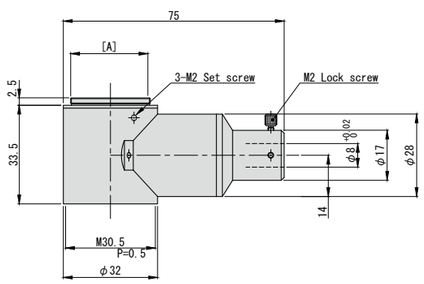
VS-HM Series have filter thread M30.5 at the bottom of the unit.
It allows you to attach filters or adapters.

Example



Able to bend the optical axis to overcome vertical space limitations.

VS-HM□□□

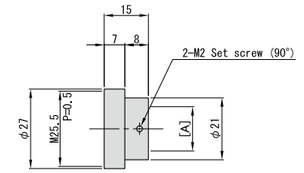


Model	VS-HM225	VS-HM255	VS-HM270	VS-HM305
	Half Mirror Unit	Half Mirror Unit	Half Mirror Unit	Half Mirror Unit
Attachement Size [A]	M22.5/P=0.5	M25.5/P=0.5	M27.0/P=0.5	M30.5/P=0.5

Adapter

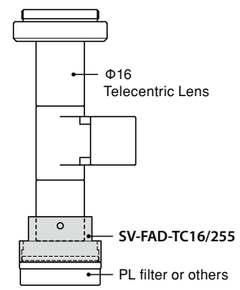
Adapters for changing the filter thread size.

SV-FAD□□□

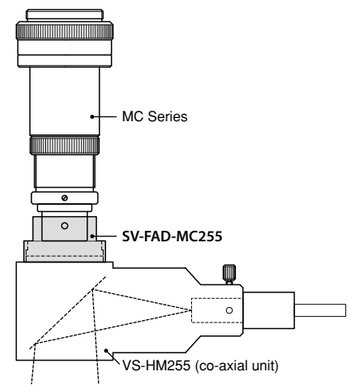


	[A]	Model
MC0510	Φ15	SV-FAD-MC255
VS-TCΦ16	Φ16	SV-FAD-TC16/255

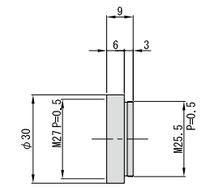
SV-FAD-TC16/255



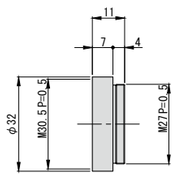
SV-FAD-MC255



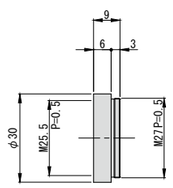
SV-FAD255-270



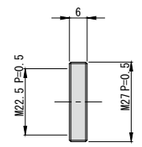
SV-FAD270-305



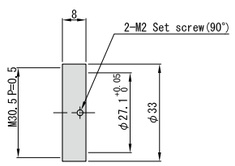
SV-FAD270-255



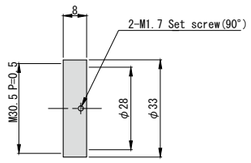
SV-FAD270-225



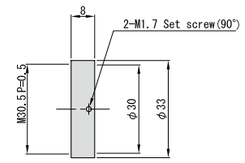
SV-FAD27-305



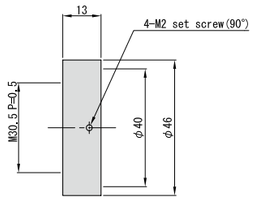
SV-FAD28-305



SV-FAD30-305



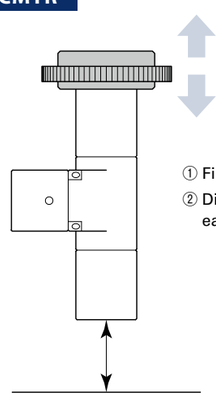
SV-FAD40-305



Filter adaptor for **SV-03514, 04514**

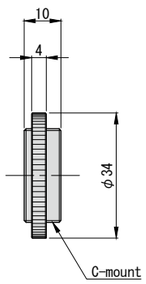
Optional Mount

VS-TC-CMTR



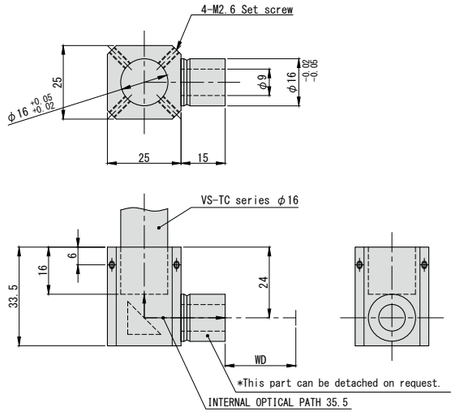
Flange back adjustable mount

① Fine FOV adjustable
② Direction of co-axial illumination slot can be easily changed.



Right angle prism

VS-PZ16-1



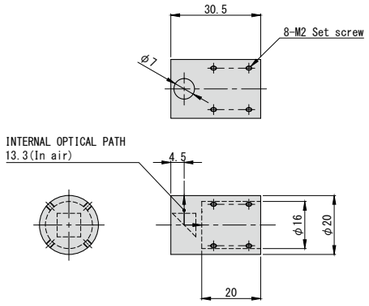
VS-PZ16-1

For VS-TC, MC Series (dia.16mm): Inverted images.

Right angle prism makes the light path 90° bent.
Generally used for space constraint applications.

Model	VS-PZ16-1
	90° Mirror(Inverted image)
Attachment Size	for φ16mm Lens
A*1	9.5mm
Recommended Lens*2	TCφ16mm, MCφ16mm Lens

VS-PZ16-4(90°)



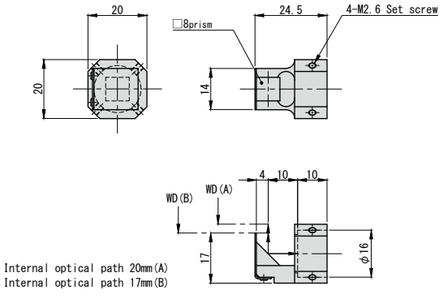
VS-PZ16-4(90°)

For VS-TC, MC Series (dia.16mm): Inverted images.

Has a short internal optical path of 13.3mm to achieve longer working distance. Minimum distance between two prism image centers is 9mm.

Model	VS-PZ16-4(90°)
	90° Small Prism (Inverted image)
Attachment Size	forφ16mm Lens
A*1	4.5mm
Recommended Lens*2	TCφ16mm,MC φ16mm lens

VS-PZ16-2(90°)



VS-PZ16-2(90°)

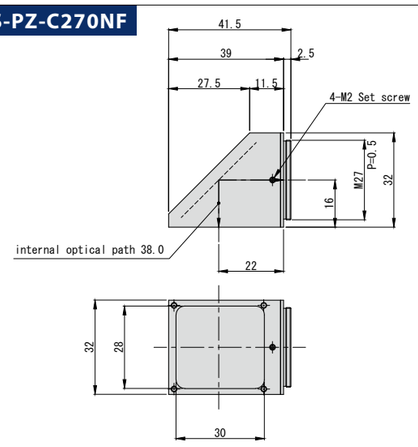
For VS-TC, MC Series (dia.16mm): Inverted images.

Small size version if VS-PZ116-1. It can be used for imaging two points at minimum distance of 9mm (minimum).

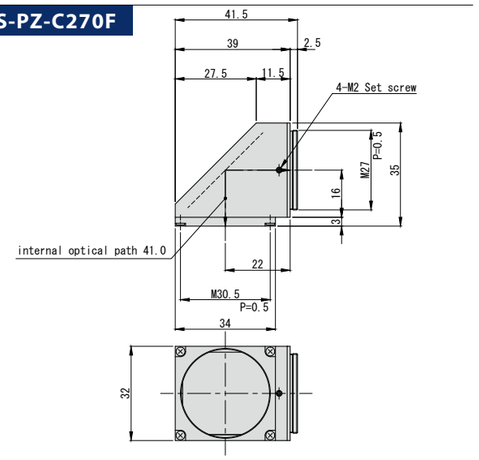
Model	VS-PZ16-2(90°)
	90° Small Prism (Inverted image)
Attachment Size	forφ16mm Lens
A*1	4.5mm
Recommended Lens*2	TCφ16mm,MC φ16mm lens

Mirror

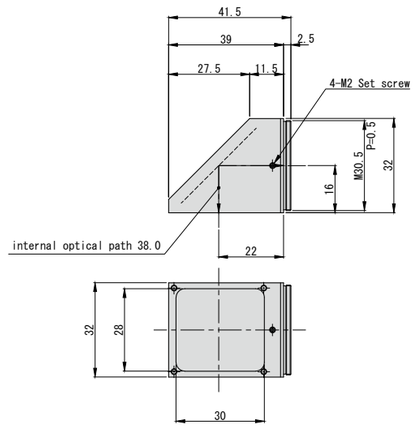
VS-PZ-C270NF



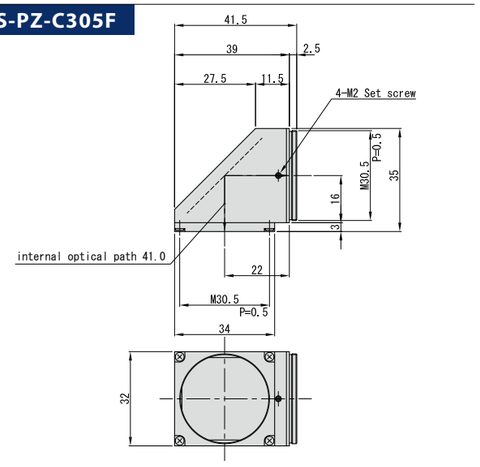
VS-PZ-C270F



VS-PZ-C305NF



VS-PZ-C305F



VS-PZ-C270NF/C270F/C305NF/C305F

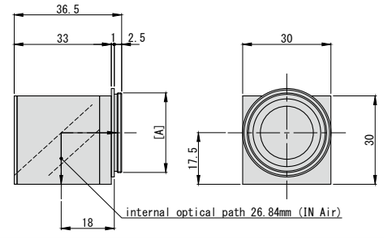
90° Prism unit for VS-LD, VS-TCH Series, CCTV(SV-V, SV-H Series).

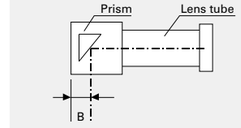
Model	VS-PZ-C270NF	VS-PZ-C270F	VS-PZ-C305NF	VS-PZ-C305F
	90° Mirror (Inverted image)	90° Mirror (Inverted image)	90° Mirror (Inverted image)	90° Mirror (Inverted image)
Attachment Size	M27.0 P0.5	M27.0 P0.5	M30.5 P0.5	M30.5 P0.5
A*1	17mm	17mm	17mm	17mm
Recommended Lens*2	SV-V, SV-H, VS-LD, VS-TCH Series			

Roof prism

VS-PZ255-2/PZ270-2/PZ305-2

90°prism unit for VS-LD, VS-TCH Series, CCTV(SV-V, SV-H Series).





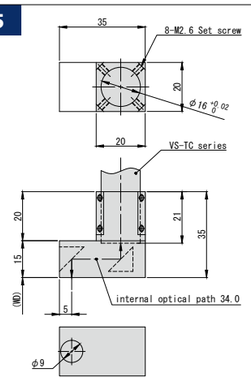
*1
B: Distance from optical axis to the edge of unit housing

*2
Shading or Vignetting may occur. Please ask us for more detail.

Model	VS-PZ255-2	VS-PZ270-2	VS-PZ305-2
	90°Prism (Roof prism)	90°Prism (Roof prism)	90°Prism (Roof prism)
Attachement Size [A]	M25.5P0.5	M27.0P0.5	M30.5P0.5
B*1	16mm	16mm	16mm
Recommended Lens*2	SV-V, SV-H, VS-LD, VS-TCH Series		

Offset

VS-PZ16-OF5



For VS-TC, MC Series (dia.16mm)

Offset prism used for imaging two points with two cameras in short distance.

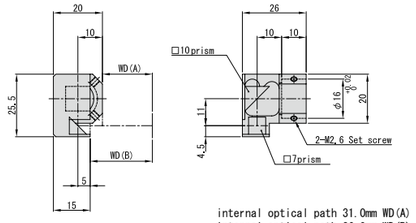
Model	VS-PZ16-OF5
	20mm offset prism
Attachment Size	for φ16mm lens
A*1	5mm
Recommended Lens*2	TCφ16mm, MCφ16mm lens

VS-PZ16-3R/VS-PZ16-3L

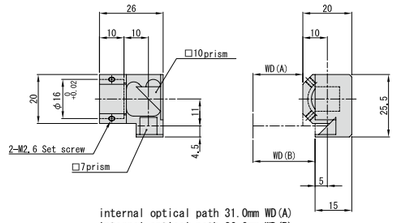
For VS-TC, MC Series (dia.16mm)

Offset right angle prism used for imaging two points to save the space and set up two cameras close.

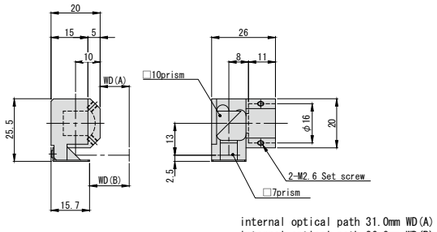
VS-PZ16-3R



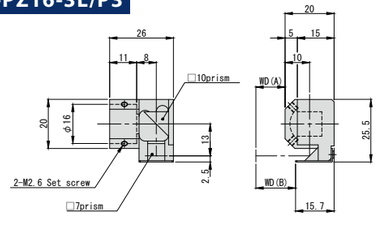
VS-PZ16-3L



VS-PZ16-3R/P3



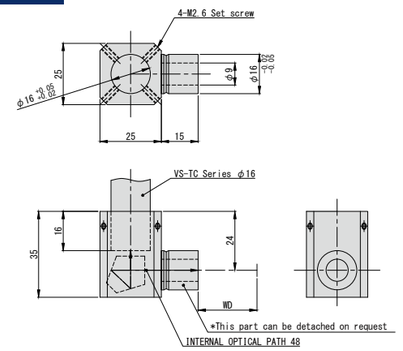
VS-PZ16-3L/P3



Model	VS-PZ16-3R	VS-PZ16-3L	VS-PZ16-3R/P3	VS-PZ16-3L/P3
	offset + 90°/left side right side	offset + 90°/left side left side	offset + 90°/left side right side	offset + 90°/left side left side
Attachment Size	for φ16mm lens	for φ16mm lens	for φ16mm lens	for φ16mm lens
A*1	4.5mm	4.5mm	4.5mm	4.5mm
Recommended Lens*2	TCφ16mm, MCφ16mm lens	TCφ16mm, MCφ16mm lens	TCφ16mm, MCφ16mm lens	TCφ16mm, MCφ16mm lens

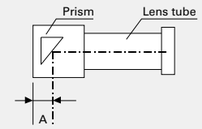
Penta Prism

VS-PZ16PT



Penta prism makes light path 90 bent without invert or revert image. Generally used for space constraint applications.

Model	VS-PZ16PT
	90° Penta prism
Attachment Size	for φ16mm lens
A*1	10.5mm
Recommended Lens*2	TCφ16mm,MCφ16mm lens

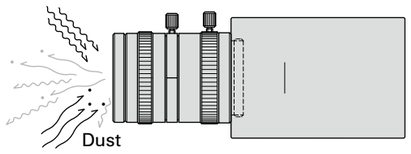


*1
A: Distance from optical axis to the edge of unit housing

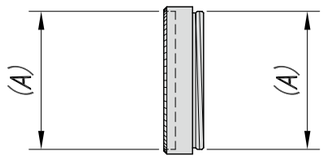
*2
Shading or Vignetting may occur. Please ask us for more detail.

Protection Cover Filter

SV-GA series



Lens Dust Proof

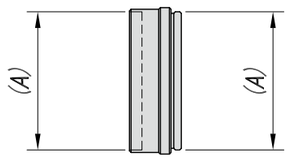


Protect the lens from dust, UV rays etc.

Model	SV-GA225	SV-GA255	SV-GA270	SV-GA305	SV-GA340	SV-GA355	SV-GA375	SV-GA430	SV-GA460	SV-GA□□□
	Protection Cover Filter									Protection Cover Filter, Customized Thread Size
Thread Size	(A)=M22.5 P0.5	(A)=M25.5 P0.5	(A)=M27 P0.5	(A)=M30.5 P0.5	(A)=M34 P0.5	(A)=M35.5 P0.5	(A)=M37.5 P0.5	(A)=M43 P0.75	(A)=M46 P0.75	(A)=M□□□ P□

Rotary Polarized Filter

SV-PL series



Prevent from Irregular Reflection

Model	SV-PL225	SV-PL255	SV-PL270	SV-PL305	SV-PL340	SV-PL355	SV-PL375	SV-PL430	SV-PL460	SV-PL□□□
	Rotary Polarized Filter									Rotary Polarized Filter, Customized Filter Thread
Thread Size	(A)=M22.5 P0.5	(A)=M25.5 P0.5	(A)=M27 P0.5	(A)=M30.5 P0.5	(A)=M34 P0.5	(A)=M35.5 P0.5	(A)=M37.5 P0.5	(A)=M43 P0.75	(A)=M46 P0.75	(A)=M□□□ P□

Rotary with Lock Screw

- **3xM1.4 Set Screw**
- **Lockable at optimize position**

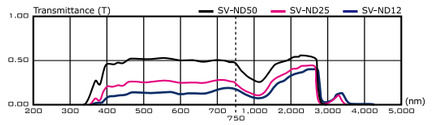
Model	SV-PL255-SS	SV-PL270-SS	SV-PL305-SS
Thread Size	M25.5 P0.5	M27.0 P0.5	M30.5 P0.5

*Ask us for more detail.

Filter

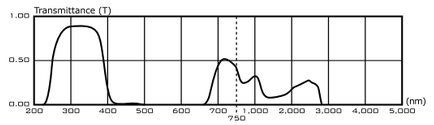
Wide range of standard filters for various imaging applications.
Other optical transmittances such as band pass filters are also available.

SV-ND Series



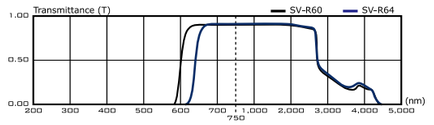
Neutral density filter
It is designed to reduce the brightness without changing illumination wavelength

SV-UV330 Series



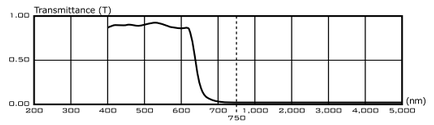
UV transmission filter
Transmit UV and cut the visible light

SV-R Series



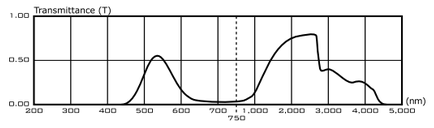
Red filter
To improve image contrast, while adjusting red wavelength to peak performance

SV-IR Series



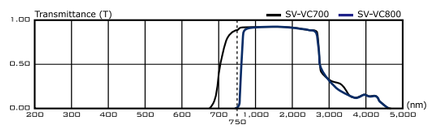
IR cut off filter
To block Infrared and transmit the visible light

SV-G533 Series



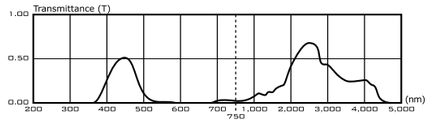
Green filter
Adjust the transmittance peak to the center point of visible light

SV-VC Series



Visible light cut filter
To block visible light and transmit Near Infrared

SV-B440 Series



Blue filter
Adjust peak transmittance point to blue

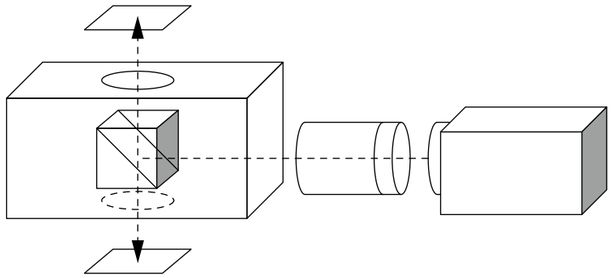
Model		Thread Size	
SV-ND50-270	Neutral Density Filter Transmission 50%	M27	P0.5
SV-ND25-270	Neutral Density Filter Transmission 25%	M27	P0.5
SV-ND12-270	Neutral Density Filter Transmission 12.5%	M27	P0.5
SV-ND50-□□□	Neutral Density Filter Transmission50% Customized Filter Thread	M□□□	P□
SV-ND25-□□□	Neutral Density Filter Transmission25% Customized Filter Thread	M□□□	P□
SV-ND12-□□□	Neutral Density Filter Transmission12.5% Customized Filter Thread	M□□□	P□
SV-R60-255	Contrast Filter	M25.5	P0.5
SV-R60-270	Contrast Filter	M27	P0.5
SV-R60-305	Contrast Filter	M30.5	P0.5
SV-R60-□□□	Contrast Filter Customized Filter Thread	M□□□	P□
SV-R64-255	Contrast Filter	M25.5	P0.5
SV-R64-270	Contrast Filter	M27	P0.5
SV-R64-305	Contrast Filter	M30.5	P0.5
SV-R64-□□□	Contrast Filter Customized Filter Thread	M□□□	P□
SV-G533-255	Green Filter Peak Transmission : 533nm	M25.5	P0.5
SV-G533-270	Green Filter Peak Transmission : 533nm	M27	P0.5
SV-G533-305	Green Filter Peak Transmission : 533nm	M30.5	P0.5
SV-G533-□□□	Green Filter Customized Filter Thread Peak Transmission : 533nm	M□□□	P□

Model		Thread Size	
SV-B440-255	Blue filter Peak Transmission : 440nm	M25.5	P0.5
SV-B440-270	Blue filter Peak Transmission : 440nm	M27	P0.5
SV-B440-305	Blue filter Peak Transmission : 440nm	M30.5	P0.5
SV-B440-□□□	Blue filter Customized Filter Thread Peak Transmission : 440nm	M□□□	P□
SV-UV330-255	UV Transmission Filter Peak Transmission : 330nm	M25.5	P0.5
SV-UV330-270	UV Transmission Filter Peak Transmission : 330nm	M27	P0.5
SV-UV330-305	UV Transmission Filter Peak Transmission : 330nm	M30.5	P0.5
SV-UV330-□□□	UV Transmission Filter Peak Transmission : 330nm	M□□□	P□
SV-IR255	IR cut off filter700nm~	M25.5	P0.5
SV-IR270	IR cut off filter700nm~	M27	P0.5
SV-IR305	IR cut off filter700nm~	M30.5	P0.5
SV-IR□□□	IR cut off filter700nm~	M□□□	P□
SV-VC700-255	Visible light cut filter~700nm	M25.5	P0.5
SV-VC700-270	Visible light cut filter~700nm	M27	P0.5
SV-VC700-305	Visible light cut filter~700nm	M30.5	P0.5
SV-VC700-□□□	Visible light cut filter~700nm	M□□□	P□
SV-VC800-255	Visible light cut filter~800nm	M25.5	P0.5
SV-VC800-270	Visible light cut filter~800nm	M27	P0.5
SV-VC800-305	Visible light cut filter~800nm	M30.5	P0.5
SV-VC800-□□□	Visible light cut filter~800nm	M□□□	P□

*When you shift the lens tube, it may interfere with filter thread.
Please contact us for more details.

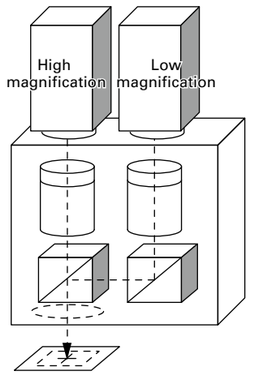
Custom Unit Examples

Up-and-Down View Optical Unit



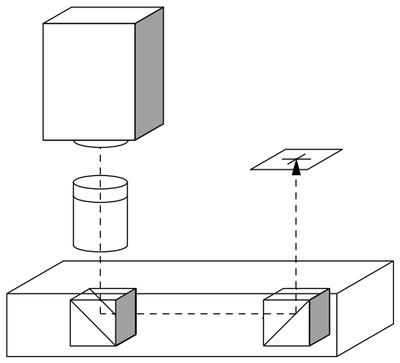
Optical unit recognize up-and-down objects with one camera

Two cameras, two magnification optical unit



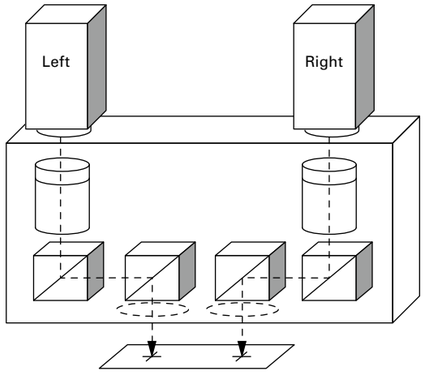
Imaging one target with high and low magnification

Down and back up unit



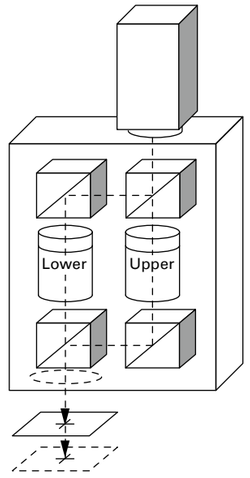
A unit optical path bending in U type Suitable to build in a machine

Optical measurement between two points unit



Recognition of two points at the same time

Two focus points unit



Optical system which has two different WD with one camera

Table for FOV (mm)

	8.4 / 7.1 / 11	7.04 / 5.28 / 8.9	6.4 / 4.8 / 8	4.8 / 3.6 / 6
Optical Mag.	2/3"(8.4x7.1)	1/1.8"(7.04x5.28)	1/2" (6.4x4.8)	1/3" (4.8x3.6)
0.1x	84.0x71.0	70.4x52.8	64x48	48x36
0.17x	49.4x41.8	41.4x31	37.6x28.2	28.2x21.1
0.2x	42.0x35.5	35.2x26.4	32x24	24x18
0.22x	38.2x32.3	32x24	29.1x21.8	21.8x16.3
0.25x	33.6x28.4	28.1x21.1	25.6x19.2	19.2x14.4
0.3x	28.0x23.7	23.4x17.6	21.3x16	16x12
0.4x	21.0x17.8	17.6x13.2	16x12	12x9
0.5x	16.8x14.2	14x10.5	12.8x9.6	9.6x7.2
0.6x	14.0x11.8	11.7x8.8	10.6x8	8x6
0.7x	12.0x10.1	10x7.54	9.14x6.85	6.85x5.14
0.75x	11.2x9.5	9.38x7.04	8.53x6.4	6.4x4.8
0.8x	10.5x8.9	8.8x6.6	8x6	6x4.5
1.0x	8.4x7.1	7.04x5.28	6.4x4.8	4.8x3.6
1.5x	5.60x4.73	4.69x3.52	4.26x3.2	3.2x2.4
2.0x	4.20x3.55	3.52x2.64	3.2x2.4	2.4x1.8
3.0x	2.80x2.37	2.34x1.76	2.13x1.6	1.6x1.2
4.0x	2.10x1.78	1.76x1.32	1.6x1.2	1.2x0.9
5.0x	1.68x1.42	1.41x1.06	1.28x0.96	0.96x0.72
6.0x	1.40x1.18	1.17x0.88	1.06x0.8	0.8x0.6
8.0x	1.05x0.89	0.88x0.66	0.8x0.6	0.6x0.45
10.0x	0.84x0.71	0.7x0.53	0.64x0.48	0.48x0.36

*Accurate sensor size may vary, Depends on the camera manufacturer.

Points for choosing a lens

It is critical to consider the required conditions for your application which is key for choosing the correct imaging devices. Common parameters and dimensions are shown. (Refer to FIGURE1)

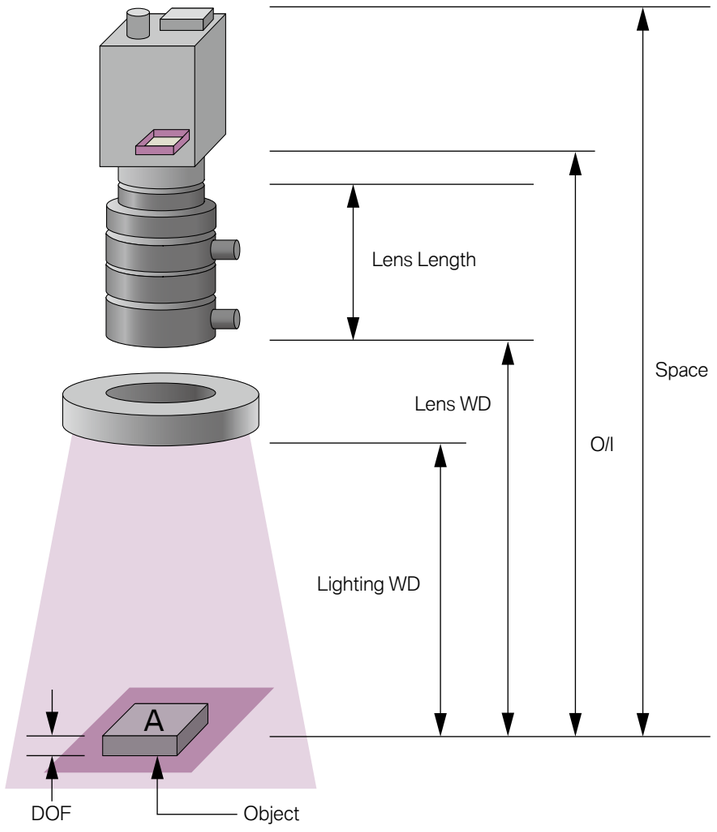


FIGURE1

Camera

Area sensor or Line sensor
Sensor size / Flange back
Lens mount / B · W or Color etc

Lens

Type of Lnes (depend on application)
Fixed iris or adjustable
Fixed Mag or adjustable
Lens size etc

Illumination

Type of light source
Lighting Method
Lighting WD etc

Environment

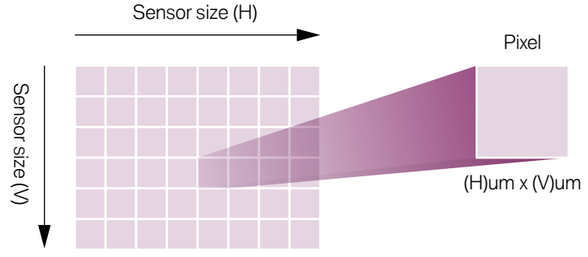
Vibration, Shock
Unnecessary Light
Dust, Water
Temperature, Humidity

Sensor Size

Sensor size = Pixel size (V) or (H) x Effective Pixel amount (V) or (H)

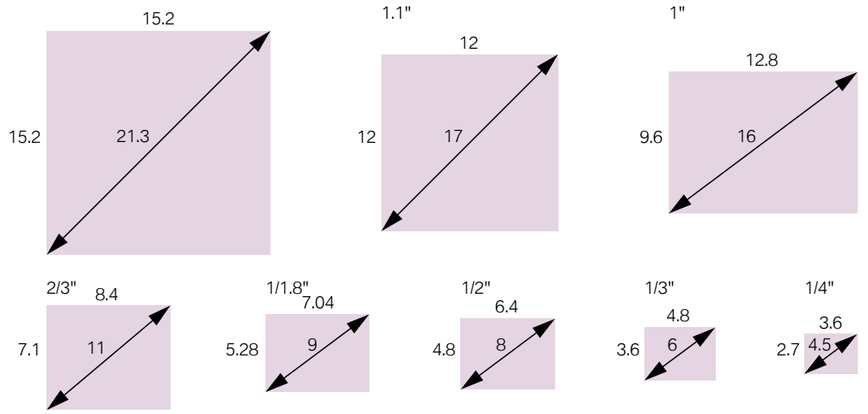
ex)
Pixel size: 4.4um x 4.4 um
Effective Pixel amount : 1600 x 1200

Sensor size(V) = 0.0044 x 1200 = 5.28mm
Sensor size(H) = 0.0044 x 1600 = 7.04mm
Sensor size = 7.04 x 5.28mm



Area scan sensor

Common Area sensor sizes shown below
Actual sensor sizes vary and depend on the camera manufacturer.



Line scan sensor

Common Line sensor sizes are shown below
Actual sensor sizes vary and depend on the camera manufacturer.

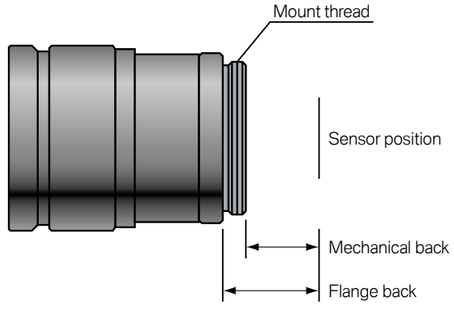
12288bit ×7μ	12288bit ×5μ	8192bit ×7μ	6144bit ×7μ	
86mm	62mm	57.3mm	43mm	
7450bit ×4.7μ	4096bit ×10μ	4096bit ×7μ	2048bit ×14μ	2048bit ×10μ
35mm	41mm	28.6mm	28.6mm	20.48mm

Camera Mount

Each camera mount has a different size thread and flange back
(FB: distance from sensor to camera flange)
Common camera mount FB are shown below.

Area Camera	FB (mm)
C-mount	17.526
CS-mount	12.526
M-mount	M15.5/P0.5
S-mount	M10.5/P0.5

Line Camera	FB (mm)
F-mount	46.5
M42-mount	※1
M72-mount	※1



※1. FB size depends on the camera manufacturer.
You need to make sure both mount thread and FB are correct to get the correct image .

VST mainly offers C, F and M72 mount but also some special mounts for remote head cameras.
Please contact us for more details if you have a special lens mount.

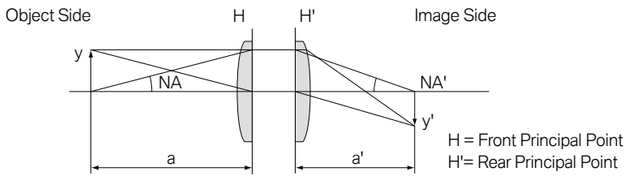
Optical Magnification

Magnification is a ratio between FOV and Camera sensor size.

$$\text{Opt.Mag} = \frac{\text{Sensor size (H) or (V)}}{\text{FOV (H) or (V)}}$$

ex.)
Sensor size = 6.8 x 4.8 mm
FOV = 12.8 x 9.6 mm

Opt. Mag= 6.8/12.9 = 0.5 x

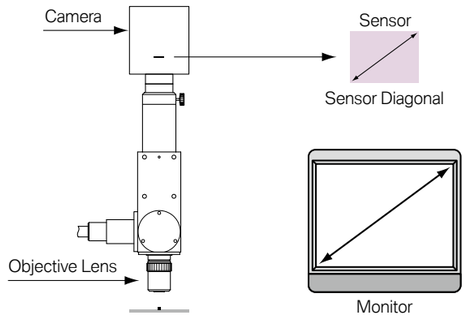


Monitor Magnification

When the image is displayed on a monitor, the diagonal of the sensor is expanded and shown to the diagonal of the monitor. The magnification on monitor is varied by sensor size and monitor display size.

$$\text{Monitor.Mag} = \frac{\text{Monitor Diagonal}}{\text{Sensor Diagonal}} \times \text{Opt. Mag}$$

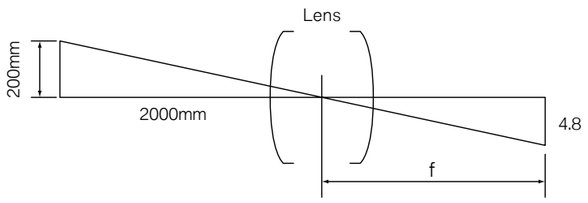
※Calculation is based on Underscan mode of monitor.
It will be slightly different when monitor is on Overscan mode.



Focal Length (f)

Distance from rear principal point (H2) to the image plane.
Required lens focal length of your application can be calculated by FOV, WD and sensor size.
This is to get approximate focal length idea only.
Please contact us for choosing a lens.

$$f(\text{mm}) = \frac{\text{WD x Sensor size (H) or (V)}}{\text{FOV (H) or (V)}}$$



ex.)
WD: 2000mm
Object height: 200mm
Sensor size: 1/2" (4.8 x 6.4mm)

$$f(\text{mm}) = \frac{2000 \times 4.8}{200} = 48\text{mm}$$

If WD is fixed, FOV will be lager when using a shorter focal lens, and smaller when using a longer focal length lens.
If FOV is fixed, WD will be shorter when using shorter focal length lens, and longer when using a longer focal length lens.

Field of View (FOV)

$$\text{FOV (H) or (V)} = \frac{\text{Sensor size (H) or (V)}}{\text{Opt. Mag}}$$

ex.) Sensor size : 1/3" (H) 4.8mm, Opt.Mag : 2.0x

$$\text{FOV(H)} = \frac{4.8}{2.0} = 2.4\text{mm}$$

※ In specification tables of this catalogue, FOV is calculated by standard size of CCD sensor. To get an exact FOV of your image, please calculate by effective pixel amount and pixel size of the sensor.

WD (Working Distance)

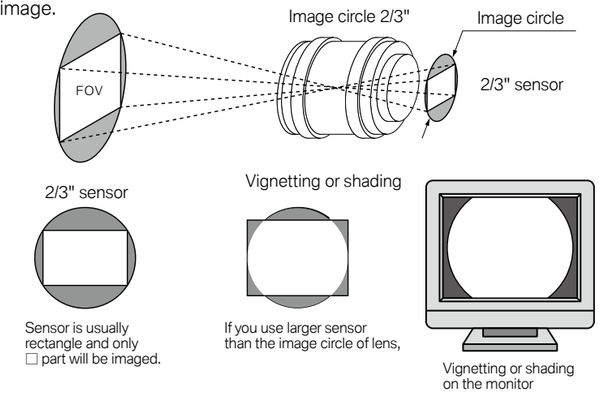
The distance between the object and front of the lens.

O/I (Object to Imager)

The distance between the object and sensor.

Image Circle , Shading

A lens has the ability to support a certain sensor size to image. The maximum sensor area that the lens can support it defined as Image Circle.If the sensor size is too large, it causes "Shading" or "Vignetting".



TV Distortion (TV.D)

The ratio of amount of bending against actual object straight line in a longitudinal direction. Expressed in percentage.

※ Distortion (D) : Refer to Diagram2

Diagram1

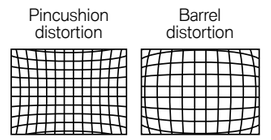
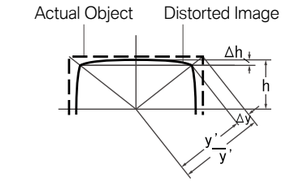


Diagram2



$$\text{TV.D} = \frac{\triangle h}{2h} \times 100 \qquad D = \frac{y' - \bar{y}'}{\bar{y}'} \times 100$$

F Number (F/#)

F number defines the brightness of lens at infinity imaging. Smaller number lens has generally brighter image.
F/# = Focal Length / Diameter of Entrance Pupil (Effective Aperture)

Working F/# (W.F/#)

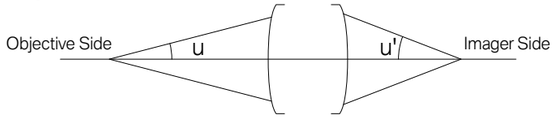
Working F# defines the brightness at a certain magnification.

$$\text{W.F/\#} = (1+\text{Opt Mag.}) \times \text{F/\#} = \text{Opt Mag.} / 2\text{NA}$$

NA (Numerical Aperture)

Measure of the cone of light accepted by a lens. NA is given by :

Object side NA = sin u x n
Imager side NA' = sin u' x n'



The half angle of objective side entrance pupil is u,
the half of image side of exit pupil is u', and objective side refractive index is n, image side refractive is n'

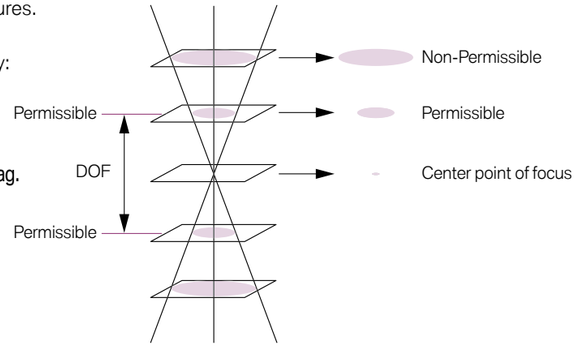
※ For macro lenses, NA is defined by: NA=M/2xF, NA'=1/2F, relation of NA and NA' is NA=NA'x Opt Mag.

Depth of Field (DOF)

DOF is a range of object distance, which the image appears to be sharp and focused.
Also a parameter describing the distance of imaging side (sensor side) is called depth of focus.
Tolerable level of blur is called Permissible Circle of Confusion, or Permissible COC.
This represents the smallest diameter of a bundle of rays when being focused on an image plan.
The diameter of Permissible COC will be definedby each application,
pixel size of camera and the person who actually measures.

The amount of DOF shown in this catalogue is given by:

DOF = 2 x Permissible COC x W.F/# / Opt Mag x Opt Mag.
DOF = Permissible COC / (Nax Opt Mag.)



※We use Permissible COC at 0.04mm in this catalogue.

Relative Illuminance

Relative Illuminance is a ratio of brightness between center and corner of the image.
It is expressed in percentage against the center in 100%.

Airy Disk and Resolution

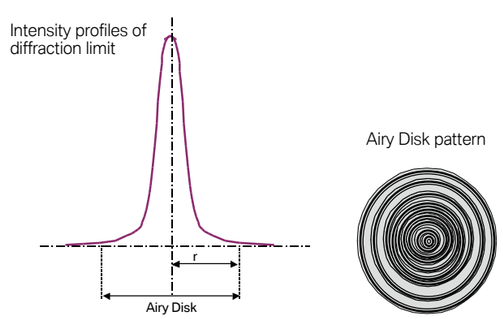
Even an ideal lens without any aberrations cannot reproduce an object detail.
Diffration will limit the resolution possible. The smallest achievable spot from a lens is called Airy Disk.
The radius r of the spot is given by wavelength λ and numerical aperture NA:

r = 0.61 x λ / NA

The longer wavelength of the illuminating light has larger spot.

ex)
A lens with NA0.07 at wavelength 550nm.
r = 0.61 x 0.55 / 0.07 = 4.8um.

The resolution on the specification sheet of
VST is given by this equation.



Resolving Power

Resolving power is expressed in terms of the number of line-pairs per millimeter (lp/mm) - the most number of black and white lines in one millimeter to be distinguished. The contrast level of image has to be defined to avoid differences between individuals.

MTF and Resolution

The modulation transfer function (MTF) describes how the contrast varies with respect to spatial frequency. MTF represents the ability of a lens to transfer information from the object to the image.
The contrast is usually measured by a spatial frequency test target with black and white line pairs and if the intensity between black and white is perfectly described, contrast (modulation) is 100%. (Figure 1)

If the features between black and white (gray level) cannot be resolved, the contrast is too low. Higher spatial frequency is usually imaged with less contrast because of aberrations of lens.

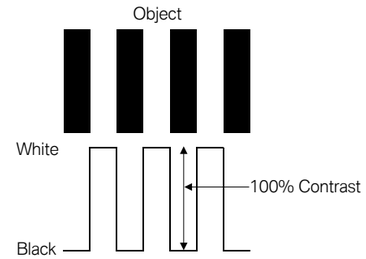


Figure 1

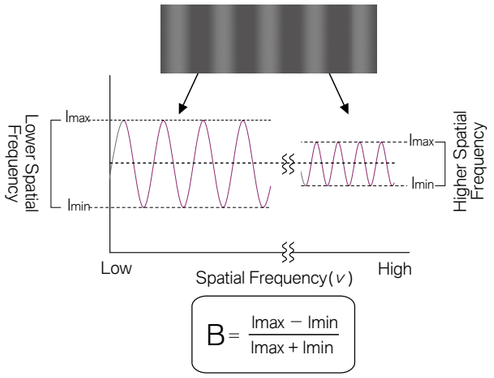


Figure 2(Object side)

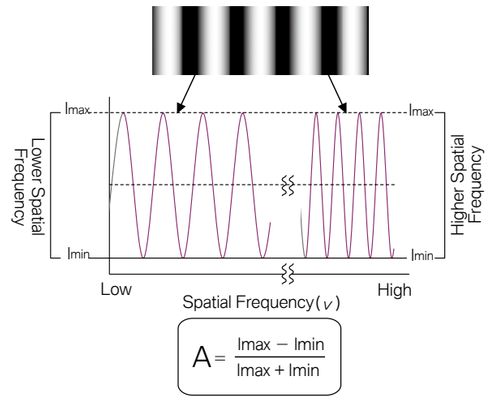


Figure 3(Image side)

Figure 2 and 3 shows the spatial frequency against gray level at object side A and image (sensor) side B. The contrast (MTF) is given by ratio of A and B.
Resolution is the ability of lens to distinguish between two features that are close together. It is generally expressed in micrometers but it is affected by contrast, too. MTF express the relation between resolution and contrasts.
Lens has lower MTF at higher frequency and MTF below 0.1 is normally not able to be resolved black and white which is usually lower resolution number than calculated.

Figure 4 shows two different lenses with different spatial frequency in each contrast level. Lens "a" has low resolution level but high contrast at low spatial frequency, however, higher resolution lens "b" has lower contrast at same level of frequency. Thus, lens "b" is higher resolution than lens "a" at high frequency level.
But in actual machine vision applications, lens ability depends on different issues and it is not necessarily appropriate to suggest a lens only by resolution numbers.

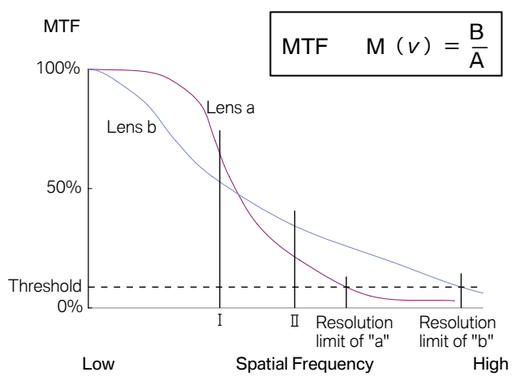
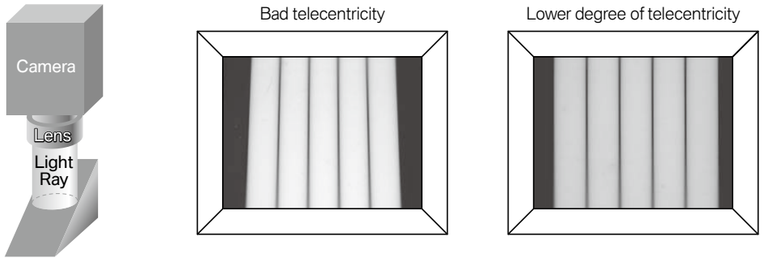


Figure 4

Telecentricity

Telecentricity determines the amount that magnification changes with working distance. Better telecentricity means less magnification changes. Telecentric lens has parallel chief rays to its optical axis and bad telecentricity lenses produce images with higher magnification when the object is closer and the object can be seen differently between center and field of image.
The degree of telecentricity is measured by the chief ray angle in the corner of the image field. You can easily check the telecentricity using a target as shown below. Telecentric lens is very important for gauging threedimensional objects or objects whose working distance is not stable.



Type of machine vision Lenses

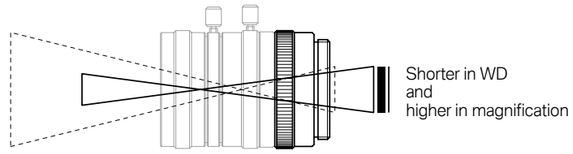
Generally machine vision optics are classified into Macro lens for high magnification and CCTV or photographic lens for infinity imaging.
Telecentric lens is categorized as macro lens. Most of maco lens is spacially designed for short working distance (WD:10mm-500mm) to have high image quality in brightness, distortion, resolution in entire field of view (FOV).
Macro lens is often designed for specific WD without a focus adjustment and you need to set-up the camera position precisely.
The out line of machine vision lenses are shown as below Table.

	Feature	Advantages	Disadvantages
Telecentric Lens	The chief ray is parallel to its optical axis. Necessary for co-axial illumination	High measurement accuracy in height wise. No perspective error in entire field.	Big in dimensions Expensive
Macro Lens	Specially designed for short working distance.	Small distortion Compact & Lightweight Vibration resistance	Able to focus in a certain range only. Limited FOV(magnification) range.
CCTV Lens	Able to focus infinity Adjustable focus and iris	Wide range of FOV and WD Low cost Suitable for large FOV	Weak in vibration Distortion in short WD
Line sensor Lens	Specially designed for long line sensor Usually come with big camera mount	Small distortion and shading Vibration resistance	Big in size and heavy weight
Zoom Lens	Enable to change magnification without changing WD and camera position.	Suitable for the application which need to change magnifiaction frequently.	Big in dimensions

Extension Tube

Tubes used between lens and camera
when you need to focus in shorter WD
than the lens MOD(minimum object distance).
FOV will be also smaller consequesntly.

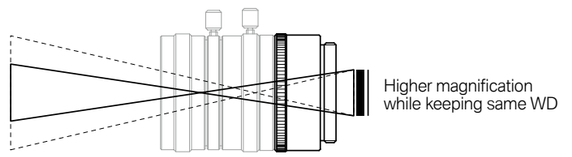
SV-EXR series are available in 12 length type from 0.2mm to 50mm and also length adjustable type.



Rear Converter Lens

A optional lens used between lens
and camera when you need to get higher magnification
(smller FOV) without changing WD.

SV-X series are from 1.5x to 5.0x.



Duration of Warranty

One year from the date of purchase of the product to VST in principle.

Terms of Warranty

Under the warranty, VST Corp. shall replace or repair the defective parts or replace products without any charge, if failure or defection should occur during ordinary use.
This warranty does not cover products under the following conditions.

VST shall not be responsible for the following conditions:

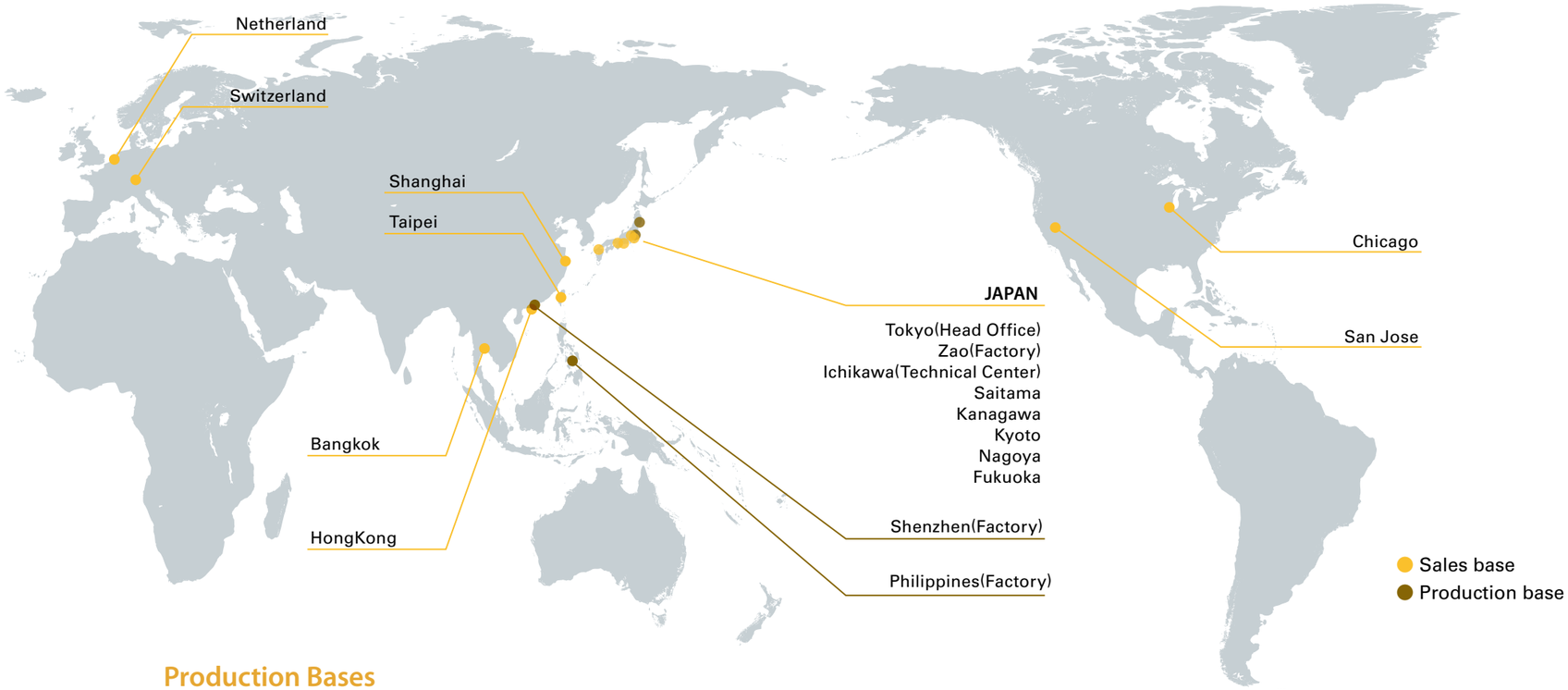
① The damages resulting from external causes including accident of fire, earthquake, flood,thunderstorm ,electrical surges, and other natural disaster.
② The products have been broken-down or damaged as the result of dropping or other impact, due to inappropriate handling.
③ The damage caused by the connected to the product.
④ The products which have been subjected to improper repair, modification or altered by anyone other than VST.
⑤ The damage caused by the reasons which nobody could predict due to limitations of technology in the time of shipment or the contract between customer and VST.
⑥ The collateral damage such as the loss of business interests or business interruption caused by the use of products or the unusable goods.
⑦ The impediment or loss such as a late ot lost package and etc. attribute to export contracts.

Preliminary Note

Please note that we will announce you 3mounths in advance on our website in the case that
we discontinue the products or change the specifications of the products in this catalogue and we will integrate to subsequent model.

Network

VS Technology provides services from our headquarters in Japan, as well as other offices around the world with cutting edge development in U.S., Europe, China , Taiwan and South East Asia that combine into a network that facilitates providing cutting-edge information and responds to customer needs.



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