

INDUSTRIAL FA LENSES

2018 Ver.1.0



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KOWA FA LENSES
13006699017



About Us

Kowa Optical Products Co., Ltd. is part of Kowa Company Limited, one of the largest privately own companies founded in 1894 in Japan. Kowa produces a wide variety of products in a number of industries such as healthcare, industrial, and energy conservation.

Since 1946, we have been developing, manufacturing and supplying optical equipment such as FA lens, security lens, spotting scope, binoculars and sightseeing binoculars. And have steadily developed in the optical industry as pioneering various new products ahead of the times.

We are actively developing businesses by enhancing our technology and being aware of the needs of society so as to provide more advanced products.



Function Icons

FIXED Fixed Focal Lens

VARI Varifocal Lens

ZOOM Manual Zoom Lens

21MEGA Lens for 21 Megapixel Camera

12MEGA Lens for 12 Megapixel Camera

10MEGA Lens for 10 Megapixel Camera

8MEGA Lens for 8 Megapixel Camera

6MEGA+ Lens for 6 Megapixel Plus Camera

5MEGA+ Lens for 5 Megapixel Plus Camera

5MEGA Lens for 5 Megapixel Camera

3MEGA Lens for 3 Megapixel Camera

MEGA Lens for Megapixel Camera

3CCD Lens for 3CCD Camera

C-mt C-mount Lens

NF-mt NF-mount Lens

METAL Lens with Metal Body

RUGGED Ruggedized lens

FLOAT Floating Mechanism Design

DIS-F Distortion Free

LO-DIS Low Distortion

XD Extra Low Dispersion

IR Infrared

WBMC Wide-Band Multi-Coating

4/3" 4/3 Inch Format Lens

1.1" 1.1 Inch Format Lens

1" 1 Inch Format Lens

2/3" 2/3 Inch Format Lens

1/1.8" 1/1.8 Inch Format Lens

1/2" 1/2 Inch Format Lens

1/3" 1/3 Inch Format Lens

fmm Focal Length (mm)

04	4/3" 8 MEGAPIXEL	XC SERIES	LM8XC	LM12XC	LM16XC	LM25XC	LM35XC	LM50XC
NEW 06	1.1" 12 MEGAPIXEL	FC SERIES	LM8FC	LM16FC	LM25FC	LM35FC		
08	1" 6 MEGAPIXEL PLUS	SC SERIES	LM12SC	LM16SC	LM25SC	LM35SC	LM50SC	
10	1" MEGAPIXEL	HC SERIES	LM6HC	LM8HC	LM12HC	LM16HC	LM25HC	LM35HC
12	1" RUGGEDIZED MEGAPIXEL	HC-V SERIES	LM8HC-V	LM12HC-V	LM16HC-V	LM25HC-V	LM35HC-V	LM50HC-V
14	2/3" 10 MEGAPIXEL	JC10M SERIES	LM5JC10M	LM8JC10M	LM12JC10M	LM16JC10M	LM25JC10M	LM35JC10M
16	2/3" 5 MEGAPIXEL	JC5M2 SERIES	LM12JC5M2	LM16JC5M2	LM25JC5M2	LM35JC5M2		
NEW 18	2/3" 3 MEGAPIXEL	JC3M2 SERIES	LM8JC3M2	LM12JC3M2	LM16JC3M2	LM25JC3M2	LM35JC3M2	LM50JC3M2
20	WIDE MEGAPIXEL		LM3NCM	LM4NCM	LM6NCM	LM5JCM		
22	2/3" MEGAPIXEL	JCM SERIES	LM8JCM	LM12JCM	LM16JCM	LM25JCM	LM35JCM	LM50JCM
NEW 24	2/3" RUGGEDIZED MEGAPIXEL	JCM-V SERIES	LM5JCM-V	LM8JCM-V	LM12JCM-V	LM16JCM-V	LM25JCM-V	LM35JCM-V
26	2/3" STANDARD	JC SERIES	LM6JC	LM8JC	LM12JC	LM16JC	LM25JC	LM35JC
27	1/1.8" STANDARD	NCL SERIES	LM4NCL	LM5NCL	LM6NCL	LM12NCL		
28	1" SWIR MEGAPIXEL	HC-SW SERIES	LM8HC-SW	LM12HC-SW	LM16HC-SW	LM25HC-SW	LM35HC-SW	LM50HC-SW
NEW 30	NIR & DAY/NIGHT	SERIES	LM16JCSMIR	LM25JCSMIR	LM35JCSMIR	LM50HC-IR	LM60HC-IR	LM50-IR
32	LINE SCAN	LF SERIES	LM28LF	LM35LF	LM50LF			
32	3CCD LARGE FORMAT	CLS SERIES	LM28CLS	LM35CLS	LM50CLS			
33	1/3" NF-MOUNT	NF SERIES	LM3NF	LM5NF	LM9NF			
34	1/1.8" 3CCD MEGAPIXEL	NC3 SERIES	LM4NC3	LM6NC3	LM12NC3	LM25NC3	LM50NC3	
35	MACRO ZOOM		LMZ50M	LMZ45T3	LMZ68M	LMZ69M		
36	TELECENTRIC	TC SERIES	LM1119TC	LM1138TC	LM1120TC	LM1121TC	LM1122TC	LM1123TC
38	VARIFOVAL		LMVZ166HC	LMVZ4411	LMVZ655	LMVZ990-IR		

XC Series

High Resolution FA/MV Lenses

Features of XC Series

- ▶ Large image size of $\Phi 23\text{mm}$ incorporated within a C-mount design.
- ▶ Megapixel resolution is maintained throughout the entire image even when the iris is fully opened.
- ▶ High precision aspherical lens greatly reduces distortion and produces a high-definition picture.
- ▶ The LM8XC generates a very wide 93.5° horizontal angle of view.
- ▶ Kowa's floating mechanism system virtually eliminates optical aberrations from close distance to infinity.

LM8XC



Model	LM8XC
Focal Length(mm)	8.5
Image Size(mm)	18.4×13.8(Φ23)
Iris Range(F-stop)	F2.8~F22
Focusing Range(m)	0.1~∞
Control	Iris Focus
Shooting Range at M.O.D.(mm)	238.4(H)×179.1(V)
Angle of View (Degrees)	4/3 Inch 93.5×77.1 1.1 Inch 78.2×62.7 1 Inch 72.9×57.9 2/3 Inch 53.8×41.6
Resolution(Center, Corner)	160lp/mm, 80lp/mm
TV Distortion(%)	0.12
Back Focus in Air(mm)	12.9
Mount	C-mount
Filter Thread(mm)	M72×P0.75
Size(mm)	Φ74×82.5
Weight(g)	245
Temperature Range	-10°C~+50°C

LM12XC



Model	LM12XC
Focal Length(mm)	12
Image Size(mm)	18.4×13.8(Φ23)
Iris Range(F-stop)	F2.0~F22
Focusing Range(m)	0.1~∞
Control	Iris Focus
Shooting Range at M.O.D.(mm)	181.5(H)×135.5(V)
Angle of View (Degrees)	4/3 Inch 74.9×59.6 1.1 Inch 60.6×47.1 1 Inch 55.9×43.1 2/3 Inch 39.8×30.2
Resolution(Center, Corner)	160lp/mm, 80lp/mm
TV Distortion(%)	0.59
Back Focus in Air(mm)	13.0
Mount	C-mount
Filter Thread(mm)	M55×P0.75
Size(mm)	Φ57×85
Weight(g)	270
Temperature Range	-10°C~+50°C

Magnification Using A Close Up Ring

You can use close up rings to increase the magnification and decrease the minimum object distance (M.O.D.) of the lens. Simply screw in the spacer ring between the threads of the lens mount and camera.



† Images may differ from the actual product.

LM16XC



LM25XC



LM35XC



LM50XC



Model	LM16XC	LM25XC	LM35XC	LM50XC
Focal Length(mm)	16	25	35	50
Image Size(mm)	18.4×13.8(Φ23)	18.4×13.8(Φ23)	18.4×13.8(Φ23)	18.4×13.8(Φ23)
Iris Range(F-stop)	F2.0~F22	F2.0~F16	F2.0~F16	F2.0~F22
Focusing Range(m)	0.1~∞	0.15~∞	0.2~∞	0.3~∞
Control	Iris Focus	Manual Manual	Manual Manual	Manual Manual
Shooting Range at M.O.D.(mm)	134.6(H)×100.8(V)	124.8(H)×93.0(V)	100.3(H)×75.3(V)	100.2(H)×75.5(V)
Angle of View (Degrees)	4/3 Inch 60.6×47.2 1.1 Inch 48.0×36.8 1 Inch 44.0×33.6 2/3 Inch 30.9×23.3	40.9×31.1 31.8×24.0 28.9×21.8 20.1×15.2	29.6×22.4 22.8×17.2 20.8×15.6 14.3×10.8	20.6×15.7 16.0×12.0 14.6×11.0 10.1×7.6
Resolution(Center, Corner)	160lp/mm, 80lp/mm	160lp/mm, 80lp/mm	160lp/mm, 80lp/mm	160lp/mm, 80lp/mm
TV Distortion(%)	0.02	-0.57	-0.17	0.80
Back Focus in Air(mm)	13.0	24.3	15.2	21.6
Mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M40.5×P0.5	M40.5×P0.5	M37.5×P0.5	M37.5×P0.5
Size(mm)	Φ45×79.5	Φ45×89	Φ45×74	Φ47×78
Weight(g)	250	255	210	235
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

Diagram of M.O.D. / Magnification Using A Close Up Ring

Model	LM8XC	LM12XC	LM16XC	LM25XC	LM35XC	LM50XC
(Non)M.O.D./Magnification	100mm/0.08×	100mm/0.10×	100mm/0.14×	150mm/0.15×	200mm/0.18×	300mm/0.18×
(1mm Ring)M.O.D./Magnification	30mm/0.19×	48mm/0.19×	64mm/0.20×	115mm/0.19×	174mm/0.21×	273mm/0.20×
(5mm Ring)M.O.D./Magnification	-	-	21mm/0.46×	56mm/0.35×	117mm/0.33×	204mm/0.28×
(10mm Ring)M.O.D./Magnification	-	-	-	31mm/0.55×	85mm/0.48×	158mm/0.39×
(20mm Ring)M.O.D./Magnification	-	-	-	12mm/0.96×	58mm/0.77×	115mm/0.59×

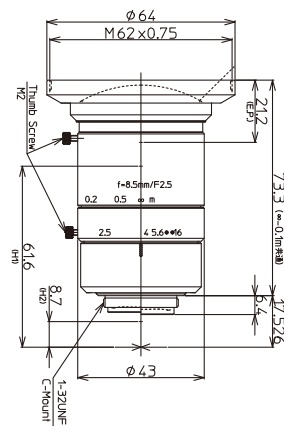
† Images may differ from the actual product.

FC Series

High Resolution FA/MV Lens

Features of FC Series

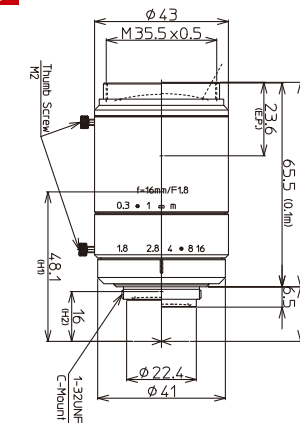
- ▶ Large image size of $\Phi 17.6\text{mm}$ (C-mount).
- ▶ Design optimization allows the high resolution compact lens.
- ▶ The extensive lineup of focal length.
8.5mm, 16mm, 25mm, 35mm
(plan: delivery from Spring 2018).
6.5mm, 12mm
(plan: delivery from Autumn 2018).
- ▶ Kowa's wide-band multi-coating effectively decreases glare and refraction and produces a high transmission from the visible to NIR wavelength range.



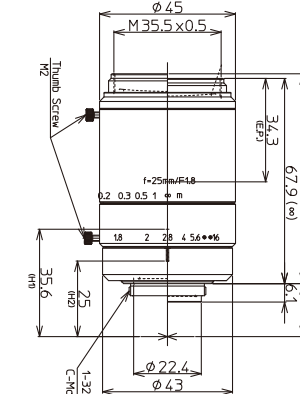
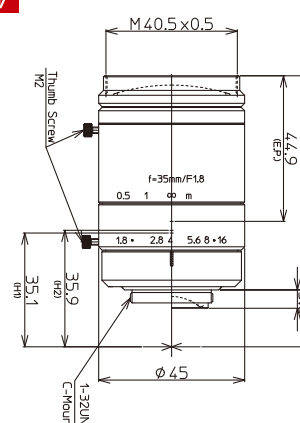
Model		LM8FC
Focal Length(mm)		8.5
Image Size(mm)		14.1×10.6(Φ17.6)
Iris Range(F-stop)		F2.5-F16
Focusing Range(m)		0.1~∞
Control	Iris	Manual
	Focus	Manual
Shooting Range at M.O.D.(mm)		184(H)×138(V)
Angle of	1.1 Inch	79.2×63.8
View	1 Inch	73.9×58.8
(Degrees)	2/3 Inch	54.5×42.1
TV Distortion(%)		0.55
Back Focus in Air(mm)		12.9
Mount		C-mount
Filter Thread(mm)		M62×P0.75
Size(mm)		Φ64×73.3
Weight(g)		230
Temperature Range		-10°C~+50°C



LM16FC **NEW**



LM25FC **NEW**

LM35FC **NEW**

Model		LM16FC
Focal Length(mm)		16
Image Size(mm)		14.1×10.6(Φ17.6)
Iris Range(F-stop)		F1.8~F16
Focusing Range(m)		0.1~∞
Control	Iris	Manual
	Focus	Manual
Shooting Range at M.O.D.(mm)		102(H)×77(V)
Angle of View	1.1 Inch	48.0×36.7
	1 Inch	43.6×33.4
(Degrees)	2/3 Inch	30.8×23.3
TV Distortion(%)		-0.4
Back Focus in Air(mm)		11.9
Mount		C-mount
Filter Thread(mm)		M35.5×P0.5
Size(mm)		Φ43×65.7
Weight(g)		200
Temperature Range		-10°C~+50°C

Model		LM25FC
Focal Length(mm)		25
Image Size(mm)		14.1×10.6(Φ17.6)
Iris Range(F-stop)		F1.8~F16
Focusing Range(m)		0.1~∞
Control	Iris	Manual
	Focus	Manual
Shooting Range at M.O.D.(mm)		64(H)×48(V)
Angle of View	1.1 Inch	31.5×23.9
	1 Inch	28.7×21.7
(Degrees)	2/3 Inch	20.0×15.0
TV Distortion(%)		-0.3
Back Focus in Air(mm)		13.3
Mount		C-mount
Filter Thread(mm)		M35.5×P0.5
Size(mm)		Φ45×69.4
Weight(g)		220
Temperature Range		-10°C~+50°C

Model	LM35FC
Focal Length(mm)	35
Image Size(mm)	14.1×10.6(Φ17.6)
Iris Range(F-stop)	F1.8~F16
Focusing Range(m)	0.2~∞
Control	Iris
	Focus
Shooting Range at M.O.D.(mm)	84(H)×63(V)
Angle of	1.1 Inch
View	1 Inch
(Degrees)	2/3 Inch
TV Distortion(%)	0.01
Back Focus in Air(mm)	15.5
Mount	C-mount
Filter Thread(mm)	M40.5×P0.5
Size(mm)	Φ45×66
Weight(g)	205
Temperature Range	-10°C~+50°C

Diagram of M.O.D. / Magnification Using A Close Up Ring

Model	LM8FC	LM16FC	LM25FC	LM35FC
(Non)M.O.D./Magnification	100mm/0.08×	100mm/0.14×	100mm/0.22×	200mm/0.17×
(1mm Ring)M.O.D./Magnification	28mm/0.19×	64mm/0.20×	82mm/0.26×	170mm/0.20×
(5mm Ring)M.O.D./Magnification	—	20mm/0.45×	45mm/0.41×	106mm/0.31×
(10mm Ring)M.O.D./Magnification	—	—	25mm/0.61×	71mm/0.46×
(20mm Ring)M.O.D./Magnification	—	—	—	42mm/0.75×

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SC Series

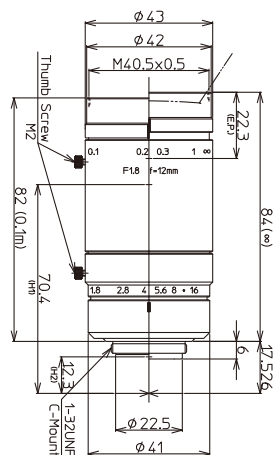
High Resolution FA/MV Lenses

Features of SC Series

- ▶ Large image size of $\Phi 16\text{mm}$ (C-mount).
- ▶ Able to maintain a sharp image with high resolution and contrast from the center to the corners of an image (less degradation of corner resolution).
- ▶ High precision aspherical lens greatly reduces distortion and creates a short minimum object distance.
- ▶ Kowa's wide-band multi-coating effectively decreases glare and refraction and produces a high transmission from the visible to NIR wavelength range.



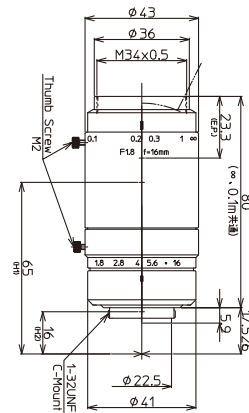
LM12SC



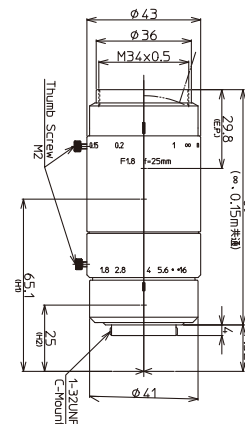
Model	LM12SC
Focal Length(mm)	12
Image Size(mm)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.8~F16
Focusing Range(m)	0.1~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	125.5(H)×93.5(V)
Angle of 1 Inch	55.9×43.1
View 2/3 Inch	39.8×30.2
(Degrees) 1/1.8 Inch	32.9×24.9
Resolution(Center, Corner)	160lp/mm, 120lp/mm
TV Distortion(%)	-0.55
Back Focus in Air(mm)	13.0
Mount	C-mount
Filter Thread(mm)	M40.5×P0.5
Size(mm)	Φ43×84.0
Weight(g)	255
Temperature Range	-10°C~+50°C



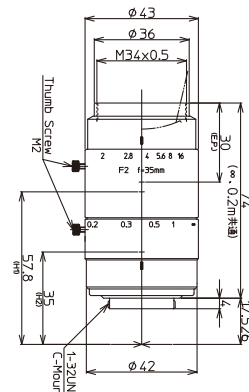
LM16SC



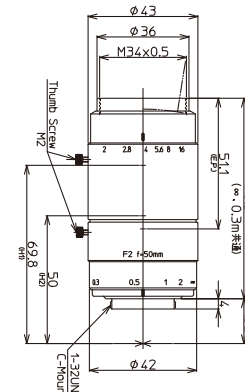
LM25SC



LM35SC



LM50SC



Model	LM16SC	LM25SC	LM35SC	LM50SC
Focal Length(mm)	16	25	35	50
Image Size(mm)	12.8×9.6(Φ16)	12.8×9.6(Φ16)	12.8×9.6(Φ16)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.8~F16	F1.8~F16	F2.0~F16	F2.0~F16
Focusing Range(m)	0.1~∞	0.15~∞	0.2~∞	0.3~∞
Control Iris	Manual	Manual	Manual	Manual
Focus	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	93.5(H)×69.9(V)	86.1(H)×64.4(V)	69.9(H)×52.4(V)	70.1(H)×52.7(V)
Angle of 1 Inch	44.0×33.6	28.9×21.8	20.8×15.6	14.6×11.0
View 2/3 Inch	30.9×23.3	20.1×15.2	14.3×10.8	10.1×7.6
(Degrees) 1/1.8 Inch	25.5×19.2	16.5×12.4	11.7×8.8	8.3×6.2
Resolution(Center, Corner)	160lp/mm, 120lp/mm	160lp/mm, 120lp/mm	160lp/mm, 120lp/mm	160lp/mm, 120lp/mm
TV Distortion(%)	0.02	-0.34	0.02	0.30
Back Focus in Air(mm)	13.0	24.3	15.2	21.6
Mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M34×P0.5	M34×P0.5	M34×P0.5	M34×P0.5
Size(mm)	Φ43×80.0	Φ43×89.0	Φ43×74.0	Φ43×78.5
Weight(g)	240	245	200	210
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

Diagram of M.O.D. / Magnification Using A Close Up Ring

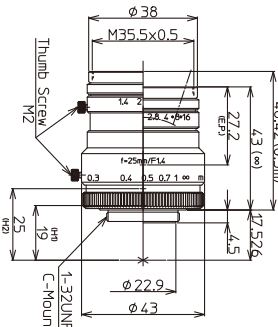
Model	LM12SC	LM16SC	LM25SC	LM35SC	LM50SC
(Non)M.O.D./Magnification	100mm/0.10×	100mm/0.14×	150mm/0.15×	200mm/0.18×	300mm/0.18×
(1mm Ring)M.O.D./Magnification	48mm/0.19×	64mm/0.20×	115mm/0.19×	174mm/0.21×	273mm/0.20×
(5mm Ring)M.O.D./Magnification	-	21mm/0.46×	56mm/0.35×	117mm/0.33×	204mm/0.28×
(10mm Ring)M.O.D./Magnification	-	-	31mm/0.55×	85mm/0.48×	158mm/0.39×
(20mm Ring)M.O.D./Magnification	-	-	12mm/0.96×	58mm/0.77×	115mm/0.59×

† Images may differ from the actual product.

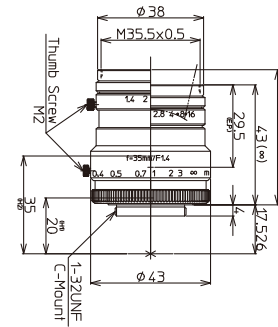
† Images may differ from the actual product.

HC Series

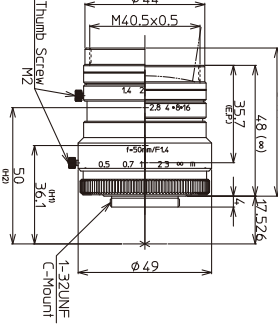
- LM25HC**



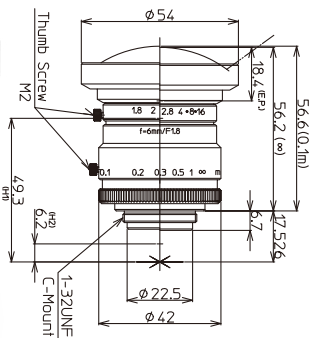
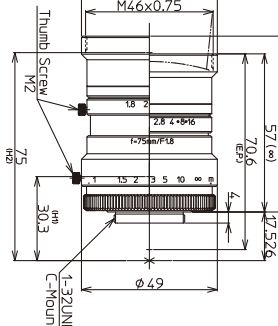
LM35HC



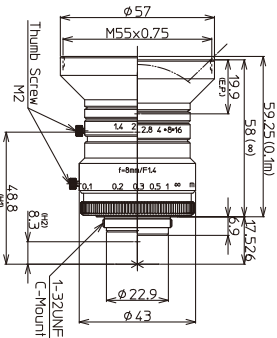
LM50HC



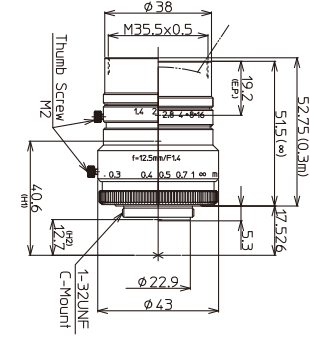
LM75HC



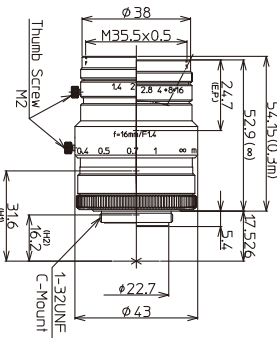
LM8HC



LM12HC



LM16HC



Model	LM25HC	LM35HC	LM50HC	LM75HC
Focal Length(mm)	25	35	50	75
Image Size(mm)	12.8×9.6(Φ16)	12.8×9.6(Φ16)	12.8×9.6(Φ16)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F1.4~F16	F1.8~F16
Focusing Range(m)	0.3~∞	0.3~∞	0.5~∞	1.0~∞
Control	Iris	Manual	Manual	Manual
	Focus	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	160.7(H)×119.2(V)	110.1(H)×82.0(V)	121.8(H)×91.3(V)	165.5(H)×123.9(V)
Angle of 1 Inch	29.3×22.0	20.9×15.8	14.5×10.8	9.7×7.3
View 2/3 Inch	20.2×15.1	14.4×10.8	10.0×7.5	6.7×5.0
(Degrees) 1/1.8 Inch	16.5×12.4	11.8×8.8	8.2×6.2	5.5×4.1
Resolution(Center, Corner)	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm
TV Distortion(%)	-1.0	-0.5	0.05	-0.2
Back Focus in Air(mm)	16.5	16.8	14.8	14.5
Mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M35.5×P0.5	M35.5×P0.5	M40.5×P0.5	M46×P0.75
Size(mm)	Φ43×43	Φ43×43	Φ49×48	Φ49×57
Weight(g)	135	135	210	195
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

Model	LM6HC	LM8HC	LM12HC	LM16HC	LM25HC	LM35HC	LM50HC	LM75HC
(Non)I.O.D./Magnification	100mm/0.05×	100mm/0.07×	300mm/0.04×	300mm/0.05×	300mm/0.08×	300mm/0.12×	500mm/0.11×	1000mm/0.078×
(1mm Ring)I.O.D./Magnification	—	—	93mm/0.12×	134mm/0.11×	200mm/0.12×	243mm/0.15×	424mm/0.13×	858mm/0.091×
(5mm Ring)I.O.D./Magnification	—	—	—	—	83mm/0.28×	138mm/0.26×	269mm/0.20×	553mm/0.14×
(10mm Ring)I.O.D./Magnification	—	—	—	—	—	91mm/0.40×	189mm/0.30×	389mm/0.21×
(20mm Ring)I.O.D./Magnification	—	—	—	—	—	—	124mm/0.50×	251mm/0.34×

† Images may differ from the actual product.

High Resolution FA/MV Lenses

Kowa's new HC-V series is made for use in high vibration and shock environments. With a design based on Kowa's standard 1" HC lenses, this new ruggedized megapixel lens series is ideal for applications that require increased durability and high optical performance.

- ▶ For megapixel applications requiring a sensor size of 1" ($\Phi 16\text{mm}$).
- ▶ Unique mechanical design to guard against strong vibration and shock.
- ▶ Two way reversible nut is utilized to tightly lock the focus adjustment ring in place.
- ▶ All internal glass elements are glued to the inside housing to improve stability.
- ▶ Interchangeable iris plates are used to select the F-stop.

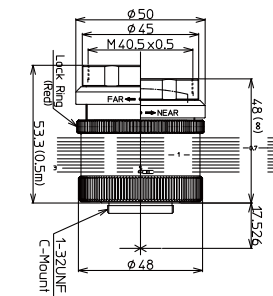
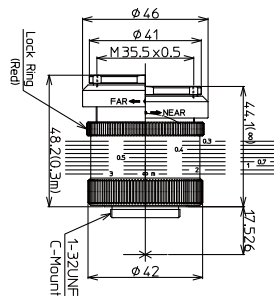
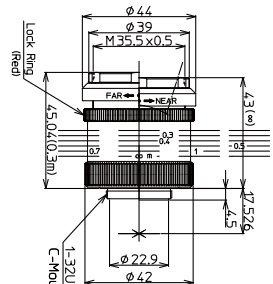
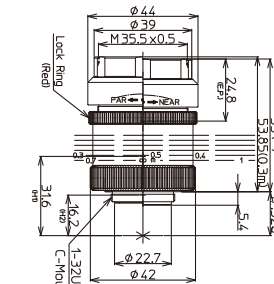
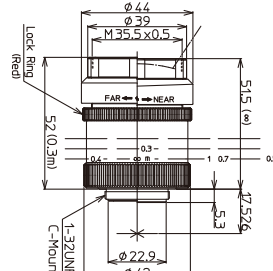
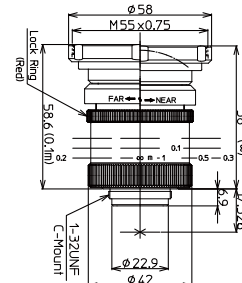
1 The HC-V series uses interchangeable iris plates instead of mechanical iris diaphragms with moving blades. You can choose from four iris plates to adjust the F-stop.



- 2 Unscrew the bottom ring of the outside body to adjust the focus to optimal position.
- 3 Screw the red two way reversible nut on the center body towards the bottom ring to lock in the focus.



Two Way Reversible Nut



Model	LM8HC-V	LM12HC-V	LM16HC-V	LM25HC-V	LM35HC-V	LM50HC-V
Focal Length (mm)	8	12.5	16	25	35	50
Image Size (mm)	12.8×9.6 (Φ16)	12.8×9.6 (Φ16)	12.8×9.6 (Φ16)	12.8×9.6 (Φ16)	12.8×9.6 (Φ16)	12.8×9.6 (Φ16)
Iris Range (F-stop)	F1.4 / F2.8 / F4 / F8	F1.4 / F2.8 / F4 / F8	F1.4 / F2.8 / F4 / F8	F1.4 / F2.8 / F4 / F8	F1.4 / F2.8 / F4 / F8	F1.4 / F2.8 / F4 / F8
Focusing Range (m)	0.1~∞	0.3~∞	0.3~∞	0.3~∞	0.3~∞	0.5~∞
Control	Iris	-	-	-	-	-
	Focus	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D. (mm)	196.0(H)×143.0(V)	330.6(H)×243.5(V)	251.5(H)×186.2(V)	160.7(H)×119.2(V)	110.1(H)×82.0(V)	121.8(H)×91.3(V)
Angle of	1 Inch	79.7×63.0	55.6×42.5	44.3×33.6	29.3×22.0	20.9×15.8
View	2/3 Inch	58.3×44.7	39.1×29.5	30.8×23.2	20.2×15.1	14.4×10.8
(Degrees)	1/1.8 Inch	48.5×36.9	32.1×24.2	25.3×19.0	16.5×12.4	11.8×8.8
TV Distortion (%)	-1.2	-1.58	-1.0	-1.0	-0.5	0.05
Back Focus in Air(mm)	11.2	12.6	12.6	16.5	16.8	14.8
Mount	C-mount	C-mount	C-mount	C-mount	C-mount	C-mount
Filter Thread (mm)	M55×P0.75	M35.5×P0.5	M35.5×P0.5	M35.5×P0.5	M35.5×P0.5	M40.5×P0.5
Size (mm)	Φ58×58	Φ44×51.5	Φ44×53	Φ44×43	Φ46×44.1	Φ50×48
Weight(g)	183	130	120	104	133	170
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

† Images may differ from the actual product.

† Images may differ from the actual product

JC10M Series

High Resolution FA/MV Lenses

Features of JC10M Series

- ▶ 200lp/mm center resolution and low distortion maximize performance of high-end inspection.
- ▶ Incorporating Kowa's wide-band multi-coating and floating mechanism system, the JC10M lens series greatly reduces chromatic aberration from close distance to infinity and maintains a high transmission from visible to NIR.
- ▶ Short minimum object distance and compact design using aspherical lenses (5 models/f=5~25mm) allow for easy installation in compact machine vision systems.



LM5JC10M



Model	LM5JC10M
Focal Length(mm)	5
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.8~F16
Focusing Range(m)	0.1~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	197.0(H)×147.0(V)
Angle of View	82.2×66.5
View (Degrees)	71.1×56.5
(Degrees)	64.9×51.1
Resolution(Center, Corner)	200lp/mm, 160lp/mm
TV Distortion(%)	-0.33
Back Focus in Air(mm)	10.3
Mount	C-mount
Filter Thread(mm)	M46×P0.75
Size(mm)	Φ48×59.4
Weight(g)	120
Temperature Range	-10°C~+50°C

2/3" 1/1.8" 1/2" 5mm FIXED 10MEGA C-mnt METAL LO-DIS FLOAT XD WBMC
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

LM8JC10M



2/3" 1/1.8" 1/2" 8.5mm
FIXED 10MEGA C-mnt METAL LO-DIS FLOAT XD WBMC
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

LM12JC10M



2/3" 1/1.8" 1/2" 12mm
FIXED 10MEGA C-mnt METAL LO-DIS FLOAT XD WBMC
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

LM16JC10M



2/3" 1/1.8" 1/2" 16mm
FIXED 10MEGA C-mnt METAL LO-DIS FLOAT WBMC
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Wide-Band Multi-Coating

LM25JC10M



2/3" 1/1.8" 1/2" 25mm
FIXED 10MEGA C-mnt METAL LO-DIS FLOAT WBMC
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Wide-Band Multi-Coating

LM35JC10M



2/3" 1/1.8" 1/2" 35mm
FIXED 10MEGA C-mnt METAL LO-DIS FLOAT WBMC
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Wide-Band Multi-Coating

LM50JC10M



2/3" 1/1.8" 1/2" 50mm
FIXED 10MEGA C-mnt METAL LO-DIS FLOAT XD WBMC
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

Model	LM8JC10M	LM12JC10M	LM16JC10M	LM25JC10M	LM35JC10M	LM50JC10M
Focal Length(mm)	8.5	12	16	25	35	50
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.8~F22	F1.8~F11	F1.8~F16	F1.8~F16	F2.0~F16	F2.8~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞	0.1~∞	0.1~∞	0.1~∞
Control Iris	Manual	Manual	Manual	Manual	Manual	Manual
Focus	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	133.2(H)×99.6(V)	80.7(H)×60.2(V)	61.1(H)×45.7(V)	36.7(H)×27.5(V)	23.4(H)×17.6(V)	19.1(H)×14.3(V)
Angle of View	54.0×41.9	39.1×29.8	30.0×22.7	20.0×15.1	14.3×10.8	10.1×7.6
View (Degrees)	45.3×34.8	32.4×24.6	24.7×18.6	16.4×12.3	11.7×8.8	8.2×6.1
(Degrees)	40.8×31.2	28.9×21.9	22.0×16.6	14.6×11.0	10.4×7.8	7.3×5.5
Resolution(Center, Corner)	200lp/mm, 160lp/mm	200lp/mm, 160lp/mm	200lp/mm, 160lp/mm	200lp/mm, 160lp/mm	200lp/mm, 160lp/mm	200lp/mm, 160lp/mm
TV Distortion(%)	0.31	-0.12	-0.20	-0.09	0.05	-0.02
Back Focus in Air(mm)	12.1	13.9	14.6	17.9	14.2	12.8
Mount	C-mount	C-mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M34×P0.5	M25.5×P0.5	M25.5×P0.5	M25.5×P0.5	M34×P0.5	M30.5×P0.5
Size(mm)	Φ36×56.0	Φ33×53.5	Φ33×47.5	Φ33×45.5	Φ43×49	Φ38×77
Weight(g)	115	105	90	95	160	170
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

Diagram of M.O.D. / Magnification Using A Close Up Ring

Model	LM5JC10M	LM8JC10M	LM12JC10M	LM16JC10M	LM25JC10M	LM35JC10M	LM50JC10M
(Non)M.O.D./Magnification	100mm/0.05×	100mm/0.07×	100mm/0.11×	100mm/0.15×	100mm/0.24×	100mm/0.38×	100mm/0.46×
(1mm Ring)M.O.D./Magnification	-	20mm/0.20×	48mm/0.19×	61mm/0.21×	79mm/0.28×	85mm/0.40×	91mm/0.48×
(5mm Ring)M.O.D./Magnification	-	-	-	18mm/0.45×	46mm/0.44×	65mm/0.50×	76mm/0.58×
(10mm Ring)M.O.D./Magnification	-	-	-	-	29mm/0.63×	49mm/0.62×	64mm/0.70×
(20mm Ring)M.O.D./Magnification	-	-	-	-	-	31mm/0.87×	49mm/0.94×

† Images may differ from the actual product.

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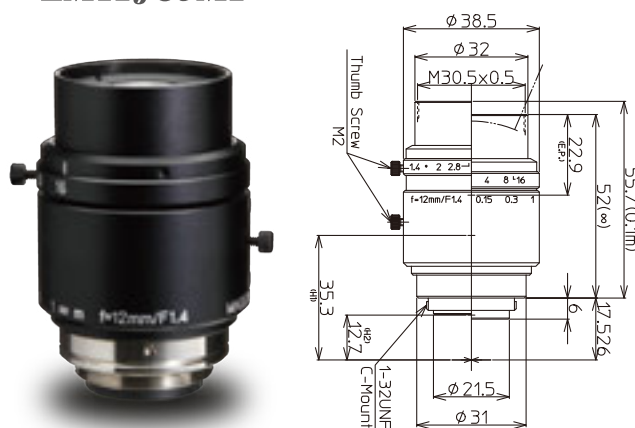
JC5M2 Series

Kowa's JC5M2 lens series is perfect for high-end applications that require the use of 5 megapixel camera.

Features of JC5M2 Series

- ▶ Incorporating Kowa's floating mechanism system, the JC5M2 lens series greatly reduces chromatic aberration from close distance to infinity.
- ▶ With a fast F-stop, locking screws, and a compact design, these lenses provide a good value between price versus performance.

LM12JC5M2



Model	LM12JC5M2
Focal Length(mm)	12.5
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16
Focusing Range(m)	0.1~∞
Control	Iris Focus
Shooting Range at M.O.D.(mm)	81.4(H)×60.9(V)
Angle of View	2/3 Inch 38.4×29.2 1/1.8 Inch 31.7×24.0 (Degrees) 1/2 Inch 28.4×21.4
Resolution(Center, Corner)	160lp/mm, 125lp/mm
TV Distortion(%)	-0.06
Back Focus in Air(mm)	11.5
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)	Φ38.5×52
Weight(g)	130
Temperature Range	-10°C~+50°C

2/3" 1/1.8" 1/2" 12.5mm FIXED 5MEGA C-mt METAL LO-DIS FLOAT
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating

LM16JC5M2

2/3" 1/1.8" 1/2" 16mm FIXED 5MEGA C-mt METAL LO-DIS FLOAT
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating

LM25JC5M2

2/3" 1/1.8" 1/2" 25mm FIXED 5MEGA C-mt METAL LO-DIS FLOAT
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating

LM35JC5M2

2/3" 1/1.8" 1/2" 35mm FIXED 5MEGA C-mt METAL LO-DIS FLOAT
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating

Diagram of M.O.D. / Magnification Using A Close Up Ring

Model	LM12JC5M2	LM16JC5M2	LM25JC5M2	LM35JC5M2
(Non)M.O.D./Magnification	100mm/0.109×	100mm/0.137×	100mm/0.251×	180mm/0.209×
(1mm Ring)M.O.D./Magnification	50mm/0.184×	62mm/0.195×	86mm/0.288×	160mm/0.235×
(5mm Ring)M.O.D./Magnification	-	-	54mm/0.434×	109mm/0.341×
(10mm Ring)M.O.D./Magnification	-	-	-	78mm/0.470×
(20mm Ring)M.O.D./Magnification	-	-	-	49mm/0.728×

† Images may differ from the actual product.

Model	LM16JC5M2
Focal Length(mm)	16
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16
Focusing Range(m)	0.1~∞
Control	Iris Focus
Shooting Range at M.O.D.(mm)	64.6(H)×48.4(V)
Angle of View	2/3 Inch 29.9×22.7 1/1.8 Inch 24.7×18.6 (Degrees) 1/2 Inch 22.0×16.6
Resolution(Center, Corner)	160lp/mm, 125lp/mm
TV Distortion(%)	0.03
Back Focus in Air(mm)	11.6
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)	Φ38.5×52
Weight(g)	125
Temperature Range	-10°C~+50°C

Model	LM25JC5M2
Focal Length(mm)	25
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.6~F16
Focusing Range(m)	0.1~∞
Control	Iris Focus
Shooting Range at M.O.D.(mm)	35.1(H)×26.3(V)
Angle of View	2/3 Inch 19.9×15.0 1/1.8 Inch 16.4×12.3 (Degrees) 1/2 Inch 14.6×10.9
Resolution(Center, Corner)	160lp/mm, 125lp/mm
TV Distortion(%)	-0.01
Back Focus in Air(mm)	11.2
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)	Φ38.5×45.5
Weight(g)	115
Temperature Range	-10°C~+50°C

Model	LM35JC5M2
Focal Length(mm)	35
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.6~F16
Focusing Range(m)	0.18~∞
Control	Iris Focus
Shooting Range at M.O.D.(mm)	42.1(H)×31.6(V)
Angle of View	2/3 Inch 14.3×10.8 1/1.8 Inch 11.7×8.8 (Degrees) 1/2 Inch 10.4×7.8
Resolution(Center, Corner)	160lp/mm, 125lp/mm
TV Distortion(%)	-0.03
Back Focus in Air(mm)	12.2
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)	Φ38.5×48
Weight(g)	120
Temperature Range	-10°C~+50°C

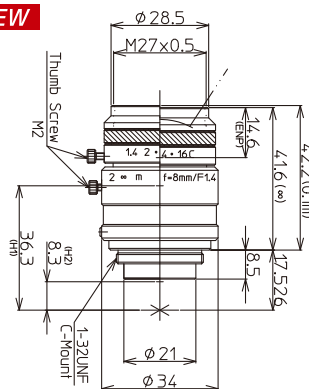
† Images may differ from the actual product.

JC3M2 Series

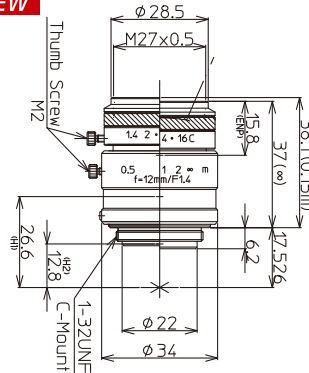
High Resolution FA/MV Lenses

Features of XC Series

- ▶ Kowa's wide-band multi-coating effectively decreases glare and refraction and produces a high transmission from the visible to NIR wavelength range.
- ▶ Kowa's floating mechanism system virtually eliminates optical aberrations from close distance to infinity.
- ▶ Low distortion *Except for LM8JC3M2 and LM12JC3M2
- ▶ Excellent corner brightness
- ▶ Applicable on 1/1.2" as well *Except for LM8JC3M2

LM8JC3M2 **NEW**

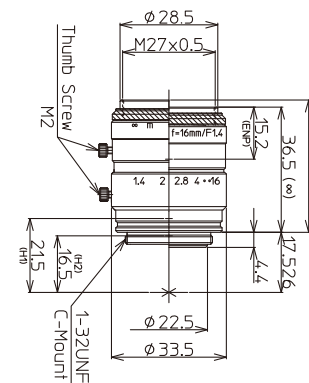
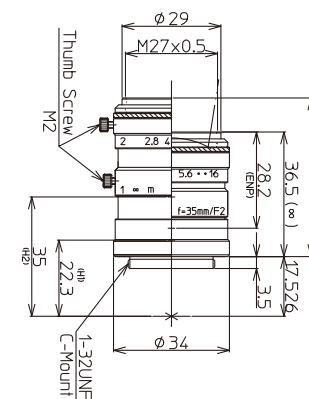
Model	LM8JC3M2
Focal Length(mm)	8
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~Close
Focusing Range(m)	0.1~∞
Control	Iris
	Focus
	Manual
Shooting Range at M.O.D.(mm)	120.3(H)×90.0(V)
Angle of View	2/3 Inch
	1/1.8 Inch
(Degrees)	1/2 Inch
TV Distortion(%)	-0.6
Back Focus in Air(mm)	9.5
Mount	C-mount
Filter Thread(mm)	M27×P0.5
Size(mm)	Φ34×41.6
Weight(g)	90
Temperature Range	-10°C~+50°C

LM12JC3M2 **NEW**

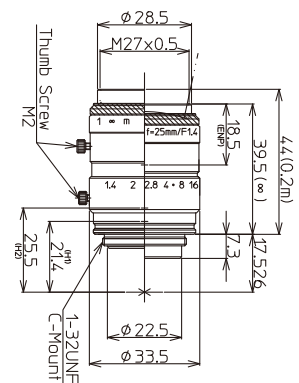
Model	LM12JC3M2
Focal Length(mm)	12
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~Close
Focusing Range(m)	0.15~∞
Control	
Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	110.0(H)×82.5(V)
Angle of	
2/3 Inch	38.3×29.1
View	
1/1.8 Inch	31.7×24.0
(Degrees)	
1/2 Inch	28.3×21.4
TV Distortion(%)	-0.07
Back Focus in Air(mm)	11.7
Mount	C-mount
Filter Thread(mm)	M27×P0.5
Size(mm)	Φ34×37
Weight(g)	85
Temperature Range	-10°C~+50°C



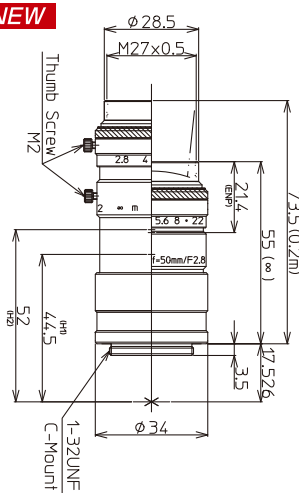
LM16JC3M2 **NEW**

LM35JC3M2 **NEW**

LM25JC3M2 **NEW**



LM50JC3M2 **NEW**



Model		LM16JC3M2	LM25JC3M2	LM35JC3M2	LM50JC3M2
Focal Length(mm)		16	25	35	50
Image Size(mm)		8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)		F1.4~F16	F1.4~F16	F2.0~F16	F2.8~F22
Focusing Range(m)		0.2~∞	0.2~∞	0.2~∞	0.2~∞
Control	Iris	Manual	Manual	Manual	Manual
	Focus	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)		112.8(H)×84.4(V)	71.1(H)×53.3(V)	47.9(H)×35.8(V)	29.3(H)×21.9(V)
Angle of	2/3 Inch	30.0×22.7	19.6×14.8	14.4×10.8	9.6×7.2
View	1/1.8 Inch	24.7×18.6	16.1×12.1	11.8×8.8	7.9×5.9
(Degrees)	1/2 Inch	21.8×16.4	14.0×10.5	10.5×7.9	7.0×5.2
TV Distortion(%)		-0.05	-0.04	-0.2	-0.03
Back Focus in Air(mm)		13.1	11.7	20.1	35.5
Mount		C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)		M27×P0.5	M27×P0.5	M27×P0.5	M27×P0.5
Size(mm)		Φ33.5×36.5	Φ33.5×39.5	Φ34×36.5	Φ34×55
Weight(g)		85	90	70	95
Temperature Range		-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

Diagram of M.O.D. / Magnification Using A Close Up Ring

Model	LM8JC3M2	LM12JC3M2	LM16JCM	LM25JC3M2	LM35JC3M2	LM50JC3M2
(Non)M.O.D./Magnification	100mm/0.07×	150mm/0.08×	200mm/0.08×	200mm/0.12×	200mm/0.18×	200mm/0.30×
(1mm Ring)M.O.D./Magnification	31mm/0.19×	70mm/0.16×	110mm/0.14×	150mm/0.16×	173mm/0.21×	190mm/0.32×
(5mm Ring)M.O.D./Magnification	—	—	—	73mm/0.31×	115mm/0.32×	160mm/0.39×
(10mm Ring)M.O.D./Magnification	—	—	—	—	81mm/0.45×	132mm/0.49×
(20mm Ring)M.O.D./Magnification	—	—	—	—	51mm/0.73×	102mm/0.68×

† Images may differ from the actual product.

† Images may differ from the actual product.

NCM/JCM Series

High Resolution FA/MV Lenses

Features of WIDE NCM/JCM Series

- ▶ Super wide optical design
- ▶ Large angle of view
- ▶ Expansion angle
(Horizontal angle 82degree, Vertical angle 66degree)
† 2/3" model: LM5JCM, 1/1.8" model: LM3NCM

Low distortion

- ▶ Reduces the distortion to corner
† LM5JCM: Under 0.5%, LM3NCM: Under 0.4% (TV distortion)

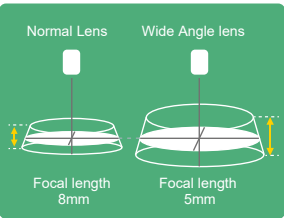
High quality

- ▶ Adapts to 2 megapixel cameras
- ▶ Improves center and corner resolution
- ▶ High transmittance

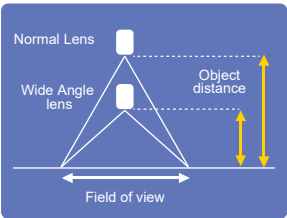


Corner image comparison
(Super wide angle lens vs. Standard lens)

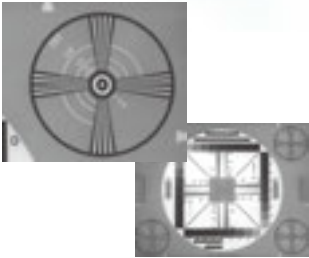
Long Depth of field



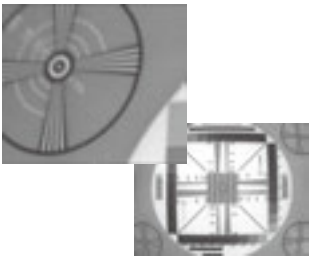
Short Close distance



LM5JCM: 2/3inch f=5mm



LM6JC: 2/3inch f=6mm



Distortion comparison at short distance object

LM5JCM: 2/3inch f=5mm

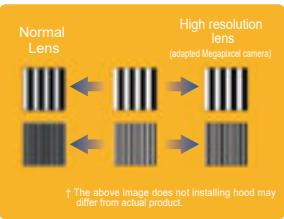


LM6JC: 2/3inch f=6mm

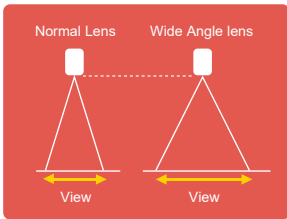


Capture image taken by 2megapixel camera

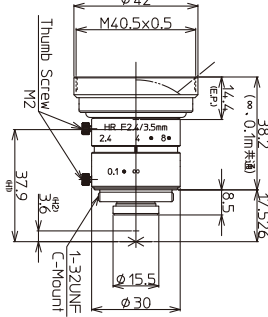
Clear image



Large field of view

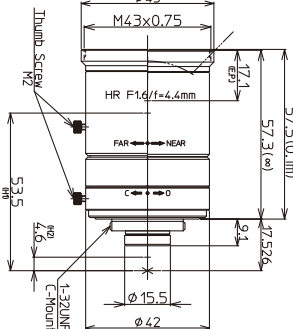


LM3NCM



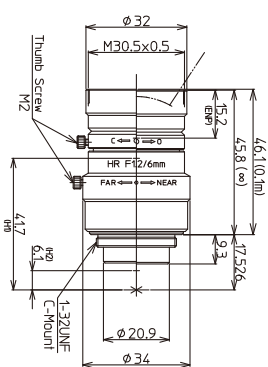
1/1.8" 1/2" 1/3" 3.5mm FIXED MEGA C-mnt METAL LO-DIS
Fixed Focal Megapixel C-mount Metal Body Low Distortion

LM4NCM



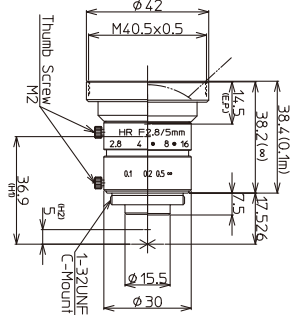
1/1.8" 1/2" 1/3" 4.4mm FIXED MEGA C-mnt METAL LO-DIS
Fixed Focal Megapixel C-mount Metal Body Low Distortion

LM6NCM



1/2" 1/3" 6mm FIXED MEGA C-mnt METAL LO-DIS
Fixed Focal Megapixel C-mount Metal Body Low Distortion

LM5JCM



2/3" 1/1.8" 1/2" 5mm FIXED MEGA C-mnt METAL LO-DIS
Fixed Focal Megapixel C-mount Metal Body Low Distortion

Model	LM3NCM	LM4NCM	LM6NCM	LM5JCM
Focal Length(mm)	3.5	4.4	6	5
Image Size(mm)	7.2×5.4(Φ9)	7.2×5.4(Φ9)	6.4×4.8(Φ8)	8.8×6.6(Φ11)
Iris Range(F-stop)	F2.4~F14	F1.6~F16	F1.2~Close	F2.8~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞	0.1~∞
Control	Manual	Manual	Manual	Manual
Focus	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	226.3(H)×171.4(V)	190.0(H)×141.2(V)	122.2(H)×91.0(V)	200.8(H)×150.8(V)
Angle of View	2/3 inch -	2/3 inch -	2/3 inch -	2/3 inch -
1/1.8 inch	89.0×73.8	76.6×61.3	-	82.4×66.9
(Degrees)	1/2 inch 82.4×66.9	70.2×55.5	56.2×43.5	71.7×57.1
1/3 inch	66.9×52.7	55.5×43	43.5×33.2	65.2×51.3
Resolution(Center, Corner)	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm
TV Distortion(%)	0.4	-0.2	-0.2	0.5
Back Focus in Air(mm)	9.7	8.8	8.2	10.0
Mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M40.5×P0.5	M43×P0.75	M30.5×P0.5	M40.5×P0.5
Size(mm)	Φ42×38.2	Φ45×57.3	Φ34×45.8	Φ42×38.2
Weight(g)	85	150	100	84
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

† Images may differ from the actual product.

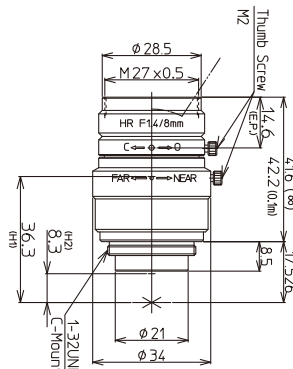
† Images may differ from the actual product.

JCM Series

- ▶ World standard and popular lens series
- ▶ Excellent corner brightness
- ▶ Low distortion
- ▶ For megapixel applications
- ▶ High resolution

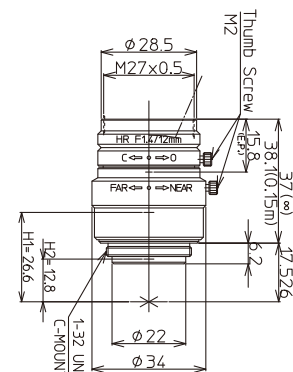
Option : Models with iris & focus scales (LM-JC1MS Series)

LM8JCM



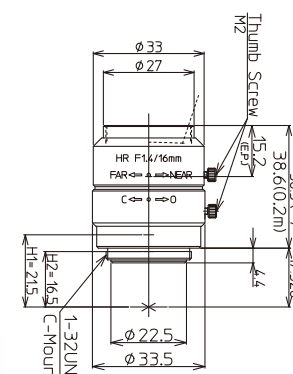
2/3" 1/1.8" 1/2" 8mm FIXED MEGA C-mt METAL LO-DIS

LM12JCM



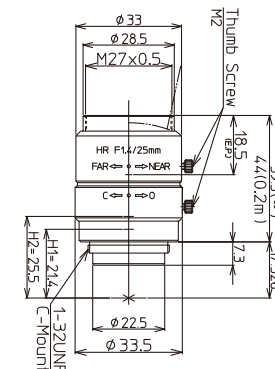
2/3" 1/1.8" 1/2" 12mm FIXED MEGA C-mt METAL LO-DIS

LM16JCM



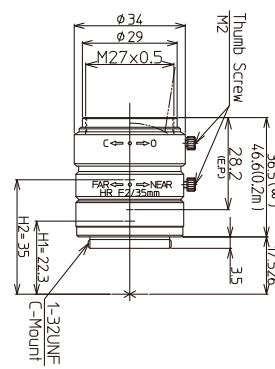
2/3" 1/1.8" 1/2" 16mm FIXED MEGA C-mt METAL LO-DIS FLOAT

LM25JCM



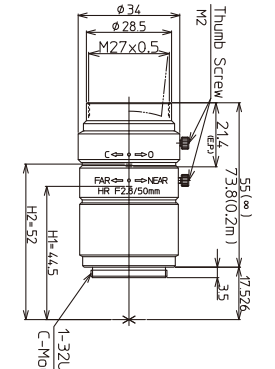
2/3" 1/1.8" 1/2" 25mm FIXED MEGA C-mt METAL FLOAT

LM35JCM



2/3" 1/1.8" 1/2" 35mm FIXED MEGA C-mt METAL FLOAT

LM50JCM



2/3" 1/1.8" 1/2" 50mm FIXED MEGA C-mt METAL FLOAT

Model	LM25JCM
Focal Length(mm)	25
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16
Focusing Range(m)	0.2~∞
Control	Iris Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	71.1(H)×53.3(V)
Angle of View	2/3 Inch 19.6×14.8
View	1/1.8 Inch 16.1×12.1
(Degrees)	1/2 Inch 14.0×10.5
Resolution(Center, Corner)	120lp/mm, 100lp/mm
TV Distortion(%)	-0.04
Back Focus in Air(mm)	11.7
Mount	C-mount
Filter Thread(mm)	M27×P0.5
Size(mm)	Φ33.5×39.5
Weight(g)	90
Temperature Range	-10°C~+50°C

Model	LM35JCM
Focal Length(mm)	35
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F2.0~F16
Focusing Range(m)	0.2~∞
Control	Iris Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	47.9(H)×35.8(V)
Angle of View	2/3 Inch 14.4×10.8
View	1/1.8 Inch 11.8×8.8
(Degrees)	1/2 Inch 10.5×7.9
Resolution(Center, Corner)	120lp/mm, 100lp/mm
TV Distortion(%)	-0.2
Back Focus in Air(mm)	20.1
Mount	C-mount
Filter Thread(mm)	M27×P0.5
Size(mm)	Φ34×36.5
Weight(g)	70
Temperature Range	-10°C~+50°C

Model	LM50JCM
Focal Length(mm)	50
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F2.8~F22
Focusing Range(m)	0.2~∞
Control	Iris Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	29.3(H)×21.9(V)
Angle of View	2/3 Inch 9.6×7.2
View	1/1.8 Inch 7.9×5.9
(Degrees)	1/2 Inch 7.0×5.2
Resolution(Center, Corner)	120lp/mm, 100lp/mm
TV Distortion(%)	-0.03
Back Focus in Air(mm)	35.5
Mount	C-mount
Filter Thread(mm)	M27×P0.5
Size(mm)	Φ34×55
Weight(g)	95
Temperature Range	-10°C~+50°C

Diagram of M.O.D. / Magnification Using A Close Up Ring

Model	LM8JCM	LM12JCM	LM16JCM	LM25JCM	LM35JCM	LM50JCM
(Non)M.O.D./Magnification	100mm/0.07×	150mm/0.08×	200mm/0.08×	200mm/0.12×	200mm/0.18×	200mm/0.30×
(1mm Ring)M.O.D./Magnification	30mm/0.20×	70mm/0.16×	110mm/0.14×	150mm/0.16×	175mm/0.21×	190mm/0.32×
(5mm Ring)M.O.D./Magnification	-	-	-	73mm/0.31×	115mm/0.32×	160mm/0.39×
(10mm Ring)M.O.D./Magnification	-	-	-	-	81mm/0.46×	135mm/0.48×
(20mm Ring)M.O.D./Magnification	-	-	-	-	51mm/0.73×	105mm/0.65×

† Images may differ from the actual product.

† Images may differ from the actual product.

JCM-V Series

High Resolution FA/MV Lenses

Kowa's new JCM-V series is made for use in high vibration and shock environments.

With a design based on Kowa's standard 2/3" JCM lenses, this new ruggedized megapixel lens series is ideal for applications that require increased durability and high optical performance.

Features of JCM-V Series

- For megapixel applications requiring a sensor size of 2/3" (Φ11mm) or smaller.
- Two way reversible nut is utilized to tightly lock the focus adjustment ring in place.
- Interchangeable iris plates are used to select the F-stop.
- Unique mechanical design to guard against strong vibration and shock.
- All internal glass elements are glued to the inside housing to improve stability.

Interchangeable Iris Plates

- The JCM-V series uses interchangeable iris plates instead of mechanical iris diaphragms with moving blades. You can choose from four iris plates to adjust the F-stop.



Interchangeable Iris Plates

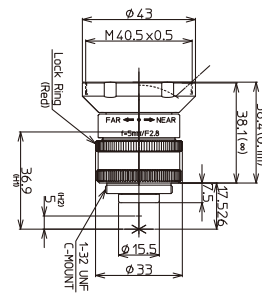
Focus Adjustment Procedure

- Unscrew the bottom ring of the outside body to adjust the focus to optimal position.
- Screw the red two way reversible nut on the center body towards the bottom ring to lock in the focus.



Two Way Reversible Nut

LM5JCM-V **NEW**

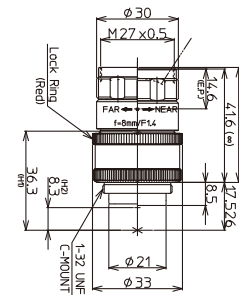


2/3" 1/1.8" 1/2" 5mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

Model	LM5JCM-V
Focal Length (mm)	5
Image Size (mm)	8.8×6.6 (Φ11)
Iris Range (F-stop)	F2.8 / F4 / F5.6 / F8
Focusing Range (m)	0.1~∞
Control	Iris
Focus	Manual
Shooting Range at M.O.D. (mm)	200.8(H)×150.8(V)
Angle of 2/3 Inch	82.4×66.9
View 1/1.8 Inch	71.7×57.1
(Degrees) 1/2 Inch	65.2×51.3
TV Distortion (%)	0.5
Back Focus in Air(mm)	10.0
Mount	C-mount
Filter Thread (mm)	M40.5×P0.5
Size (mm)	Φ43×38.4
Weight(g)	73
Temperature Range	-10°C~+50°C

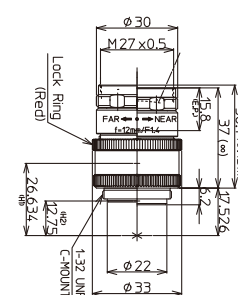
† Images may differ from the actual product.

LM8JCM-V



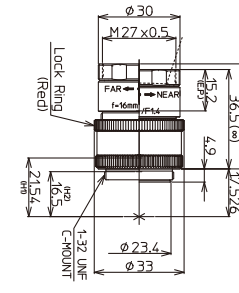
2/3" 1/1.8" 1/2" 8mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

LM12JCM-V



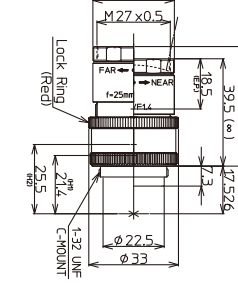
2/3" 1/1.8" 1/2" 12mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

LM16JCM-V



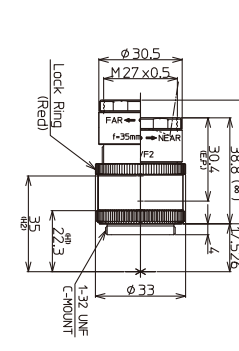
2/3" 1/1.8" 1/2" 16mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

LM25JCM-V



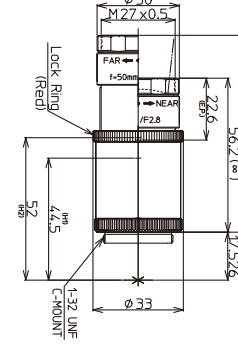
2/3" 1/1.8" 1/2" 25mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

LM35JCM-V



2/3" 1/1.8" 1/2" 35mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

LM50JCM-V



2/3" 1/1.8" 1/2" 50mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

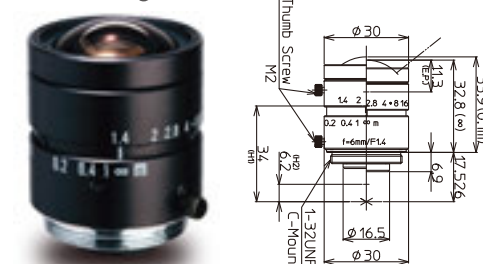
Model	LM8JCM-V	LM12JCM-V	LM16JCM-V	LM25JCM-V	LM35JCM-V	LM50JCM-V
Focal Length (mm)	8	12	16	25	35	50
Image Size (mm)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)
Iris Range (F-stop)	F1.4 / F4 / F8 / F16	F1.4 / F4 / F8 / F16	F1.4 / F4 / F8 / F16	F1.4 / F4 / F8 / F16	F2 / F4 / F8 / F16	F2.8 / F4 / F8 / F16
Focusing Range (m)	0.1~∞	0.15~∞	0.2~∞	0.2~∞	0.2~∞	0.2~∞
Control	Iris	Iris	Iris	Iris	Iris	Iris
Focus	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D. (mm)	120.3(H)×90.0(V)	110.0(H)×82.5(V)	112.8(H)×84.4(V)	71.1(H)×53.3(V)	47.9(H)×35.8(V)	29.3(H)×21.9(V)
Angle of 2/3 Inch	56.5×43.9	38.3×29.1	30.0×22.7	19.6×14.8	14.4×10.8	9.6×7.2
View 1/1.8 Inch	47.4×36.3	31.7×24.0	24.7×18.6	16.1×12.1	11.8×8.8	7.9×5.9
(Degrees) 1/2 Inch	42.6×32.5	28.3×21.4	21.8×16.4	10.5×7.9	7.0×5.2	
TV Distortion (%)	-0.6	-0.07	-0.05	-0.04	-0.2	-0.03
Back Focus in Air(mm)	9.74	11.7	13.1	11.7	20.1	35.5
Mount	C-mount	C-mount	C-mount	C-mount	C-mount	C-mount
Filter Thread (mm)	M27×P0.5	M27×P0.5	M27×P0.5	M27×P0.5	M27×P0.5	M27×P0.5
Size (mm)	Φ33.0×41.6	Φ33.0×37.0	Φ33.0×36.5	Φ33.0×39.5	Φ33.0×38.8	Φ33.0×56.2
Weight(g)	88	75	76.5	83	72.5	85
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

† Images may differ from the actual product.

JC Series

- ▶ High resolution ▶ Low distortion ▶ Excellent cost performance
- ▶ Compact, lightweight and durable ▶ Excellent corner brightness

LM6JC



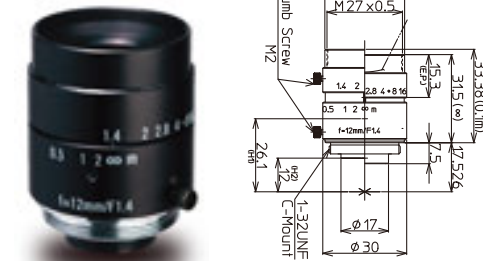
2/3" 1/1.8" 1/2" 6mm FIXED C-mt METAL
Fixed Focal Megapixel C-mount

LM8JC



2/3" 1/1.8" 1/2" 8mm FIXED C-mt METAL
Fixed Focal Megapixel C-mount

LM12JC



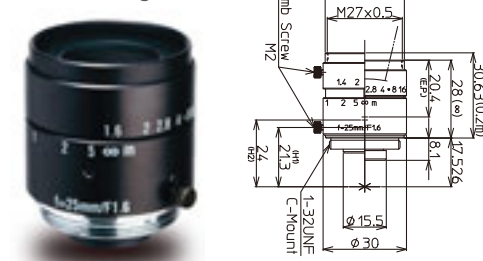
2/3" 1/1.8" 1/2" 12mm FIXED C-mt METAL
Fixed Focal Megapixel C-mount

LM16JC



2/3" 1/1.8" 1/2" 16mm FIXED C-mt METAL
Fixed Focal C-mount Metal Body

LM25JC



2/3" 1/1.8" 1/2" 25mm FIXED C-mt METAL
Fixed Focal C-mount Metal Body

LM35JC



2/3" 1/1.8" 1/2" 35mm FIXED C-mt METAL
Fixed Focal C-mount Metal Body

Model	LM6JC	LM8JC	LM12JC	LM16JC	LM25JC	LM35JC
Focal Length(mm)	6	8	12	16	25	35
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F1.4~F16	F1.4~F16	F1.6~F16	F1.6~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞	0.2~∞	0.2~∞	0.3~∞
Control	Iris Focus	Manual Manual	Manual Manual	Manual Manual	Manual Manual	Manual Manual
Shooting Range at M.O.D.(mm)	190.6(H)×130.3(V)	136.0(H)×96.1(V)	81.1(H)×59.4(V)	111.8(H)×82.6(V)	72.1(H)×53.7(V)	76.0(H)×56.9(V)
Angle of View	2/3 Inch 1/1.8 Inch 1/2 Inch	81.9×61.2 64.2×47.7 52.4×39.1	42.5×31.7 34.6×25.9 30.7×23.0	30.5×22.8 23.8×18.7 22.2×16.6	21.0×15.7 17.2×12.9 15.3×11.4	14.4×10.8 11.8×8.8 10.5×7.9
Resolution(Center, Corner)	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm
TV Distortion(%)	-10.7	-6.2	-2.5	-1.5	-0.6	-0.2
Back Focus in Air(mm)	11.3	11.3	11.1	12.1	10.3	14.9
Mount	C-mount	C-mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	-	M27×P0.5	M27×P0.5	M27×P0.5	M27×P0.5	M30.5×P0.5
Size(mm)	Φ30×32.8	Φ30×30	Φ30×31.5	Φ30×28	Φ30×28	Φ32×36.5
Weight(g)	65	60	63	55	55	85
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

† Images may differ from the actual product.

LM50JC



2/3" 1/1.8" 1/2" 50mm FIXED C-mt METAL
Fixed Focal C-mount Metal Body

LM75JC



2/3" 1/1.8" 1/2" 75mm FIXED C-mt METAL
Fixed Focal C-mount Metal Body

LM100JC



2/3" 1/1.8" 1/2" 100mm FIXED C-mt METAL
Fixed Focal C-mount Metal Body

Diagram of M.O.D. / Magnification Using A Close Up Ring

Model	LM6JC	LM8JC	LM12JC	LM16JC	LM25JC
(Non)M.O.D./Magnification	100mm/0.06×	100mm/0.07×	100mm/0.12×	200mm/0.08×	200mm/0.12×
(1mm Ring)M.O.D./Magnification	-	-	50mm/0.19×	110mm/0.14×	136mm/0.15×
(5mm Ring)M.O.D./Magnification	-	-	-	-	46mm/0.31×
(10mm Ring)M.O.D./Magnification	-	-	-	-	-
(20mm Ring)M.O.D./Magnification	-	-	-	-	-

Model	LM35JC	LM50JC	LM75JC	LM100JC
(Non)M.O.D./Magnification	300mm/0.12×	500mm/0.10×	1200mm/0.07×	2000mm/0.05×
(1mm Ring)M.O.D./Magnification	240mm/0.14×	422mm/0.12×	1010mm/0.08×	1700mm/0.06×
(5mm Ring)M.O.D./Magnification	132mm/0.26×	264mm/0.20×	630mm/0.13×	1060mm/0.10×
(10mm Ring)M.O.D./Magnification	84mm/0.40×	183mm/0.30×	440mm/0.20×	740mm/0.15×
(20mm Ring)M.O.D./Magnification	-	117mm/0.50×	285mm/0.34×	480mm/0.25×

1/1.8" STANDARD

NCL Series

- ▶ 4 wide angle lenses ▶ Locking screws ▶ Metal body

LM4NCL



1/1.8" 1/2" 1/3" 3.5mm FIXED C-mt METAL
Fixed Focal Megapixel C-mount

LM5NCL



1/1.8" 1/2" 1/3" 4.5mm FIXED C-mt METAL
Fixed Focal Megapixel C-mount

LM6NCL



1/1.8" 1/2" 1/3" 6mm FIXED C-mt METAL
Fixed Focal Megapixel C-mount

LM12NCL



1/1.8" 1/2" 1/3" 12mm FIXED C-mt METAL
Fixed Focal Megapixel C-mount

Model	LM4NCL	LM5NCL	LM6NCL	LM12NCL
Focal Length(mm)	3.5	4.5	6	12
Image Size(mm)	7.2×5.4(Φ9)	7.2×5.4(Φ9)	7.2×5.4(Φ9)	7.2×5.4(Φ9)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F1.4~F16	F1.4~F16
Focusing Range(m)	0.2~∞	0.2~∞	0.2~∞	0.3~∞
Control	Iris Focus	Manual Manual	Manual Manual	Manual Manual
Shooting Range at M.O.D.(mm)	679.9(H)×389.3(V)	405.3(H)×273.8(V)	255.8(H)×188.7(V)	189.9(H)×140.0(V)
Angle of View	1/1.8 inch 1/2 inch 1/3 inch	117.7×86.7 79.0×59.4 76.7×57.7	88.8×66.9 57.3×44.0 59.4×45.1	62.7×48.4 30.7×23.0 44.0×33.7
Resolution(Center, Corner)	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm
TV Distortion(%)	-28.0	-17.5	-1.0	-0.8
Back Focus in Air(mm)	8.9	10.0	9.5	11.1
Mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	-	-	M25.5×P0.5	M25.5×P0.5
Size(mm)	Φ31×30.5	Φ31×29.5	Φ31×34	Φ31×29.5
Weight(g)	60	55	60	55
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

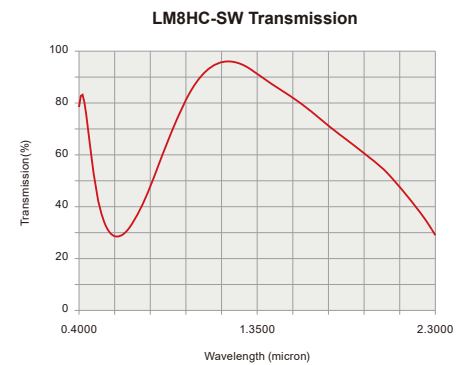
Diagram of M.O.D. / Magnification Using A Close Up Ring

Model	LM4NCL	LM5NCL	LM6NCL	LM12NCL
(Non)M.O.D./Magnification	200mm/0.018×	200mm/0.02×	200mm/0.03×	300mm/0.08×
(1mm Ring)M.O.D./Magnification	-	-	22mm/0.19×	93mm/0.12×
(5mm Ring)M.O.D./Magnification	-	-	-	22mm/0.45×

† Images may differ from the actual product.

HC-SW Series

- ▶ Incorporating Kowa's special coating technology, the 1" format HC-SW series will maintains high transmission from 800nm to 1900nm.
- ▶ Designed for Near Infrared(NIR) and Short Wavelength Infrared (SWIR) applications.

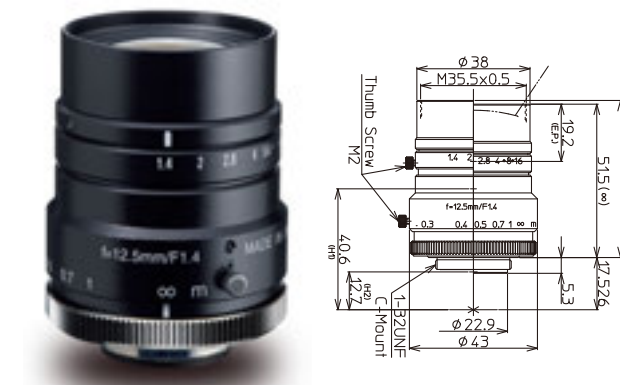


LM8HC-SW



Model	LM8HC-SW
Focal Length(mm)	8
Image Size(mm)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.4~F16
Focusing Range(m)	0.1~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	196.0(H)×143.2(V)
Angle of 1 Inch	79.4×63.0
View 2/3 Inch	58.3×44.7
(Degrees) 1/1.8 Inch	48.5×36.9
TV Distortion(%)	-1.2
Back Focus in Air(mm)	11.2
Mount	C-mount
Filter Thread(mm)	M55×P0.75
Size(mm)	Φ57×58
Weight(g)	205
Temperature Range	-10°C~+50°C

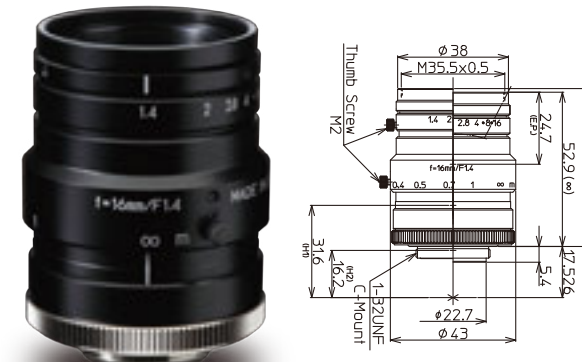
LM12HC-SW



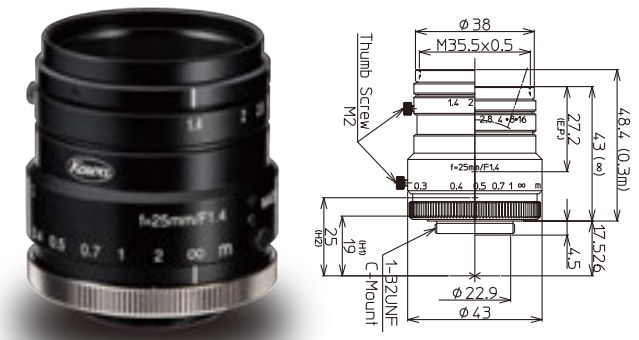
Model	LM12HC-SW
Focal Length(mm)	12.5
Image Size(mm)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.4~F16
Focusing Range(m)	0.3~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	330.6(H)×243.5(V)
Angle of 1 Inch	55.6×42.5
View 2/3 Inch	39.1×29.5
(Degrees) 1/1.8 Inch	32.1×24.2
TV Distortion(%)	-1.6
Back Focus in Air(mm)	12.6
Mount	C-mount
Filter Thread(mm)	M35.5×P0.5
Size(mm)	Φ43×51.5
Weight(g)	160
Temperature Range	-10°C~+50°C

† Images may differ from the actual product.

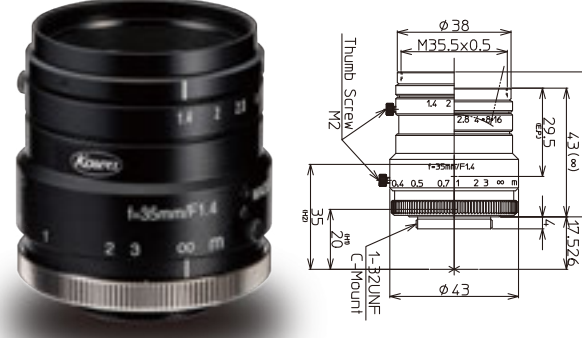
LM16HC-SW



LM25HC-SW



LM35HC-SW



LM50HC-SW

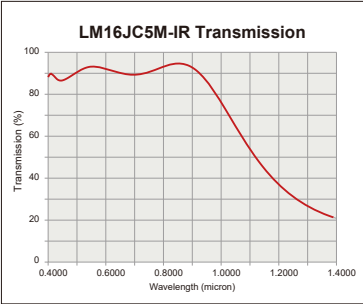


Model	LM16HC-SW	LM25HC-SW	LM35HC-SW	LM50HC-SW
Focal Length(mm)	16	25	35	50
Image Size(mm)	12.8×9.6(Φ16)	12.8×9.6(Φ16)	12.8×9.6(Φ16)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F1.4~F16	F1.4~F16
Focusing Range(m)	0.3~∞	0.3~∞	0.3~∞	0.5~∞
Control Iris	Manual	Manual	Manual	Manual
Focus	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	251.5(H)×186.2(V)	160.7(H)×119.2(V)	110.1(H)×82.0(V)	121.8(H)×91.3(V)
Angle of 1 inch	44.3×33.6	29.3×22.0	20.9×15.8	14.5×10.8
View 2/3 inch	30.8×23.2	20.2×15.1	14.4×10.8	10.0×7.5
(Degrees) 1/1.8 inch	25.3×19.0	16.5×12.4	11.8×8.8	8.2×6.2
TV Distortion(%)	-1.0	-1.0	-0.5	0.05
Back Focus in Air(mm)	12.6	16.5	16.8	14.8
Mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M35.5×P0.5	M35.5×P0.5	M35.5×P0.5	M40.5×P0.5
Size(mm)	Φ43×52.9	Φ43×43	Φ43×43	Φ49×48
Weight(g)	150	135	135	210
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

† Images may differ from the actual product.

JC5M-IR Series NEW

- 5 megapixel lens
- IR corrected design
- Fast F-stop of F1.4 *LM35JC5MM-IR is F2.0
- Low distortion
- Manual-Iris, Auto-Iris and P-iris versions available



LM16JC5M-IR NEW

LM25JC5M-IR NEW

LM35JC5M-IR NEW



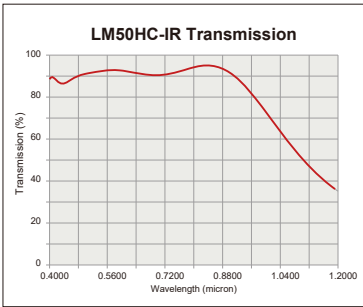
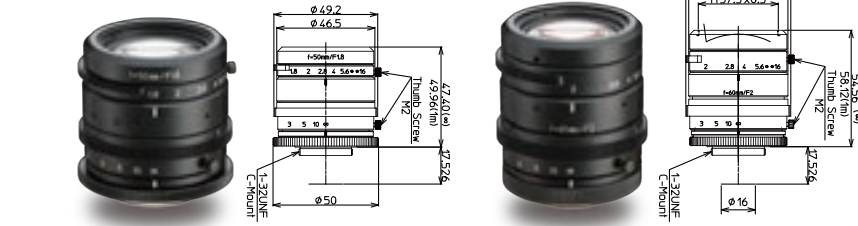
Model	LM16JC5M-IR	LM25JC5M-IR	LM35JC5M-IR
Focal Length(mm)	16	25	35
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F2.0~F22
Focusing Range(m)	0.3~∞	0.3~∞	0.3~∞
Control Iris	Manual	Manual	Manual
Focus	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	171.4(H)×127.4(V)	113.3(H)×84.5(V)	75.8(H)×56.6(V)
Angle of 2/3 Inch	30.9×23.2	20.1×15.1	13.9×10.5
View 1/1.8 Inch	25.4×19.0	16.5×12.4	11.4×8.3
(Degrees) 1/2 Inch	22.6×16.9	14.6×11.0	10.2×7.6
TV Distortion(%)	-0.8	-0.3	-0.3
Back Focus in Air(mm)	14.7	12	19.2
Mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M27×P0.5	M30.5×P0.5	M30.5×P0.5
Size(mm)	Φ34.0×44.5	Φ34.0×47.0	Φ34.0×43.0
Weight(g)	100	110	100
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

HC-IR Series NEW

- IR corrected design
- Excellent corner brightness
- High performance compact lens
- Low distortion

NEW LM50HC-IR

NEW LM60HC-IR



Model	LM50HC-IR	LM60HC-IR
Focal Length(mm)	50	60
Image Size(mm)	12.8×9.6(Φ16)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.8~F16	F2.0~F16
Focusing Range(m)	1.0~∞	1.0~∞
Control Iris	Manual	Manual
Focus	Manual	Manual
Shooting Range at M.O.D.(mm)	246.0(H)×184.0(V)	216.9(H)×162.1(V)
Angle of 1 Inch	14.4×10.8	12.2×9.2
View 2/3 Inch	9.9×7.5	8.4×6.3
(Degrees) 1/1.8 Inch	8.2×6.2	6.9×5.2
TV Distortion(%)	-0.09	-0.06
Back Focus in Air(mm)	20.4	15.7
Mount	C-mount	C-mount
Filter Thread(mm)	—	M37.5×P0.5
Size(mm)	Φ50.0×47.4	Φ49.2×54.6
Weight(g)	180	200
Temperature Range	-10°C~+50°C	-10°C~+50°C

LARGE FORMAT NIR Broad Band Large Format Lens (Visible+NIR+DAY/NIGHT)

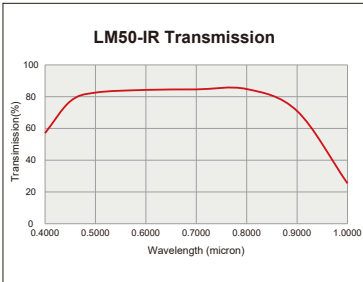
- IR corrected design
- Broad band coating
- Bright F-stop of F1.9
- F-mount & P-mount(M42×1)

- Application
- Solar panel inspection
 - Visible/NIR line scan
 - ITS
 - Large format area scan

LM50-IR



Model	LM50-IR
Focal Length(mm)	50
Image Size(mm)	43.3(Φ43.3)
Iris Range(F-stop)	F1.9~F16
Focusing Range(m)	0.5~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	366.9(H)×242.9(V)
Angle of Full Size	40.2×27.2
View 4/3 Inch	21.0×15.8
(Degrees) 1 Inch	14.6×11.0
TV Distortion(%)	-0.5
Back Focus in Air(mm)	34.6
Mount	Nikon F-mount
Filter Thread(mm)	M52×P0.75
Size(mm)	Φ58.5×105.2
Weight(g)	605
Temperature Range	-10°C~+50°C



Nikon is a trademark of Nikon Corporation.

Reduction of visible-NIR focus shift

Visible design lens

IR Corrected design lens

LM50-IR



Wavelength Change

Wavelength Change

Focus Shift

Maintains sharp Focus

Examples



Wavelength Change

Wavelength Change

Focus Shift

Maintains sharp Focus

† Images may differ from the actual product.

LINE SCAN
Φ46.0mm IMAGE SIZE
Φ30.0mm IMAGE SIZE (3CCD)

LM28LF LM35LF LM50LF LM28CLS LM35CLS LM50CLS

LF Series

- Large format (Image size Φ46.0mm)
- Corresponds to 4K Line Scan Camera
- Low distortion
- Suitable for close distance inspection

Optimized design for machine vision

LM28LF



28mm FIXED METAL LO-DIS

LM35LF



35mm FIXED METAL LO-DIS

LM50LF



50mm FIXED METAL LO-DIS

Table with 7 columns: Model, Focal Length(mm), Image Size(mm), Iris Range(F-stop), Focusing Range(m), Control, Shooting Range at M.O.D.(mm), Angle of View, TV Distortion(%), Flange Back in Air(mm), Mount, Filter Thread(mm), Size(mm), Weight(g). Rows include LM28LF, LM28LF-48, LM35LF, LM35LF-48, LM50LF, and LM50LF-48.

Nikon is a trademark of Nikon Corporation.

CLS Series

- For industrial 3CCD color line scan camera
- Ultra high resolution
- For use with 30mm length line sensor
- Low chromatic aberration
- Close up lens is available for close distance applications
- Excellent corner brightness

LM28CLS



28mm FIXED 3CCD METAL

LM35CLS



35mm FIXED 3CCD METAL

LM50CLS



50mm FIXED 3CCD METAL

Table with 4 columns: Model, Focal Length(mm), Image Size(mm), Iris Range(F-stop), Focusing Range(m), Control, Shooting Range at M.O.D.(mm), Angle of View(Degrees), TV Distortion(%), Flange Back in Air(mm), Mount, Filter Thread(mm), Size(mm), Weight(g). Rows include LM28CLS, LM35CLS, and LM50CLS.

Nikon is a trademark of Nikon Corporation.

† Images may differ from the actual product.

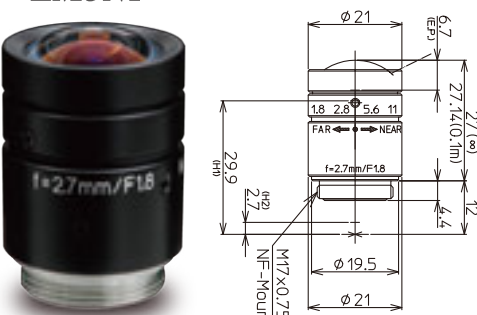
1/3" NF-MOUNT

Compact NF-mt. lens Series

LM3NF LM5NF LM9NF

- Introducing the lineup of megapixel NF-mount lenses. The compact body and high resolution design will maximize the performance of NF-mount camera.

LM3NF



1/3" 2.7mm FIXED MEGA NF-mt METAL

Table with 2 columns: Model, LM3NF. Rows include Focal Length(mm), Image Size(mm), Iris Range(F-stop), Focusing Range(m), Control, Shooting Range at M.O.D.(mm), Angle of View(Degrees), TV Distortion(%), Back Focus in Air(mm), Mount, Size(mm), Weight(g), Temperature Range.

LM5NF



1/3" 4.5mm FIXED MEGA NF-mt METAL

Table with 2 columns: Model, LM5NF. Rows include Focal Length(mm), Image Size(mm), Iris Range(F-stop), Focusing Range(m), Control, Shooting Range at M.O.D.(mm), Angle of View(Degrees), TV Distortion(%), Back Focus in Air(mm), Mount, Size(mm), Weight(g), Temperature Range.

LM9NF



1/3" 9mm FIXED MEGA NF-mt METAL

Table with 2 columns: Model, LM9NF. Rows include Focal Length(mm), Image Size(mm), Iris Range(F-stop), Focusing Range(m), Control, Shooting Range at M.O.D.(mm), Angle of View(Degrees), TV Distortion(%), Back Focus in Air(mm), Mount, Size(mm), Weight(g), Temperature Range.

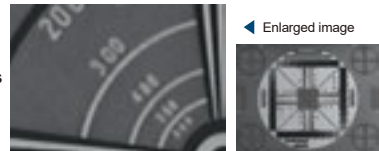
† Images may differ from the actual product.

NC3 Series

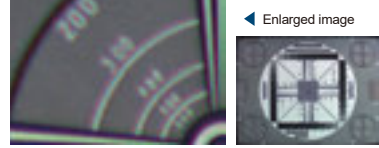
- For megapixel applications
- For megapixel applications
- Excellent corner brightness
- Wide product range: 5 lenses in series
- Low distortion
- Low chromatic aberration

Quality comparison between Kowa 3CCD lens and normal lens

Kowa 3CCD lens



Normal lens

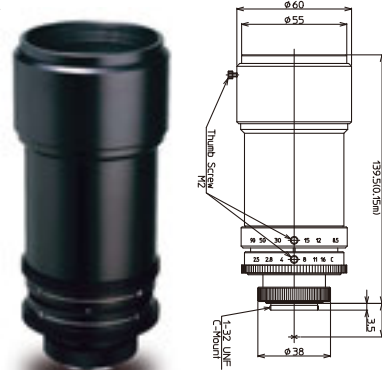


LM4NC3



1/1.8" 1/2" 1/3" 4mm FIXED 3CCD C-mt METAL
Fixed Focal 3CCD Camera C-mount Metal Body

LMZ50M



LMZ45T3



1/3" inf~0.7x 8.5-90mm ZOOM C-mt METAL
Fixed Focal C-mount Metal Body

2/3" 1/2" 1/3" inf~1.1x 18-108mm ZOOM C-mt METAL
Fixed Focal C-mount Metal Body

LMZ68M



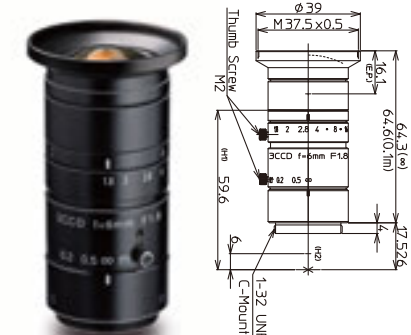
LMZ69M



1/2" 8-48mm ZOOM C-mt METAL
Fixed Focal C-mount Metal Body

2/3" 11.5-69mm ZOOM C-mt METAL
Fixed Focal C-mount Metal Body

LM6NC3



1/1.8" 1/2" 1/3" 6mm FIXED 3CCD C-mt METAL
Fixed Focal 3CCD Camera C-mount Metal Body

LM12NC3



1/1.8" 1/2" 1/3" 12mm FIXED 3CCD C-mt METAL
Fixed Focal 3CCD Camera C-mount Metal Body

LM25NC3



1/1.8" 1/2" 1/3" 25mm FIXED 3CCD C-mt METAL
Fixed Focal 3CCD Camera C-mount Metal Body

LM50NC3



1/1.8" 1/2" 1/3" 50mm FIXED 3CCD C-mt METAL
Fixed Focal 3CCD Camera C-mount Metal Body

Model	LM4NC3	LM6NC3	LM12NC3	LM25NC3	LM50NC3
Focal Length(mm)	4	6	12	25	50
Image Size(mm)	7.2×5.4(Φ9)	7.2×5.4(Φ9)	7.2×5.4(Φ9)	7.2×5.4(Φ9)	7.2×5.4(Φ9)
Iris Range(F-stop)	F1.8~F16	F1.8~F16	F1.8~F16	F1.8~F16	F1.8~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.15~∞	0.2~∞	0.3~∞
Control	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	233.5(H)×163.4(V)	146.9(H)×107.2(V)	99.8(H)×74.0(V)	62.9(H)×57.0(V)	45.8(H)×34.3(V)
Angle of View	1/1.8 inch: 91.9×71.8 1/2 inch: 83.4×64.5 1/3 inch: 64.5×49.2	1/1.8 inch: 65.3×50.1 1/2 inch: 58.8×44.9 1/3 inch: 45.7×33.9	1/1.8 inch: 34.1×25.7 1/2 inch: 30.4×22.8 1/3 inch: 22.8×17.2	1/1.8 inch: 16.4×12.3 1/2 inch: 14.6×11.0 1/3 inch: 11.0×8.2	1/1.8 inch: 7.9×5.9 1/2 inch: 7.0×5.3 1/3 inch: 5.3×4.0
Resolution(Center, Corner)	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm
TV Distortion(%)	-5.0	-2.4	-1.2	-0.17	0.02
Back Focus in Air(mm)	14.7	15.2	15.2	15.0	21.2
Mount	C-mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M46×P0.75	M37.5×P0.5	M27×P0.5	M27×P0.5	M35.5×P0.5
Size(mm)	Φ48×68.7	Φ39×64.3	Φ30×58.5	Φ30×47	Φ40×66
Weight(g)	120	105	95	80	160
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

† Images may differ from the actual product.

MACRO ZOOM

- 2 zoom ranges (6× and 10×)
- Excellent for pattern matching, measurement, inspection, and character recognition

Model	LMZ50M				LMZ45T3			
Magnification	inf~0.7×				inf~1.1×			
Zoom Magnification	10×				6×			
Image Size(mm)	4.8×3.6(Φ6)				8.8×6.6(Φ11)			
Close up lens	3Dpt.un-installed		3Dpt.installed		3Dpt.un-installed		3Dpt.installed	
Shooting Magnification	Inf~0.28×		0.07~0.7×		Inf~0.72×		0.053~1.1×	
W.D (mm)	Inf~M.O.D=310		WD=310~150		Inf~M.O.D=185		WD=330~115	
Iris Range(F-stop)	F2.5~Close				F2.5~Close			
Object side N.A.	-		-		-		-	
Image side N.A.	-		-		-		-	
TV Distortion(%)	0.1		0.1		-0.3		-0.1	
Angle of View(Degrees)					inf wide inf tele WD=185 wide WD=185 tele	27.3×20.5° 4.7×3.5° 67.0×50.1 11.7×9.0	WD=330 wide WD=330 tele WD=115 wide WD=115 tele	165.4×123.8 28.3×21.3 43.8×32.8 7.6×5.9
2/3 inch	-	-	-	-				
1/2 inch	-	-	-	-	inf wide inf tele WD=185 wide WD=185 tele	19.9×14.9° 3.4×2.6° 48.6×36.5 8.7×6.6	WD=330 wide WD=330 tele WD=115 wide WD=115 tele	120.0×89.8 20.7×15.6 31.8×23.8 5.7×4.3
1/3 inch	inf wide inf tele WD=310 wide WD=310 tele	31.3×23.5° 3.2×2.4° 140.7×103.0 14.0×10.4	WD=310 wide WD=310 tele WD=150 wide WD=150 tele	172.0×128.4 17.1×12.8 69.1×51.7 6.9×5.2	inf wide inf tele WD=185 wide WD=185 tele	14.9×11.2° 2.6×2.0° 36.5×27.3 6.6×5.0	WD=330 wide WD=330 tele WD=115 wide WD=115 tele	89.8×67.4 15.6×11.7 23.8×17.9 4.3×3.3
Mount	C-mount				C-mount			
Control	Iris	Manual			Iris	Manual		
	Focus	Manual			Focus	Manual		
	Zoom	Manual			Zoom	Manual		
Filter Thread(mm)	M48×P0.75				M52×P0.75			
Size(mm)	Φ60×130				Φ62×171.7			
Weight(g)	437				595			
Temperature Range	-10°C~+50°C				-10°C~+50°C			

† Images may differ from the actual product.

High Resolution Lenses

- ▶ Produces high contrast and resolution in both the center and corners.
- ▶ Virtually no TV distortion of entire image area.

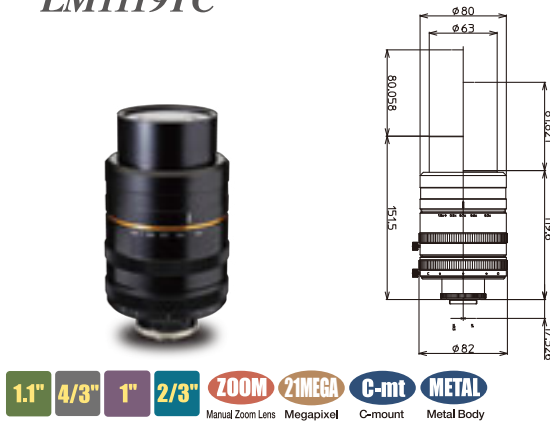


In a telecentric optical system, the chief rays are parallel to the optical axis. As a result, the aperture becomes greater as the magnification is fixed by the focusing rays. This means that the F-number on a telecentric lens tends to be larger when compared to a standard megapixel lens.



- ▶ Surface inspection of silicon wafers
- ▶ Image defect inspections
- ▶ Inspection of dirt on prisms and glass circuit boards
- ▶ Measurement of thread pitches
- ▶ Reading 2D codes

- ▶ Telecentric lens with variable magnification
- ▶ Able to resolve up to 21 megapixels
- ▶ 0.5×~1.0× for macro use



† Images may differ from the actual product.

- ▶ Telecentric lens with variable magnification
- ▶ Able to adjust the magnification to match with the pixel size of the camera
- ▶ Lenses are designed with an optical magnification that is ideal for over 5 megapixels
- ▶ Distortion free lenses of less than 0.02%. TV distortion is limited to 0.25% on the entire image area even when used with a 5 megapixel camera



- ▶ Telecentric lens with variable magnification
- ▶ 0.3×~1.0× for macro use

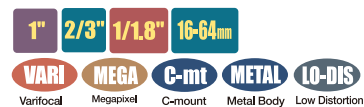


† Images may differ from the actual product.

1" VARIFOCAL

LMVZ166HC

LMVZ166HC

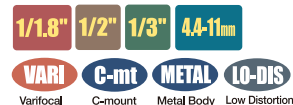


Model	LMVZ166HC
Focal Length(mm)	16~64(4.0×)
Image Size(mm)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.8~F16
Focusing Range(m)	1.0~∞
Control	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	W881.4×639.7/T238.2×177.9
Angle of View	1 Inch: W45.9×34.2/T11.7×14.6 2/3 Inch: W31.3×23.4/T8.1×6.1 (Degrees) 1/1.8 Inch: W25.5×19.1/T6.6×5.0
TV Distortion(%)	W~3.4/T0.2
Back Focus in Air(mm)	W29.2/T29.5
Mount	C-mount
Filter Thread(mm)	M58×P0.75
Size(mm)	Φ60×124
Weight(g)	370
Temperature Range	-10°C~+50°C

1/1.8" VARIFOCAL

LMVZ4411

LMVZ4411



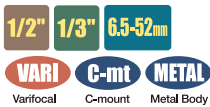
Model	LMVZ4411
Focal Length(mm)	4.4~11(2.5×)
Image Size(mm)	7.2×5.4(Φ9)
Iris Range(F-stop)	F1.6~F16
Focusing Range(m)	0.3~∞
Control	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	W507.5×379.0/T211.4×159.0
Angle of View	1/1.8 Inch: W76.6×61.2/T36.7×28.0 1/2 Inch: W70.2×55.5/T32.9×25.0 (Degrees) 1/3 Inch: W55.5×43.0/T25.0×18.9
TV Distortion(%)	W~0.2/T0.4
Back Focus in Air(mm)	W8.8/T14.5
Mount	C-mount
Filter Thread(mm)	M43×P0.75
Size(mm)	Φ45×56.5
Weight(g)	125
Temperature Range	-10°C~+50°C

1/2" VARIFOCAL

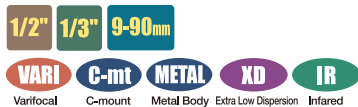
LMVZ655 LMVZ990-IR

LMVZ655

※(1)



LMVZ990-IR



Model	LMVZ655	LMVZ990-IR
Focal Length(mm)	6.5~52(8×)	9~90(10×)
Image Size(mm)	6.4×4.8(Φ8)	6.4×4.8(Φ8)
Iris Range(F-stop)	F1.8~Close	F1.8~F16
Focusing Range(m)	0.2~∞	0.3~∞
Control	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	W232.8×168.2/T141.4×106.0	W252.7×182.5/T194.4×70.8
Angle of View	1/2 Inch: W54.8×41.1/T7.1×5.4 1/3 Inch: W41.1×30.8/T5.4×4.0	W41.1×30.3/T4.2×3.1 W30.3×22.5/T3.1×2.4
TV Distortion(%)	W~1.2/T0.1	W~4.3/T0.3
Back Focus in Air(mm)	W10.2/T13.1	W15.4/T11.7
Mount	C-mount	C-mount
Filter Thread(mm)	M43×P0.75	M43×P0.75
Size(mm)	Φ46×73.5	Φ45×93
Weight(g)	163	194
Temperature Range	-10°C~+50°C	-10°C~+50°C

※(1) Available while stocks last

† Images may differ from the actual product.

FA LENS SPECIFICATION

Specifications are subject to change without notice.

4/3" 8 MEGAPIXEL

Model	Format Size(Inch)	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM8XC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	8.5	18.4×13.8(Φ23)	F2.8~F22	0.1~∞	C	93.5×77.1	0.12	Φ74×82.5	245	4
LM12XC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	12	18.4×13.8(Φ23)	F2.0~F22	0.1~∞	C	74.9×59.6	0.59	Φ57×85	270	4
LM16XC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	16	18.4×13.8(Φ23)	F2.0~F22	0.1~∞	C	60.6×47.2	0.02	Φ45×79.5	250	5
LM25XC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	25	18.4×13.8(Φ23)	F2.0~F16	0.15~∞	C	40.9×31.1	-0.57	Φ45×89	255	5
LM35XC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	35	18.4×13.8(Φ23)	F2.0~F16	0.2~∞	C	29.6×22.4	-0.17	Φ45×74	210	5
LM50XC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	50	18.4×13.8(Φ23)	F2.0~F22	0.3~∞	C	20.6×15.7	0.80	Φ47×78	235	5

1.1" 12MEGAPIXEL

Model	Format Size(Inch)	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
NEW LM8FC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	8.5	14.1×10.6(Φ17.6)	F2.5~F16	0.1~∞	C	79.2×63.8	0.55	Φ64×73.3	230	6
NEW LM16FC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	16	14.1×10.6(Φ17.6)	F1.8~F16	0.1~∞	C	48.0×36.7	-0.4	Φ43×65.7	200	7
NEW LM25FC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	25	14.1×10.6(Φ17.6)	F1.8~F16	0.1~∞	C	31.5×23.9	-0.3	Φ45×69.4	220	7
NEW LM35FC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	35	14.1×10.6(Φ17.6)	F2.0~F16	0.2~∞	C	22.1×16.7	0.01	Φ45×66	205	7

1" 6 MEGAPIXEL PLUS

Model	Format Size(Inch)	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM12SC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	12	12.8×9.6(Φ16)	F1.8~F16	0.1~∞	C	55.9×43.1	-0.55	Φ43×84	255	8
LM16SC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	16	12.8×9.6(Φ16)	F1.8~F16	0.1~∞	C	44.0×33.6	0.02	Φ43×80	240	9
LM25SC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	25	12.8×9.6(Φ16)	F1.8~F16	0.15~∞	C	28.9×21.8	-0.34	Φ43×89	245	9
LM35SC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	35	12.8×9.6(Φ16)	F2.0~F16	0.2~∞	C	20.8×15.6	0.02	Φ43×74	200	9
LM50SC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	50	12.8×9.6(Φ16)	F2.0~F16	0.3~∞	C	14.6×11.0	0.30	Φ43×78.5	210	9

1" 1 MEGAPIXEL

Model	Format Size(Inch)	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM6HC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	6	12.8×9.6(Φ16)	F1.8~F16	0.1~∞	C	96.8×79.4	-0.2	Φ54×56.2	215	10
LM8HC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	8	12.8×9.6(Φ16)	F1.4~F16	0.1~∞	C	79.4×63.0	-1.2	Φ57×58	205	10
LM12HC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	12.5	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	55.6×42.5	-1.58	Φ43×51.5	160	10
LM16HC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	16	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	44.3×33.6	-1.0	Φ43×52.9	150	10
LM25HC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	25	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	29.3×22.0	-1.0	Φ43×43	135	11
LM35HC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	35	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	20.9×15.8	-0.5	Φ43×43	135	11
LM50HC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	50	12.8×9.6(Φ16)	F1.4~F16	0.5~∞	C	14.5×10.8	0.05	Φ49×48	210	11
LM75HC	4/3 1.1 1 2/3 1/1.8 1/2 1/3	75	12.8×9.6(Φ16)	F1.8~F16	1.0~∞	C	9.7×7.3	-0.2	Φ49×57	195	11

1" RUGGEDIZED MEGAPIXEL

Model	Format Size(Inch)	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM8HC-V	4/3 1.1 1 2/3 1/1.8 1/2 1/3	8	12.8×9.6(Φ16)	F1.4/2.8/4/8	0.1~∞	C	79.7×63.0	-1.2	Φ58×58	183	13
LM12HC-V	4/3 1.1 1 2/3 1/1.8 1/2 1/3	12.5	12.8×9.6(Φ16)	F1.4/2.8/4/8	0.3~∞	C	55.6×42.5	-1.58	Φ44×51.5	130	13
LM16HC-V	4/3 1.1 1 2/3 1/1.8 1/2 1/3	16	12.8×9.6(Φ16)	F1.4/2.8/4/8	0.3~∞	C	44.3×33.6	-1.0	Φ44×53	120	13
LM25HC-V	4/3 1.1 1 2/3 1/1.8 1/2 1/3	25	12.8×9.6(Φ16)	F1.4/2.8/4/8	0.3~∞	C	29.3×22.0	-1.0	Φ43×43	104	13
LM35HC-V	4/3 1.1 1 2/3 1/1.8 1/2 1/3	35	12.8×9.6(Φ16)	F1.4/2.8/4/8	0.3~∞	C	20.9×15.8	-0.5	Φ46×44.1	133	13
LM50HC-V	4/3 1.1 1 2/3 1/1.8 1/2 1/3	50	12.8×9.6(Φ16)	F1.4/2.8/4/8	0.5~∞	C	14.5×10.8	0.05	Φ50×48	170	13

2/3" 10 MEGAPIXEL

Model	Format Size(Inch)	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM5JC10M	4/3 1.1 1 2/3 1/1.8 1/2 1/3	5	8.8×6.6(Φ11)	F1.8~F16	0.1~∞	C	82.2×66.5	-0.33	Φ48×59.4	120	14
LM8JC10M	4/3 1.1 1 2/3 1/1.8 1/2 1/3	8.5	8.8×6.6(Φ11)	F1.8~F22	0.1~∞	C	54.0×41.9	0.31	Φ36×56	115	15
LM12JC10M	4/3 1.1 1 2/3 1/1.8 1/2 1/3	12	8.8×6.6(Φ11)	F1.8~F11	0.1~∞	C	39.1×29.8	-0.12	Φ33×53.5	105	15
LM16JC10M	4/3 1.1 1 2/3 1/1.8 1/2 1/3	16	8.8×6.6(Φ11)	F1.8~F16	0.1~∞	C	30.0×22.7	-0.20	Φ33×50	90	15
LM25JC10M	4/3 1.1 1 2/3 1/1.8 1/2 1/3	25	8.8×6.6(Φ11)	F1.8~F16	0.1~∞	C	20.0×15.1	-0.09	Φ33×45.5	95	15
LM35JC10M	4/3 1.1 1 2/3 1/1.8 1/2 1/3	35	8.8×6.6(Φ11)	F2.0~F16	0.1~∞	C	14.3×10.8	0.05	Φ43×49	160	15
LM50JC10M	4/3 1.1 1 2/3 1/1.8 1/2 1/3	50	8.8×6.6(Φ11)	F2.8~F16	0.1~∞	C	10.1×7.6	-0.02	Φ38×77	170	15

2/3" 5 MEGAPIXEL

Model	Format Size(Inch)	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM12JC5M2	4/3 1.1 1 2/3 1/1.8 1/2 1/3	12.5	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	38.4×29.2	-0.06	Φ38.5×52	130	16
LM16JC5M2	4/3 1.1 1 2/3 1/1.8 1/2 1/3	16	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	29.9×22.7	0.03	Φ38.5×52	125	17
LM25JC5M2	4/3 1.1 1 2/3 1/1.8 1/2 1/3	25	8.8×6.6(Φ11)	F1.6~F16	0.1~∞	C	19.9×15.0	-0.01	Φ38.5×45.5	115	17
LM35JC5M2	4/3 1.1 1 2/3 1/1.8 1/2 1/3	35	8.8×6.6(Φ11)	F1.6~F16	0.18~∞	C	14.3×10.8	-0.03	Φ38.5×52	120	17

* Applicable on 1/1.2" as well

2/3" 3 MEGAPIXEL																
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
NEW LM8JC3M2				●	●	●	8	8.8×6.6(Φ11)	F1.4~Close	0.1~∞	C	56.5×43.9	-0.6	Φ34×41.6	90	18
NEW LM12JC3M2				●	●	●	12	8.8×6.6(Φ11)	F1.4~Close	0.15~∞	C	38.3×29.1	-0.07	Φ34×37	85	18
NEW LM16JC3M2				●	●	●	16	8.8×6.6(Φ11)	F1.4~F16	0.2~∞	C	30.0×22.7	-0.05	Φ33.5×36.5	85	19
NEW LM25JC3M2				●	●	●	25	8.8×6.6(Φ11)	F1.4~F16	0.2~∞	C	19.6×14.8	-0.04	Φ33.5×39.5	90	19
NEW LM35JC3M2				●	●	●	35	8.8×6.6(Φ11)	F2.0~F16	0.2~∞	C	14.4×10.8	-0.2	Φ34×36.5	70	19
NEW LM50JC3M2				●	●	●	50	8.8×6.6(Φ11)	F2.8~F22	0.2~∞	C	9.6×7.2	-0.03	Φ34×55	95	19

WIDE MEGAPIXEL																	
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page	
	4/3	1.1	1	2/3	1/1.8	1/2											1/3
LM3NCM					●	●	●	3.5	7.2×5.4(Φ9)	F2.4~F14	0.1~∞	C	89.0×73.8	0.4	Φ42×38.2	85	21
LM4NCM					●	●	●	4.4	7.2×5.4(Φ9)	F1.6~F16	0.1~∞	C	76.6×61.3	-0.2	Φ45×57.3	150	21
LM6NCM						●	●	6	6.4×4.8(Φ8)	F1.2~Close	0.1~∞	C	56.2×43.5	-0.2	Φ34×45.8	100	21
LM5JCM				●	●	●	●	5	8.8×6.6(Φ11)	F2.8~F16	0.1~∞	C	82.4×66.9	0.5	Φ42×38.2	84	21

2/3" MEGAPIXEL																
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM8JCM				●	●	●	8	8.8×6.6(Φ11)	F1.4~Close	0.1~∞	C	56.5×43.9	-0.60	Φ34×41.6	90	22
LM12JCM				●	●	●	12	8.8×6.6(Φ11)	F1.4~Close	0.15~∞	C	38.3×29.1	-0.07	Φ34×37	85	22
LM16JCM				●	●	●	16	8.8×6.6(Φ11)	F1.4~F16	0.2~∞	C	30.0×22.7	-0.05	Φ33.5×36.5	85	22
LM25JCM				●	●	●	25	8.8×6.6(Φ11)	F1.4~F16	0.2~∞	C	19.6×14.8	-0.04	Φ33.5×39.5	90	23
LM35JCM				●	●	●	35	8.8×6.6(Φ11)	F2.0~F16	0.2~∞	C	14.4×10.8	-0.2	Φ34×36.5	70	23
LM50JCM				●	●	●	50	8.8×6.6(Φ11)	F2.8~F22	0.2~∞	C	9.6×7.2	-0.03	Φ34×55	95	23

2/3" RUGGEDIZED MEGAPIXEL																
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
NEW LM5JCM-V				●	●	●	5	8.8×6.6(Φ11)	F2.8/4/5.6/8	0.1~∞	C	82.4×66.9	0.5	Φ43×38.4	73	24
LM8JCM-V				●	●	●	8	8.8×6.6(Φ11)	F1.4/4/8/16	0.1~∞	C	56.5×43.9	-0.6	Φ33×41.6	88	25
LM12JCM-V				●	●	●	12	8.8×6.6(Φ11)	F1.4/4/8/16	0.15~∞	C	38.3×29.1	-0.07	Φ33×37	75	25
LM16JCM-V				●	●	●	16	8.8×6.6(Φ11)	F1.4/4/8/16	0.2~∞	C	30.0×22.7	-0.05	Φ33×36.5	76.5	25
LM25JCM-V				●	●	●	25	8.8×6.6(Φ11)	F1.4/4/8/16	0.2~∞	C	19.6×14.8	-0.04	Φ33×39.5	83	25
LM35JCM-V				●	●	●	35	8.8×6.6(Φ11)	F2/4/8/16	0.2~∞	C	14.4×10.8	-0.2	Φ33×38.8	72.5	25
LM50JCM-V				●	●	●	50	8.8×6.6(Φ11)	F2.8/4/8/16	0.2~∞	C	9.6×7.2	-0.03	Φ33×56.2	85	25

2/3" STANDARD																
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM6JC				●	●	●	6	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	81.9×61.2	-10.7	Φ30×32.8	65	26
LM8JC				●	●	●	8	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	64.2×47.7	-6.2	Φ30×30	60	26
LM12JC				●	●	●	12	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	42.5×31.7	-2.5	Φ30×31.5	63	26
LM16JC				●	●	●	16	8.8×6.6(Φ11)	F1.4~F16	0.2~∞	C	30.5×22.8	-1.5	Φ30×28	55	26
LM25JC				●	●	●	25	8.8×6.6(Φ11)	F1.6~F16	0.2~∞	C	21.0×15.7	-0.6	Φ30×28	55	26
LM35JC				●	●	●	35	8.8×6.6(Φ11)	F1.6~F16	0.3~∞	C	14.4×10.8	-0.2	Φ32×36.5	85	26
LM50JC				●	●	●	50	8.8×6.6(Φ11)	F2.0~F22	0.5~∞	C	10.1×7.6	-0.1	Φ32×39.5	90	27
LM75JC				●	●	●	75	8.8×6.6(Φ11)	F2.5~F22	1.2~∞	C	6.7×5.0	-0.1	Φ36×51	100	27
LM100JC				●	●	●	100	8.8×6.6(Φ11)	F1.4~F16	2.0~∞	C	5.0×3.8	-0.05	Φ42×70	140	27

1/1.8" STANDARD																
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM4NCL					●	●	3.5	7.2×5.4(Φ9)	F1.4~F16	0.2~∞	C	117.7×86.7	-28.0	Φ31×30.5	60	27
LM5NCL					●	●	4.5	7.2×5.4(Φ9)	F1.4~F16	0.2~∞	C	88.8×66.9	-17.5	Φ31×29.5	55	27
LM6NCL					●	●	6	7.2×5.4(Φ9)	F1.4~F16	0.2~∞	C	62.7×48.4	-1.0	Φ31×34	60	27
LM12NCL					●	●	12	7.2×5.4(Φ9)	F2.8~F32	0.3~∞	C	34.6×25.9	-0.8	Φ31×29.5	55	27

1" SWIR MEGAPIXEL																
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM8HC-SW			●	●	●	●	8	12.8×9.6(Φ16)	F1.4~F16	0.1~∞	C	79.4×63.0	-1.2	Φ57×58	205	28
LM12HC-SW			●	●	●	●	12.5	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	55.6×42.5	-1.6	Φ43×51.5	160	28
LM16HC-SW			●	●	●	●	16	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	44.3×33.6	-1.0	Φ43×52.9	150	29
LM25HC-SW			●	●	●	●	25	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	29.3×22.0	-1.0	Φ43×43	135	29
LM35HC-SW			●	●	●	●	35	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	20.9×15.8	-0.5	Φ43×43	135	29
LM50HC-SW			●	●	●	●	50	12.8×9.6(Φ16)	F1.4~F16	0.5~∞	C	14.5×10.8	0.05	Φ49×48	210	29

DAY & NIGHT 2/3" 5 MEGAPIXEL																
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
NEW LM16JCSM-IR				●	●	●	16	8.8×6.6(Φ11)	F1.4~F16	0.3~∞	C	30.9×23.2	-0.8	Φ34×44.5	100	30
NEW LM25JCSM-IR				●	●	●	25	8.8×6.6(Φ11)	F1.4~F16	0.3~∞	C	20.1×15.1	-0.3	Φ34×47	110	30
NEW LM35JCSM-IR				●	●	●	35	8.8×6.6(Φ11)	F2.0~F22	0.3~∞	C	13.9×10.5	-0.3	Φ34×43	100	30

DAY & NIGHT 1" 5 MEGAPIXEL																
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
NEW LM50HC-IR			●	●	●	●	50	12.8×9.6(Φ16)	F1.8~F16	1.0~∞	C	14.4×10.8	-0.09	Φ50×47.4	180	31
NEW LM60HC-IR			●	●	●	●	60	12.8×9.6(Φ16)	F2.0~F16	1.0~∞	C	12.2×9.2	-0.06	Φ49.2×54.6	200	31

LARGE FORMAT NIR																		
Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount		Field Angle(H×V)	TV Distortion(%)	Size(mm)		Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2									1/3	Nikon F		
LM50-IR	-	-	-	-	-	-	50	43.3(Φ43.3)	F1.9~F16	0.5~∞	Nikon F	P	40.2×27.2	-0.5	Φ58.5×105.2	Φ58.5×106.2	605	31

Various types of lenses are used in machine vision systems. In order to achieve the highest performance, it is important to select the lens most suitable for the application.

Product Number Breakdown Ex. LM 12 JCM
① ② ③

- LM.....KOWA CCTV lenses
- LMZ.....KOWA Zoom lenses
- LMVZ.....KOWA Varifocal lenses

②Represents focal length (fixed focal length lenses)

③Represents format sizes and lens type

- XC 4/3 inch format megapixel lens
- CLS 3CCD color line scan lens
- SC,HC..... 1 inch format megapixel lens
- HC-SW 1 inch format SWIR lens
- JC 2/3 inch format lens
- JCM 2/3 inch format megapixel lens
- NCL 1/2 inch format lens
- NCM 1/2 inch format megapixel lens
- M Macro lens
- TC Telecentric lens
- NC3 1/2 inch format 3CCD megapixel lens
- IR IR-corrected lens
- NF NF mount lens

Quick selection - How to calculate focal length

Ex) A 2/3" camera is used to capture an object 100mm wide from a distance of 300mm.
Use the picture below and the image size chart to substitute for Y, L, and Y'. Then, to capture the entire object, use the formula $f=L*Y'/Y$ to calculate focal length.

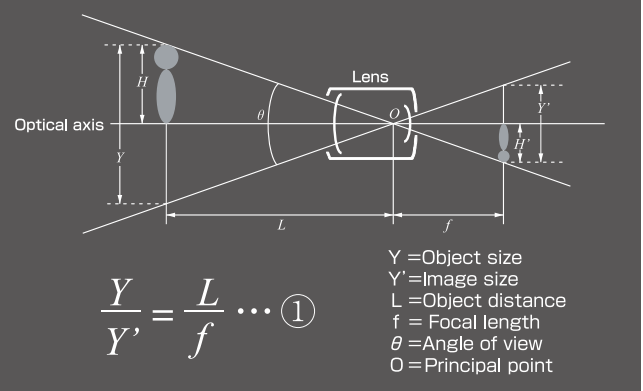
Y=8.8mm(See image size chart), L=300mm, Y=100mm
 $f=300*8.8/100$
 $f=26.4mm$.
The most appropriate lens is f=25mm lens, which is close but not greater than the 26.4 derived from the calculation.
Lenses with shorter focal lengths than the given number can capture an object in its entirety.

Quick selection - How to calculate the angle of view

Ex) A 1/2" camera is used to shoot an object 300mm away. The focal length of the lens is 16mm. Use the picture below and image size chart to substitute for f, L, and Y1 (H or V accordingly). Then to calculate the angle of view, use the formula $Y=L*Y'/f$.

Width- Y'=6.4mm (Horizontal), f=16mm, L=300mm
 $Y=300*6.4/16$
 $Y=120mm$
Vertical-Y'=4.8mm (Vertical), f=16mm, L=300mm
 $Y=300*4.8/16$
 $Y=90mm$
Thus in order to capture the object in its entirety, the maximum dimensions of an object at a distance of 300mm is 120mm wide and 90mm height.

Characteristics of lenses are described below

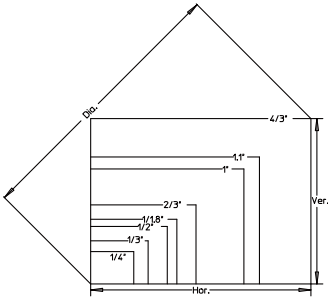


Object size..... Field range which can be captured by the image sensor
Image size..... See description
Object distance Distance from the lens to the object
Focal length..... Distance from the pricipal point to the focus point
Angle of view..... This angle represents a shooting range in degrees. The shorter a focal length is, the bigger an angle of view is.
Principal point ... Optical center of the lens

Image size

Image size represents size of camera sensor

Camera	Hor.(mm)	Ver.(mm)	Dia.(mm)
1/4 inch	3.6	2.7	4.5
1/3 inch	4.8	3.6	6
1/2 inch	6.4	4.8	8
1/1.8 inch	7.2	5.4	9
2/3 inch	8.8	6.6	11
1 inch	12.8	9.6	16
1.1 inch	14.1	10.6	17.6
4/3 inch	18.4	13.8	23



F-number

The F-number represents the amount of light that passes through a lens. As the F-number decreases, the amount of light that passes through the lens increases. The F-number affects the depth of field as mentioned below.

Depth of field

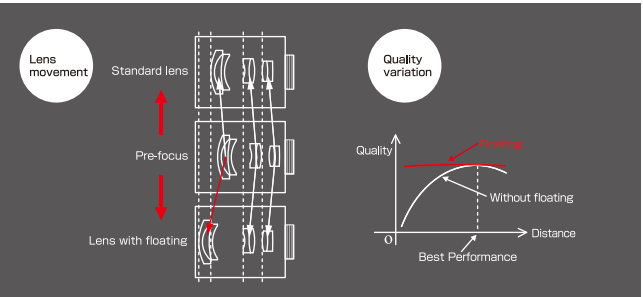
Depth of field is the range of distance, in front of and behind a subject that appears in focus. If the depth of field is deep, an object will appear to be in focus even if it moves slightly back and forth.

The characteristics of depth of field (comparing lenses with the same specifications)

- Increasing the F-number (darker) increases the depth.
- Shortening the focal length increases the depth.
- Lengthening the object distance increases the depth.

Floating Mechanism system

The floating mechanism system is effective in preventing malfunction and increasing the life of the lens. It is also called the close distance aberration compensation mechanism.
In standard CCTV lenses, the whole or a part of the lens moves when focusing. However, moving one lens element and not the entire lens system changes the direction of the light rays and decreases the optical performance.
However, lenses with the floating mechanism system can vary the distance between the lens elements. This enables the lens to achieve the highest performance at various objective distances.



Lens processing facility

Kowa has the facility to manufacture any optical device with the requested specifications.

Examples of optical devices

- Parabolic mirrors
- Plastic molded lenses
- Germanium lenses
- Special filters
- Aspherical Lenses



Coating machine



Aspherical lens processing machine



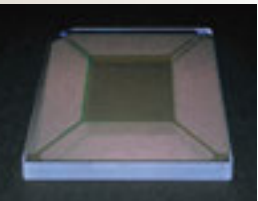
Ultra-precision processing machine



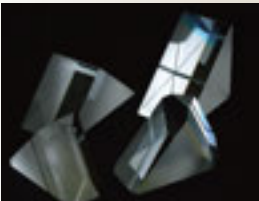
Spherical and Aspherical lenses



YAG laser cut optical devices



Special mirrors



Various prisms



Optical devices with special coatings



Ultra-precision optical devices

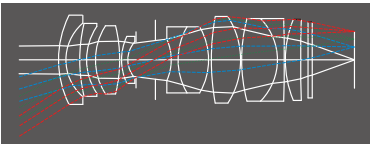
Design & Development

OEM Product Design

Kowa has the ability to create an OEM customized optical system, which includes the optical, mechanical, electrical and software design. We will provide you the best solution for every customer who requires high-end customized products.

Example of Customized Optics

- Optics for Medical X-ray diagnostics
- Optics for Semiconductor instruments
- Optics for laser scanning applications
- Optics for surveillance applications
- Optics for printing applications



Meeting and quotation

Meeting with customer
Define specification
Optical simulation
Provide simulation results
Quotation

Designing phase

Optical designing
Provide design results
Mechanical and electrical designing
Provide a complete product design

Prototype and production phase

Parts arrangement
Assembly and adjustment
Provide prototype
Final evaluation
Production

