



Quality of Light

INDUSTRIAL FA LENSES

2018 Ver.1.0



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Technology

Function

Performance





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)

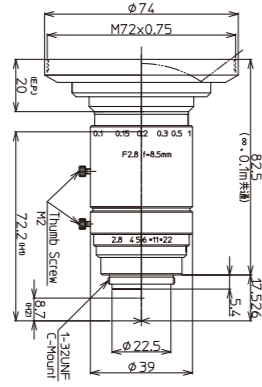
04	4/3" 8 MEGAPIXEL XC SERIES	LM8XC LM12XC LM16XC LM25XC LM35XC LM50XC
NEW 06	1.1" 12 MEGAPIXEL FC SERIES	LM8FC LM16FC LM25FC LM35FC
08	1" 6 MEGAPIXEL PLUS SC SERIES	LM12SC LM16SC LM25SC LM35SC LM50SC
10	1" MEGAPIXEL HC SERIES	LM8HC LM8HC LM12HC LM16HC LM25HC LM35HC LM50HC LM75HC
12	1" RUGGEDIZED MEGAPIXEL 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 LM50JC10M
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 LM50JCM-V
26	2/3" STANDARD JC SERIES	LM6JC LM8JC LM12JC LM16JC LM25JC LM35JC LM50JC LM75JC LM100JC
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	LM119TC LM138TC LM120TC LM121TC LM122TC LM123TC LM125TC LM50TC
38	VARIFOVAL	LMVZ166HC LMVZ4411 LMVZ655 LMVZ90-R

XC Series

High Resolution FA/MV Lenses

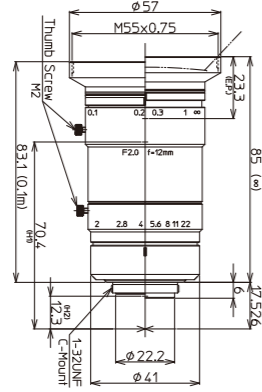
Features of XC Series

- ▶ 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.



Model	LM8XC
Focal Length(mm)	8.5
Image Size(mm)	18.4x13.8($\Phi 23$)
Iris Range(F-stop)	F2.8-F22
Focusing Range(m)	0.1- ∞
Control	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	238.4(H)x179.1(V)
Angle of View (Degrees)	4/3 Inch: 93.5x77.1 1.1 Inch: 78.2x62.7 1 Inch: 72.9x57.9 2/3 Inch: 53.8x41.6
Resolution(Center, Corner)	160lp/mm, 80lp/mm
TV Distortion(%)	0.12
Back Focus in Air(mm)	12.9
Mount	C-mount
Filter Thread(mm)	M72xP0.75
Size(mm)	$\Phi 74 \times 82.5$
Weight(g)	245
Temperature Range	-10°C~+50°C

4/3" 1.1" 1" 2/3" 8.5mm **FIXED** **8MEGA** **C-mt** **METAL** **LO-DIS** **FLOAT** **XD** **WBMC**
 Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating



Model	LM12XC
Focal Length(mm)	12
Image Size(mm)	18.4x13.8($\Phi 23$)
Iris Range(F-stop)	F2.0-F22
Focusing Range(m)	0.1- ∞
Control	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	181.5(H)x135.5(V)
Angle of View (Degrees)	4/3 Inch: 74.9x59.6 1.1 Inch: 60.6x47.1 1 Inch: 55.9x43.1 2/3 Inch: 39.8x30.2
Resolution(Center, Corner)	160lp/mm, 80lp/mm
TV Distortion(%)	0.59
Back Focus in Air(mm)	13.0
Mount	C-mount
Filter Thread(mm)	M55xP0.75
Size(mm)	$\Phi 57 \times 85$
Weight(g)	270
Temperature Range	-10°C~+50°C

4/3" 1.1" 1" 2/3" 12mm **FIXED** **8MEGA** **C-mt** **METAL** **LO-DIS** **FLOAT** **XD** **WBMC**
 Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

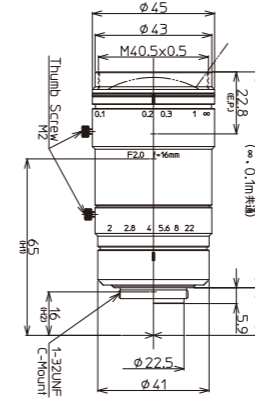
Magnification Using A Close Up Ring

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.



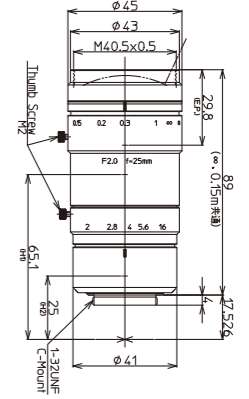
† Images may differ from the actual product.

LM16XC



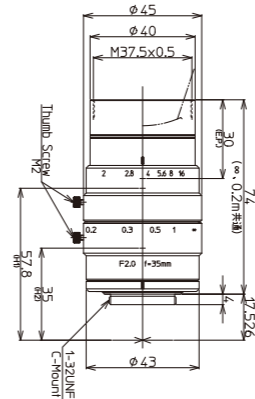
4/3" 1.1" 1" 2/3" 16mm **FIXED** **8MEGA** **C-mt** **METAL** **LO-DIS** **FLOAT** **XD** **WBMC**
 Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

LM25XC



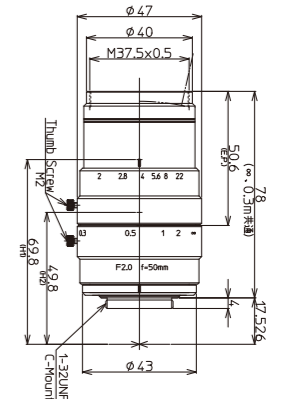
4/3" 1.1" 1" 2/3" 25mm **FIXED** **8MEGA** **C-mt** **METAL** **LO-DIS** **FLOAT** **XD** **WBMC**
 Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

LM35XC



4/3" 1.1" 1" 2/3" 35mm **FIXED** **8MEGA** **C-mt** **METAL** **LO-DIS** **FLOAT** **WBMC**
 Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Wide-Band Multi-Coating

LM50XC



4/3" 1.1" 1" 2/3" 50mm **FIXED** **8MEGA** **C-mt** **METAL** **LO-DIS** **FLOAT** **WBMC**
 Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Wide-Band Multi-Coating

Model	LM16XC	LM25XC	LM35XC	LM50XC
Focal Length(mm)	16	25	35	50
Image Size(mm)	18.4x13.8($\Phi 23$)	18.4x13.8($\Phi 23$)	18.4x13.8($\Phi 23$)	18.4x13.8($\Phi 23$)
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: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	134.6(H)x100.8(V)	124.8(H)x93.0(V)	100.3(H)x75.3(V)	100.2(H)x75.5(V)
Angle of View (Degrees)	4/3 Inch: 60.6x47.2 1.1 Inch: 48.0x36.8 1 Inch: 44.0x33.6 2/3 Inch: 30.9x23.3	4/3 Inch: 40.9x31.1 1.1 Inch: 31.8x24.0 1 Inch: 28.9x21.8 2/3 Inch: 20.1x15.2	4/3 Inch: 29.6x22.4 1.1 Inch: 22.8x17.2 1 Inch: 20.8x15.6 2/3 Inch: 14.3x10.8	4/3 Inch: 20.6x15.7 1.1 Inch: 16.0x12.0 1 Inch: 14.6x11.0 2/3 Inch: 10.1x7.6
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)	M40.5xP0.5	M40.5xP0.5	M37.5xP0.5	M37.5xP0.5
Size(mm)	$\Phi 45 \times 79.5$	$\Phi 45 \times 89$	$\Phi 45 \times 74$	$\Phi 47 \times 78$
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/0.08x	100mm/0.10x	100mm/0.14x	150mm/0.15x	200mm/0.18x	300mm/0.18x
(1mm Ring)M.O.D./Magnification	30mm/0.19x	48mm/0.19x	64mm/0.20x	115mm/0.19x	174mm/0.21x	273mm/0.20x
(5mm Ring)M.O.D./Magnification	-	-	21mm/0.46x	56mm/0.35x	117mm/0.33x	204mm/0.28x
(10mm Ring)M.O.D./Magnification	-	-	-	31mm/0.55x	85mm/0.48x	158mm/0.39x
(20mm Ring)M.O.D./Magnification	-	-	-	12mm/0.96x	58mm/0.77x	115mm/0.59x

† Images may differ from the actual product.

FC Series NEW

High Resolution FA/MV Lens

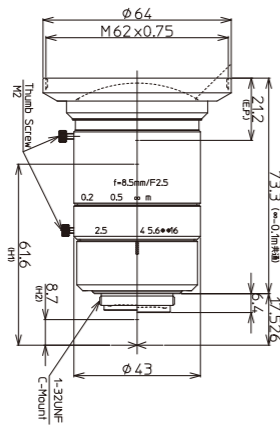
To Be Released in Spring 2018

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.



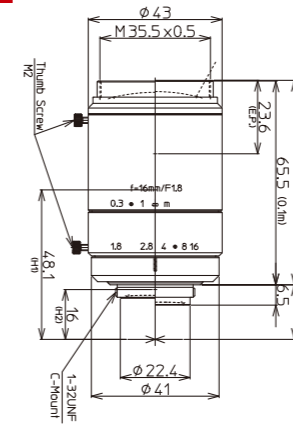
LM8FC NEW



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 View	1.1 Inch 79.2×63.8 1 Inch 73.9×58.8 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

1.1" 1" 2/3" 8mm **FIXED** 12MEGA **C-mt** **METAL** **LO-DIS** **FLOAT** **XD** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

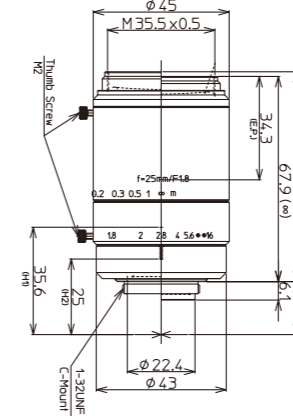
LM16FC NEW



1.1" 1" 2/3" 16mm **FIXED** 12MEGA **C-mt** **METAL** **LO-DIS** **FLOAT** **XD** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

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 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

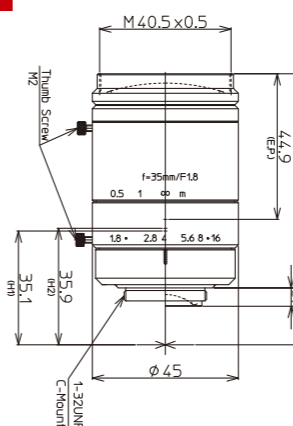
LM25FC NEW



1.1" 1" 2/3" 25mm **FIXED** 12MEGA **C-mt** **METAL** **LO-DIS** **FLOAT** **XD** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

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 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

LM35FC NEW



1.1" 1" 2/3" 35mm **FIXED** 12MEGA **C-mt** **METAL** **LO-DIS** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Low Distortion Wide-Band Multi-Coating

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 Manual Focus Manual
Shooting Range at M.O.D.(mm)	84(H)×63(V)
Angle of View	1.1 Inch 22.1×16.7 1 Inch 20.2×15.2 2/3 Inch 14.0×10.5
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

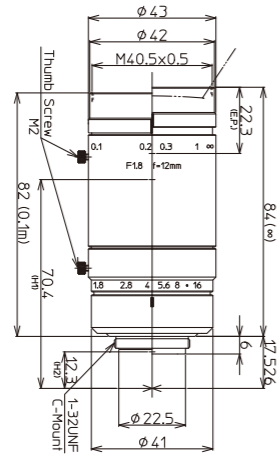
High Resolution FA/MV Lenses

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.



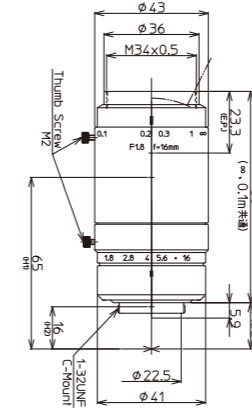
LM12SC



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

1" 2/3" 1/1.8" 12mm FIXED 6MEGA+ C-mt METAL LO-DIS FLOAT XD WBMC

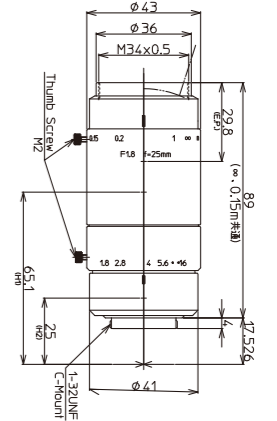
LM16SC



1" 2/3" 1/1.8" 16mm

FIXED 6MEGA+ C-mt METAL LO-DIS FLOAT XD WBMC

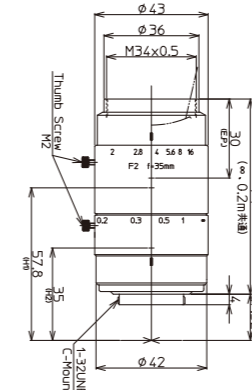
LM25SC



1" 2/3" 1/1.8" 25mm

FIXED 6MEGA+ C-mt METAL LO-DIS FLOAT XD WBMC

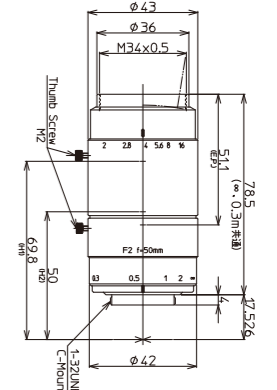
LM35SC



1" 2/3" 1/1.8" 35mm

FIXED 6MEGA+ C-mt METAL LO-DIS FLOAT WBMC

LM50SC



1" 2/3" 1/1.8" 50mm

FIXED 6MEGA+ C-mt METAL LO-DIS FLOAT WBMC

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-∞	0.2-∞	0.15-∞	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

- Wide product range: 8 lenses in HC series
- Excellent corner brightness
- Low distortion
- For large format 1" megapixel applications
- High performance compact lenses



Model	LM6HC	LM8HC	LM12HC	LM16HC
Focal Length(mm)	6	8	12.5	16
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	F1.4~F16	F1.4~F16	F1.4~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.3~∞	0.3~∞
Control	Manual	Manual	Manual	Manual
Focus	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	267.4(H)×196.3(V)	196.0(H)×143.2(V)	330.6(H)×243.5(V)	251.5(H)×186.2(V)
Angle of View	1 Inch: 96.8×79.4 2/3 Inch: 74.1×58.0 1/1.8 Inch: 62.6×48.2	79.4×63.0 58.3×44.7 48.5×36.9	55.6×42.5 39.1×29.5 32.1×24.2	44.3×33.6 30.8×23.2 25.3×19.0
Resolution(Center, Corner)	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm
TV Distortion(%)	-0.2	-1.2	-1.58	-1.0
Back Focus in Air(mm)	11.1	11.2	12.6	12.6
Mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	-	M55×P0.75	M35.5×P0.5	M35.5×P0.5
Size(mm)	Φ54×56.2	Φ57×58	Φ43×51.5	Φ43×52.9
Weight(g)	215	205	160	150
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C



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	Manual	Manual	Manual	Manual
Focus	Manual	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 View	1 Inch: 29.3×22.0 2/3 Inch: 20.2×15.1 (Degrees) 1/1.8 Inch: 16.5×12.4	20.9×15.8 14.4×10.8 11.8×8.8	14.5×10.8 10.0×7.5 8.2×6.2	9.7×7.3 6.7×5.0 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

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

Model	LM6HC	LM8HC	LM12HC	LM16HC	LM25HC	LM35HC	LM50HC	LM75HC
(Non)M.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)M.O.D./Magnification	-	-	93mm/0.12×	134mm/0.11×	200mm/0.12×	243mm/0.15×	424mm/0.13×	858mm/0.091×
(5mm Ring)M.O.D./Magnification	-	-	-	-	83mm/0.28×	138mm/0.26×	269mm/0.20×	553mm/0.14×
(10mm Ring)M.O.D./Magnification	-	-	-	-	-	91mm/0.40×	189mm/0.30×	389mm/0.21×
(20mm Ring)M.O.D./Magnification	-	-	-	-	-	-	124mm/0.50×	251mm/0.34×

† Images may differ from the actual product.

† Images may differ from the actual product.

HC-V Series

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.

Features of HC-V Series

- ▶ For megapixel applications requiring a sensor size of 1" (Φ16mm).
- ▶ 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.

Interchangeable Iris Plates

- 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.



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



LM8HC-V LM12HC-V LM16HC-V LM25HC-V LM35HC-V LM50HC-V

LM8HC-V

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

LM12HC-V

1" 2/3" 1/1.8" 12.5mm FIXED MEGA C-mt METAL RUGGED
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

LM16HC-V

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

LM25HC-V

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

LM35HC-V

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

LM50HC-V

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

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	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 View (Degrees)	1 Inch: 79.7×63.0 2/3 Inch: 58.3×44.7 1/1.8 Inch: 48.5×36.9	55.6×42.5 39.1×29.5 32.1×24.2	44.3×33.6 30.8×23.2 25.3×19.0	29.3×22.0 20.2×15.1 16.5×12.4	20.9×15.8 14.4×10.8 11.8×8.8	14.5×10.8 10.0×7.5 8.2×6.2
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

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JC10M Series

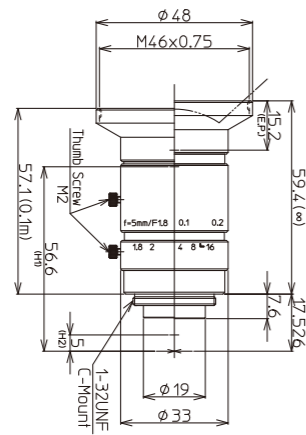
High Resolution FA/MV Lenses

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.



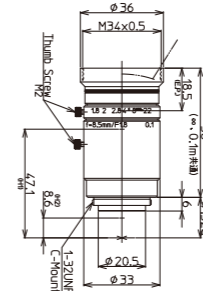
LM5JC10M



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 2/3 Inch	82.2×66.5
View 1/1.8 Inch	71.1×56.5
(Degrees) 1/2 Inch	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

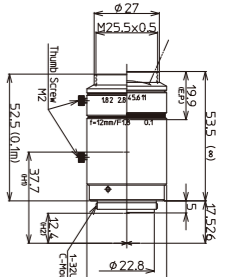
2/3" 1/1.8" 1/2" 5mm FIXED 10MEGA C-mt METAL LO-DIS FLOAT XD WBMC

LM8JC10M



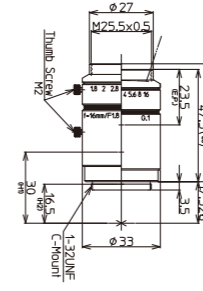
2/3" 1/1.8" 1/2" 8.5mm
FIXED 10MEGA C-mt METAL LO-DIS FLOAT XD WBMC

LM12JC10M



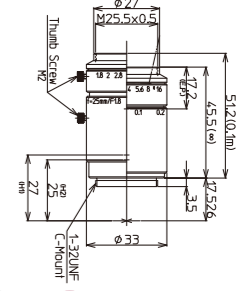
2/3" 1/1.8" 1/2" 12mm
FIXED 10MEGA C-mt METAL LO-DIS FLOAT XD WBMC

LM16JC10M



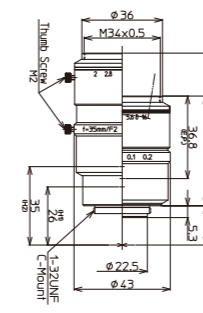
2/3" 1/1.8" 1/2" 16mm
FIXED 10MEGA C-mt METAL LO-DIS FLOAT WBMC

LM25JC10M



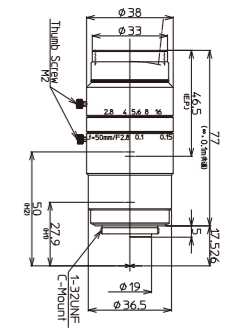
2/3" 1/1.8" 1/2" 25mm
FIXED 10MEGA C-mt METAL LO-DIS FLOAT WBMC

LM35JC10M



2/3" 1/1.8" 1/2" 35mm
FIXED 10MEGA C-mt METAL LO-DIS FLOAT WBMC

LM50JC10M



2/3" 1/1.8" 1/2" 50mm
FIXED 10MEGA C-mt METAL LO-DIS FLOAT XD WBMC

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 2/3 Inch	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 1/1.8 Inch	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) 1/2 Inch	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×

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† Images may differ from the actual product.

JC5M2 Series

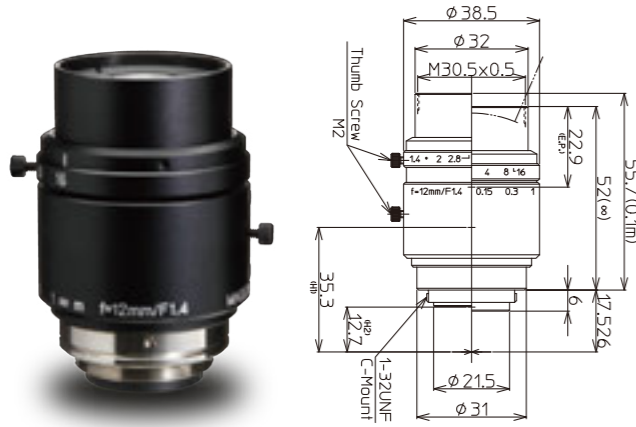
Kowa's JC5M2 lens series is perfect for high-end applications that require the use of 5 megapixel camera.

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.



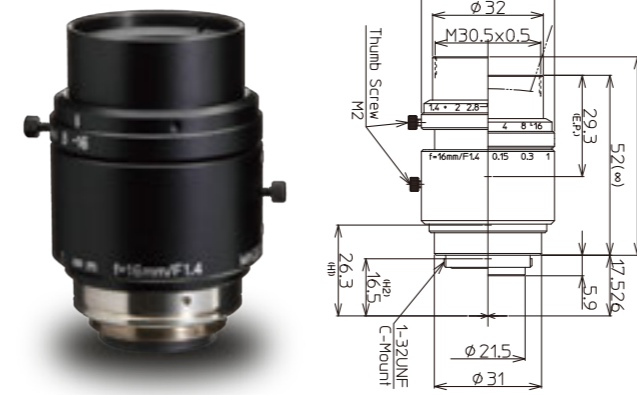
LM12JC5M2



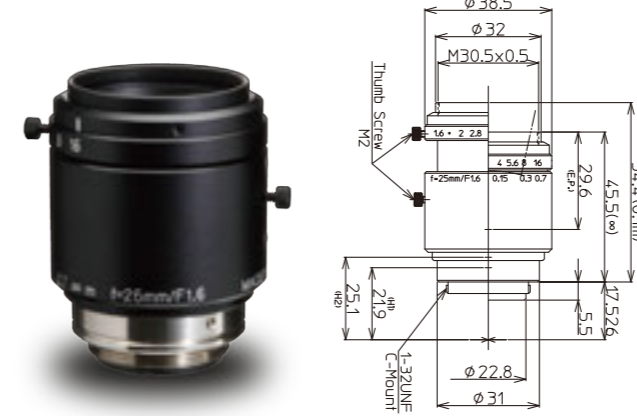
Model	LM12JC5M2
Focal Length(mm)	12.5
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16
Focusing Range(m)	0.1~∞
Control	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	81.4(H)×60.9(V)
Angle of View	2/3 Inch: 38.4×29.2 1/1.8 Inch: 31.7×24.0 1/2 Inch: 28.4×21.4
Resolution(Center, Corner)	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



LM16JC5M2



LM25JC5M2



LM35JC5M2



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: Manual Focus: Manual
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 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: Manual Focus: Manual
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 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: Manual Focus: Manual
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 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 NEW

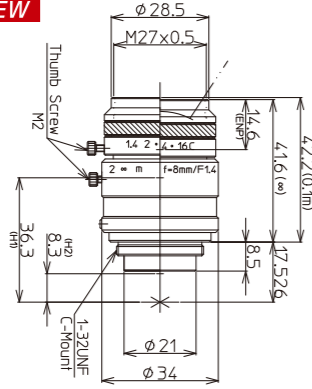
High Resolution FA/MV Lenses

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



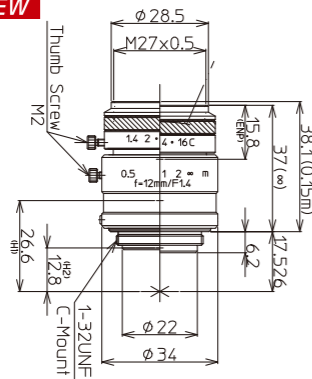
LM8JC3M2 NEW



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: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	120.3(H)×90.0(V)
Angle of View	2/3 Inch: 56.5×43.9 1/1.8 Inch: 47.4×36.3 1/2 Inch: 42.6×32.5
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

2/3" 1/1.8" 1/2" 8mm **FIXED** **3MEGA** **C-mt** **METAL** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Wide-Band Multi-Coating

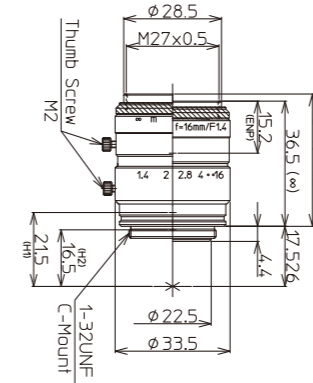
LM12JC3M2 NEW



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 View	2/3 Inch: 38.3×29.1 1/1.8 Inch: 31.7×24.0 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

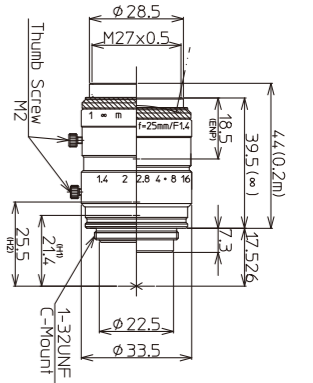
2/3" 1/1.8" 1/2" 12mm **FIXED** **3MEGA** **C-mt** **METAL** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Wide-Band Multi-Coating

LM16JC3M2 NEW



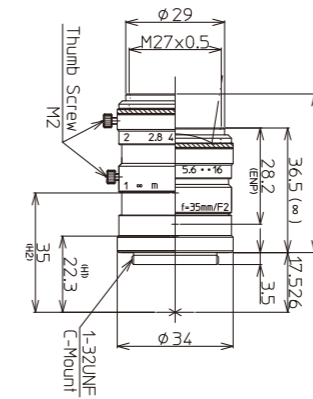
2/3" 1/1.8" 1/2" 16mm **FIXED** **3MEGA** **C-mt** **METAL** **FLOAT** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Floating Wide-Band Multi-Coating

LM25JC3M2 NEW



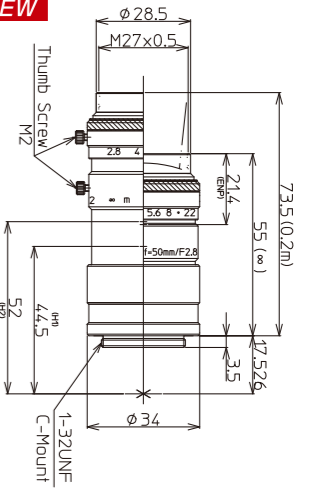
2/3" 1/1.8" 1/2" 25mm **FIXED** **3MEGA** **C-mt** **METAL** **FLOAT** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Floating Wide-Band Multi-Coating

LM35JC3M2 NEW



2/3" 1/1.8" 1/2" 35mm **FIXED** **3MEGA** **C-mt** **METAL** **FLOAT** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Floating Wide-Band Multi-Coating

LM50JC3M2 NEW



2/3" 1/1.8" 1/2" 50mm **FIXED** **3MEGA** **C-mt** **METAL** **FLOAT** **WBMC**
Fixed Focal Megapixel C-mount Metal Body Floating Wide-Band Multi-Coating

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 Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: 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 View	2/3 Inch: 30.0×22.7 1/1.8 Inch: 24.7×18.6	19.6×14.8 16.1×12.1	14.4×10.8 11.8×8.8	9.6×7.2 7.9×5.9
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	LM16JC3M2	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

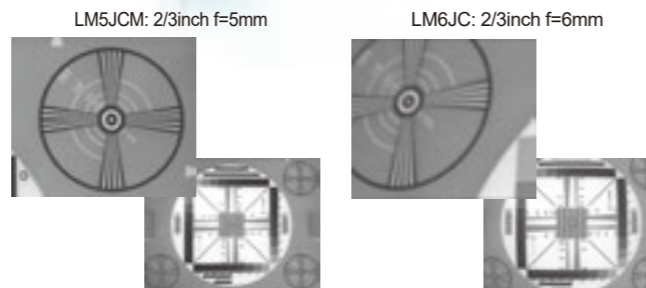
- ▶ Reduces the distortion to corner
- † LM5JCM: Under 0.5%, LM3NCM: Under 0.4% (TV distortion)

High quality

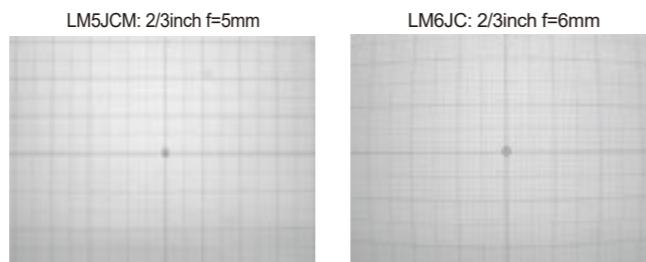
- ▶ Adapts to 2 megapixel cameras
- ▶ Improves center and corner resolution
- ▶ High transmittance



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



Distortion comparison at short distance object

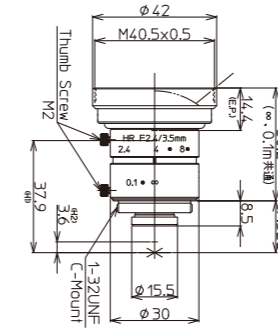


Capture image taken by 2megapixel camera

† Images may differ from the actual product.

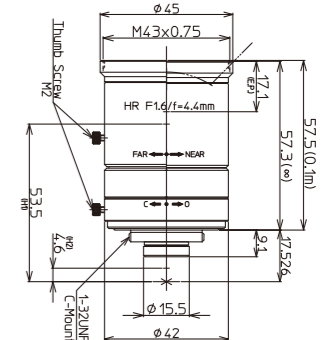
LM3NCM LM4NCM LM6NCM LM5JCM

LM3NCM



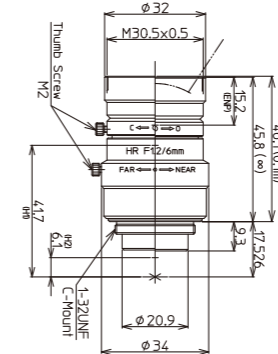
1/1.8" 1/2" 1/3" 3.5mm FIXED MEGA C-mnt METAL LO-DIS
Fixed Focal Megapixel C-mount Metal Body Low Distortion

LM4NCM



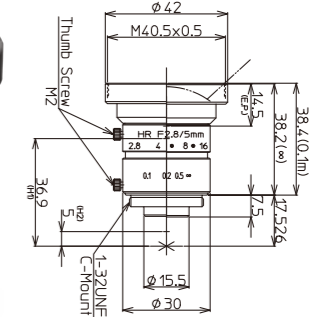
1/1.8" 1/2" 1/3" 4.4mm FIXED MEGA C-mnt METAL LO-DIS
Fixed Focal Megapixel C-mount Metal Body Low Distortion

LM6NCM



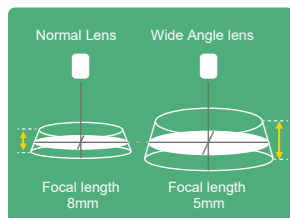
1/2" 1/3" 6mm FIXED MEGA C-mnt METAL LO-DIS
Fixed Focal Megapixel C-mount Metal Body Low Distortion

LM5JCM

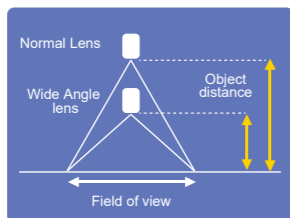


2/3" 1/1.8" 1/2" 5mm FIXED MEGA C-mnt METAL LO-DIS
Fixed Focal Megapixel C-mount Metal Body Low Distortion

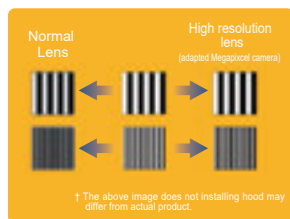
Long Depth of field



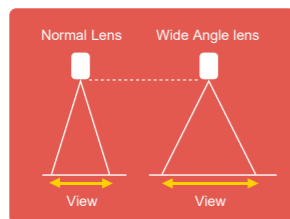
Short Close distance



Clear image



Large field of view



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 -	-	-	82.4°×66.9
(Degrees)	1/1.8 inch 89.0°×73.8	76.6°×61.3	-	71.7°×57.1
	1/2 inch 82.4°×66.9	70.2°×55.5	56.2°×43.5	65.2°×51.3
	1/3 inch 66.9°×52.7	55.5°×43	43.5°×33.2	-
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

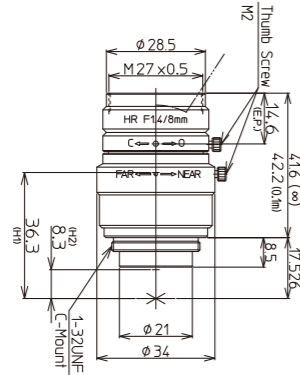
† Images may differ from the actual product.

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)

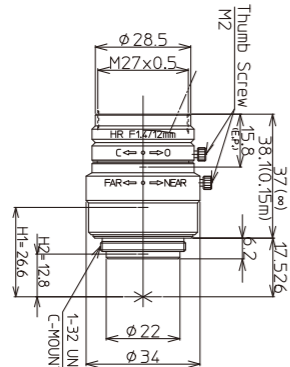
LM8JCM



2/3" 1/1.8" 1/2" 8mm **FIXED** **MEGA** **C-mt** **METAL** **LO-DIS**
 Fixed Focal Megapixel C-mount Metal Body Low Distortion

Model	LM8JCM
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 Manual Focus Manual
Shooting Range at M.O.D.(mm)	120.3(H)×90.0(V)
Angle of 2/3 Inch	56.5×43.9
View 1/1.8 Inch	47.4×36.3
(Degrees) 1/2 Inch	42.6×32.5
Resolution(Center, Corner)	120lp/mm, 100lp/mm
TV Distortion(%)	-0.6
Back Focus in Air(mm)	9.7
Mount	C-mount
Filter Thread(mm)	M27×P0.5
Size(mm)	Φ34×41.6
Weight(g)	90
Temperature Range	-10°C~+50°C

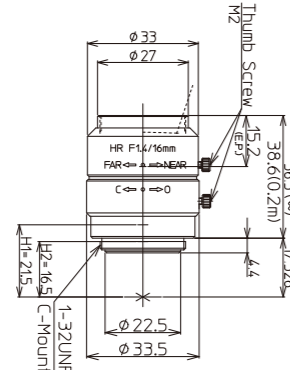
LM12JCM



2/3" 1/1.8" 1/2" 12mm **FIXED** **MEGA** **C-mt** **METAL** **LO-DIS**
 Fixed Focal Megapixel C-mount Metal Body Low Distortion

Model	LM12JCM
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
Resolution(Center, Corner)	120lp/mm, 100lp/mm
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

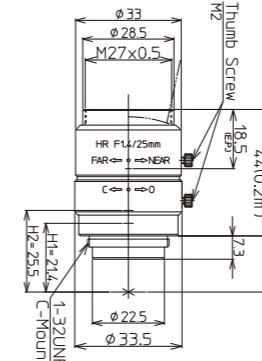
LM16JCM



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

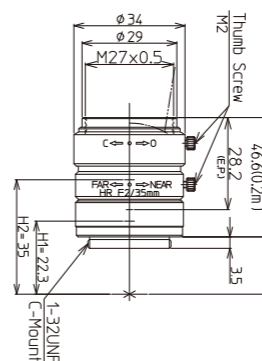
Model	LM16JCM
Focal Length(mm)	16
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16
Focusing Range(m)	0.2~∞
Control	Iris Manual Focus Manual
Shooting Range at M.O.D.(mm)	112.8(H)×84.4(V)
Angle of 2/3 Inch	30.0×22.7
View 1/1.8 Inch	24.7×18.6
(Degrees) 1/2 Inch	21.8×16.4
Resolution(Center, Corner)	120lp/mm, 100lp/mm
TV Distortion(%)	-0.05
Back Focus in Air(mm)	13.1
Mount	C-mount
Filter Thread(mm)	M25.5×P0.5
Size(mm)	Φ33.5×36.5
Weight(g)	85
Temperature Range	-10°C~+50°C

LM25JCM



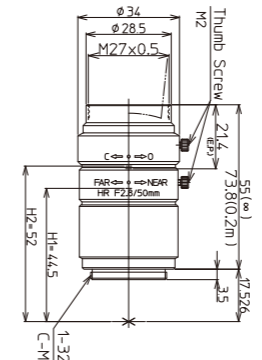
2/3" 1/1.8" 1/2" 25mm **FIXED** **MEGA** **C-mt** **METAL** **FLOAT**
 Fixed Focal Megapixel C-mount Metal Body Floating

LM35JCM



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

LM50JCM



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

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 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 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 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

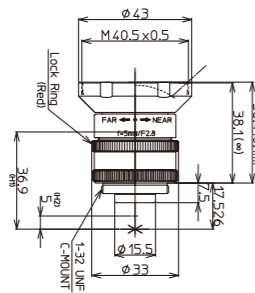
Focus Adjustment Procedure

- 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**

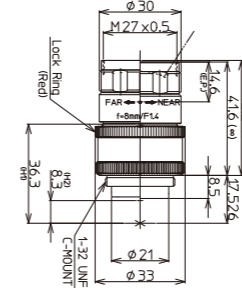


2/3" 1/1.8" 1/2" 5mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

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

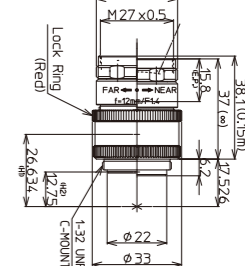
† Images may differ from the actual product.

LM8JCM-V



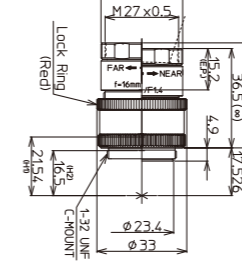
2/3" 1/1.8" 1/2" 8mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

LM12JCM-V



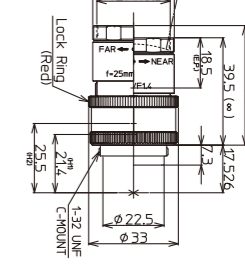
2/3" 1/1.8" 1/2" 12mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

LM16JCM-V



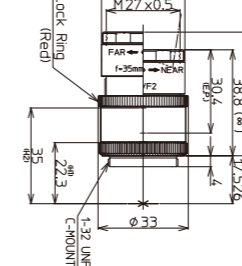
2/3" 1/1.8" 1/2" 16mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

LM25JCM-V



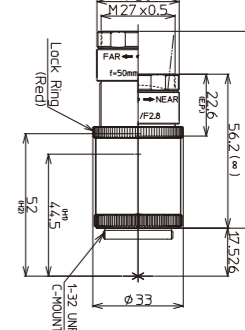
2/3" 1/1.8" 1/2" 25mm **FIXED** **MEGA** **C-mt** **METAL** **RUGGED**
Fixed Focal Megapixel C-mount Metal Body Ruggedized lens

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	-	-	-	-	-
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	14.0×10.5	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.

2/3" STANDARD

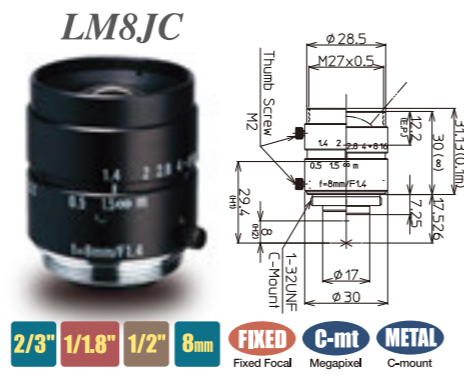
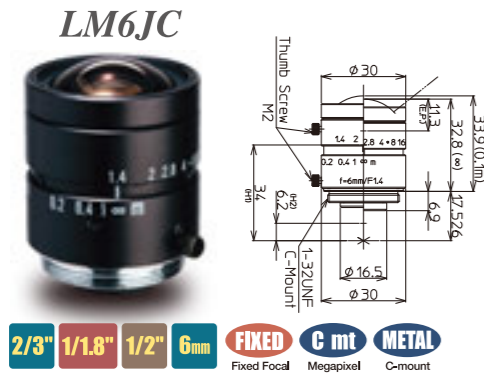
LM6JC LM8JC LM12JC LM16JC LM25JC LM35JC LM50JC LM75JC LM100JC

JC Series

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

2/3" & 1/1.8" STANDARD

LM6JC LM8JC LM12JC LM16JC LM25JC LM35JC LM50JC LM75JC LM100JC



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	F1.4-F16	F1.4-F16
Focusing Range(m)	0.1-∞	0.1-∞	0.1-∞	0.2-∞	0.2-∞	0.3-∞
Control	Iris: Manual	Iris: Manual	Iris: Manual	Iris: Manual	Iris: Manual	Iris: Manual
	Focus: Manual	Focus: Manual	Focus: Manual	Focus: Manual	Focus: Manual	Focus: 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: 81.9×61.2 1/1.8 Inch: 66.9×50.1 1/2 Inch: 59.4×44.5	64.2×47.7 52.4×39.1 46.2×34.6	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



LM75JC



LM100JC



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

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

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

Model	LM50JC	LM75JC	LM100JC
Focal Length(mm)	50	75	100
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F2.0-F22	F2.5-F22	F2.8-F32
Focusing Range(m)	0.5-∞	1.2-∞	2.0-∞
Control	Iris: Manual	Iris: Manual	Iris: Manual
	Focus: Manual	Focus: Manual	Focus: Manual
Shooting Range at M.O.D.(mm)	85.0(H)×63.6(V)	132.6(H)×99.6(V)	168.8(H)×126.6(V)
Angle of View	2/3 Inch: 10.1×7.6 1/1.8 Inch: 8.2×6.2 1/2 Inch: 7.3×5.5	6.7×5.0 5.5×4.1 4.9×3.7	5.0×3.8 4.1×3.1 3.7×2.8
Resolution(Center, Corner)	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm
TV Distortion(%)	-0.1	-0.1	-0.05
Back Focus in Air(mm)	17.2	18.0	19.0
Mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M30.5×P0.5	M34×P0.5	M40.5×P0.5
Size(mm)	Φ32×39.5	Φ36×51	Φ42×70
Weight(g)	90	100	140
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

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

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

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

1/1.8" STANDARD

NCL Series

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

LM4NCL LM5NCL LM6NCL LM12NCL

LM4NCL



LM5NCL



LM6NCL



LM12NCL



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

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

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

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

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: Manual	Iris: Manual	Iris: Manual	Iris: Manual
	Focus: Manual	Focus: Manual	Focus: Manual	Focus: 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: 117.7×86.7 1/2 inch: 103.6×76.7 (Degrees) 1/3 inch: 76.7×57.7	88.8×66.9 79.0×59.4 59.4×45.1	62.7×48.4 57.3×44.0 44.0×33.7	34.6×25.9 30.7×23.0 23.0×17.2
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

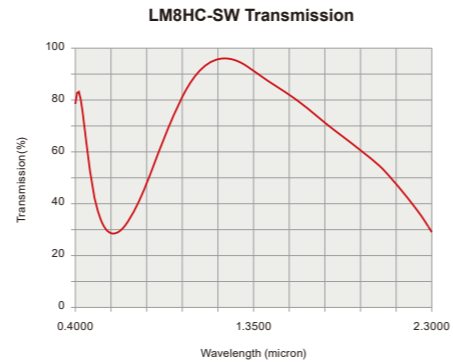
Diagram of M.O.D. / Magnification Using A Close Up Ring

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

† 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.



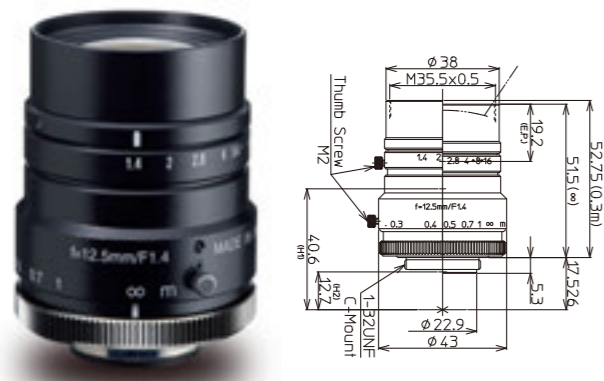
LM8HC-SW



1" 2/3" 1/1.8" 8mm FIXED MEGA C-mnt METAL IR

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

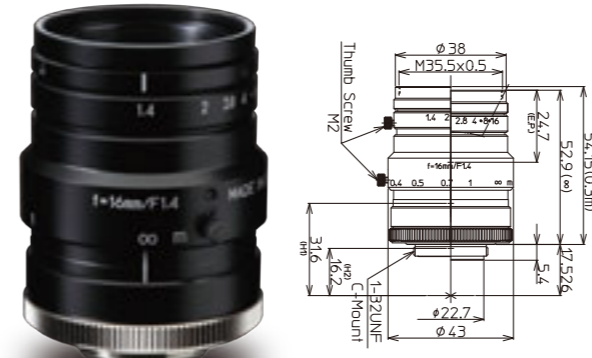
LM12HC-SW



1" 2/3" 1/1.8" 12.5mm FIXED MEGA C-mnt METAL IR

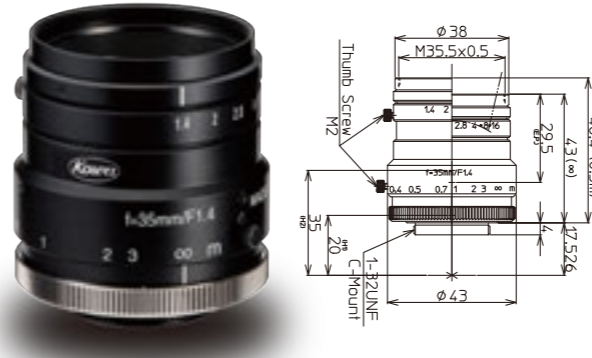
Model	LM12HC-SW
Focal Length(mm)	12.5
Image Size(mm)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.4~F16
Focusing Range(m)	0.3~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	330.6(H)×243.5(V)
Angle of 1 Inch	55.6×42.5
View 2/3 Inch	39.1×29.5
(Degrees) 1/1.8 Inch	32.1×24.2
TV Distortion(%)	-1.6
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

LM16HC-SW



1" 2/3" 1/1.8" 16mm FIXED MEGA C-mnt METAL IR

LM35HC-SW



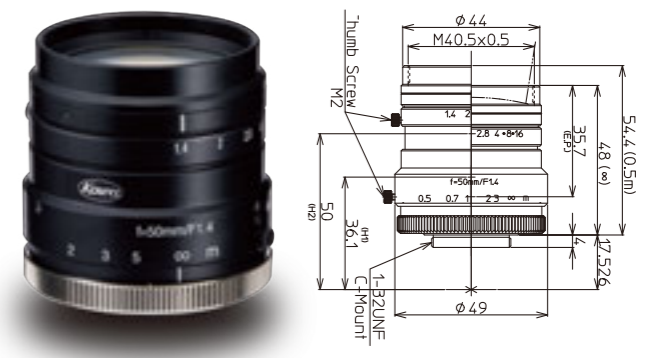
1" 2/3" 1/1.8" 35mm FIXED MEGA C-mnt METAL IR

LM25HC-SW



1" 2/3" 1/1.8" 25mm FIXED MEGA C-mnt METAL IR

LM50HC-SW



1" 2/3" 1/1.8" 50mm FIXED MEGA C-mnt METAL IR

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.

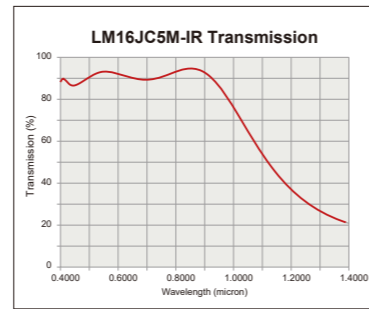
† Images may differ from the actual product.

LM16JC5M-IR LM25JC5M-IR LM35JC5M-IR

LM50HC-IR LM60HC-IR

JC5M-IR Series NEW

- ▶ 5 megapixel lens
- ▶ IR corrected design
- ▶ Fast F-stop of F1.4 *LM35JC5M-IR is F2.0
- ▶ Low distortion
- ▶ Manual-Iris, Auto-Iris and P-iris versions available



LM16JC5M-IR NEW

LM25JC5M-IR NEW

LM35JC5M-IR NEW



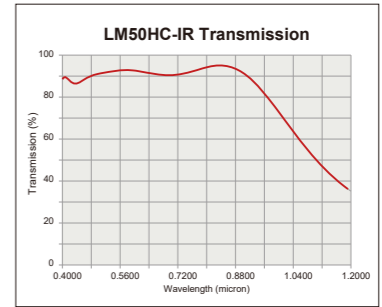
Model	LM16JC5M-IR	LM25JC5M-IR	LM35JC5M-IR
Focal Length(mm)	16	25	35
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F2.0~F22
Focusing Range(m)	0.3~∞	0.3~∞	0.3~∞
Control	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual
Shooting 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 View	2/3 Inch: 30.9×23.2 1/1.8 Inch: 25.4×19.0 1/2 Inch: 22.6×16.9	20.1×15.1 16.5×12.4 14.6×11.0	13.9×10.5 11.4×8.3 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



50mm FIXED 5MEGA METAL LO-DIS IR 60mm FIXED 5MEGA METAL LO-DIS 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 Focus: Manual	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	246.0(H)×184.0(V)	216.9(H)×162.1(V)
Angle of View	1 Inch: 14.4×10.8 2/3 Inch: 9.9×7.5 1/1.8 Inch: 8.2×6.2	12.2×9.2 8.4×6.3 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 NEW Broad Band Large Format Lens (Visible+NIR+DAY/NIGHT)

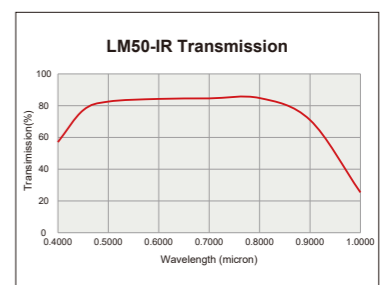
- ▶ IR corrected design
- ▶ Bright F-stop of F1.9
- ▶ Broad band coating
- ▶ F-mount & P-mount(M42×1)

- 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 View	Full Size: 40.2×27.2 4/3 Inch: 21.0×15.8 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



50mm FIXED MEGA METAL LO-DIS IR

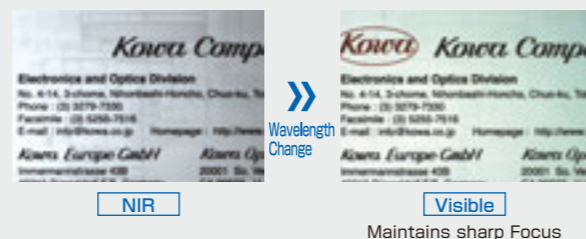
Nikon is a trademark of Nikon Corporation.

Reduction of visible-NIR focus shift

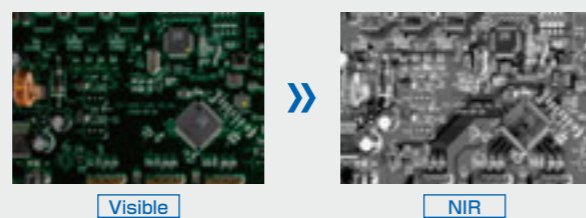
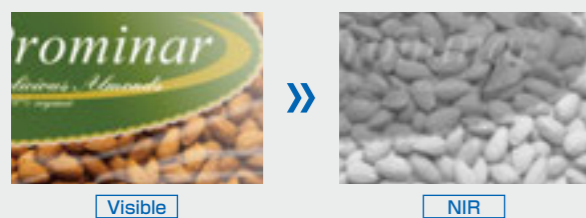
Visible design lens

IR Corrected design lens

LM50-IR



Examples



† Images may differ from the actual product.

LINE SCAN

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

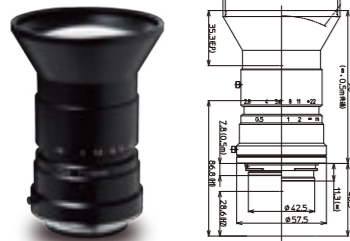
LM28LF LM35LF LM50LF LM28CLS LM35CLS LM50CLS

LF Series

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

Optimized design for machine vision

LM28LF



28mm FIXED METAL LO-DIS
Fixed Focal Metal Body Low Distortion

LM35LF



35mm FIXED METAL LO-DIS
Fixed Focal Metal Body Low Distortion

LM50LF



50mm FIXED METAL LO-DIS
Fixed Focal Metal Body Low Distortion

Model	LM28LF	LM28LF-48	LM35LF	LM35LF-48	LM50LF	LM50LF-48
Focal Length(mm)	28		35		50	
Image Size(mm)	46.0(Φ46)		46.0(Φ46)		46.0(Φ46)	
Iris Range(F-stop)	F2.8-F22		F2.8-F22		F2.8-F22	
Focusing Range(m)	0.5-∞		0.4-∞		0.4-∞	
Control	Iris Manual		Iris Manual		Iris Manual	
Focus	Manual		Manual		Manual	
Shooting Range at M.O.D.(mm)	424.3×281.1		239.9×160.3		162.9×108.9	
Angle of View	Full size 64.6×45.8		53.7×37.2		39.7×27.1	
4/3 inch	35.8×27.2		28.9×21.8		20.9×15.7	
(Degrees) 1 inch	25.3×19.1		20.3×15.3		14.6×11.0	
TV Distortion(%)	-0.17		-0.15		-0.04	
Flange Back in Air(mm)	46.5	17.5	46.5	17.5	46.5	17.5
Mount	Nikon F-mount	TFL-II mount	Nikon F-mount	TFL-II mount	Nikon F-mount	TFL-II mount
Filter Thread(mm)	M72×P0.75		M52×P0.75		M52×P0.75	
Size(mm)	Φ75×98	Φ75×127	Φ57.5×71	Φ57.5×100	Φ57.5×77	Φ57.5×106
Weight(g)	500		430		470	

Nikon is a trademark of Nikon Corporation.

CLS Series

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

LM28CLS



28mm FIXED 3CCD METAL
Fixed Focal 3CCD Camera Metal Body

LM35CLS



35mm FIXED 3CCD METAL
Fixed Focal 3CCD Camera Metal Body

LM50CLS



50mm FIXED 3CCD METAL
Fixed Focal 3CCD Camera Metal Body

Model	LM28CLS	LM35CLS	LM50CLS
Focal Length(mm)	28	35	50
Image Size(mm)	30.0(Φ30)	30.0(Φ30)	30.0(Φ30)
Iris Range(F-stop)	F2.8-F22	F2.8-F22	F2.8-F22
Focusing Range(m)	0.5-∞	0.5-∞	0.5-∞
Control	Iris Manual	Iris Manual	Iris Manual
Focus	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	317.9(V)	259.1(V)	157.7(V)
Angle of View(Degrees)	55.2(V)	46.1(V)	32.3(V)
TV Distortion(%)	-0.1	0.06	-0.1
Flange Back in Air(mm)	46.5	46.5	46.5
Mount	Nikon F-mount	Nikon F-mount	Nikon F-mount
Filter Thread(mm)	M72×P0.75	M62×P0.75	M52×P0.75
Size(mm)	Φ75×108	Φ65×108	Φ58×63.5
Weight(g)	482	480	358

Nikon is a trademark of Nikon Corporation.

† Images may differ from the actual product.

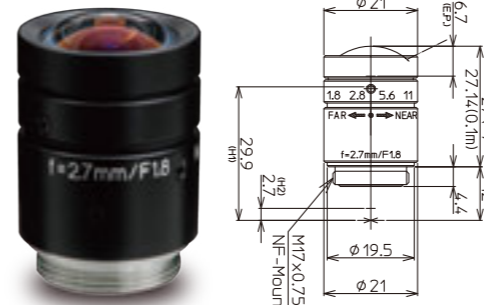
1/3" NF-MOUNT

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
Fixed Focal Megapixel NF-mount Metal Body

Model	LM3NF
Focal Length(mm)	2.7
Image Size(mm)	4.8×3.6(Φ6)
Iris Range(F-stop)	F1.8-F11
Focusing Range(m)	0.1-∞
Control	Iris Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	262.7(H)×167.8(V)
Angle of View(Degrees) 1/3 Inch	102.3×76.7
TV Distortion(%)	-7.3
Back Focus in Air(mm)	7.8
Mount	NF-mount
Size(mm)	Φ21×27
Weight(g)	30
Temperature Range	-10°C~+50°C

LM5NF



1/3" 4.5mm FIXED MEGA NF-mt METAL
Fixed Focal Megapixel NF-mount Metal Body

Model	LM5NF
Focal Length(mm)	4.5
Image Size(mm)	4.8×3.6(Φ6)
Iris Range(F-stop)	F1.8-F11
Focusing Range(m)	0.1-∞
Control	Iris Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	122.9(H)×89.9(V)
Angle of View(Degrees) 1/3 Inch	59.2×45.0
TV Distortion(%)	-2.8
Back Focus in Air(mm)	8.1
Mount	NF-mount
Size(mm)	Φ21×31
Weight(g)	35
Temperature Range	-10°C~+50°C

LM9NF



1/3" 9mm FIXED MEGA NF-mt METAL
Fixed Focal Megapixel NF-mount Metal Body

Model	LM9NF
Focal Length(mm)	9
Image Size(mm)	4.8×3.6(Φ6)
Iris Range(F-stop)	F1.8-F11
Focusing Range(m)	0.1-∞
Control	Iris Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	58.1(H)×43.3(V)
Angle of View(Degrees) 1/3 Inch	30.2×22.8
TV Distortion(%)	-0.6
Back Focus in Air(mm)	8.6
Mount	NF-mount
Size(mm)	Φ22×34
Weight(g)	40
Temperature Range	-10°C~+50°C

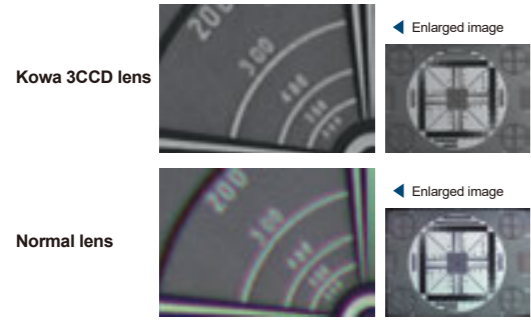
† Images may differ from the actual product.

NC3 Series

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

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

Quality comparison between Kowa 3CCD lens and normal lens



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



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



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



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



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



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



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	65.3×50.1 58.8×44.9 45.7×33.9	34.1×25.7 30.4×22.8 22.8×17.2	16.4×12.3 14.6×11.0 11.0×8.2	7.9×5.9 7.0×5.3 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	-1.2	-1.2	-1.2	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.

Model	LMZ50M	LMZ45T3
Magnification	inf~0.7x	inf~1.1x
Zoom Magnification	10x	6x
Image Size(mm)	4.8×3.6(Φ6)	8.8×6.6(Φ11)
Close up lens	3Dpt.un-installed	3Dpt.un-installed
Shooting Magnification	inf~0.28x	0.07~0.7x
W.D (mm)	inf~M.O.D=310	WD=310~150
Iris Range(F-stop)	F2.5~Close	F2.5~Close
Object side N.A.	-	-
Image side N.A.	-	-
TV Distortion(%)	0.1	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
2/3 inch	-	inf wide inf tele WD=185 wide WD=185 tele
1/2 inch	-	19.9×14.9° 3.4×2.6° 48.6×36.5 8.7×6.6
1/3 inch	inf wide inf tele WD=310 wide WD=310 tele	14.9×11.2° 2.6×2.0° 36.5×27.3 6.6×5.0
Mount	C-mount	C-mount
Control	Iris: Manual Focus: Manual Zoom: Manual	Iris: Manual Focus: 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

Model	LMZ68M	LMZ69M
Focal Length(mm)	8-48(6x)	11.5-69(6x)
Image Size(mm)	6.4×4.8(Φ8)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.0~Close	F1.4~Close
Focusing Range(m)	1.0-∞	1.0-∞
(Macro)	0.01	0.01
Control	Iris: Manual Focus: Manual Zoom: Manual	Iris: Manual Focus: Manual Zoom: Manual
Angle of View(Degrees)	W43.6×33.4/T7.7×5.7	W41.9×32.0/T7.3×5.5
Mount	C-mount	C-mount
Filter Thread(mm)	M46×0.75	M46×0.75
Size(mm)	Φ50.5×92.8	Φ50.5×98.2
Weight(g)	280	300
Temperature Range	-10°C~+50°C	-10°C~+50°C

† Images may differ from the actual product.

LM1119TC LM1138TC LM1120TC LM1121TC LM1122TC LM1123TC LM1125TC LM50TC

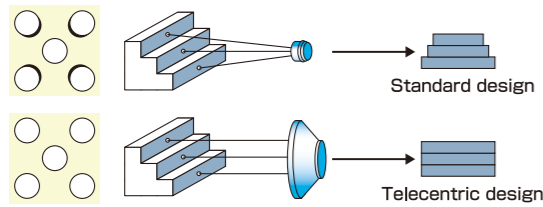
LM1119TC LM1138TC LM1120TC LM1121TC LM1122TC LM1123TC LM1125TC LM50TC

TELECENTRIC Series

High Resolution Lenses

Features of TC Series

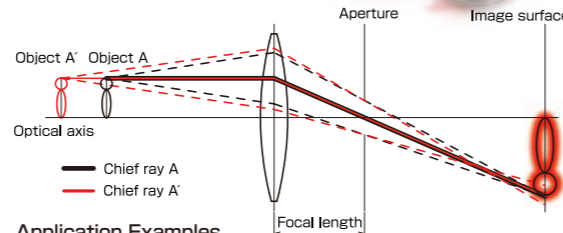
- ▶ Produces high contrast and resolution in both the center and corners.
- ▶ Virtually no TV distortion of entire image area.



Telecentric Optical System

In a telecentric optical system, there is no change in magnification when focusing. Thus, the magnification remains constant at different working distances. Similarly, the movement of an object also does not change the magnification, which makes a telecentric lens ideal for measuring objects with high accuracy.

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.



Application Examples

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



4/3" MACRO ZOOM 21 MEGAPIXEL

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

LM1119TC



1.1" 4/3" 1" 2/3" ZOOM 21MEGA C-mt METAL
Manual Zoom Lens Megapixel C-mount Metal Body

4/3" MACRO 21 MEGAPIXEL

- ▶ 2.0x for macro use
- ▶ Able to resolve up to 21 megapixels

LM1138TC



1.1" 4/3" 1" 2/3" 21MEGA C-mt METAL
Megapixel C-mount Metal Body

Model	LM1119TC		LM1138TC	
Magnification	0.5~1.0x		2.0x	
Image Size	18.4×13.8(Φ23)		18.4×13.8(Φ23)	
Shooting Magnification	0.5x	1.0x	2.0x	
Objective N.A.	0.05	0.1	0.2	
W.D(mm)	80	81.8	80.6	
Shooting Range (mm)	4/3 inch	36.8×27.6	18.4×13.8	9.20×6.90
	1 inch	25.6×19.2	12.8×9.6	6.40×4.8
	2/3 inch	17.6×13.2	8.8×6.6	4.4×3.3
	1/2 inch	-	-	-
TV Distortion(%)	0.1		0.1	
Back Focus in Air(mm)	14.7		15.0	
Mount	C-mount		C-mount	
Resolution	120lp/mm		120lp/mm	
Size	Φ82×151.5		Φ64×151.0	
Weight(g)	1000		830	
Temperature Range	-10°C~+50°C		-10°C~+50°C	
Storage Temperature Range	-20°C~+60°C		-20°C~+60°C	

† Images may differ from the actual product.

2/3" TELECENTRIC 5 MEGAPIXEL PLUS

- ▶ 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

LM1120TC



2/3" 1/1.8" 1/2" 5MEGA+ C-mt METAL DIS-F
Megapixel C-mount Metal Body Distortion Free

LM1121TC



2/3" 1/1.8" 1/2" 5MEGA+ C-mt METAL DIS-F
Megapixel C-mount Metal Body Distortion Free

LM1122TC



2/3" 1/1.8" 1/2" 5MEGA+ C-mt METAL DIS-F
Megapixel C-mount Metal Body Distortion Free

LM1123TC



2/3" 1/1.8" 1/2" 5MEGA+ C-mt METAL DIS-F
Megapixel C-mount Metal Body Distortion Free

LM1125TC

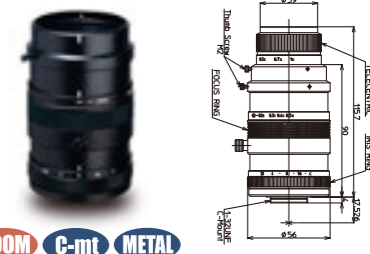


2/3" 1/1.8" 1/2" 5MEGA+ C-mt METAL DIS-F
Megapixel C-mount Metal Body Distortion Free

2/3" MACRO ZOOM

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

LM50TC



2/3" 1/1.8" 1/2" ZOOM C-mt METAL
Manual Zoom Lens C-mount Metal Body

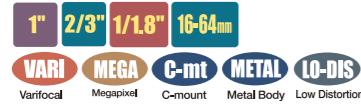
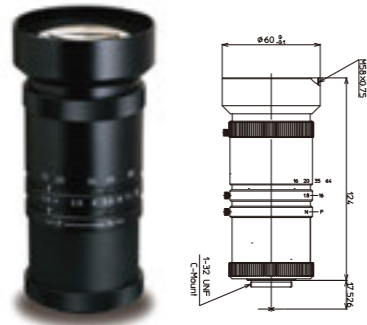
Model	LM1120TC	LM1121TC	LM1122TC	LM1123TC	LM1125TC	LM50TC
Magnification	3.45~4.4x	1.725~2.2x	1.15~1.47x	0.69~0.88x	0.346~0.44x	0.3~1.0x
Image Size	8.8×6.6(Φ11)		8.8×6.6(Φ11)		8.8×6.6(Φ11)	
Shooting Magnification	3.45x	4.0x	4.4x	1.725x	2.0x	2.2x
Objective N.A.	0.2	0.2	0.2	0.131	0.131	0.131
W.D(mm)	65.9	65.9	65.9	114.8	111.4	109.4
Shooting Range (mm)	2/3 inch	1.9×2.6	1.7×2.2	1.5×2.0	5.1×3.8	4.4×3.3
	1/1.8 inch	1.6×2.1	1.4×1.8	1.2×1.6	4.2×3.1	3.6×2.7
	1 inch	1.4×1.9	1.2×1.6	1.1×1.5	3.7×2.8	3.2×2.4
	1/2 inch	-	-	-	-	-
TV Distortion(%)	0.015	0.003	-0.002	0.011	0.004	0.001
Back Focus in Air(mm)	17.1	24.5	30	55.8	67.7	76.3
Mount	C-mount		C-mount		C-mount	
Resolution	120lp/mm		120lp/mm		120lp/mm	
Filter Thread(mm)	-		-		-	
Size(mm)	Φ57×180.0		Φ48×147.5		Φ50×123.9	
Weight(g)	645		420		330	
Temperature Range	-10°C~+50°C		-10°C~+50°C		-10°C~+50°C	
Storage Temperature Range	-20°C~+60°C		-20°C~+60°C		-20°C~+60°C	

† Images may differ from the actual product.

1" VARIFOCAL

LMVZ166HC

LMVZ166HC

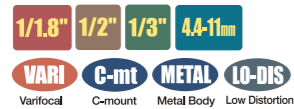


Model	LMVZ166HC
Focal Length(mm)	16-64(4.0x)
Image Size(mm)	12.8x9.6(Φ16)
Iris Range(F-stop)	F1.8-F16
Focusing Range(m)	1.0-∞
Control	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	W881.4x639.7/T238.2x177.9
Angle of View	1 Inch: W45.9x34.2/T11.7x14.6 2/3 Inch: W31.3x23.4/T8.1x6.1 (Degrees) 1/1.8 Inch: W25.5x19.1/T6.6x5.0
TV Distortion(%)	W-3.4/T0.2
Back Focus in Air(mm)	W29.2/T29.5
Mount	C-mount
Filter Thread(mm)	M58xP0.75
Size(mm)	Φ60x124
Weight(g)	370
Temperature Range	-10°C~+50°C

1/1.8" VARIFOCAL

LMVZ4411

LMVZ4411



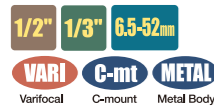
Model	LMVZ4411
Focal Length(mm)	4.4-11(2.5x)
Image Size(mm)	7.2x5.4(Φ9)
Iris Range(F-stop)	F1.6-F16
Focusing Range(m)	0.3-∞
Control	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	W507.5x379.0/T211.4x159.0
Angle of View	1/1.8 Inch: W76.6x61.2/T36.7x28.0 1/2 Inch: W70.2x55.5/T32.9x25.0 (Degrees) 1/3 Inch: W55.5x43.0/T25.0x18.9
TV Distortion(%)	W-0.2/T0.4
Back Focus in Air(mm)	W8.8/T14.5
Mount	C-mount
Filter Thread(mm)	M43xP0.75
Size(mm)	Φ45x56.5
Weight(g)	125
Temperature Range	-10°C~+50°C

1/2" VARIFOCAL

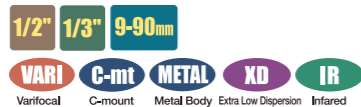
LMVZ655 LMVZ990-IR

LMVZ655

※(1)



LMVZ990-IR



Model	LMVZ655	LMVZ990-IR
Focal Length(mm)	6.5-52(8x)	9-90(10x)
Image Size(mm)	6.4x4.8(Φ8)	6.4x4.8(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)	W232.8x168.2/T141.4x106.0	W252.7x182.5/T194.4x70.8
Angle of View	1/2 Inch: W54.8x41.1/T7.7x5.4 (Degrees) 1/3 Inch: W41.1x30.8/T5.4x4.0	W41.1x30.3/T4.2x3.1 W30.3x22.5/T3.1x2.4
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)	M43xP0.75	M43xP0.75
Size(mm)	Φ46x73.5	Φ45x93
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(HxV)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM8XC	●	●	●	●	●	●	8.5	18.4x13.8(Φ23)	F2.8-F22	0.1-∞	C	93.5x77.1	0.12	Φ74x82.5	245	4
LM12XC	●	●	●	●	●	●	12	18.4x13.8(Φ23)	F2.0-F22	0.1-∞	C	74.9x59.6	0.59	Φ57x85	270	4
LM16XC	●	●	●	●	●	●	16	18.4x13.8(Φ23)	F2.0-F22	0.1-∞	C	60.6x47.2	0.02	Φ45x79.5	250	5
LM25XC	●	●	●	●	●	●	25	18.4x13.8(Φ23)	F2.0-F16	0.15-∞	C	40.9x31.1	-0.57	Φ45x89	255	5
LM35XC	●	●	●	●	●	●	35	18.4x13.8(Φ23)	F2.0-F16	0.2-∞	C	29.6x22.4	-0.17	Φ45x74	210	5
LM50XC	●	●	●	●	●	●	50	18.4x13.8(Φ23)	F2.0-F22	0.3-∞	C	20.6x15.7	0.80	Φ47x78	235	5

1" 12MEGAPIXEL

Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(HxV)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
NEW LM8FC	●	●	●	●	●	●	8.5	14.1x10.6(Φ17.6)	F2.5-F16	0.1-∞	C	79.2x63.8	0.55	Φ64x73.3	230	6
NEW LM16FC	●	●	●	●	●	●	16	14.1x10.6(Φ17.6)	F1.8-F16	0.1-∞	C	48.0x36.7	-0.4	Φ43x65.7	200	7
NEW LM25FC	●	●	●	●	●	●	25	14.1x10.6(Φ17.6)	F1.8-F16	0.1-∞	C	31.5x23.9	-0.3	Φ45x69.4	220	7
NEW LM35FC	●	●	●	●	●	●	35	14.1x10.6(Φ17.6)	F2.0-F16	0.2-∞	C	22.1x16.7	0.01	Φ45x66	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(HxV)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM12SC	●	●	●	●	●	●	12	12.8x9.6(Φ16)	F1.8-F16	0.1-∞	C	55.9x43.1	-0.55	Φ43x84	255	8
LM16SC	●	●	●	●	●	●	16	12.8x9.6(Φ16)	F1.8-F16	0.1-∞	C	44.0x33.6	0.02	Φ43x80	240	9
LM25SC	●	●	●	●	●	●	25	12.8x9.6(Φ16)	F1.8-F16	0.15-∞	C	28.9x21.8	-0.34	Φ43x89	245	9
LM35SC	●	●	●	●	●	●	35	12.8x9.6(Φ16)	F2.0-F16	0.2-∞	C	20.8x15.6	0.02	Φ43x74	200	9
LM50SC	●	●	●	●	●	●	50	12.8x9.6(Φ16)	F2.0-F16	0.3-∞	C	14.6x11.0	0.30	Φ43x78.5	210	9

1" MEGAPIXEL

Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(HxV)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM6HC	●	●	●	●	●	●	6	12.8x9.6(Φ16)	F1.8-F16	0.1-∞	C	96.8x79.4	-0.2	Φ54x56.2	215	10
LM8HC	●	●	●	●	●	●	8	12.8x9.6(Φ16)	F1.4-F16	0.1-∞	C	79.4x63.0	-1.2	Φ57x58	205	10
LM12HC	●	●	●	●	●	●	12.5	12.8x9.6(Φ16)	F1.4-F16	0.3-∞	C	55.6x42.5	-1.58	Φ43x51.5	160	10
LM16HC	●	●	●	●	●	●	16	12.8x9.6(Φ16)	F1.4-F16	0.3-∞	C	44.3x33.6	-1.0	Φ43x52.9	150	10
LM25HC	●	●	●	●	●	●	25	12.8x9.6(Φ16)	F1.4-F16	0.3-∞	C	29.3x22.0	-1.0	Φ43x43	135	11
LM35HC	●	●	●	●	●	●	35	12.8x9.6(Φ16)	F1.4-F16	0.3-∞	C	20.9x15.8	-0.5	Φ43x43	135	11
LM50HC	●	●	●	●	●	●	50	12.8x9.6(Φ16)	F1.4-F16	0.5-∞	C	14.5x10.8	0.05	Φ49x48	210	11
LM75HC	●	●	●	●	●	●	75	12.8x9.6(Φ16)	F1.8-F16	1.0-∞	C	9.7x7.3	-0.2	Φ49x57	195	11

1" RUGGEDIZED MEGAPIXEL

Model	Format Size(Inch)						Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(HxV)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM8HC-V	●	●	●	●	●	●	8	12.8x9.6(Φ16)	F1.4/2.8/4/8	0.1-∞	C	79.7x63.0	-1.2	Φ58x58	183	13
LM12HC-V	●	●	●	●	●	●	12.5	12.8x9.6(Φ16)	F1.4/2.8/4/8	0.3-∞	C	55.6x42.5	-1.58	Φ44x51.5	130	13
LM16HC-V	●	●	●	●	●	●	16	12.8x9.6(Φ16)	F1.4/2.8/4/8	0.3-∞	C	44.3x33.6	-1.0	Φ44x53	120	13
LM25HC-V	●	●	●	●	●	●	25	12.8x9.6(Φ16)	F1.4/2.8/4/8	0.3-∞	C	29.3x22.0	-1.0	Φ43x43	104	13
LM35HC-V	●	●	●	●	●	●	35	12.8x9.6(Φ16)	F1.4/2.8/4/8	0.3-∞	C	20.9x15.8	-0.5	Φ46x44.1	133	13
LM50HC-V	●	●	●	●	●	●	50	12.8x9.6(Φ16)	F1.4/2.8/4/8	0.5-∞	C	14.5x10.8	0.05	Φ50x48	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(HxV)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM5JC10M	●	●	●	●	●	●	5	8.8x6.6(Φ11)	F1.8-F16	0.1-∞	C	82.2x66.5	-0.33	Φ48x59.4	120	14
LM8JC10M	●	●	●	●	●	●	8.5	8.8x6.6(Φ11)	F1.8-F22	0.1-∞	C	54.0x41.9	0.31	Φ36x56	115	15
LM12JC10M	●	●	●	●	●	●	12	8.8x6.6(Φ11)	F1.8-F11	0.1-∞	C	39.1x29.8	-0.12	Φ33x53.5	105	15
LM16JC10M	●	●	●	●	●	●	16	8.8x6.6(Φ11)	F1.8-F16	0.1-∞	C	30.0x22.7	-0.20	Φ33x50	90	15
LM25JC10M	●	●	●	●	●	●	25	8.8x6.6(Φ11)	F1.8-F16	0.1-∞	C	20.0x15.1	-0.09	Φ33x45.5	95	15
LM35JC10M	●	●	●	●	●	●	35	8.8x6.6(Φ11)	F2.0-F16	0.1-∞	C	14.3x10.8	0.05	Φ43x49	160	15
LM50JC10M	●	●	●	●	●	●	50	8.8x6.6(Φ11)	F2.8-F16	0.1-∞	C	10.1x7.6	-0.02	Φ38x77	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(HxV)	TV Distortion(%)	Size(mm)	Weight(g)	Page
	4/3	1.1	1	2/3	1/1.8	1/2										
LM12JC5M2	●	●	●	●	●	●	12.5	8.8x6.6(Φ11)	F1.4-F16	0.1-∞	C	38.4x29.2	-0.06	Φ38.5x52	130	16
LM16JC5M2	●	●	●	●	●	●	16	8.8x6.6(Φ11)	F1.4-F16	0.1-∞	C	29.9x22.7	0.03	Φ38.5x52	125	17
LM25JC5M2	●	●	●	●	●	●	25	8.8x6.6(Φ11)	F1.6-F16	0.1-∞	C	19.9x15.0	-0.01	Φ38.5x45.5	115	17
LM35JC5M2	●	●	●	●	●	●	35	8.8x6.6(Φ11								

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 LM8J3C3M2				●	●	●	8	8.8×6.6(Φ11)	F1.4~Close	0.1~∞	C	56.5×43.9	-0.6	Φ34×41.6	90	18
NEW LM12J3C3M2				●	●	●	12	8.8×6.6(Φ11)	F1.4~Close	0.15~∞	C	38.3×29.1	-0.07	Φ34×37	85	18
NEW LM16J3C3M2				●	●	●	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 LM25J3C3M2				●	●	●	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 LM35J3C3M2				●	●	●	35	8.8×6.6(Φ11)	F2.0~F16	0.2~∞	C	14.4×10.8	-0.2	Φ34×36.5	70	19
NEW LM50J3C3M2				●	●	●	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										
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 LM16J3C5M-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 LM25J3C5M-IR				●	●	●	25	8.8×6.6(Φ11)	F1.4~F16	0.3~∞	C	20.1×15.1	-0.3	Φ34×47	110	30
NEW LM35J3C5M-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			P
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

LINE SCAN																	
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
LM28LF				●	●	●	28	46.0(Φ46)	F2.8~F22	0.5~∞	Nikon F		64.6×45.8	-0.17	Φ75×98	500	32
LM35LF				●	●	●	35	46.0(Φ46)	F2.8~F22	0.4~∞	Nikon F		53.7×37.2	-0.15	Φ57.5×71	430	32
LM50LF				●	●	●	50	46.0(Φ46)	F2.8~F22	0.4~∞	Nikon F		39.7×27.1	-0.04	Φ57.5×77	470	32

3CCD LARGE FORMAT																	
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
LM28CLS				●	●	●	28	30.0(Φ30)	F2.8~F22	0.5~∞	Nikon F		55.2(V)	-0.1	Φ75×108	482	32
LM35CLS				●	●	●											

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

- ①Represents lens function
 - 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.

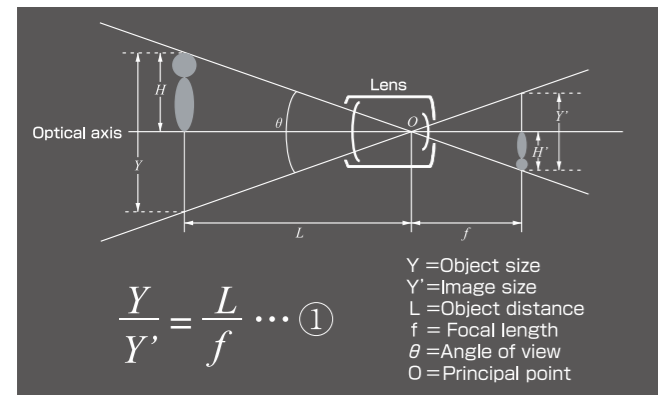
$Y=8.8\text{mm}$ (See image size chart), $L=300\text{mm}$, $Y=100\text{mm}$
 $f=300*8.8/100$
 $f=26.4\text{mm}$
 The most appropriate lens is f=25mm lens, which is close but not greater than the 26.4 derived from the calculation. Lenses with shorter focal lengths than the given number can capture an 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- $Y=6.4\text{mm}$ (Horizontal), $f=16\text{mm}$, $L=300\text{mm}$
 $Y=300*6.4/16$
 $Y=120\text{mm}$
 Vertical- $Y=4.8\text{mm}$ (Vertical), $f=16\text{mm}$, $L=300\text{mm}$
 $Y=300*4.8/16$
 $Y=90\text{mm}$
 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

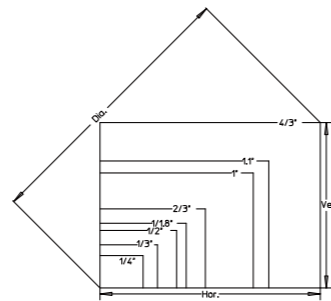


- Object size Field range which can be captured by the image sensor
- Image size See description
- Object distance Distance from the lens to the object
- Focal length Distance from the principal point to the focus point
- Angle of view This angle represents a shooting range in degrees. The shorter a 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

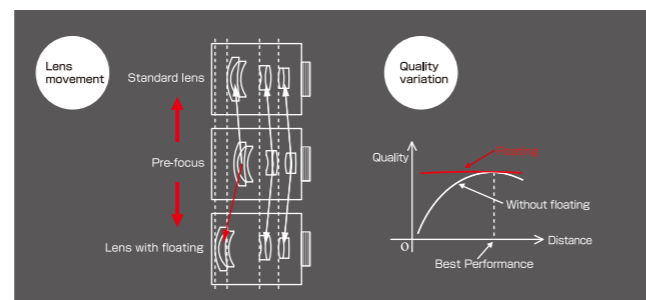
Depth of field is the range of distance, in front of and behind a subject that appears in focus. If the depth of field is deep, an object will appear to be in focus even if it moves slightly back and forth.

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.



Processing technology

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



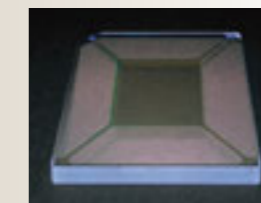
Ultra-precision processing machine



Spherical and Aspherical lenses



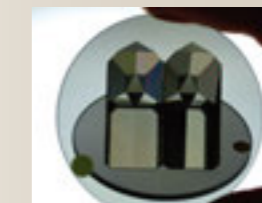
YAG laser cut optical devices



Special mirrors



Various prisms



Optical devices with special coatings



Ultra-precision optical devices

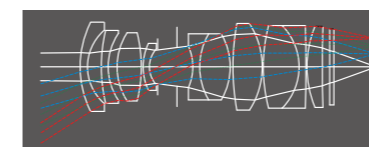
Design & Development

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



Kowa will provide suggestions about the customized optics based on the flow chart below.

