Quality of Light

INDUSTRIAL FA LENSES

2018 Ver.1.0

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Note: Specifications and availability are subject to change without notice. **FAOV18991000AN**

INDUSTRIAL FA LENSES

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)

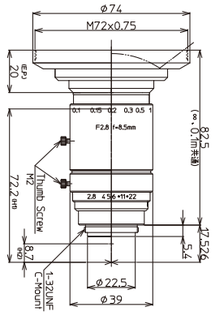
XC Series

High Resolution FA/MV Lenses

Features of XC Series

- Large image size of Φ23mm incorporated within a C-mount design.
- Megapixel resolution is maintained throughout the entire image even when the iris is fully opened.
- High precision aspherical lens greatly reduces distortion and produces a high-definition picture.
- The LM8XC generates a very wide 93.5° horizontal angle of view.
- Kowa's floating mechanism system virtually eliminates optical aberrations from close distance to infinity.

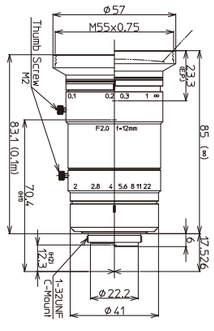
LM8XC



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

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

LM12XC



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

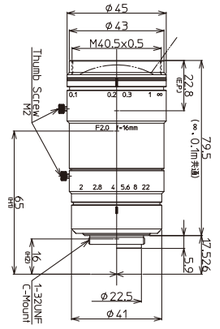
Model		LM12XC
Focal Length(mm)		12
Image Size(mm)		18.4×13.8(Φ23)
Iris Range(F-stop)		F2.0~F22
Focusing Range(m)		0.1~∞
Control	Iris	Manual
	Focus	Manual
Shooting Range at M.O.D.(mm)		181.5(H)×135.5(V)
Angle of View (Degrees)	4/3 Inch	74.9×59.6
	1.1 Inch	60.6×47.1
	1 Inch	55.9×43.1
	2/3 Inch	39.8×30.2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

Magnification Using A Close Up Ring

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

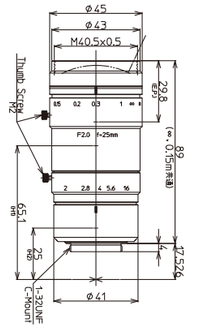
† Images may differ from the actual product.

LM16XC



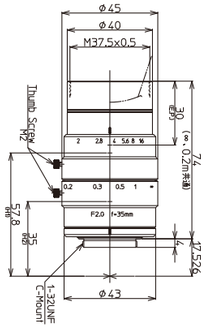
4/3" 1.1" 1" 2/3" 16mm | FIXED Fixed Focal | 8MEGA Megapixel | C-mt C-mount | METAL Metal Body | LO-DIS Low Distortion | FLOAT Floating | XD Extra Low Dispersion | WBMC Wide-Band Multi-Coating

LM25XC



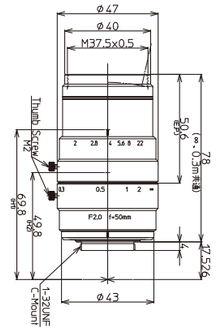
4/3" 1.1" 1" 2/3" 25mm | FIXED Fixed Focal | 8MEGA Megapixel | C-mt C-mount | METAL Metal Body | LO-DIS Low Distortion | FLOAT Floating | XD Extra Low Dispersion | WBMC Wide-Band Multi-Coating

LM35XC



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

LM50XC



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

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

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

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

† Images may differ from the actual product.

FC Series NEW

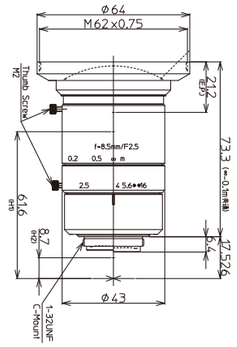
High Resolution FA/MV Lens

To Be Released in Spring 2018

Features of FC Series

- Large image size of Φ17.6mm (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

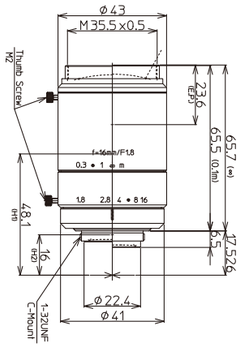


Model	LM8FC
Focal Length(mm)	8.5
Image Size(mm)	14.1×10.6(Φ17.6)
Iris Range(F-stop)	F2.5~F16
Focusing Range(m)	0.1~∞
Control Iris	Manual
Control Focus	Manual
Shooting Range at M.O.D.(mm)	184(H)×138(V)
Angle of View (Degrees) 1.1 Inch	79.2×63.8
Angle of View (Degrees) 1 Inch	73.9×58.8
Angle of View (Degrees)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

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

† Images may differ from the actual product.

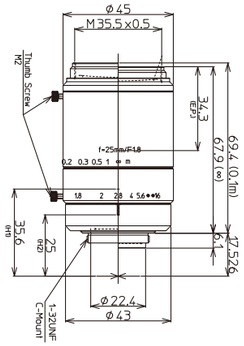
LM16FC NEW



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

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

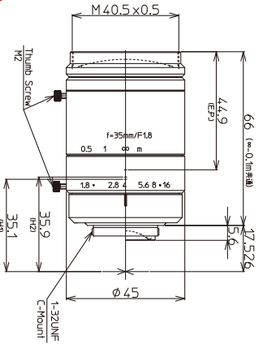
LM25FC NEW



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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	64(H)×48(V)
Angle of View (Degrees) 1.1 Inch	31.5×23.9
Angle of View (Degrees) 1 Inch	28.7×21.7
Angle of View (Degrees) 2/3 Inch	20.0×15.0
TV Distortion(%)	−0.3
Back Focus in Air(mm)	13.3
Mount	C-mount
Filter Thread(mm)	M35.5×P0.5
Size(mm)	Φ45×69.4
Weight(g)	220
Temperature Range	−10°C~+50°C

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

LM35FC NEW



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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	84(H)×63(V)
Angle of View (Degrees) 1.1 Inch	22.1×16.7
Angle of View (Degrees) 1 Inch	20.2×15.2
Angle of View (Degrees) 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

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

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×

† Images may differ from the actual product.

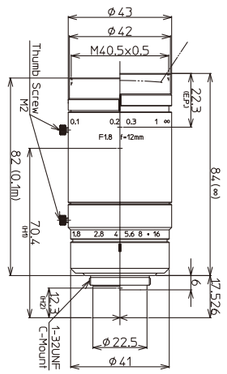
SC Series

High Resolution FA/MV Lenses

Features of SC Series

- Large image size of Φ16mm (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.

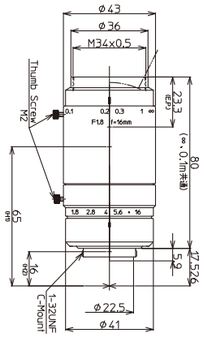
LM12SC



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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	125.5(H)×93.5(V)
Angle of View (Degrees) 1 Inch	55.9×43.1
Angle of View (Degrees) 2/3 Inch	39.8×30.2
Angle of View (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

† Images may differ from the actual product.

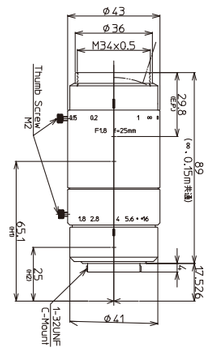
LM16SC



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

FIXED Fixed Focal | 6MEGA+ Megapixel | C-mt C-mount | METAL Metal Body | LO-DIS Low Distortion | FLOAT Floating | XD Extra Low Dispersion | WBMC Wide-Band Multi-Coating

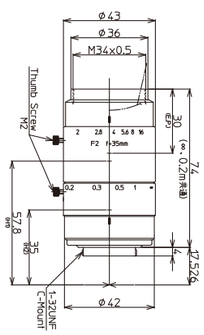
LM25SC



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

FIXED Fixed Focal | 6MEGA+ Megapixel | C-mt C-mount | METAL Metal Body | LO-DIS Low Distortion | FLOAT Floating | XD Extra Low Dispersion | WBMC Wide-Band Multi-Coating

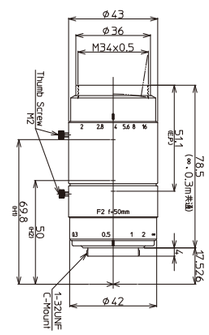
LM35SC



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

FIXED Fixed Focal | 6MEGA+ Megapixel | C-mt C-mount | METAL Metal Body | LO-DIS Low Distortion | FLOAT Floating | WBMC Wide-Band Multi-Coating

LM50SC



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

FIXED Fixed Focal | 6MEGA+ Megapixel | C-mt C-mount | METAL Metal Body | LO-DIS Low Distortion | FLOAT Floating | WBMC Wide-Band Multi-Coating

Model	LM16SC	LM25SC	LM35SC	LM50SC
Focal Length(mm)	16	25	35	50
Image Size(mm)	12.8×9.6(Φ16)	12.8×9.6(Φ16)	12.8×9.6(Φ16)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.8~F16	F1.8~F16	F2.0~F16	F2.0~F16
Focusing Range(m)	0.1~∞	0.15~∞	0.2~∞	0.3~∞
Control Iris	Manual	Manual	Manual	Manual
Control 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 View (Degrees) 1 Inch	44.0×33.6	28.9×21.8	20.8×15.6	14.6×11.0
Angle of View (Degrees) 2/3 Inch	30.9×23.3	20.1×15.2	14.3×10.8	10.1×7.6
Angle of View (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

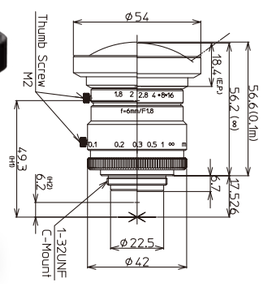
Model	LM12SC	LM16SC	LM25SC	LM35SC	LM50SC
(Non)M.O.D./Magnification	100mm/0.10×	100mm/0.14×	150mm/0.15×	200mm/0.18×	300mm/0.18×
(1mm Ring)M.O.D./Magnification	48mm/0.19×	64mm/0.20×	115mm/0.19×	174mm/0.21×	273mm/0.20×
(5mm Ring)M.O.D./Magnification	–	21mm/0.46×	56mm/0.35×	117mm/0.33×	204mm/0.28×
(10mm 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.

HC Series

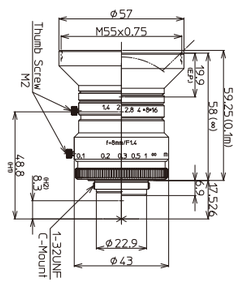
- Wide product range: 8 lenses in HC series
- Excellent corner brightness
- Low distortion
- For large format 1" megapixel applications
- High performance compact lenses

LM6HC



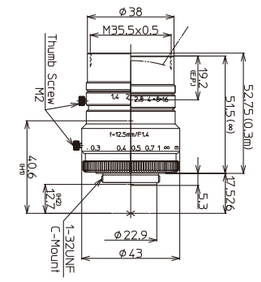
1" 2/3" 1/1.8" 6mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body

LM8HC



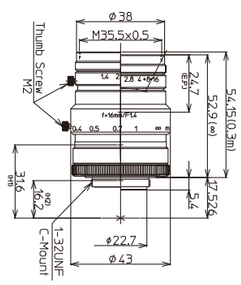
1" 2/3" 1/1.8" 8mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body

LM12HC



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

LM16HC

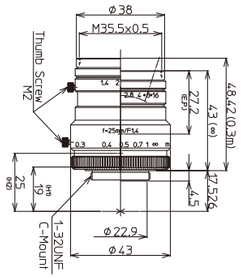


1" 2/3" 1/1.8" 16mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body

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 Iris	Manual	Manual	Manual	Manual
Control 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 (Degrees) 1 Inch	96.8×79.4	79.4×63.0	55.6×42.5	44.3×33.6
Angle of View (Degrees) 2/3 Inch	74.1×58.0	58.3×44.7	39.1×29.5	30.8×23.2
Angle of View (Degrees) 1/1.8 Inch	62.6×48.2	48.5×36.9	32.1×24.2	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

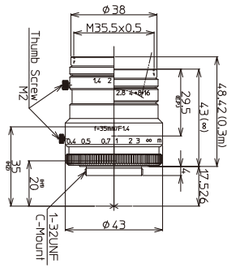
† Images may differ from the actual product.

LM25HC



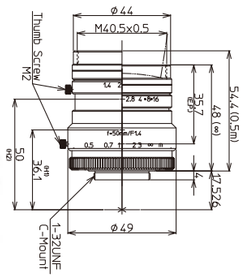
1" 2/3" 1/1.8" 25mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body

LM35HC



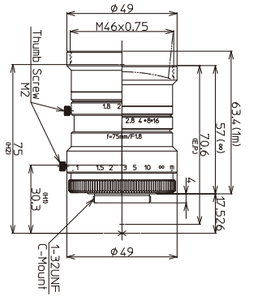
1" 2/3" 1/1.8" 35mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body

LM50HC



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

LM75HC



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

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

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.

1" RUGGEDIZED MEGAPIXEL

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

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

Interchangeable Iris Plates

Focus Adjustment Procedure

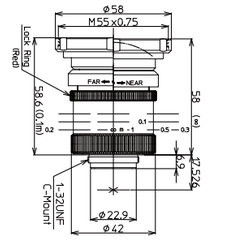
2 Unscrew the bottom ring of the outside body to adjust the focus to optimal position.

3 Screw the red two way reversible nut on the center body towards the bottom ring to lock in the focus.

Two Way Reversible Nut

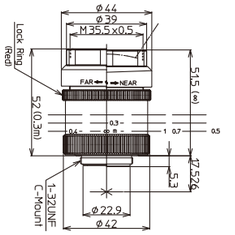
† Images may differ from the actual product.

LM8HC-V



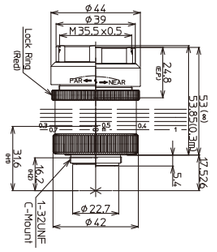
1" 2/3" 1/1.8" 8mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED Ruggedized lens

LM12HC-V



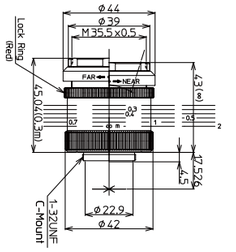
1" 2/3" 1/1.8" 12.5mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED Ruggedized lens

LM16HC-V



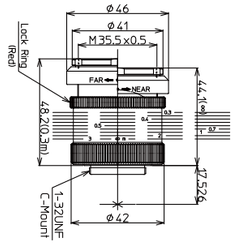
1" 2/3" 1/1.8" 16mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED Ruggedized lens

LM25HC-V



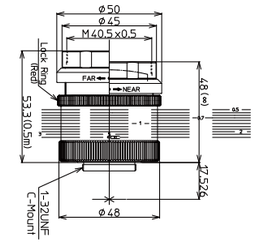
1" 2/3" 1/1.8" 25mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED Ruggedized lens

LM35HC-V



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

LM50HC-V



1" 2/3" 1/1.8" 50mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED 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	–	–	–	–	–	–
Control 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	55.6×42.5	44.3×33.6	29.3×22.0	20.9×15.8	14.5×10.8
Angle of View (Degrees) 2/3 Inch	58.3×44.7	39.1×29.5	30.8×23.2	20.2×15.1	14.4×10.8	10.0×7.5
Angle of View (Degrees) 1/1.8 Inch	48.5×36.9	32.1×24.2	25.3×19.0	16.5×12.4	11.8×8.8	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

† Images may differ from the actual product.

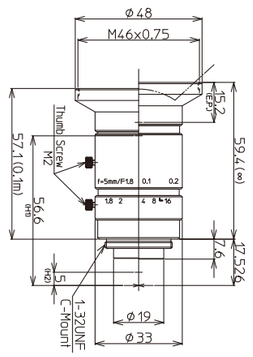
JC10M Series

High Resolution FA/MV Lenses

Features of JC10M Series

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

LM5JC10M

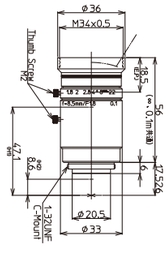


2/3" 1/1.8" 1/2" 5mm — FIXED (Fixed Focal) 10MEGA (Megapixel) C-mt (C-mount) METAL (Metal Body) LO-DIS (Low Distortion) FLOAT (Floating) XD (Extra Low Dispersion) WBMC (Wide-Band Multi-Coating)

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	197.0(H)×147.0(V)
Angle of View (Degrees) 2/3 Inch	82.2×66.5
Angle of View (Degrees) 1/1.8 Inch	71.1×56.5
Angle of View (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

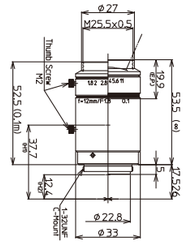
† Images may differ from the actual product.

LM8JC10M



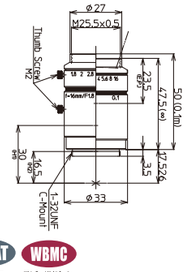
2/3" 1/1.8" 1/2" 8.5mm — FIXED (Fixed Focal) 10MEGA (Megapixel) C-mt (C-mount) METAL (Metal Body) LO-DIS (Low Distortion) FLOAT (Floating) XD (Extra Low Dispersion) WBMC (Wide-Band Multi-Coating)

LM12JC10M



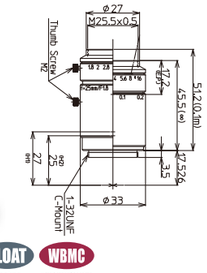
2/3" 1/1.8" 1/2" 12mm — FIXED (Fixed Focal) 10MEGA (Megapixel) C-mt (C-mount) METAL (Metal Body) LO-DIS (Low Distortion) FLOAT (Floating) XD (Extra Low Dispersion) WBMC (Wide-Band Multi-Coating)

LM16JC10M



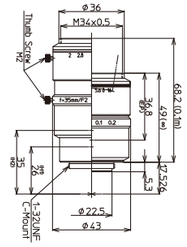
2/3" 1/1.8" 1/2" 16mm — FIXED (Fixed Focal) 10MEGA (Megapixel) C-mt (C-mount) METAL (Metal Body) LO-DIS (Low Distortion) FLOAT (Floating) WBMC (Wide-Band Multi-Coating)

LM25JC10M



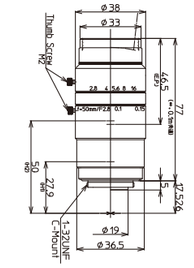
2/3" 1/1.8" 1/2" 25mm — FIXED (Fixed Focal) 10MEGA (Megapixel) C-mt (C-mount) METAL (Metal Body) LO-DIS (Low Distortion) FLOAT (Floating) WBMC (Wide-Band Multi-Coating)

LM35JC10M



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

LM50JC10M



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

Model	LM8JC10M	LM12JC10M	LM16JC10M	LM25JC10M	LM35JC10M	LM50JC10M
Focal Length(mm)	8.5	12	16	25	35	50
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.8~F22	F1.8~F11	F1.8~F16	F1.8~F16	F2.0~F16	F2.8~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞	0.1~∞	0.1~∞	0.1~∞
Control Iris	Manual	Manual	Manual	Manual	Manual	Manual
Control Focus	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	133.2(H)×99.6(V)	80.7(H)×60.2(V)	61.1(H)×45.7(V)	36.7(H)×27.5(V)	23.4(H)×17.6(V)	19.1(H)×14.3(V)
Angle of View (Degrees) 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
Angle of View (Degrees) 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
Angle of View (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×

† Images may differ from the actual product.

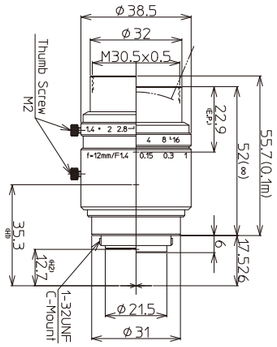
JC5M2 Series

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

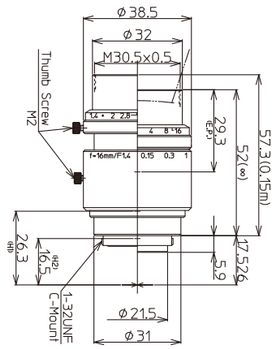


2/3" 1/1.8" 1/2" 12.5mm FIXED Fixed Focal 5MEGA Megapixel C-mt C-mount METAL Metal Body LO-DIS Low Distortion FLOAT Floating

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	81.4(H)×60.9(V)
Angle of View (Degrees) 2/3 Inch	38.4×29.2
Angle of View (Degrees) 1/1.8 Inch	31.7×24.0
Angle of View (Degrees) 1/2 Inch	28.4×21.4
Resolution(Center, Corner)	160lp/mm, 125lp/mm
TV Distortion(%)	−0.06
Back Focus in Air(mm)	11.5
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)	Φ38.5×52
Weight(g)	130
Temperature Range	−10°C~+50°C

† Images may differ from the actual product.

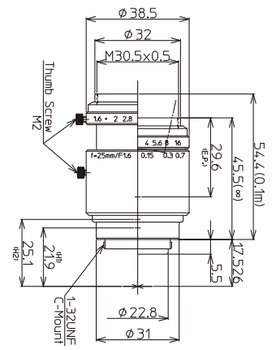
LM16JC5M2



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

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	64.6(H)×48.4(V)
Angle of View (Degrees) 2/3 Inch	29.9×22.7
Angle of View (Degrees) 1/1.8 Inch	24.7×18.6
Angle of View (Degrees) 1/2 Inch	22.0×16.6
Resolution(Center, Corner)	160lp/mm, 125lp/mm
TV Distortion(%)	0.03
Back Focus in Air(mm)	11.6
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)	Φ38.5×52
Weight(g)	125
Temperature Range	−10°C~+50°C

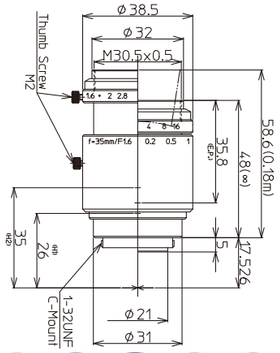
LM25JC5M2



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

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	35.1(H)×26.3(V)
Angle of View (Degrees) 2/3 Inch	19.9×15.0
Angle of View (Degrees) 1/1.8 Inch	16.4×12.3
Angle of View (Degrees) 1/2 Inch	14.6×10.9
Resolution(Center, Corner)	160lp/mm, 125lp/mm
TV Distortion(%)	−0.01
Back Focus in Air(mm)	11.2
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)	Φ38.5×45.5
Weight(g)	115
Temperature Range	−10°C~+50°C

LM35JC5M2



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

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	42.1(H)×31.6(V)
Angle of View (Degrees) 2/3 Inch	14.3×10.8
Angle of View (Degrees) 1/1.8 Inch	11.7×8.8
Angle of View (Degrees) 1/2 Inch	10.4×7.8
Resolution(Center, Corner)	160lp/mm, 125lp/mm
TV Distortion(%)	−0.03
Back Focus in Air(mm)	12.2
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)	Φ38.5×48
Weight(g)	120
Temperature Range	−10°C~+50°C

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.

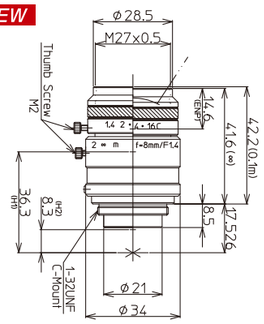
JC3M2 Series NEW

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. *Except for LM8JC3M2 and LM12JC3M2
- Low distortion
- Excellent corner brightness
- Applicable on 1/1.2" as well *Except for LM8JC3M2

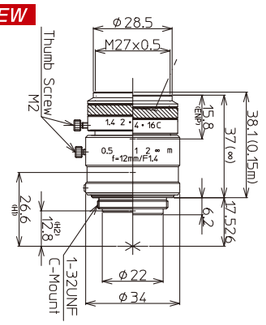
LM8JC3M2 NEW



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

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
Control 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
TV Distortion(%)	−0.6
Back Focus in Air(mm)	9.5
Mount	C-mount
Filter Thread(mm)	M27×P0.5
Size(mm)	Φ34×41.6
Weight(g)	90
Temperature Range	−10°C~+50°C

LM12JC3M2 NEW

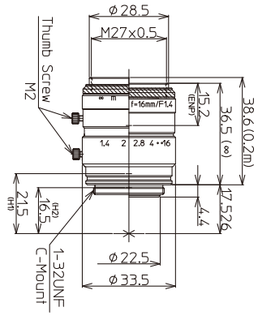


2/3" 1/1.8" 1/2" 12mm FIXED Fixed Focal | 3MEGA Megapixel | C-mt C-mount | METAL Metal Body | WBMC Wide-Band Multi-Coating

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	110.0(H)×82.5(V)
Angle of 2/3 Inch	38.3×29.1
View 1/1.8 Inch	31.7×24.0
(Degrees) 1/2 Inch	28.3×21.4
TV Distortion(%)	−0.07
Back Focus in Air(mm)	11.7
Mount	C-mount
Filter Thread(mm)	M27×P0.5
Size(mm)	Φ34×37
Weight(g)	85
Temperature Range	−10°C~+50°C

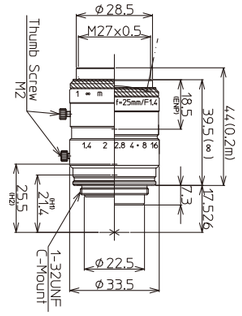
† Images may differ from the actual product.

LM16JC3M2 NEW



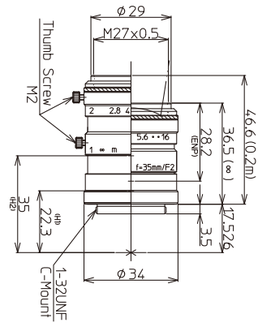
2/3" 1/1.8" 1/2" 16mm FIXED Fixed Focal | 3MEGA Megapixel | C-mt C-mount | METAL Metal Body | FLOAT Floating | WBMC Wide-Band Multi-Coating

LM25JC3M2 NEW



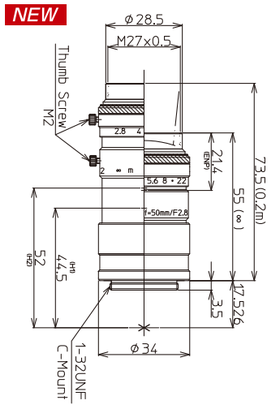
2/3" 1/1.8" 1/2" 25mm FIXED Fixed Focal | 3MEGA Megapixel | C-mt C-mount | METAL Metal Body | FLOAT Floating | WBMC Wide-Band Multi-Coating

LM35JC3M2 NEW



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

LM50JC3M2 NEW



2/3" 1/1.8" 1/2" 50mm FIXED Fixed Focal | 3MEGA Megapixel | C-mt C-mount | METAL Metal Body | FLOAT Floating | WBMC 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	Manual	Manual	Manual
Control Focus	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	112.8(H)×84.4(V)	71.1(H)×53.3(V)	47.9(H)×35.8(V)	29.3(H)×21.9(V)
Angle of 2/3 Inch	30.0×22.7	19.6×14.8	14.4×10.8	9.6×7.2
View 1/1.8 Inch	24.7×18.6	16.1×12.1	11.8×8.8	7.9×5.9
(Degrees) 1/2 Inch	21.8×16.4	14.0×10.5	10.5×7.9	7.0×5.2
TV Distortion(%)	−0.05	−0.04	−0.2	−0.03
Back Focus in Air(mm)	13.1	11.7	20.1	35.5
Mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M27×P0.5	M27×P0.5	M27×P0.5	M27×P0.5
Size(mm)	Φ33.5×36.5	Φ33.5×39.5	Φ34×36.5	Φ34×55
Weight(g)	85	90	70	95
Temperature Range	−10°C~+50°C	−10°C~+50°C	−10°C~+50°C	−10°C~+50°C

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

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

† Images may differ from the actual product.

LM3NCM LM4NCM LM6NCM LM5JCM

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

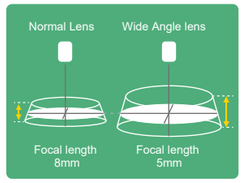
- Reduces the distortion to corner

† LM5JCM: Under 0.5%, LM3NCM: Under 0.4% (TV distortion)

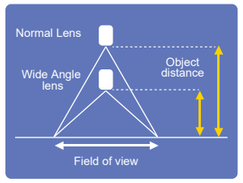
High quality

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

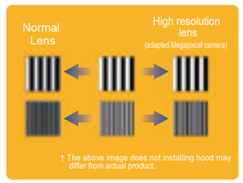
Long Depth of field



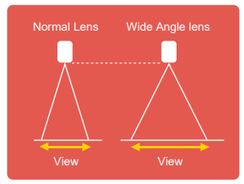
Short Close distance



Clear image

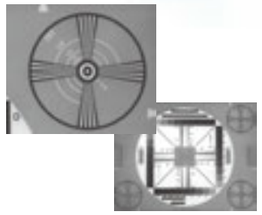


Large field of view

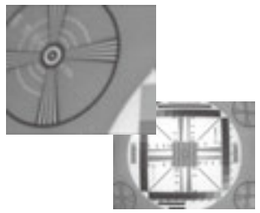


Corner image comparison
(Super wide angle lens vs. Standard lens)

LM5JCM: 2/3inch f=5mm

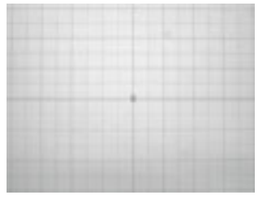


LM6JC: 2/3inch f=6mm

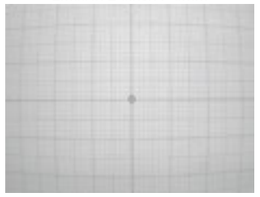


Distortion comparison at short distance object

LM5JCM: 2/3inch f=5mm



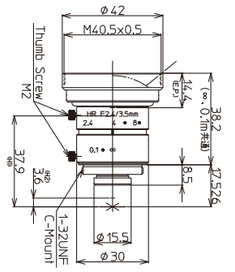
LM6JC: 2/3inch f=6mm



Capture image taken by 2megapixcel camera

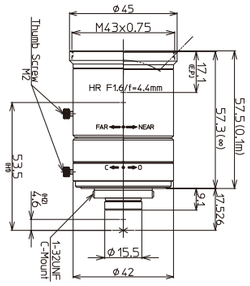
† Images may differ from the actual product.

LM3NCM



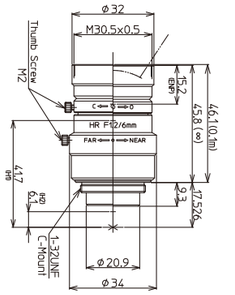
1/1.8" 1/2" 1/3" 3.5mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body LO-DIS Low Distortion

LM4NCM



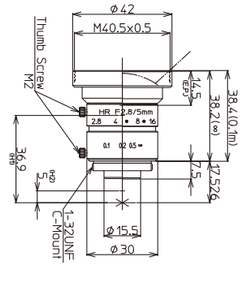
1/1.8" 1/2" 1/3" 4.4mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body LO-DIS Low Distortion

LM6NCM



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

LM5JCM



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

Model		LM3NCM	LM4NCM	LM6NCM	LM5JCM
Focal Length(mm)		3.5	4.4	6	5
Image Size(mm)		7.2×5.4(Φ9)	7.2×5.4(Φ9)	6.4×4.8(Φ8)	8.8×6.6(Φ11)
Iris Range(F-stop)		F2.4~F14	F1.6~F16	F1.2~Close	F2.8~F16
Focusing Range(m)		0.1~∞	0.1~∞	0.1~∞	0.1~∞
Control	Iris	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 (Degrees)	2/3 inch	–	–	–	82.4×66.9
	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

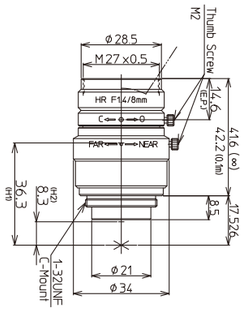
† Images may differ from the actual product.

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)

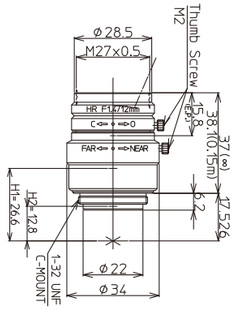
LM8JCM



2/3" 1/1.8" 1/2" 8mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body LO-DIS 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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	120.3(H)×90.0(V)
Angle of View (Degrees) 2/3 Inch	56.5×43.9
Angle of View (Degrees) 1/1.8 Inch	47.4×36.3
Angle of View (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

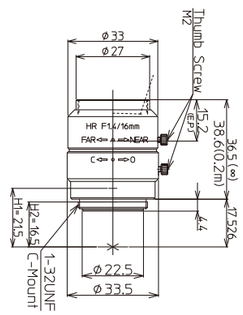
LM12JCM



2/3" 1/1.8" 1/2" 12mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body LO-DIS 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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	110.0(H)×82.5(V)
Angle of View (Degrees) 2/3 Inch	38.3×29.1
Angle of View (Degrees) 1/1.8 Inch	31.7×24.0
Angle of View (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

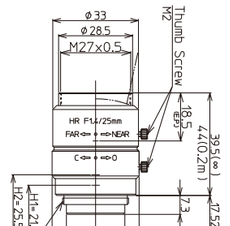


2/3" 1/1.8" 1/2" 16mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body LO-DIS Low Distortion FLOAT Floating

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	112.8(H)×84.4(V)
Angle of View (Degrees) 2/3 Inch	30.0×22.7
Angle of View (Degrees) 1/1.8 Inch	24.7×18.6
Angle of View (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

† Images may differ from the actual product.

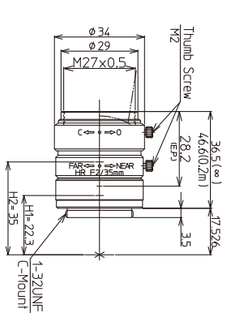
LM25JCM



2/3" 1/1.8" 1/2" 25mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body FLOAT 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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	71.1(H)×53.3(V)
Angle of View (Degrees) 2/3 Inch	19.6×14.8
Angle of View (Degrees) 1/1.8 Inch	16.1×12.1
Angle of View (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

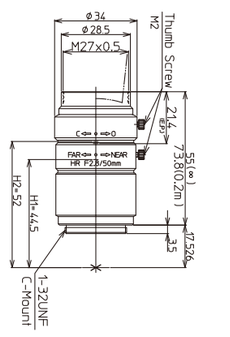
LM35JCM



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

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	47.9(H)×35.8(V)
Angle of View (Degrees) 2/3 Inch	14.4×10.8
Angle of View (Degrees) 1/1.8 Inch	11.8×8.8
Angle of View (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

LM50JCM



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

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	29.3(H)×21.9(V)
Angle of View (Degrees) 2/3 Inch	9.6×7.2
Angle of View (Degrees) 1/1.8 Inch	7.9×5.9
Angle of View (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.

LM5JCM-V LM8JCM-V LM12JCM-V LM16JCM-V LM25JCM-V LM35JCM-V LM50JCM-V

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

1 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

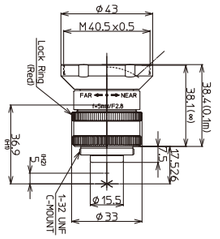
Focus Adjustment Procedure

2 Unscrew the bottom ring of the outside body to adjust the focus to optimal position.

3 Screw the red two way reversible nut on the center body towards the bottom ring to lock in the focus.

Two Way Reversible Nut

LM5JCM-V NEW



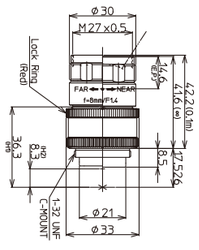
2/3" 1/1.8" 1/2" 5mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED Ruggedized lens

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	–
Control Focus	Manual
Shooting Range at M.O.D. (mm)	200.8(H)×150.8((V)
Angle of View (Degrees) 2/3 Inch	82.4×66.9
Angle of View (Degrees) 1/1.8 Inch	71.7×57.1
Angle of View (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.

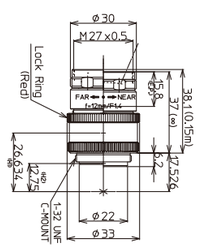
LM5JCM-V LM8JCM-V LM12JCM-V LM16JCM-V LM25JCM-V LM35JCM-V LM50JCM-V

LM8JCM-V



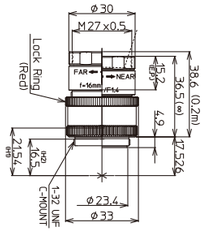
2/3" 1/1.8" 1/2" 8mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED Ruggedized lens

LM12JCM-V



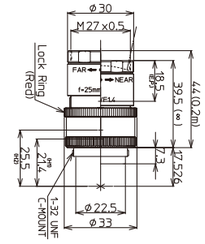
2/3" 1/1.8" 1/2" 12mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED Ruggedized lens

LM16JCM-V



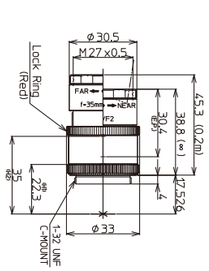
2/3" 1/1.8" 1/2" 16mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED Ruggedized lens

LM25JCM-V



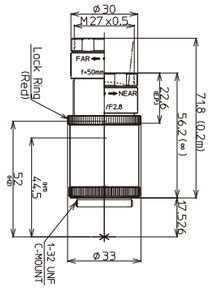
2/3" 1/1.8" 1/2" 25mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED Ruggedized lens

LM35JCM-V



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

LM50JCM-V



2/3" 1/1.8" 1/2" 50mm FIXED Fixed Focal MEGA Megapixel C-mt C-mount METAL Metal Body RUGGED 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	–	–	–	–	–	–
Control 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 View (Degrees) 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
Angle of View (Degrees) 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
Angle of View (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.

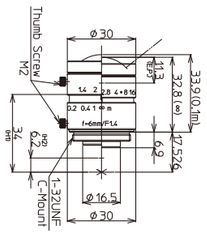
2/3" STANDARD

LM6JC LM8JC LM12JC LM16JC LM25JC LM35JC LM50JC LM75JC LM100JC

JC Series

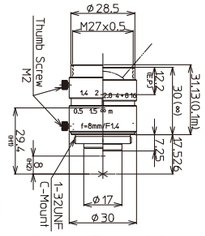
- High resolution
- Low distortion
- Excellent cost performance
- Compact, lightweight and durable
- Excellent corner brightness

LM6JC



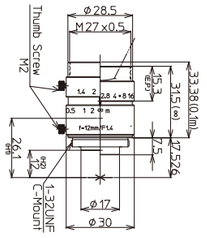
2/3" 1/1.8" 1/2" 6mm — FIXED Fixed Focal — C mt Megapixel — METAL C-mount

LM8JC



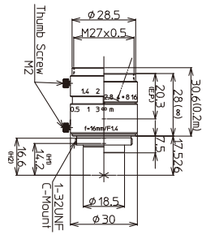
2/3" 1/1.8" 1/2" 8mm — FIXED Fixed Focal — C-mt Megapixel — METAL C-mount

LM12JC



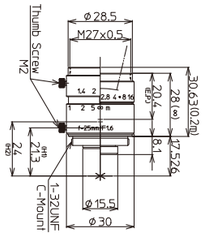
2/3" 1/1.8" 1/2" 12mm — FIXED — C-mt — METAL Fixed Focal, Megapixel, C mount

LM16JC



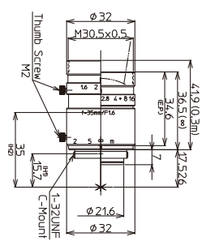
2/3" 1/1.8" 1/2" 16mm — FIXED Fixed Focal — C-mt C-mount — METAL Metal Body

LM25JC



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

LM35JC



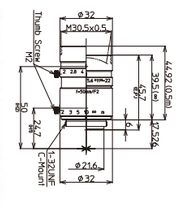
2/3" 1/1.8" 1/2" 35mm — FIXED Fixed Focal — C-mt C-mount — METAL Metal Body

Model	LM6JC	LM8JC	LM12JC	LM16JC	LM25JC	LM35JC
Focal Length(mm)	6	8	12	16	25	35
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F1.4~F16	F1.4~F16	F1.6~F16	F1.6~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞	0.2~∞	0.2~∞	0.3~∞
Control Iris	Manual	Manual	Manual	Manual	Manual	Manual
Control Focus	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	190.6(H)×130.3(V)	136.0(H)×96.1(V)	81.1(H)×59.4(V)	111.8(H)×82.6(V)	72.1(H)×53.7(V)	76.0H)×56.9(V)
Angle of View (Degrees) 2/3 Inch	81.9×61.2	64.2×47.7	42.5×31.7	30.5×22.8	21.0×15.7	14.4×10.8
Angle of View (Degrees) 1/1.8 Inch	66.9×50.1	52.4×39.1	34.6×25.9	23.8×18.7	17.2×12.9	11.8×8.8
Angle of View (Degrees) 1/2 Inch	59.4×44.5	46.2×34.6	30.7×23.0	22.2×16.6	15.3×11.4	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.

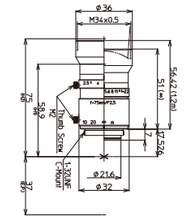
LM6JC LM8JC LM12JC LM16JC LM25JC LM35JC LM50JC LM75JC LM100JC

LM50JC



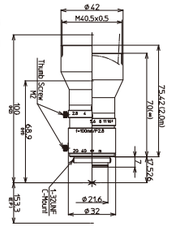
2/3" 1/1.8" 1/2" 50mm — FIXED Fixed Focal — C-mt C-mount — METAL Metal Body

LM75JC



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

LM100JC



2/3" 1/1.8" 1/2" 100mm — FIXED Fixed Focal — C-mt C-mount — METAL 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	Manual	Manual
Control Focus	Manual	Manual	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 (Degrees) 2/3 Inch	10.1×7.6	6.7×5.0	5.0×3.8
Angle of View (Degrees) 1/1.8 Inch	8.2×6.2	5.5×4.1	4.1×3.1
Angle of View (Degrees) 1/2 Inch	7.3×5.5	4.9×3.7	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/0.06×	100mm/0.07×	100mm/0.12×	200mm/0.08×	200mm/0.12×
(1mm Ring)M.O.D./Magnification	–	–	50mm/0.19×	110mm/0.14×	136mm/0.15×
(5mm Ring)M.O.D./Magnification	–	–	–	–	46mm/0.31×
(10mm Ring)M.O.D./Magnification	–	–	–	–	–
(20mm Ring)M.O.D./Magnification	–	–	–	–	–

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

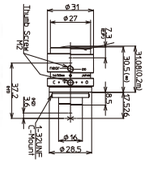
1/1.8" STANDARD

LM4NCL LM5NCL LM6NCL LM12NCL

NCL Series

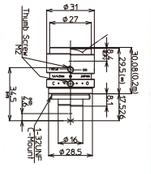
- 4 wide angle lenses
- Locking screws
- Metal body

LM4NCL



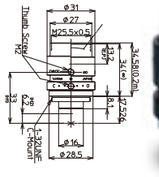
1/1.8" 1/2" 1/3" 3.5mm — FIXED Fixed Focal — C-mt Megapixel — METAL C-mount

LM5NCL



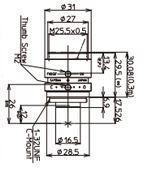
1/1.8" 1/2" 1/3" 4.5mm — FIXED Fixed Focal — C-mt Megapixel — METAL C-mount

LM6NCL



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

LM12NCL



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

Model	LM4NCL	LM5NCL	LM6NCL	LM12NCL
Focal Length(mm)	3.5	4.5	6	12
Image Size(mm)	7.2×5.4(Φ9)	7.2×5.4(Φ9)	7.2×5.4(Φ9)	7.2×5.4(Φ9)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F1.4~F16	F1.4~F16
Focusing Range(m)	0.2~∞	0.2~∞	0.2~∞	0.3~∞
Control Iris	Manual	Manual	Manual	Manual
Control Focus	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	679.9(H)×389.3(V)	405.3(H)×273.8(V)	255.8(H)×188.7(V)	189.9(H)×140.0(V)
Angle of View (Degrees) 1/1.8 inch	117.7×86.7	88.8×66.9	62.7×48.4	34.6×25.9
Angle of View (Degrees) 1/2 inch	103.6×76.7	79.0×59.4	57.3×44.0	30.7×23.0
Angle of View (Degrees) 1/3 inch	76.7×57.7	59.4×45.1	44.0×33.7	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

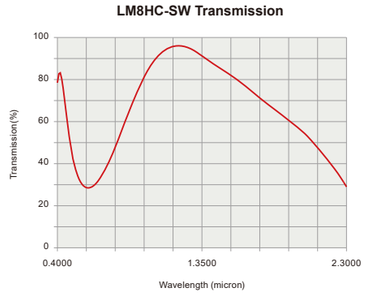
Diagram of M.O.D. / Magnification Using A Close Up Ring

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

† Images may differ from the actual product.

HC-SW Series

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



LM8HC-SW

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

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
Control 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

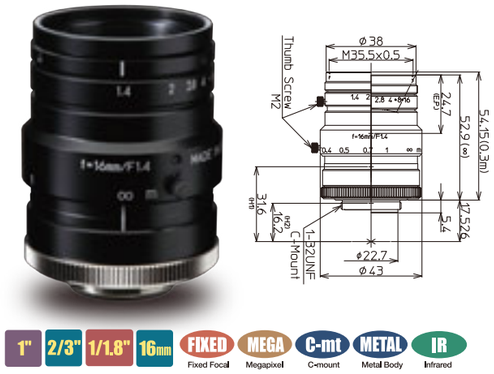
LM12HC-SW

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

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	330.6(H)×243.5(V)
Angle of 1 Inch	55.6×42.5
View 2/3 Inch	39.1×29.5
(Degrees) 1/1.8 Inch	32.1×24.2
TV Distortion(%)	−1.6
Back Focus in Air(mm)	12.6
Mount	C-mount
Filter Thread(mm)	M35.5×P0.5
Size(mm)	Φ43×51.5
Weight(g)	160
Temperature Range	−10°C~+50°C

† Images may differ from the actual product.

LM16HC-SW



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

LM25HC-SW

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

LM35HC-SW

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

LM50HC-SW

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

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
Control 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

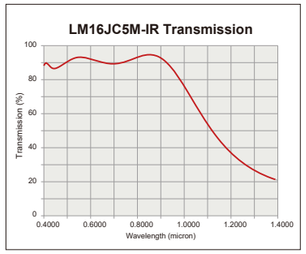
† Images may differ from the actual product.

DAY & NIGHT 2/3" 5 MEGAPIXEL

LM16JC5M-IR LM25JC5M-IR LM35JC5M-IR

JC5M-IR Series NEW

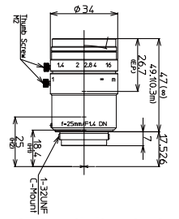
- 5 megapixel lens
- IR corrected design
- Fast F-stop of F1.4 *LM35JC5MM-IR is F2.0
- Low distortion
- Manual-Iris, Auto-Iris and P-iris versions available



LM16JC5M-IR NEW

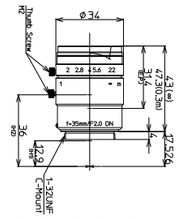
16mm FIXED Fixed Focal · 5MEGA Megapixel · METAL Metal Body · LO-DIS Low Distortion · IR Infrared

LM25JC5M-IR NEW



25mm FIXED Fixed Focal · 5MEGA Megapixel · METAL Metal Body · LO-DIS Low Distortion · IR Infrared

LM35JC5M-IR NEW



35mm FIXED Fixed Focal · 5MEGA Megapixel · METAL Metal Body · LO-DIS Low Distortion · IR Infrared

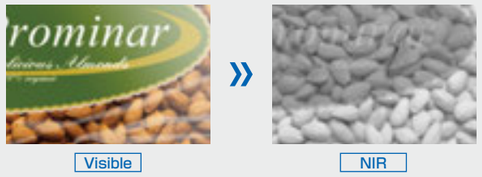
Model	LM16JC5M-IR	LM25JC5M-IR	LM35JC5M-IR
Focal Length(mm)	16	25	35
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F2.0~F22
Focusing Range(m)	0.3~∞	0.3~∞	0.3~∞
Control Iris	Manual	Manual	Manual
Control Focus	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)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

Reduction of visible-NIR focus shift

Visible design lens

IR Corrected design lens LM50-IR

Examples



† Images may differ from the actual product.

DAY & NIGHT 1" 5 MEGAPIXEL

LM50HC-IR LM60HC-IR

HC-IR Series NEW

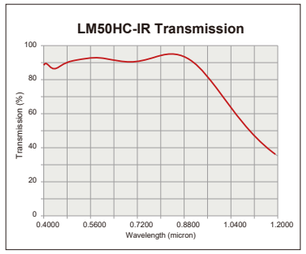
- IR corrected design
- High performance compact lens
- Excellent corner brightness
- Low distortion

NEW LM50HC-IR

50mm FIXED Fixed Focal · 5MEGA Megapixel · METAL Metal Body · LO-DIS Low Distortion · IR Infrared

NEW LM60HC-IR

60mm FIXED Fixed Focal · 5MEGA Megapixel · METAL Metal Body · LO-DIS Low Distortion · IR Infrared



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

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

LM50-IR

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

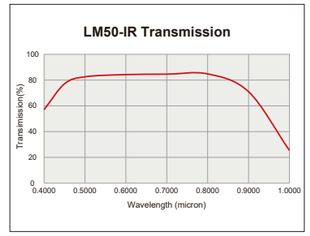
Application

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

LM50-IR

50mm FIXED Fixed Focal · MEGA Megapixel · METAL Metal Body · LO-DIS Low Distortion · IR Infrared

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
Control Focus	Manual
Shooting Range at M.O.D.(mm)	366.9(H)×242.9(V)
Angle of View (Degrees) Full Size	40.2×27.2
Angle of View (Degrees) 4/3 Inch	21.0×15.8
Angle of View (Degrees) 1 Inch	14.6×11.0
TV Distortion(%)	−0.5
Back Focus in Air(mm)	34.6
Mount	Nikon F-mount
Filter Thread(mm)	M52×P0.75
Size(mm)	Φ58.5×105.2
Weight(g)	605
Temperature Range	−10°C~+50°C



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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 Fixed Focal | METAL Metal Body | LO-DIS Low Distortion

LM35LF

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

LM50LF

50mm FIXED Fixed Focal | METAL Metal Body | LO-DIS 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		Manual		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 (Degrees)	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	
	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	

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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 Fixed Focal | 3CCD 3CCD Camera | METAL Metal Body

LM35CLS

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

LM50CLS

50mm FIXED Fixed Focal | 3CCD 3CCD Camera | METAL 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	Manual	Manual
Control 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.

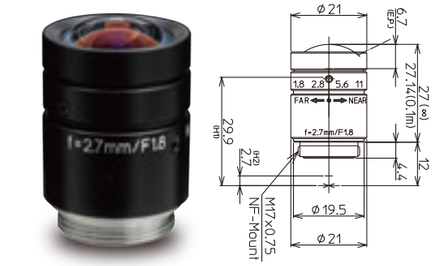
1/3" NF-MOUNT

LM3NF | LM5NF | LM9NF

Compact NF-mt. lens Series

- 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 Fixed Focal | MEGA Megapixel | NF-mt NF-mount | METAL 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
Control 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 Fixed Focal | MEGA Megapixel | NF-mt NF-mount | METAL 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
Control 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 Fixed Focal | MEGA Megapixel | NF-mt NF-mount | METAL 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
Control 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.

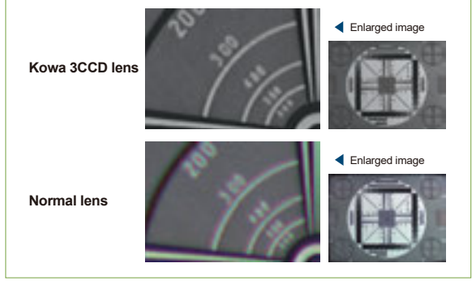
1/1.8" 3CCD

LM4NC3 | LM6NC3 | LM12NC3 | LM25NC3 | LM50NC3

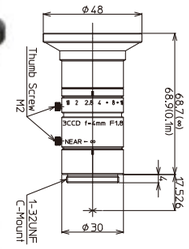
NC3 Series

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

Quality comparison between
Kowa 3CCD lens and normal lens

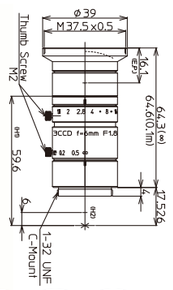


LM4NC3



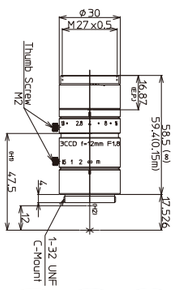
1/1.8" 1/2" 1/3" 4mm FIXED Fixed Focal 3CCD 3CCD Camera C-mt C-mount METAL Metal Body

LM6NC3



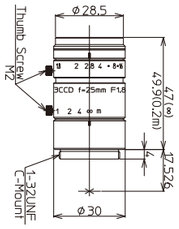
1/1.8" 1/2" 1/3" 6mm FIXED Fixed Focal 3CCD 3CCD Camera C-mt C-mount METAL Metal Body

LM12NC3



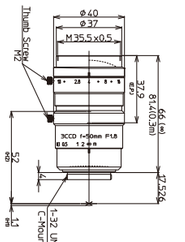
1/1.8" 1/2" 1/3" 12mm FIXED Fixed Focal 3CCD 3CCD Camera C-mt C-mount METAL Metal Body

LM25NC3



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

LM50NC3



1/1.8" 1/2" 1/3" 50mm FIXED Fixed Focal 3CCD 3CCD Camera C-mt C-mount METAL 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	Manual	Manual	Manual	Manual
Control Focus	Manual	Manual	Manual	Manual	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 (Degrees) 1/1.8 inch	91.9×71.8	65.3×50.1	34.1×25.7	16.4×12.3	7.9×5.9
Angle of View (Degrees) 1/2 inch	83.4×64.5	58.8×44.9	30.4×22.8	14.6×11.0	7.0×5.3
Angle of View (Degrees) 1/3 inch	64.5×49.2	45.7×33.9	22.8×17.2	11.0×8.2	5.3×4.0
Resolution(Center, Corner)	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm
TV Distortion(%)	−5.0	−2.4	−1.2	−0.17	0.02
Back Focus in Air(mm)	14.7	15.2	15.2	15.0	21.2
Mount	C-mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M46×P0.75	M37.5×P0.5	M27×P0.5	M27×P0.5	M35.5×P0.5
Size(mm)	Φ48×68.7	Φ39×64.3	Φ30×58.5	Φ30×47	Φ40×66
Weight(g)	120	105	95	80	160
Temperature Range	−10°C~+50°C	−10°C~+50°C	−10°C~+50°C	−10°C~+50°C	−10°C~+50°C

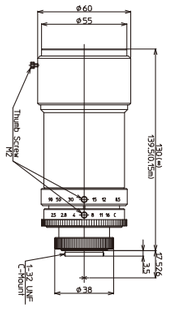
† Images may differ from the actual product.

MACRO ZOOM

LMZ50M | LMZ45T3 | LMZ68M | LMZ69M

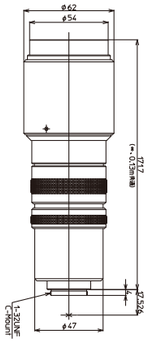
- 2 zoom ranges (6× and 10×)
- Excellent for pattern matching, measurement, inspection, and character recognition

LMZ50M



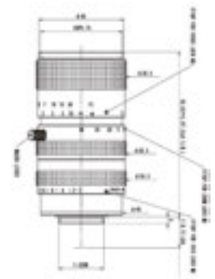
1/3" inf~0.7× 8.5-90mm ZOOM Fixed Focal C-mt C-mount METAL Metal Body

LMZ45T3



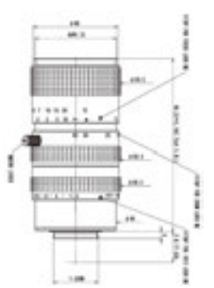
2/3" 1/2" 1/3" inf~1.1× 18-108mm ZOOM Fixed Focal C-mt C-mount METAL Metal Body

LMZ68M



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

LMZ69M



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

Model	LMZ50M				LMZ45T3			
Magnification	inf~0.7×				inf~1.1×			
Zoom Magnification	10×				6×			
Image Size(mm)	4.8×3.6(Φ6)				8.8x6.6(Φ11)			
Close up lens	3Dpt.un-installed		3Dpt.installed		3Dpt.un-installed		3Dpt.installed	
Shooting Magnification	Inf~0.28×		0.07~0.7×		Inf~0.72×		0.053~1.1×	
W.D (mm)	Inf~M.O.D=310		WD=310~150		Inf~M.O.D=185		WD=330~115	
Iris Range(F-stop)	F2.5~Close				F2.5~Close			
Object side N.A.	–		–		–		–	
Image side N.A.	–		–		–		–	
TV Distortion(%)	0.1		0.1		−0.3		−0.1	
Angle of View(Degrees) 2/3 inch	–	–	–	–	inf wide inf tele WD=185 wide WD=185 tele	27.3×20.5° 4.7×3.5° 67.0×50.1 11.7×9.0	WD=330 wide WD=330 tele WD=115 wide WD=115 tele	165.4×123.8 28.3×21.3 43.8×32.8 7.6×5.9
Angle of View(Degrees) 1/2 inch	–	–	–	–	inf wide inf tele WD=185 wide WD=185 tele	19.9×14.9° 3.4×2.6° 48.6×36.5 8.7×6.6	WD=330 wide WD=330 tele WD=115 wide WD=115 tele	120.0×89.8 20.7×15.6 31.8×23.8 5.7×4.3
Angle of View(Degrees) 1/3 inch	inf wide inf tele WD=310 wide WD=310 tele	31.3×23.5° 3.2×2.4° 140.7×103.0 14.0×10.4	WD=310 wide WD=310 tele WD=150 wide WD=150 tele	172.0×128.4 17.1×12.8 69.1×51.7 6.9×5.2	inf wide inf tele WD=185 wide WD=185 tele	14.9×11.2° 2.6×2.0° 36.5×27.3 6.6×5.0	WD=330 wide WD=330 tele WD=115 wide WD=115 tele	89.8×67.4 15.6×11.7 23.8×17.9 4.3×3.3
Mount	C-mount				C-mount			
Control Iris	Manual				Manual			
Control Focus	Manual				Manual			
Control Zoom	Manual				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(6×)	11.5~69(6×)
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	Manual
Control Focus	Manual	Manual
Control Zoom	Manual	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

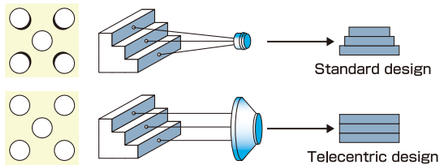
† Images may differ from the actual product.

TELECENTRIC Series

High Resolution Lenses

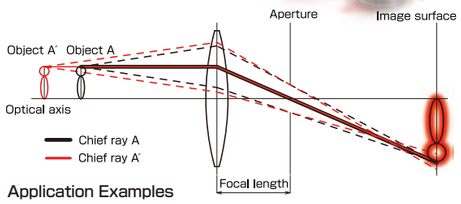
Features of TC Series

- 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

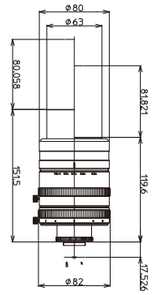
4/3" MACRO ZOOM 21 MEGAPIXEL

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

4/3" MACRO 21 MEGAPIXEL

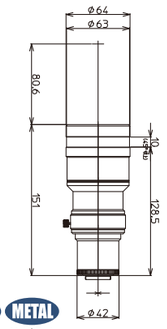
- 2.0x for macro use
- Able to resolve up to 21 megapixels

LM1119TC



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

LM1138TC



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

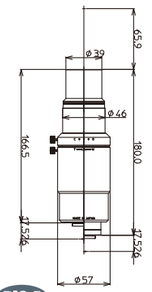
Model		LM1119TC		LM1138TC
Magnification		0.5~1.0×		2.0×
Image Size		18.4×13.8(Φ23)		18.4×13.8(Φ23)
Shooting Magnification		0.5×	1.0×	2.0×
Objective N.A.		0.05	0.1	0.2
W.D(mm)		80	81.8	80.6
Shooting Range (mm)	4/3 inch	36.8×27.6	18.4×13.8	9.20×6.90
	1 inch	25.6×19.2	12.8×9.6	6.40×4.8
	2/3 inch	17.6×13.2	8.8×6.6	4.4×3.3
TV Distortion(%)		0.1	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

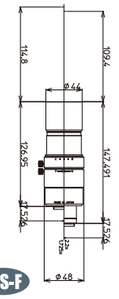
- Telecentric lens with variable magnification
- Able to adjust the magnification to match with the pixel size of the camera
- Lenses are designed with an optical magnification that is ideal for over 5 megapixels
- Distortion free lenses of less than 0.02%. TV distortion is limited to 0.25% on the entire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

LM1120TC



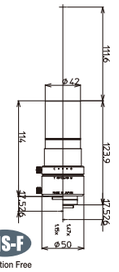
2/3" 1/1.8" 1/2" 5MEGA+ (Megapixel) C-mt (C-mount) METAL (Metal Body) DIS-F (Distortion Free)

LM1121TC



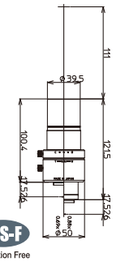
2/3" 1/1.8" 1/2" 5MEGA+ (Megapixel) C-mt (C-mount) METAL (Metal Body) DIS-F (Distortion Free)

LM1122TC



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

LM1123TC

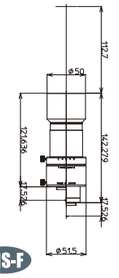


2/3" 1/1.8" 1/2" 5MEGA+ (Megapixel) C-mt (C-mount) METAL (Metal Body) DIS-F (Distortion Free)

2/3" MACRO ZOOM

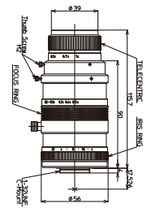
- Telecentric lens with variable magnification
- 0.3×~1.0× for macro use

LM1125TC



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

LM50TC



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

Model		LM1120TC			LM1121TC			LM1122TC			LM1123TC			LM1125TC			LM50TC	
Magnification		3.45~4.4×			1.725~2.2×			1.15~1.47×			0.69~0.88×			0.346~0.44×			0.3~1.0×	
Image Size		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)	
Shooting Magnification		3.45×	4.0×	4.4×	1.725×	2.0×	2.2×	1.15×	1.3×	1.47×	0.69×	0.8×	0.88×	0.346×	0.4×	0.44×	0.3×	1.0×
Objective N.A.		0.2	0.2	0.2	0.131	0.131	0.131	0.101	0.101	0.101	0.07	0.07	0.07	0.04	0.04	0.04	0.038	0.100
W.D(mm)		65.9	65.9	65.9	114.8	111.4	109.4	111.6	111.6	111.6	111.0	111.0	111.0	112.7	112.7	112.7	193.4	81.8
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	4.0×3.0	7.6×5.7	6.6×5.0	6.0×4.5	12.7×9.6	11.0×8.2	10.0×7.5	19.1×25.4	16.5×22.0	15.0×20.0	29.5×22.2	8.8×6.6
	1/1.8 inch	1.6×2.1	1.4×1.8	1.2×1.6	4.2×3.1	3.6×2.7	3.3×2.4	6.3×4.7	5.5×4.1	4.9×3.7	10.4×7.8	9.0×6.7	8.2×6.1	15.7×20.9	13.6×18.1	12.3×16.5	24.1×18.0	7.2×5.4
	1/2 inch	1.4×1.9	1.2×1.6	1.1×1.5	3.7×2.8	3.2×2.4	2.9×2.2	5.6×4.2	4.9×3.7	4.3×3.3	9.3×7.0	8.0×6.0	7.3×5.5	13.9×18.6	12.1×16.1	11.0×14.6	21.4×16.0	6.4×4.8
TV Distortion(%)		0.015	0.003	−0.002	0.011	0.004	0.001	−0.015	−0.001	0.011	−0.001	−0.009	0.005	0.02	−0.009	0.01	−0.19	−0.1
Back Focus in Air(mm)		17.1	24.5	30	55.8	67.7	76.3	18.7	23.6	29.8	34	28.8	25.3	17.6	17	16.5	22.0	
Mount		C-mount			C-mount			C-mount			C-mount			C-mount			C-mount	
Resolution		120lp/mm			120lp/mm			120lp/mm			120lp/mm			120lp/mm			120lp/mm	
Filter Thread(mm)		-			-			-			-			-			M37.5×P0.5	
Size(mm)		Φ57×180.0			Φ48×147.5			Φ50×123.9			Φ50×121.5			Φ51.5×142.3			Φ56×115.7	
Weight(g)		645			420			330			290			395			317	
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	
Storage Temperature Range		−20°C~+60°C			−20°C~+60°C			−20°C~+60°C			−20°C~+60°C			−20°C~+60°C			−20°C~+60°C	

† Images may differ from the actual product.

1" VARIFOCAL

LMVZ166HC

LMVZ166HC

1" | 2/3" | 1/1.8" | 16-64mm

VARI Varifocal | MEGA Megapixel | C-mt C-mount | METAL Metal Body | LO-DIS Low Distortion

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

1/1.8" VARIFOCAL

LMVZ4411

LMVZ4411

1/1.8" | 1/2" | 1/3" | 4.4-11mm

VARI Varifocal | C-mt C-mount | METAL Metal Body | LO-DIS Low Distortion

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

1/2" VARIFOCAL

LMVZ655 LMVZ990-IR

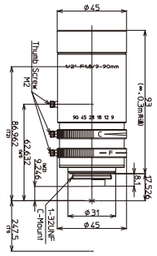
LMVZ655

※(1)

1/2" | 1/3" | 6.5-52mm

VARI Varifocal | C-mt C-mount | METAL Metal Body

LMVZ990-IR



1/2" | 1/3" | 9-90mm

VARI Varifocal | C-mt C-mount | METAL Metal Body | XD Extra Low Dispersion | IR Infared

Model		LMVZ655	LMVZ990-IR
Focal Length(mm)		6.5~52(8×)	9~90(10×)
Image Size(mm)		6.4×4.8(Φ8)	6.4×4.8(Φ8)
Iris Range(F-stop)		F1.8~Close	F1.8~F16
Focusing Range(m)		0.2~∞	0.3~∞
Control	Iris	Manual	Manual
	Focus	Manual	Manual
Shooting Range at M.O.D.(mm)		W232.8×168.2/T141.4×106.0	W252.7×182.5/T94.4×70.8
Angle of View (Degrees)	1/2 Inch	W54.8×41.1/T7.1×5.4	W41.1×30.3/T4.2×3.1
	1/3 Inch	W41.1×30.8/T5.4×4.0	W30.3×22.5/T3.1×2.4
TV Distortion(%)		W−1.2/T0.1	W−4.3/T0.3
Back Focus in Air(mm)		W10.2/T13.1	W15.4/T11.7
Mount		C-mount	C-mount
Filter Thread(mm)		M43×P0.75	M43×P0.75
Size(mm)		Φ46×73.5	Φ45×93
Weight(g)		163	194
Temperature Range		−10°C~+50°C	−10°C~+50°C

※(1) Available while stocks last

† Images may differ from the actual product.

FA LENS SPECIFICATION

Specifications are subject to change without notice.

4/3" 8 MEGAPIXEL

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

1.1" 12MEGAPIXEL

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

1" 6 MEGAPIXEL PLUS

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

1" MEGAPIXEL

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

1" RUGGEDIZED MEGAPIXEL

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

2/3" 10 MEGAPIXEL

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

2/3" 5 MEGAPIXEL

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

∗ Applicable on 1/1.2" as well

FA LENS SPECIFICATION

Specifications are subject to change without notice.

2/3" 3 MEGAPIXEL

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

WIDE MEGAPIXEL

Model	Format Size(Inch) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
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) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
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) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
NEW 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) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
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) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
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) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM8HC-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) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
NEW LM16JC5M-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 LM25JC5M-IR				●	●	●	●	25	8.8×6.6(Φ11)	F1.4~F16	0.3~∞	C	20.1×15.1	−0.3	Φ34×47	110	30
NEW LM35JC5M-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) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
NEW 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) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount		Field Angle(H×V)	TV Distortion(%)	Size(mm) Nikon F	Size(mm) P	Weight(g)	Page
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	Φ58.5x106.2	605	31

LINE SCAN

Model	Format Size(Inch) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
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) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM28CLS	–	–	–	–	–	–	–	28	30.0(Φ30)	F2.8~F22	0.5~∞	Nikon F	55.2(V)	−0.1	Φ75×108	482	32
LM35CLS	–	–	–	–	–	–	–	35	30.0(Φ30)	F2.8~F22	0.5~∞	Nikon F	46.1V)	0.06	Φ65×108	480	32
LM50CLS	–	–	–	–	–	–	–	50	30.0(Φ30)	F2.8~F22	0.5~∞	Nikon F	32.3(V)	−0.1	Φ58×63.5	358	32

1/3" NF-MOUNT

Model	Format Size(Inch) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM3NF							●	2.7	4.8×3.6(Φ6)	F1.8~F11	0.1~ ∞	NF	102.3×76.7	−7.3	Φ21×27	30	33
LM5NF							●	4.5	4.8×3.6(Φ6)	F1.8~F11	0.1~ ∞	NF	59.2×45.0	−2.8	Φ21×31	35	33
LM9NF							●	9	4.8×3.6(Φ6)	F1.8~F11	0.1~ ∞	NF	30.2×22.8	−0.6	Φ22×34	40	33

1/1.8" 3CCD MEGAPIXEL

Model	Format Size(Inch) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LM4NC3					●	●	●	4	7.2×5.4(Φ9)	F1.8~F16	0.1~∞	C	91.9×71.8	−5.0	Φ48×68.7	120	34
LM6NC3					●	●	●	6	7.2×5.4(Φ9)	F1.8~F16	0.1~∞	C	65.3×50.1	−2.4	Φ39×64.3	105	34
LM12NC3					●	●	●	12	7.2×5.4(Φ9)	F1.8~F16	0.15~∞	C	34.1×25.7	−1.2	Φ30×58.5	95	34
LM25NC3					●	●	●	25	7.2×5.4(Φ9)	F1.8~F16	0.2~∞	C	16.4×12.3	−0.17	Φ30×47	80	34
LM50NC3					●	●	●	50	7.2×5.4(Φ9)	F1.8~F16	0.3~∞	C	7.9×5.9	0.02	Φ40×66	160	34

MACRO ZOOM

Model	Format Size(Inch) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LMZ50M							●	8.5~90(10.6×)	4.8×3.6(Φ6)	F2.5~Close	0.15~∞	C	W31.3×23.5/T3.2×2.4	0.1	Φ60×130	437	35
LMZ45T3				●	●	●	●	18~108(6×)	8.8×6.6(Φ11)	F2.5~Close	0.13~∞	C	W27.3×20.5/T4.7×3.5	−0.3(3Dpt.un-installed −0.1(3Dpt.installed	Φ62×171.7	595	35
LMZ68M						●	●	8~48(6×)	6.4×4.8(Φ8)	F1.0~Close	0.1~∞(0.01 at Macro)	C	W43.6×33.4/T7.7×5.7	–	Φ50.5×92.8	280	35
LMZ69M				●	●	●	●	11.5~69(6×)	8.8×6.6(Φ11)	F1.4~Close	0.1~∞(0.01 at Macro)	C	W41.9×32.0/T7.3×5.5	–	Φ50.5×98.2	300	35

TELECENTRIC

Model	Format Size(Inch) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Magnification	Image Size(mm)	Shooting Magnification	W.D(mm)	Shooting Range(mm)	TV Distortion(%)	Mount	Size(mm)	Weight(g)	Page
LM1119TC	●	●	●	●	●	●	●	0.5~1.0×	18.4×13.8(Φ23)	0.5× 1.0×	80 81.8	36.8×27.6 18.4×13.8	0.1 0.1	C	Φ82×151.5	1000	36
LM1138TC	●	●	●	●	●	●	●	2.0×	18.4×13.8(Φ23)	2.0×	80.6	9.20×6.90	0.1	C	Φ64×151	830	36
LM1120TC				●	●	●	●	3.45~4.4×	8.8×6.6(Φ11)	3.45× 4.0× 4.4×	65.9 65.9 65.9	1.9×2.6 1.7×2.2 1.5×2.0	0.015 0.003 −0.002	C	Φ57×180	645	37
LM1121TC				●	●	●	●	1.725~2.2×	8.8×6.6(Φ11)	1.725× 2.0× 2.2×	114.8 111.4 109.4	5.1×3.8 4.4×3.3 4.0×3.0	0.011 0.004 0.001	C	Φ48×147.5	420	37
LM1122TC				●	●	●	●	1.15~1.47×	8.8×6.6(Φ11)	1.15× 1.3× 1.47×	111.6 111.6 111.6	7.6×5.7 6.6×5.0 6.0×4.5	−0.015 −0.001 0.011	C	Φ50×123.9	330	37
LM1123TC				●	●	●	●	0.69~0.88×	8.8×6.6(Φ11)	0.69× 0.8× 0.88×	111.0 111.0 111.0	12.7×9.6 11.0×8.2 10.0×7.5	−0.001 −0.009 0.005	C	Φ50×121.5	290	37
LM1125TC				●	●	●	●	0.346~0.44×	8.8×6.6(Φ11)	0.346× 0.4× 0.44×	112.7 112.7 112.7	19.1×25.4 16.5×22.0 15.0×20.0	0.02 −0.009 0.01	C	Φ51.5×142.3	395	37
LM50TC				●	●	●	●	0.3~1.0×	8.8×6.6(Φ11)	0.3× 1.0×	193.4 81.8	29.5×22.2 8.8×6.6	−0.19 −0.1	C	Φ56×115.7	317	37

VARIFOCAL

Model	Format Size(Inch) 4/3	1.1	1	2/3	1/1.8	1/2	1/3	Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)	Weight(g)	Page
LMVZ166HC			●	●	●	●	●	16~64(4.0×)	12.8×9.6(Φ16)	F1.8~F16	1.0~∞	C	W45.9×34.2/T11.7×14.6	W−3.4/T0.2	Φ60×124	370	38
LMVZ4411					●	●	●	4.4~11(2.5×)	7.2×5.4(Φ9)	F1.6~F16	0.3~∞	C	W76.6×61.2/T36.7×28.0	W−0.2/T0.4	Φ45×56.5	125	38
LMVZ655						●	●	6.5~52(8×)	6.4×4.8(Φ8)	F1.8~Close	0.2~∞	C	W54.8×41.1/T7.1×5.4	W−1.2/T0.1	Φ46×73.5	163	38
LMVZ990-IR						●	●	9~90(10×)	6.4×4.8(Φ8)	F1.8~F16	0.3~∞	C	W41.1×30.3/T4.2×3.1	W−4.3/T0.3	Φ45×93	194	38

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

Product Number Breakdown Ex. LM 12 JCM
① ② ③

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.

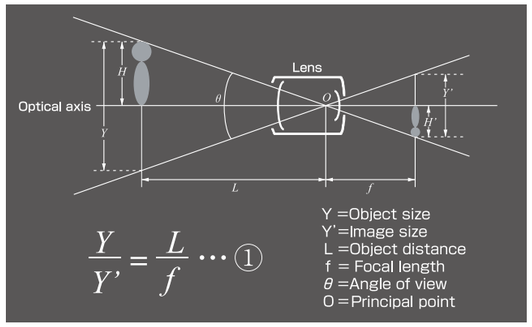
Y′=8.8mm(See image size chart), L=300mm, Y=100mm
f = 300*8.8/100
f=26.4mm.
The most appropriate lens is f=25mm lens, which is close but not greater than the 26.4 derived from the calculation.
Lenses with shorter focal lengths than the given number can capture an object in its entirety.

■Quick selection - How to calculate the angle of view

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

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

〈Characteristics of lenses are described below〉

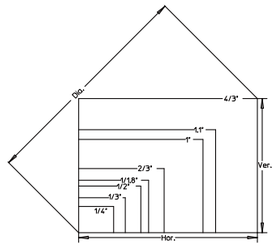


Object size····· Field range which can be captured by the image sensor
Image size ····· See description
Object distance Distance from the lens to the object
Focal length····· Distance from the pricipal point to the focus point
Angle of view····· This angle represents a shooting range in degrees. The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

■Image size

Image size represents size of camera sensor

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



■F-number

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

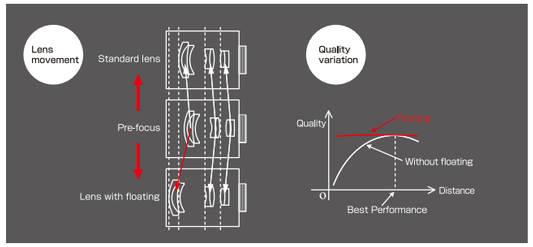
■Depth of field

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

The characteristics of depth of field (comparing lenses with the same specifications)
- ●Increasing the F-number (darker) increases the depth.
- ●Shortening the focal length increases the depth.
- ●Lengthening the object distance increases the depth.

■Floating Mechanism system

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



Processing technology

Lens processing facility

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

Examples of optical devices

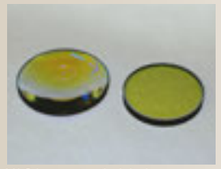
- **Parabolic mirrors**
- **Plastic molded lenses**
- **Germanium lenses**
- **Special filters**
- **Aspherical Lenses**

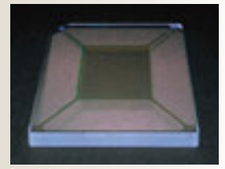

Coating machine


Aspherical lens processing machine


Ultra-precision processing machine

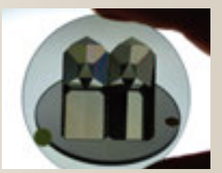

Spherical and Aspherical lenses


YAG laser cut optical devices


Special mirrors

Design & Development


Various prisms


Optical devices with special coatings

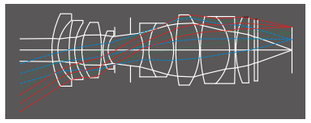

Ultra-precision optical devices

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.