



Quality of Light

 *Kowa Optical Products Co.,Ltd.*

MACHINE VISION LENSES

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About Us

Kowa Optical Products Co., Ltd. is part of Kowa Company, Ltd., one of the largest privately owned companies in Japan. Founded in 1894, Kowa produces a wide variety of products in a number of industries, including but not limited to healthcare, industrial, and energy conservation sectors.

Since 1946, Kowa has developed and manufactured high-end optical equipment such as CCTV and machine vision lenses, spotting scopes, handheld binoculars, and coin operated binoculars.

With over 70 years of technical experience, Kowa Optical Products Co., Ltd. continues its tradition of being a leader in its industries by providing innovative solutions and new technologies to solve even the toughest vision system obstacles.



Function Icons

Float

Floating Mechanism Design

XD

Extra Low Dispersion

LO-DIS

Low Distortion

RUGGED

Ruggedized lens

WR

Water Resistance

DR

Dust Resistance

WBMC

Wide-Band Multi-Coating

SWIR

SWIR Coating

IR

IR-Corrected

3CMOS

3CMOS Camera

2" 50MEGAPIXEL 3.1μm

VM Series **NEW**

- ▶ Large image size of φ32mm with M42-mount or TFL-mount.
- ▶ High quality lenses with a resolving power of 3.1μm.
- ▶ Suitable for 8K resolution and are rated at up to 50 megapixels for use with top performance cameras.



1.1" 24 MEGAPIXEL 2.5 μm

FC24M Series **NEW**

- ▶ 2.5μm pixel pitch high resolution compact lens.
- ▶ High traceability by QR code management.
- ▶ Compatible with maximum 1.2inch format size.



1" 12 MEGAPIXEL IR-CORRECTED (VIS-SWIR) 3.1μm

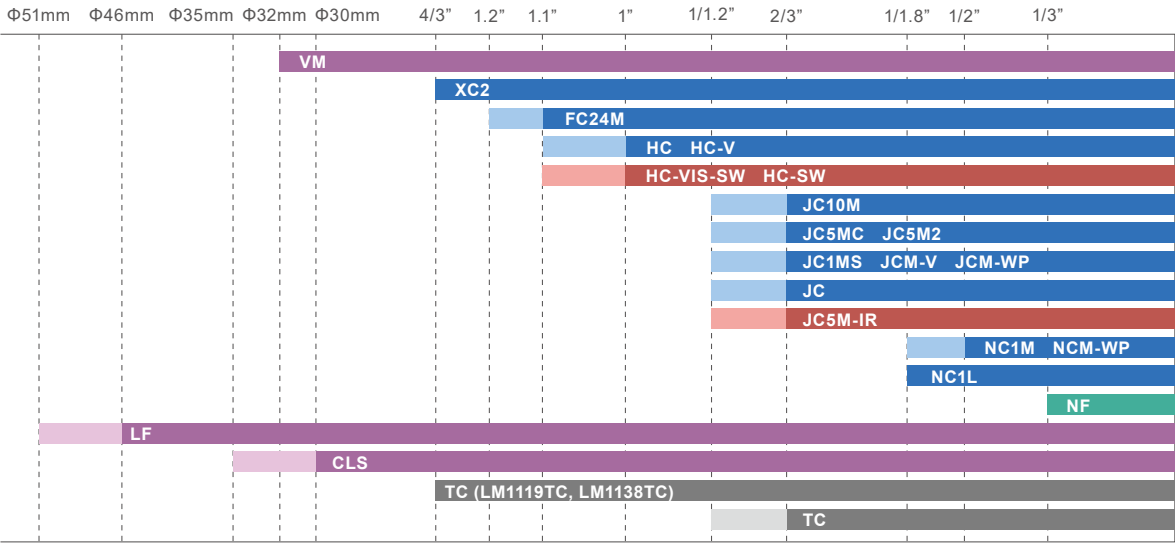
HC-VIS-SW Series **NEW**

- ▶ A maximum of 12 megapixel and 3.1μm performance can be found at select wavelength ranges.
- ▶ Virtually zero focus shift from visible to 2000nm wavelength range.



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- ▶ Large image size of $\phi 32\text{mm}$ with M42-mount or TFL-mount.
- ▶ High quality lenses with a resolving power of $3.1\mu\text{m}$.
- ▶ Suitable for 8K resolution and are rated at up to 50 megapixels for use with top performance cameras.
- ▶ Kowa's new and innovative switch locking screw mechanism prevents thumb screws from falling off.
- ▶ The flange back distance can be modified by attaching optional mount adapters to convert to TFL-II or other formats.
- ▶ High magnification design with a focusing range as close as 0.1m away.

The flange back can change by using optional mount adapters included with each lens.

Standard : M42-mount has a 17.526mm flange back distance.



Series	Mount Adapter	Flange Back (mm)	Mount
VM42	FB-1600VM	16	M42 Mount
	FB-1148VM	11.48	M42 Mount
	FB-1000VM	10	M42 Mount
	FB-0656VM	6.56	M42 Mount
	FB-1750VM	17.5	TFL-II Mount

*Mount adapters do not work with VM35 series lenses.

Switch Locking Screw Mechanism Prevents Fatigue Failure of Thumb Screws

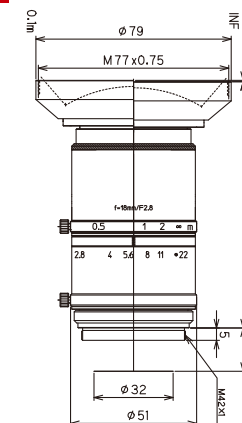
Kowa's VM series features a newly designed switch locking screw mechanism that prevents thumb screws from falling off by utilizing a fixing screw that does not rotate in a set position. The thumb screw locks into place by sliding the fixing screw to the right side. It can then be detached by sliding the fixing screw to the left side.



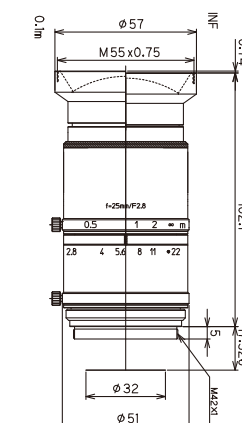
The thumb screw can detach by sliding the fixing screw to the left side.

- Line Scan
- FPD Inspection
- Aerial photography
- Drones

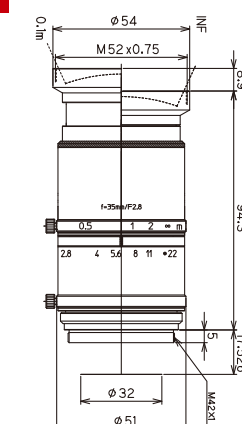
		✓ Compatible ◇ Suitable — Incompatible						
Model	Format Size(d)							
	38.0	35.0	32.0	30.0	APS-C	4/3"	1.2"	1.1"
LM18VM42	—	—	✓	✓	✓	✓	✓	✓
LM18VM35	—	—	✓	✓	✓	✓	✓	✓
LM25VM42	◇	◇	✓	✓	✓	✓	✓	✓
LM25VM35	◇	◇	✓	✓	✓	✓	✓	✓
LM35VM42	◇	◇	✓	✓	✓	✓	✓	✓
LM35VM35	◇	◇	✓	✓	✓	✓	✓	✓



LM25VM42
LM25VM35 **NEW**



LM35VM42
LM35VM35 **NEW**



Model	LM18VM42	LM18VM35
Focal Length(mm)	18	
Image Size(mm)	Φ32	
Iris Range(F-stop)	F2.8~F16	
Focusing Range(m)	0.1~∞	
Control	Iris	Manual
	Focus	Manual
Shooting Range at M.O.D.(mm)	172(H)×128(V)	
Angle of View	2 Inch	70.5×56.1
View	APS-C Inch	63.4×49.7
(Degrees)	4/3 Inch	54.1×41.8
Resolution(Center, Corner)	160lp/mm, 100lp/mm	
TV Distortion(%)	1.25	
Back Focus in Air(mm)	15.5	
Flange Focus in Air(mm)	17.526	
Mount	M42-mount	TFL-mount
Filter Thread(mm)	M77×P0.75	
Size(mm)(∞)	Φ79×99.6	
Weight(g)	460	
Temperature Range	-10°C~+50°C	

Model	LM25VM42	LM25VM35
Focal Length(mm)	25	
Image Size(mm)	Φ32	
Iris Range(F-stop)	F2.8~F16	
Focusing Range(m)	0.1~∞	
Control	Iris	Manual
	Focus	Manual
Shooting Range at M.O.D.(mm)	125(H)×93(V)	
Angle of View	2 Inch	54.0×42.0
View	APS-C Inch	48.0×37.0
(Degrees)	4/3 Inch	40.4×30.9
Resolution(Center, Corner)	160lp/mm, 100lp/mm	
TV Distortion(%)	0.59	
Back Focus in Air(mm)	20.3	
Flange Focus in Air(mm)	17.526	
Mount	M42-mount	TFL-mount
Filter Thread(mm)	M55×P0.75	
Size(mm)(∞)	Φ57×102.1	
Weight(g)	400	
Temperature Range	-10°C~+50°C	

Model	LM35VM42	LM35VM35
Focal Length(mm)	35	
Image Size(mm)	Φ32	
Iris Range(F-stop)	F2.8~F16	
Focusing Range(m)	0.1~∞	
Control	Iris	Manual
	Focus	Manual
Shooting Range at M.O.D.(mm)	76(H)×57(V)	
Angle of View	2 Inch	40.2×30.7
View (Degrees)	APS-C Inch	35.4×26.9
	4/3 Inch	29.5×22.3
Resolution(Center, Corner)	160lp/mm, 100lp/mm	
TV Distortion(%)	0.12	
Back Focus in Air(mm)	19.5	
Flange Focus in Air(mm)	17.526	
Mount	M42-mount	TFL-mount
Filter Thread(mm)	M52×P0.75	
Size(mm)(∞)	Φ54×94.3	
Weight(g)	375	
Temperature Range	-10°C~+50°C	

† Images may differ from the actual product.

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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.

✓ Compatible ◇ Suitable — Incompatible

Model	Format Size(Inch)							
	4/3	1.2	1.1	1	1/1.2	2/3	1/2	1/3
LM8XC	✓	✓	✓	✓	✓	✓	✓	✓
LM12XC	✓	✓	✓	✓	✓	✓	✓	✓
LM16XC	✓	✓	✓	✓	✓	✓	✓	✓
LM25XC	✓	✓	✓	✓	✓	✓	✓	✓
LM35XC	✓	✓	✓	✓	✓	✓	✓	✓
LM50XC	✓	✓	✓	✓	✓	✓	✓	✓



LM16XC



LO-DIS Low Distortion FLOAT Floating XD Extra Low Dispersion WBM Wide-Band Multi-Coating

LM25XC



LO-DIS Low Distortion FLOAT Floating XD Extra Low Dispersion WBM Wide-Band Multi-Coating

LM35XC



LO-DIS Low Distortion FLOAT Floating WBM Wide-Band Multi-Coating

LM50XC



LO-DIS Low Distortion FLOAT Floating WBM Wide-Band Multi-Coating



LO-DIS Low Distortion FLOAT Floating XD Extra Low Dispersion WBM Wide-Band Multi-Coating

LM12XC



LO-DIS Low Distortion FLOAT Floating XD Extra Low Dispersion WBM 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

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

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
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° 1.1 Inch 48.0°×36.8° 1 Inch 44.0°×33.6° 2/3 Inch 30.9°×23.3°	40.9°×31.1° 31.8°×24.0° 28.9°×21.8° 20.1°×15.2°	29.6°×22.4° 22.8°×17.2° 20.8°×15.6° 14.3°×10.8°	20.6°×15.7° 16.0°×12.0° 14.6°×11.0° 10.1°×7.6°
Resolution(Center, Corner)	160lp/mm, 80lp/mm	160lp/mm, 80lp/mm	160lp/mm, 80lp/mm	160lp/mm, 80lp/mm
TV Distortion(%)	0.02	-0.57	-0.17	0.80
Back Focus in Air(mm)	13.0	24.3	15.2	21.6
Mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M40.5×P0.5	M40.5×P0.5	M37.5×P0.5	M37.5×P0.5
Size(mm)(∞)	Φ45×79.5	Φ45×89	Φ45×74	Φ47×78
Weight(g)	250	255	210	235
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

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.

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.

FC24M Series NEW

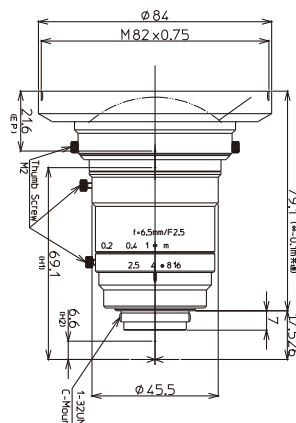
High Resolution FA/MV Lens

Features of FC24M Series

- ▶ 2.5 μ m pixel pitch high resolution compact lens.
- ▶ Compatible with maximum 1.2inch format size.
- ▶ Excellent corner brightness and low distortion.
- ▶ Kowa's floating mechanism system virtually eliminates optical aberrations from close distance to infinity.
- ▶ Kowa's wide-band multi-coating effectively decreases ghost and flare and produces a high transmission from the visible to NIR wavelength range.
- ▶ High traceability by QR code management.



LM6FC24M NEW



LO-DIS **FLOAT** **XD** **WBMC**
Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

Model	LM6FC24M
Focal Length(mm)	6.5
Image Size(mm)	14.1×10.6(Φ17.6)
Iris Range(F-stop)	F2.5~F16
Focusing Range(m)	0.1~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	256(H)×190(V)
Angle of View	95.7°×78.7°
View (Degrees)	89.9°×73.0°
Resolution(Center, Corner)	200lp/mm, 100lp/mm
TV Distortion(%)	-1.51
Back Focus in Air(mm)	10.9
Mount	C-mount
Filter Thread(mm)	M82×P0.75
Size(mm)(∞)	Φ84×79.1
Weight(g)	300
Temperature Range	-10°C~+50°C

† Images may differ from the actual product.

✓ Compatible ◇ Suitable — Incompatible

Model	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3
LM6FC24M	—	—	✓	✓	✓	✓	✓	✓	✓
LM8FC24M	—	—	✓	✓	✓	✓	✓	✓	✓
LM12FC24M	—	◇	✓	✓	✓	✓	✓	✓	✓
LM16FC24M	—	◇	✓	✓	✓	✓	✓	✓	✓
LM25FC24M	—	◇	✓	✓	✓	✓	✓	✓	✓
LM35FC24M	—	◇	✓	✓	✓	✓	✓	✓	✓
LM50FC24M	—	◇	✓	✓	✓	✓	✓	✓	✓

LM8FC24M NEW



LO-DIS **FLOAT** **XD** **WBMC**
Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

LM12FC24M NEW



LO-DIS **FLOAT** **XD** **WBMC**
Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

LM16FC24M NEW



LO-DIS **FLOAT** **XD** **WBMC**
Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

LM25FC24M NEW



LO-DIS **FLOAT** **XD** **WBMC**
Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

LM35FC24M NEW



LO-DIS **FLOAT** **WBMC**
Low Distortion Floating Wide-Band Multi-Coating

LM50FC24M NEW



LO-DIS **FLOAT** **XD** **WBMC**
Low Distortion Floating Extra Low Dispersion Wide-Band Multi-Coating

Model	LM8FC24M	LM12FC24M	LM16FC24M	LM25FC24M	LM35FC24M	LM50FC24M
Focal Length(mm)	8.5	12	16	25	35	50
Image Size(mm)	14.1×10.6(Φ17.6)	14.1×10.6(Φ17.6)	14.1×10.6(Φ17.6)	14.1×10.6(Φ17.6)	14.1×10.6(Φ17.6)	14.1×10.6(Φ17.6)
Iris Range(F-stop)	F2.5~F16	F1.8~F16	F1.8~F16	F1.8~F16	F1.8~F16	F1.8~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞	0.1~∞	0.2~∞	0.2~∞
Control Iris	Manual	Manual	Manual	Manual	Manual	Manual
Focus	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	184(H)×138(V)	135(H)×101(V)	102(H)×77(V)	64(H)×48(V)	84(H)×63(V)	59(H)×44(V)
Angle of View	79.2°×63.8°	60.0°×46.9°	48.0°×36.7°	31.5°×23.9°	22.1°×16.7°	16.1°×12.1°
View (Degrees)	73.9°×58.8°	55.3°×42.9°	43.6°×33.4°	28.7°×21.7°	20.2°×15.2°	14.6°×11.0°
Resolution(Center, Corner)	200lp/mm, 100lp/mm	200lp/mm, 100lp/mm	200lp/mm, 100lp/mm	200lp/mm, 100lp/mm	200lp/mm, 100lp/mm	200lp/mm, 100lp/mm
TV Distortion(%)	0.55	0.26	-0.4	-0.3	0.01	-0.03
Back Focus in Air(mm)	12.9	14.5	11.9	13.3	15.5	14.8
Mount	C-mount	C-mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M62×P0.75	M49×P0.75	M35.5×P0.5	M35.5×P0.5	M40.5×P0.5	M40.5×P0.5
Size(mm)(∞)	Φ64×73.3	Φ51×73.8	Φ43×65.7	Φ45×67.9	Φ45×66	Φ45×74.5
Weight(g)	230	260	200	220	205	205
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	LM6FC24M	LM8FC24M	LM12FC24M	LM16FC24M	LM25FC24M	LM35FC24M	LM50FC24M
(Non)M.O.D./Magnification	100mm/0.06×	100mm/0.08×	100mm/0.11×	100mm/0.14×	100mm/0.22×	200mm/0.17×	200mm/0.24×
(1mm Ring)M.O.D./Magnification	—	28mm/0.19×	50mm/0.18×	64mm/0.20×	82mm/0.26×	170mm/0.20×	184mm/0.26×
(5mm Ring)M.O.D./Magnification	—	—	—	20mm/0.45×	45mm/0.41×	106mm/0.31×	140mm/0.35×
(10mm Ring)M.O.D./Magnification	—	—	—	—	25mm/0.61×	71mm/0.46×	108mm/0.46×
(20mm Ring)M.O.D./Magnification	—	—	—	—	—	42mm/0.75×	76mm/0.68×

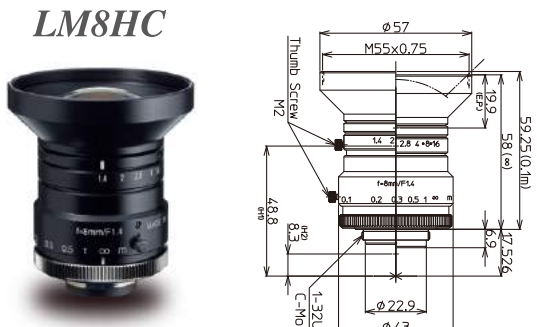
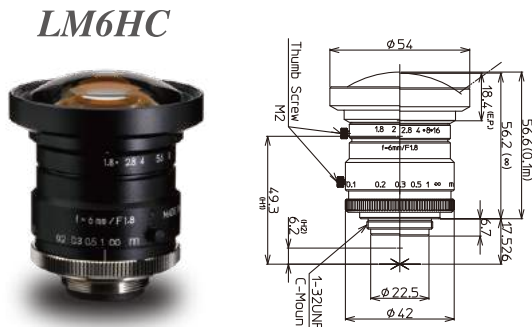
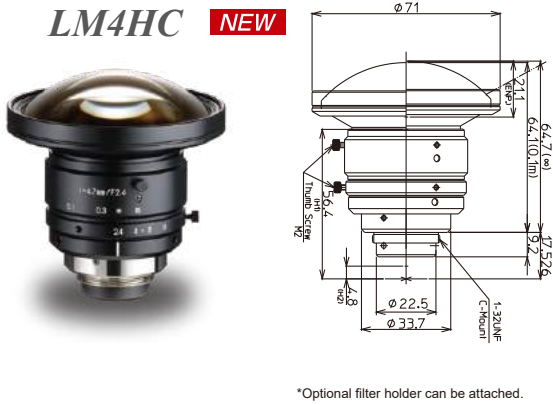
† Images may differ from the actual product.

HC Series

Features of HC Series

- ▶ Wide product range: 9 lenses in HC series
- ▶ Up to 5 megapixels performance
- ▶ Excellent corner brightness
- ▶ High performance compact lenses
- ▶ Low distortion

Model	Format Size(Inch)							
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/3
LM4HC	—	—	—	✓	✓	✓	✓	✓
LM6HC	—	—	—	✓	✓	✓	✓	✓
LM8HC	—	—	—	✓	✓	✓	✓	✓
LM12HC	—	—	—	✓	✓	✓	✓	✓
LM16HC	—	—	—	✓	✓	✓	✓	✓
LM25HC	—	—	—	✓	✓	✓	✓	✓
LM35HC	—	—	—	✓	✓	✓	✓	✓
LM50HC	—	—	—	✓	✓	✓	✓	✓
LM75HC	—	—	—	✓	✓	✓	✓	✓



Model	LM4HC	LM6HC	LM8HC
Focal Length(mm)	4.7	6	8
Image Size(mm)	12.8×9.6 (Φ16)	12.8×9.6 (Φ16)	12.8×9.6 (Φ16)
Iris Range(F-stop)	F2.4~F11	F1.8~F11	F1.4~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞
Control	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	375.6(H)×272.1(V)	267.4(H)×196.3(V)	196.0(H)×143.2(V)
Angle of View	1 Inch: 112.2×95.4 2/3 Inch: 90.0×72.2 (Degrees) 1/1.8 Inch: 77.4×60.8	1 Inch: 96.8×79.4 2/3 Inch: 74.1×58.0 (Degrees) 1/1.8 Inch: 62.6×48.2	1 Inch: 79.4×63.0 2/3 Inch: 58.3×44.7 (Degrees) 1/1.8 Inch: 48.5×36.9
Resolution(Center, Corner)	100lp/mm, 50lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm
TV Distortion(%)	-0.58	-0.2	-1.2
Back Focus in Air(mm)	9.0	11.1	11.2
Mount	C-mount	C-mount	C-mount
Filter Thread(mm)	*	—	M55×P0.75
Size(mm)(∞)	Φ71×64.7	Φ54×56.2	Φ57×58
Weight(g)	360	215	205
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	LM4HC	LM6HC	LM8HC	LM12HC	LM16HC	LM25HC	LM35HC	LM50HC	LM75HC
(Non)M.O.D./Magnification	100mm/0.04×	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.



Model	LM12HC	LM16HC	LM25HC	LM35HC	LM50HC	LM75HC
Focal Length(mm)	12.5	16	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)	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	F1.4~F16	F1.8~F16
Focusing Range(m)	0.3~∞	0.3~∞	0.3~∞	0.3~∞	0.5~∞	1.0~∞
Control	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual	Iris: Manual Focus: Manual
Shooting Range at M.O.D.(mm)	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)	165.5(H)×123.9(V)
Angle of View	1 Inch: 55.6×42.5 2/3 Inch: 39.1×29.5 (Degrees) 1/1.8 Inch: 32.1×24.2	1 Inch: 44.3×33.6 2/3 Inch: 30.8×23.2 (Degrees) 1/1.8 Inch: 25.3×19.0	1 Inch: 29.3×22.0 2/3 Inch: 20.2×15.1 (Degrees) 1/1.8 Inch: 16.5×12.4	1 Inch: 20.9×15.8 2/3 Inch: 14.4×10.8 (Degrees) 1/1.8 Inch: 11.8×8.8	1 Inch: 14.5×10.8 2/3 Inch: 10.0×7.5 (Degrees) 1/1.8 Inch: 8.2×6.2	1 Inch: 9.7×7.3 2/3 Inch: 6.7×5.0 (Degrees) 1/1.8 Inch: 5.5×4.1
Resolution(Center, Corner)	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm
TV Distortion(%)	-1.58	-1.0	-1.0	-0.5	0.05	-0.2
Back Focus in Air(mm)	12.6	12.6	16.5	16.8	14.8	14.5
Mount	C-mount	C-mount	C-mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M35.5×P0.5	M35.5×P0.5	M35.5×P0.5	M35.5×P0.5	M40.5×P0.5	M46×P0.75
Size(mm)(∞)	Φ43×51.5	Φ43×52.9	Φ43×43	Φ43×43	Φ49×48	Φ49×57
Weight(g)	160	150	135	135	210	195
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.

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

- ▶ Up to 5 megapixels performance
- ▶ Unique mechanical design to guard against strong vibration and shock.
- ▶ Two way reversible nut is utilized instead of thumb screws in order to tightly lock the focus adjustment ring in place.
- ▶ Utilizing two way reversible nut contributes to the prevention of screw dropping troubles.
- ▶ 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

Instruction Video



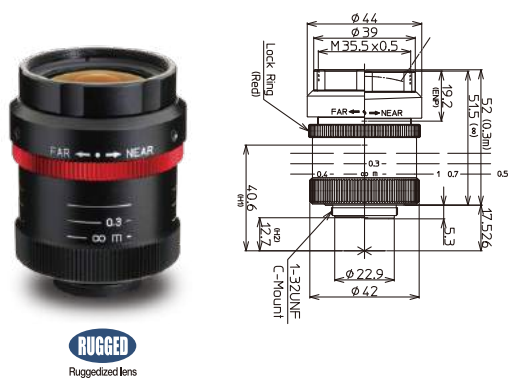
† Images may differ from the actual product.

Model	Format Size(Inch)						
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8
LM8HC-V	✓	✓	✓	✓	✓	✓	✓
LM12HC-V	✓	✓	✓	✓	✓	✓	✓
LM16HC-V	✓	✓	✓	✓	✓	✓	✓
LM25HC-V	✓	✓	✓	✓	✓	✓	✓
LM35HC-V	✓	✓	✓	✓	✓	✓	✓
LM50HC-V	✓	✓	✓	✓	✓	✓	✓
LM75HC-V	✓	✓	✓	✓	✓	✓	✓

LM8HC-V



LM12HC-V



LM16HC-V



LM25HC-V



LM35HC-V



LM50HC-V



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	Iris	Iris	Iris	Iris	Iris
Focus	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D. (mm)	196.0(H)×143.0(V)	330.6(H)×243.5(V)	251.5(H)×186.2(V)	160.7(H)×119.2(V)	110.1(H)×82.0(V)	121.8(H)×91.3(V)
Angle of View (Degrees)	1 Inch 79.7×63.0 2/3 Inch 58.3×44.7 1/1.8 Inch 48.5×36.9	1 Inch 55.6×42.5 2/3 Inch 39.1×29.5 1/1.8 Inch 32.1×24.2	1 Inch 44.3×33.6 2/3 Inch 30.8×23.2 1/1.8 Inch 25.3×19.0	1 Inch 29.3×22.0 2/3 Inch 20.2×15.1 1/1.8 Inch 16.5×12.4	1 Inch 20.9×15.8 2/3 Inch 14.4×10.8 1/1.8 Inch 11.8×8.8	1 Inch 14.5×10.8 2/3 Inch 10.0×7.5 1/1.8 Inch 8.2×6.2
Resolution (Center, Corner)	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm
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

✓ Compatible ◇ Suitable — Incompatible

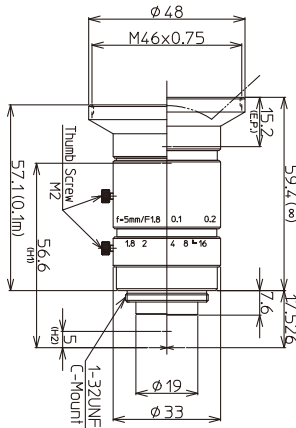
Model	Format Size(Inch)							
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2
LM5JC10M	—	—	—	—	✓	✓	✓	✓
LM8JC10M	—	—	—	—	✓	✓	✓	✓
LM12JC10M	—	—	—	—	✓	✓	✓	✓
LM16JC10M	—	—	—	—	◇	✓	✓	✓
LM25JC10M	—	—	—	—	◇	✓	✓	✓
LM35JC10M	—	—	—	—	◇	✓	✓	✓
LM50JC10M	—	—	—	—	◇	✓	✓	✓

Features of JC10M Series

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



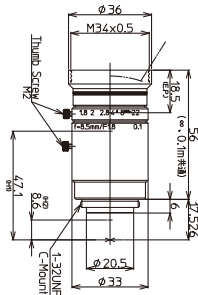
LM5JC10M



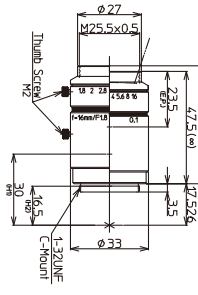
Model	LM5JC10M
Focal Length(mm)	5
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.8~F16
Focusing Range(m)	0.1~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	197.0(H)×147.0(V)
Angle of View	82.2×66.5
View (Degrees)	71.1×56.5
(Degrees)	64.9×51.1
Resolution(Center, Corner)	200lp/mm, 140lp/mm
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



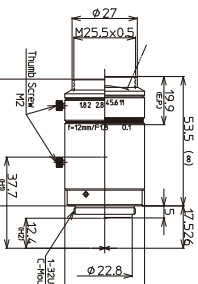
LM8JC10M



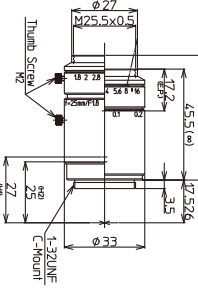
LM16JC10M



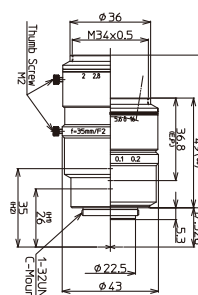
LM12JC10M



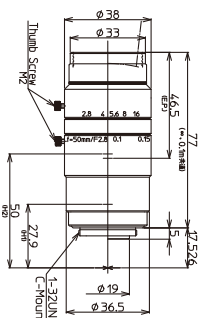
LM25JC10M



LM35JC10M



LM50JC10M



Model	LM8JC10M	LM12JC10M	LM16JC10M	LM25JC10M	LM35JC10M	LM50JC10M
Focal Length(mm)	8.5	12	16	25	35	50
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.8~F22	F1.8~F11	F1.8~F16	F1.8~F16	F2.0~F16	F2.8~F16
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞	0.1~∞	0.1~∞	0.1~∞
Control Iris	Manual	Manual	Manual	Manual	Manual	Manual
Focus	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	133.2(H)×99.6(V)	80.7(H)×60.2(V)	61.1(H)×45.7(V)	36.7(H)×27.5(V)	23.4(H)×17.6(V)	19.1(H)×14.3(V)
Angle of View	54.0×41.9	39.1×29.8	30.0×22.7	20.0×15.1	14.3×10.8	10.1×7.6
View (Degrees)	45.3×34.8	32.4×24.6	24.7×18.6	16.4×12.3	11.7×8.8	8.2×6.1
(Degrees)	40.8×31.2	28.9×21.9	22.0×16.6	14.6×11.0	10.4×7.8	7.3×5.5
Resolution(Center, Corner)	200lp/mm, 140lp/mm	200lp/mm, 140lp/mm	200lp/mm, 140lp/mm	200lp/mm, 140lp/mm	200lp/mm, 140lp/mm	200lp/mm, 140lp/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.

† Images may differ from the actual product.

JC5M2 Series

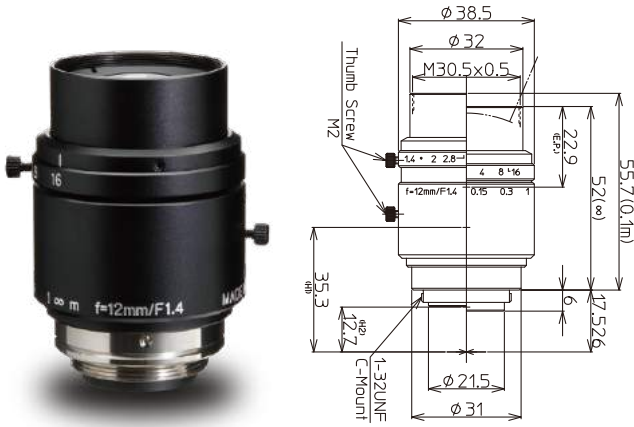
✓ Compatible ◇ Suitable — Incompatible									
Model	Format Size(Inch)								
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3
LM12JC5M2	—	—	—	—	—	✓	✓	✓	✓
LM16JC5M2	—	—	—	—	—	✓	✓	✓	✓
LM25JC5M2	—	—	—	—	◇	✓	✓	✓	✓
LM35JC5M2	—	—	—	◇	◇	✓	✓	✓	✓

Features of JC5M2 Series

- ▶ Incorporating Kowa's floating mechanism system, the JC5M2 lens series greatly reduces chromatic aberration from close distance to infinity.
- ▶ Good performance at the edge as well as the center.
- ▶ Available in F1.4. (LM12JC5M2 and LM16-JC5M2)



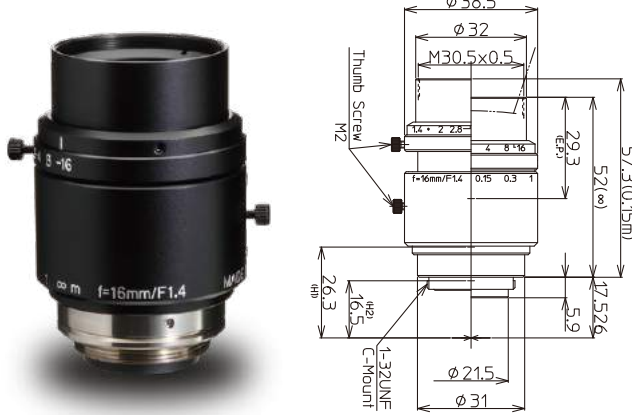
LM12JC5M2



LO-DIS FLOAT
Low Distortion Floating

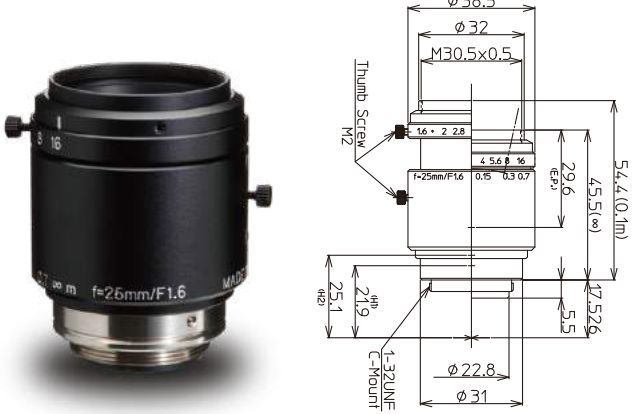
Model	LM12JC5M2
Focal Length(mm)	12.5
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16
Focusing Range(m)	0.1~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	81.4(H)×60.9(V)
Angle of 2/3 Inch	38.4×29.2
View 1/1.8 Inch	31.7×24.0
(Degrees) 1/2 Inch	28.4×21.4
Resolution(Center, Corner)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

LM16JC5M2



LO-DIS FLOAT
Low Distortion Floating

LM25JC5M2



LO-DIS FLOAT
Low Distortion Floating

LM35JC5M2



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

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

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

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.

† Images may differ from the actual product.

JC5MC Series

NEW

High Resolution FA/MV Lenses

Features of JC5MC Series

- ▶ One of the industry's smallest and lightest 5 megapixel lenses.
- ▶ Roughly half the size of Kowa's current 2/3" 5MP JC5M2 series lenses.
- ▶ Unique mechanical design to guard against strong vibration and shock.
- ▶ Easy to change the iris to the marked F-number by click-type iris mechanism. (F2.8, 4, 5.6, 8 and 16)
- ▶ Focal length 35mm and 50mm : To Be Released in 2021

✓ Compatible
◇ Suitable
— Incompatible

Model	Format Size(Inch)								
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3
LM8JC5MC	—	—	—	—	—	✓	✓	✓	✓
LM12JC5MC	—	—	—	—	—	✓	✓	✓	✓
LM16JC5MC	—	—	—	—	—	✓	✓	✓	✓
LM25JC5MC	—	—	—	—	—	✓	✓	✓	✓



LM8JC5MC NEW



Model	LM8JC5MC
Focal Length(mm)	8
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F2.8~F16
Focusing Range(m)	0.15~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	178.0(H)×132.0(V)
Angle of 2/3 Inch	57.6×44.4
View 1/1.8 Inch	48.1×36.7
(Degrees) 1/2 Inch	43.1×32.8
Resolution(Center, Corner)	160lp/mm, 100lp/mm
TV Distortion(%)	-0.85
Back Focus in Air(mm)	10.8
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)(∞)	Φ32×27
Weight(g)	55
Temperature Range	-10°C~+50°C

LM12JC5MC NEW



LM16JC5MC NEW



LM25JC5MC NEW



Model	LM12JC5MC
Focal Length(mm)	12
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F2.8~F16
Focusing Range(m)	0.2~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	159.0(H)×118.0(V)
Angle of 2/3 Inch	41.0×31.2
View 1/1.8 Inch	33.9×25.6
(Degrees) 1/2 Inch	30.3×22.8
Resolution(Center, Corner)	160lp/mm, 100lp/mm
TV Distortion(%)	-0.27
Back Focus in Air(mm)	12.6
Mount	C-mount
Filter Thread(mm)	*
Size(mm)(∞)	Φ32×26.8
Weight(g)	55
Temperature Range	-10°C~+50°C

*Optional filter holder can be attached.(M30.5×P0.5)

Model	LM16JC5MC
Focal Length(mm)	16
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F2.8~F16
Focusing Range(m)	0.2~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	117.0(H)×88.0(V)
Angle of 2/3 Inch	30.9×23.4
View 1/1.8 Inch	25.5×19.2
(Degrees) 1/2 Inch	22.7×17.2
Resolution(Center, Corner)	160lp/mm, 100lp/mm
TV Distortion(%)	-0.04
Back Focus in Air(mm)	14.7
Mount	C-mount
Filter Thread(mm)	*
Size(mm)(∞)	Φ32×26.5
Weight(g)	55
Temperature Range	-10°C~+50°C

*Optional filter holder can be attached.(M30.5×P0.5)

Model	LM25JC5MC
Focal Length(mm)	25
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F2.8~F16
Focusing Range(m)	0.2~∞
Control Iris	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	75.0(H)×56.0(V)
Angle of 2/3 Inch	20.0×15.0
View 1/1.8 Inch	16.4×12.4
(Degrees) 1/2 Inch	14.6×11.0
Resolution(Center, Corner)	160lp/mm, 100lp/mm
TV Distortion(%)	0.11
Back Focus in Air(mm)	11.7
Mount	C-mount
Filter Thread(mm)	*
Size(mm)(∞)	Φ32×25
Weight(g)	55
Temperature Range	-10°C~+50°C

*Optional filter holder can be attached.(M30.5×P0.5)

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

Model	LM8JC5MC	LM12JC5MC	LM16JC5MC	LM25JC5MC
(Non)M.O.D./Magnification	150mm/0.05×	200mm/0.06×	200mm/0.08×	200mm/0.12×
(1mm Ring)M.O.D./Magnification	35mm/0.18×	75mm/0.13×	105mm/0.14×	145mm/0.16×
(5mm Ring)M.O.D./Magnification	-	-	-	66mm/0.32×
(10mm Ring)M.O.D./Magnification	-	-	-	-
(20mm Ring)M.O.D./Magnification	-	-	-	-

† Images may differ from the actual product.

† Images may differ from the actual product.

NCM/JCM Series

High Resolution FA/MV Lenses

Features of WIDE NCM/JCM Series

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

Low distortion

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

High quality

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

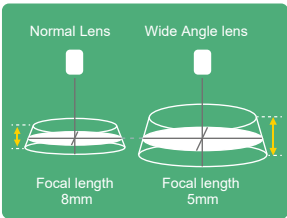
✓ Compatible ◇ Suitable — Incompatible

Model	Format Size(Inch)						
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8
LM3NCM	—	—	—	—	—	✓	✓
LM6NCM	—	—	—	—	—	◇	✓
LM5JCM	—	—	—	—	—	✓	✓

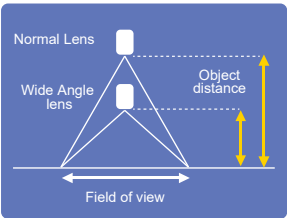


Corner image comparison
(Super wide angle lens vs. Standard lens)

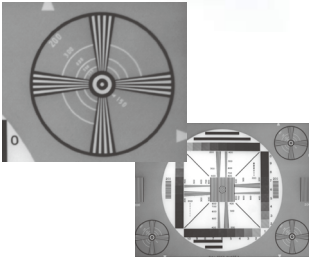
Long Depth of field



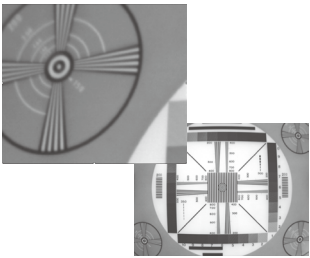
Short Close distance



LM5JCM: 2/3inch f=5mm

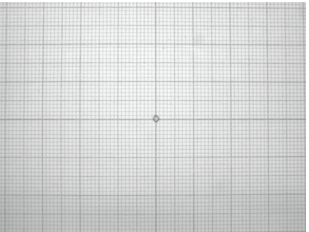


LM6JC: 2/3inch f=6mm

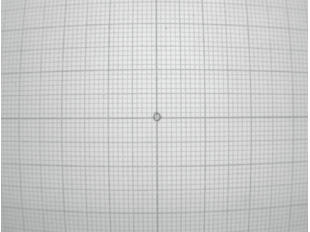


Distortion comparison at short distance object

LM5JCM: 2/3inch f=5mm

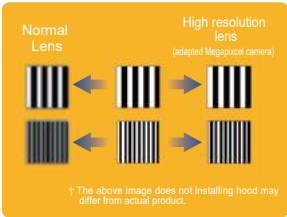


LM6JC: 2/3inch f=6mm

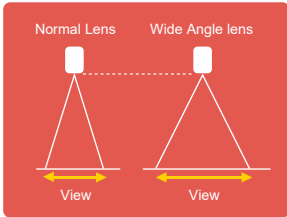


Capture image taken by 2megapixel camera

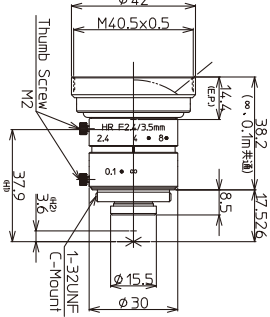
Clear image



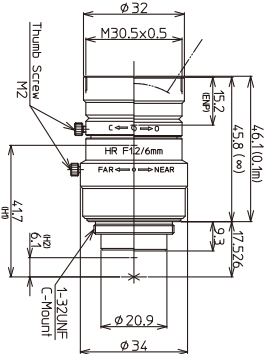
Large field of view



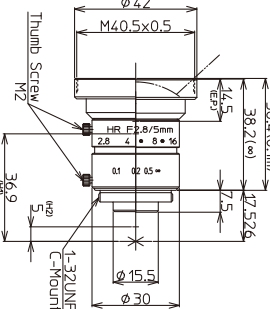
LM3NCM



LM6NCM



LM5JCM



Model	LM3NCM
Focal Length(mm)	3.5
Image Size(mm)	7.2×5.4(Φ9)
Iris Range(F-stop)	F2.4~F14
Focusing Range(m)	0.1~∞
Control	Iris Focus
Shooting Range at M.O.D.(mm)	226.3(H)×171.4(V)
Angle of View (Degrees)	2/3 inch 1/1.8 inch 1/2 inch 1/3 inch
Resolution(Center, Corner)	120lp/mm, 100lp/mm
TV Distortion(%)	0.4
Back Focus in Air(mm)	9.7
Mount	C-mount
Filter Thread(mm)	M40.5×P0.5
Size(mm)(∞)	Φ42×38.2
Weight(g)	85
Temperature Range	-10°C~+50°C

Model	LM6NCM
Focal Length(mm)	6
Image Size(mm)	6.4×4.8(Φ8)
Iris Range(F-stop)	F1.2~Close
Focusing Range(m)	0.1~∞
Control	Iris Focus
Shooting Range at M.O.D.(mm)	122.2(H)×91.0(V)
Angle of View (Degrees)	2/3 inch 1/1.8 inch 1/2 inch 1/3 inch
Resolution(Center, Corner)	120lp/mm, 100lp/mm
TV Distortion(%)	-0.2
Back Focus in Air(mm)	8.2
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)(∞)	Φ34×45.8
Weight(g)	100
Temperature Range	-10°C~+50°C

Model	LM5JCM
Focal Length(mm)	5
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F2.8~F16
Focusing Range(m)	0.1~∞
Control	Iris Focus
Shooting Range at M.O.D.(mm)	200.8(H)×150.8(V)
Angle of View (Degrees)	2/3 inch 1/1.8 inch 1/2 inch 1/3 inch
Resolution(Center, Corner)	120lp/mm, 100lp/mm
TV Distortion(%)	0.5
Back Focus in Air(mm)	10.0
Mount	C-mount
Filter Thread(mm)	M40.5×P0.5
Size(mm)(∞)	Φ42×38.2
Weight(g)	84
Temperature Range	-10°C~+50°C

† Images may differ from the actual product.

† Images may differ from the actual product.

JC1MS Series

Model	Format Size(Inch)							
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/3
LM5JCM	—	—	—	—	✓	✓	✓	✓
LM8JC1MS	—	—	—	—	✓	✓	✓	✓
LM12JC1MS	—	—	—	—	✓	✓	✓	✓
LM16JC1MS	—	—	—	—	✓	✓	✓	✓
LM25JC1MS	—	—	—	—	✓	✓	✓	✓
LM35JC1MS	—	—	—	—	✓	✓	✓	✓
LM50JC1MS	—	—	—	—	✓	✓	✓	✓
LM75JC1MS	—	—	—	—	✓	✓	✓	✓
LM100JC1MS	—	—	—	—	✓	✓	✓	✓

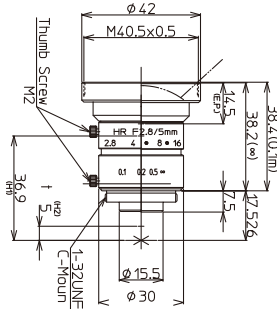
Features of JC1MS Series

- ▶ Wide product range: 9 lenses in JC1MS series
- ▶ Equivalent to 2 megapixels performance
- ▶ World standard and popular lens series
- ▶ Excellent corner brightness
- ▶ Low distortion

LM5JCM



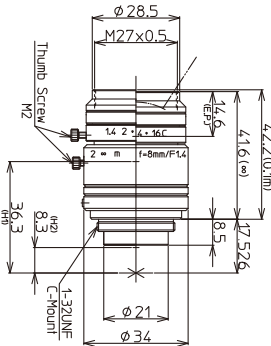
LO-DIS
Low Distortion



LM8JC1MS



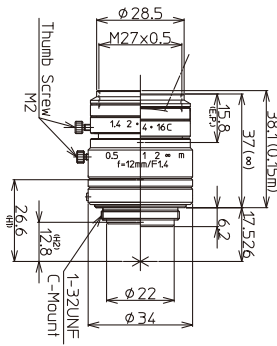
LO-DIS
Low Distortion



LM12JC1MS



LO-DIS
Low Distortion



Model	LM5JCM	LM8JC1MS	LM12JC1MS
Focal Length(mm)	5	8	12
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)
Iris Range(F-stop)	F2.8~F16	F1.4~Close	F1.4~Close
Focusing Range(m)	0.1~∞	0.1~∞	0.15~∞
Control Iris	Manual	Manual	Manual
Focus	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	200.8(H)×150.8(V)	120.3(H)×90.0(V)	110.0(H)×82.5(V)
Angle of 2/3 Inch	82.4×66.9	56.5×43.9	38.3×29.1
View 1/1.8 Inch	71.7×57.1	47.4×36.3	31.7×24.0
(Degrees) 1/2 Inch	65.2×51.3	42.6×32.5	28.3×21.4
Resolution(Center, Corner)	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm
TV Distortion(%)	0.5	-0.6	-0.07
Back Focus in Air(mm)	10.0	9.74	11.7
Mount	C-mount	C-mount	C-mount
Filter Thread(mm)	M40.5×P0.5	M27×P0.5	M27×P0.5
Size(mm)(∞)	Φ42×38.2	Φ34×41.6	Φ34×37
Weight(g)	84	90	85
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

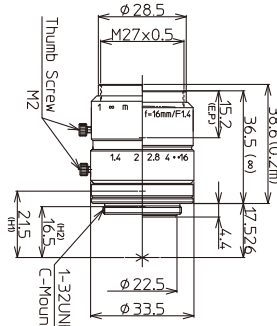
Model	LM5JCM	LM8JC1MS	LM12JC1MS	LM16JC1MS	LM25JC1MS	LM35JC1MS	LM50JC1MS	LM75JC1MS	LM100JC1MS
(Non)M.O.D./Magnification	100mm/0.04×	100mm/0.07×	150mm/0.08×	200mm/0.08×	200mm/0.12×	200mm/0.18×	200mm/0.30×	1200mm/0.07×	2000mm/0.05×
(1mm Ring)M.O.D./Magnification	—	30mm/0.20×	70mm/0.16×	110mm/0.14×	150mm/0.16×	175mm/0.21×	190mm/0.32×	1010mm/0.08×	1700mm/0.06×
(5mm Ring)M.O.D./Magnification	—	—	—	—	73mm/0.31×	115mm/0.32×	160mm/0.39×	630mm/0.13×	1060mm/0.10×
(10mm Ring)M.O.D./Magnification	—	—	—	—	—	81mm/0.46×	135mm/0.48×	440mm/0.20×	740mm/0.15×
(20mm Ring)M.O.D./Magnification	—	—	—	—	—	51mm/0.73×	105mm/0.65×	285mm/0.34×	480mm/0.25×

† Images may differ from the actual product.

LM16JC1MS



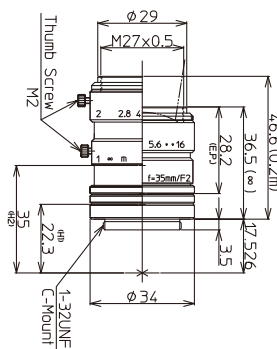
LO-DIS FLOAT
Low Distortion Floating



LM35JC1MS



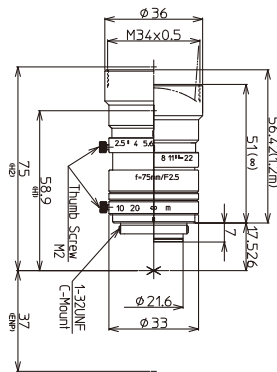
FLOAT
Floating



LM75JC1MS



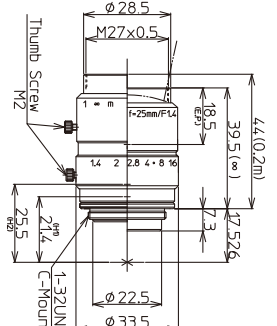
FLOAT
Floating



LM25JC1MS



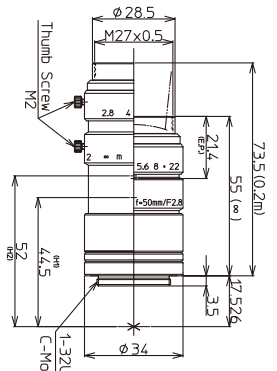
LO-DIS FLOAT
Low Distortion Floating



LM50JC1MS



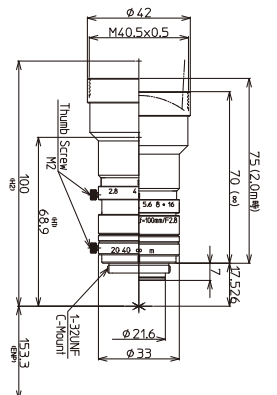
LO-DIS FLOAT
Low Distortion Floating



LM100JC1MS



FLOAT
Floating



Model	LM16JC1MS	LM25JC1MS	LM35JC1MS	LM50JC1MS	LM75JC1MS	LM100JC1MS
Focal Length(mm)	16	25	35	50	75	100
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	F2.0~F16	F2.8~F22	F2.5~F22	F2.8~F32
Focusing Range(m)	0.2~∞	0.2~∞	0.2~∞	0.2~∞	1.2~∞	2.0~∞
Control Iris	Manual	Manual	Manual	Manual	Manual	Manual
Focus	Manual	Manual	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)	132.6(H)×99.6(V)	168.8(H)×126.6(V)
Angle of 2/3 Inch	30.0×22.7	19.6×14.8	14.4×10.8	9.6×7.2	6.7×5.0	5.0×3.8
View 1/1.8 Inch	24.7×18.6	16.1×12.1	11.8×8.8	7.9×5.9	5.5×4.1	4.1×3.1
(Degrees) 1/2 Inch	21.8×16.4	14.0×10.5	10.5×7.9	7.0×5.2	4.9×3.7	3.7×2.8
Resolution(Center, Corner)	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm
TV Distortion(%)	-0.05	-0.04	-0.2	-0.03	-0.1	-0.05
Back Focus in Air(mm)	13.1	11.7	20.1	35.5	18.0	19.0
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	M34×P0.5	M40.5×P0.5
Size(mm)(∞)	Φ33.5×36.5	Φ33.5×39.5	Φ34×36.5	Φ34×55	Φ36×51	Φ42×70
Weight(g)	85	90	70	95	105	145
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.

JCM-V Series

High Resolution FA/MV Lenses

Kowa's new JCM-V Series is designed for use in high vibration and shock environments. With a design based on Kowa's standard 2/3" JC1MS lenses, this new ruggedized megapixel lens series is ideal for applications that require increased durability and high optical performance.

Model	Format Size(Inch)						
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8
LM5JCM-V	—	—	—	—	✓	✓	✓
LM8JCM-V	—	—	—	—	✓	✓	✓
LM12JCM-V	—	—	—	—	✓	✓	✓
LM16JCM-V	—	—	—	—	✓	✓	✓
LM25JCM-V	—	—	—	—	✓	✓	✓
LM35JCM-V	—	—	—	—	✓	✓	✓
LM50JCM-V	—	—	—	—	✓	✓	✓



Features of JCM-V Series

- Equivalent to 2 megapixels performance
- Two way reversible nut is utilized instead of thumb screws in order to tightly lock the focus adjustment ring in place.
- Utilizing two way reversible nut contributes to the prevention of screw dropping troubles.
- Interchangeable iris plates are used to select the F-stop.
- Unique mechanical design to guard against strong vibration and shock.
- All internal glass elements are glued to the inside housing to improve stability.

Interchangeable Iris Plates

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



Interchangeable Iris Plates

Focus Adjustment Procedure

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

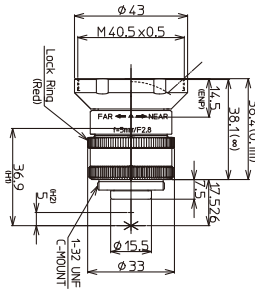


Instruction Video



Two Way Reversible Nut

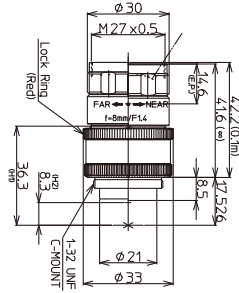
LM5JCM-V



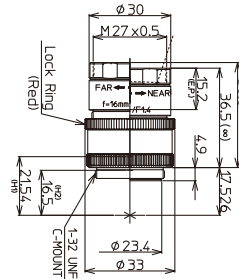
Model	LM5JCM-V
Focal Length (mm)	5
Image Size (mm)	8.8×6.6 (Φ11)
Iris Range (F-stop)	F2.8 / F4 / F5.6 / F8
Focusing Range (m)	0.1~∞
Control Iris	—
Focus	Manual
Shooting Range at M.O.D. (mm)	200.8(H)×150.8(V)
Angle of View (Degrees)	2/3 Inch 82.4×66.9 1/1.8 Inch 71.7×57.1 1/2 Inch 65.2×51.3
Resolution(Center, Corner)	120lp/mm, 100lp/mm
TV Distortion (%)	0.5
Back Focus in Air(mm)	10.0
Mount	C-mount
Filter Thread (mm)	M40.5×P0.5
Size (mm)(∞)	Φ43×38.1
Weight(g)	73
Temperature Range	-10°C~+50°C

† Images may differ from the actual product.

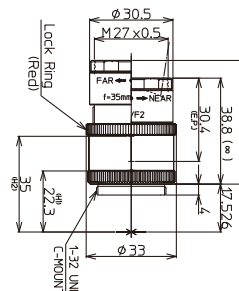
LM8JCM-V



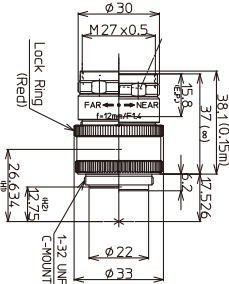
LM16JCM-V



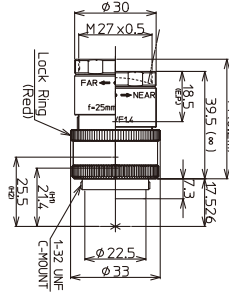
LM35JCM-V



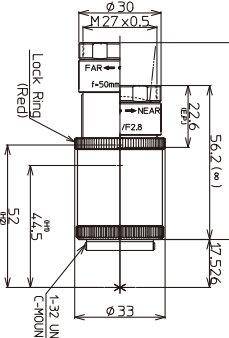
LM12JCM-V



LM25JCM-V



LM50JCM-V



Model	LM8JCM-V	LM12JCM-V	LM16JCM-V	LM25JCM-V	LM35JCM-V	LM50JCM-V
Focal Length (mm)	8	12	16	25	35	50
Image Size (mm)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)
Iris Range (F-stop)	F1.4 / F4 / F8 / F16	F1.4 / F4 / F8 / F16	F1.4 / F4 / F8 / F16	F1.4 / F4 / F8 / F16	F2 / F4 / F8 / F16	F2.8 / F4 / F8 / F16
Focusing Range (m)	0.1~∞	0.15~∞	0.2~∞	0.2~∞	0.2~∞	0.2~∞
Control Iris	—	—	—	—	—	—
Focus	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D. (mm)	120.3(H)×90.0(V)	110.0(H)×82.5(V)	112.8(H)×84.4(V)	71.1(H)×53.3(V)	47.9(H)×35.8(V)	29.3(H)×21.9(V)
Angle of View (Degrees)	2/3 Inch 56.5×43.9 1/1.8 Inch 47.4×36.3 1/2 Inch 42.6×32.5	2/3 Inch 38.3×29.1 1/1.8 Inch 31.7×24.0 1/2 Inch 28.3×21.4	2/3 Inch 30.0×22.7 1/1.8 Inch 24.7×18.6 1/2 Inch 21.8×16.4	2/3 Inch 19.6×14.8 1/1.8 Inch 16.1×12.1 1/2 Inch 14.0×10.5	2/3 Inch 14.4×10.8 1/1.8 Inch 11.8×8.8 1/2 Inch 10.5×7.9	2/3 Inch 9.6×7.2 1/1.8 Inch 7.9×5.9 1/2 Inch 7.0×5.2
Resolution(Center, Corner)	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm
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.

JCM-WP Series

High Resolution FA/MV Lenses

The JCM-WP series is a water and dust resistant high-resolution lens with a design based on Kowa's ruggedized megapixel JCM-V lenses.

*Performance may no be secured depending on environment and condition to be used.
*Not intended for underwater use.
*Refer to the instructions and our web page for more information.

Features of JCM-WP Series

- ▶ Water repellency and easy cleaning of the front lens surface by applying Kowa's special coating.
- ▶ Two way reversible nut is utilized instead of thumb screws in order to tightly lock the focus adjustment ring in place.
- ▶ Utilizing two way reversible nut contributes to the prevention of screw dropping troubles.
- ▶ Interchangeable iris plates are used to select the F-stop.
- ▶ All internal glass elements are glued to the inside housing to improve stability.
- ▶ Equivalent to 2 megapixels performance

Interchangeable Iris Plates

- 1 The JCM-WP 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.

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.

LM3NCM-WP NEW



LM5JCM-WP



✓ Compatible ◇ Suitable — Incompatible

Model	Format Size(Inch)							
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/3
LM3NCM-WP	—	—	—	—	—	✓	✓	✓
LM5JCM-WP	—	—	—	—	✓	✓	✓	✓
LM8JCM-WP	—	—	—	—	—	✓	✓	✓
LM12JCM-WP	—	—	—	—	—	✓	✓	✓
LM16JCM-WP	—	—	—	—	—	✓	✓	✓
LM25JCM-WP	—	—	—	—	—	✓	✓	✓
LM35JCM-WP	—	—	—	—	—	✓	✓	✓
LM50JCM-WP	—	—	—	—	—	✓	✓	✓



LM8JCM-WP



LM16JCM-WP



LM35JCM-WP



LM12JCM-WP



LM25JCM-WP



LM50JCM-WP



Model	LM3NCM-WP	LM5JCM-WP
Focal Length (mm)	3.5	5
Image Size (mm)	7.2×5.4 (Φ9)	8.8×6.6 (Φ11)
Iris Range (F-stop)	F2.8 / F4 / F5.6 / F8	F2.8 / F4 / F5.6 / F8
Focusing Range (m)	0.1~∞	0.1~∞
Control	Iris	Iris
	Focus	Manual
Shooting Range at M.O.D. (mm)	226.3(H)×171.4(V)	200.8(H)×150.8(V)
Angle of View	—	82.4×66.9
(Degrees)	—	—
Resolution(Center, Corner)	100lp/mm, 80lp/mm	120lp/mm, 100lp/mm
TV Distortion (%)	0.4	0.5
Back Focus in Air(mm)	10.0	10.2
Mount	C-mount	C-mount
Filter Thread (mm)	M40.5×P0.5	M40.5×P0.5
Size (mm)(∞)	Φ43×38.4	Φ43×38.3
Weight(g)	80	75
Temperature Range	-10°C~+50°C	-10°C~+50°C

Model	LM8JCM-WP	LM12JCM-WP	LM16JCM-WP	LM25JCM-WP	LM35JCM-WP	LM50JCM-WP
Focal Length (mm)	8	12	16	25	35	50
Image Size (mm)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)	8.8×6.6 (Φ11)
Iris Range (F-stop)	F1.4 / F4 / F8 / F16	F1.4 / F4 / F8 / F16	F1.4 / F4 / F8 / F16	F1.4 / F4 / F8 / F16	F2 / F4 / F8 / F16	F2.8 / F4 / F8 / F16
Focusing Range (m)	0.1~∞	0.15~∞	0.2~∞	0.2~∞	0.2~∞	0.2~∞
Control	Iris	Iris	Iris	Iris	Iris	Iris
	Focus	Manual	Manual	Manual	Manual	Manual
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	56.5×43.9	38.3×29.1	30.0×22.7	19.6×14.8	14.4×10.8	9.6×7.2
(Degrees)	—	—	—	—	—	—
Resolution(Center, Corner)	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm	120lp/mm, 100lp/mm
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	19.9	35.4
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	Φ33.0×36.5	Φ33.0×36.5	Φ33.0×39.7	Φ33.0×38.8	Φ33.0×56.2
Weight(g)	85	75	75	75	65	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.

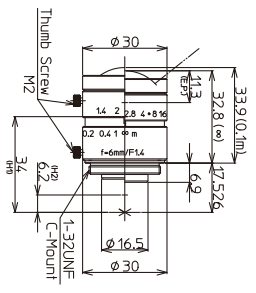
† Images may differ from the actual product.

JC Series

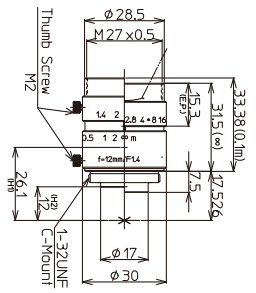
- ▶ High resolution
- ▶ Low distortion
- ▶ Excellent cost performance
- ▶ Compact, lightweight and durable
- ▶ Excellent corner brightness

✓ Compatible ◇ Suitable – Incompatible									
Model	Format Size(Inch)								
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3
LM6JC	–	–	–	–	–	✓	✓	✓	✓
LM8JC	–	–	–	–	–	✓	✓	✓	✓
LM12JC	–	–	–	–	–	✓	✓	✓	✓
LM16JC	–	–	–	–	–	✓	✓	✓	✓
LM25JC	–	–	–	–	–	✓	✓	✓	✓
LM35JC	–	–	–	–	◇	✓	✓	✓	✓
LM50JC	–	–	◇	◇	◇	✓	✓	✓	✓

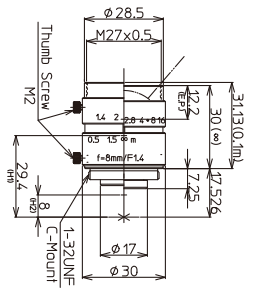
LM6JC



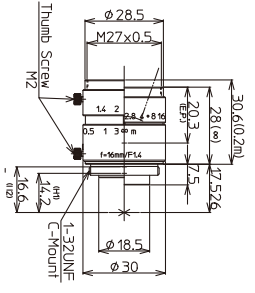
LM12JC



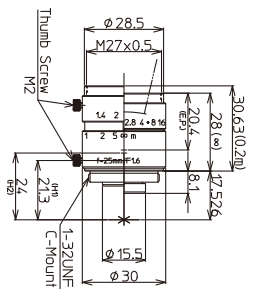
LM8JC



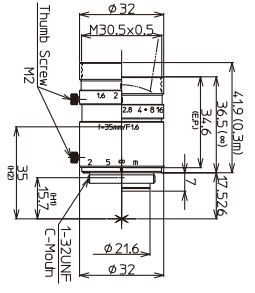
LM16JC



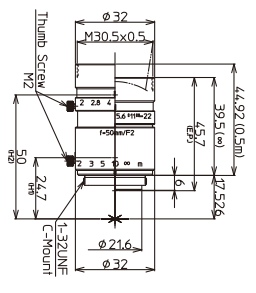
LM25JC



LM35JC



LM50JC



Model	LM6JC	LM8JC	LM12JC	LM16JC	LM25JC	LM35JC	LM50JC
Focal Length(mm)	6	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)	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	F2.0~F22
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞	0.2~∞	0.2~∞	0.3~∞	0.5~∞
Control	Manual	Manual	Manual	Manual	Manual	Manual	Manual
Focus	Manual	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	190.6(H)×130.3(V)	136.0(H)×96.1(V)	81.1(H)×59.4(V)	111.8(H)×82.6(V)	72.1(H)×53.7(V)	76.0(H)×56.9(V)	85.0(H)×63.6(V)
Angle of View	2/3 Inch	81.9×61.2	64.2×47.7	42.5×31.7	30.5×22.8	21.0×15.7	10.1×7.6
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	8.2×6.2
Resolution(Center, Corner)	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
TV Distortion(%)	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm
Back Focus in Air(mm)	-10.7	-6.2	-2.5	-1.5	-0.6	-0.2	-0.1
Mount	C-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	M30.5×P0.5
Size(mm)(∞)	Φ30×32.8	Φ30×30	Φ30×31.5	Φ30×28	Φ30×28	Φ32×36.5	Φ32×39.5
Weight(g)	65	60	60	55	55	85	90
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	-10°C~+50°C

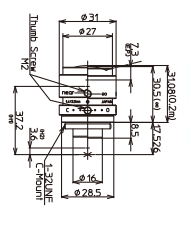
Diagram of M.O.D. / Magnification Using A Close Up Ring

Model	LM6JC	LM8JC	LM12JC	LM16JC	LM25JC	LM35JC	LM50JC
(Non)M.O.D./Magnification	100mm/0.06×	100mm/0.07×	100mm/0.12×	200mm/0.08×	200mm/0.12×	300mm/0.12×	500mm/0.10×
(1mm Ring)M.O.D./Magnification	-	-	50mm/0.19×	110mm/0.14×	136mm/0.15×	240mm/0.14×	422mm/0.12×
(5mm Ring)M.O.D./Magnification	-	-	-	-	46mm/0.31×	132mm/0.26×	264mm/0.20×
(10mm Ring)M.O.D./Magnification	-	-	-	-	-	84mm/0.40×	183mm/0.30×
(20mm Ring)M.O.D./Magnification	-	-	-	-	-	-	117mm/0.50×

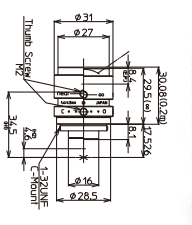
NCL Series

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

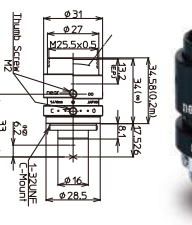
LM4NCL



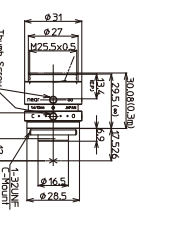
LM5NCL



LM6NCL



LM12NCL



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	Manual	Manual	Manual	Manual
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	1/1.8 inch	117.7×86.7	88.8×66.9	62.7×48.4
View (Degrees)	1/2 inch	103.6×76.7	79.0×59.4	57.3×44.0
Resolution(Center, Corner)	1/3 inch	76.7×57.7	59.4×45.1	44.0×33.7
TV Distortion(%)	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm
Back Focus in Air(mm)	-28.0	-17.5	-1.0	-0.8
Mount	8.9	10.0	9.5	11.1
Filter Thread(mm)	C-mount	C-mount	C-mount	C-mount
Size(mm)(∞)	-	-	M25.5×P0.5	M25.5×P0.5
Weight(g)	Φ31×30.5	Φ31×29.5	Φ31×34	Φ31×29.5
Temperature Range	60	55	60	55
	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

✓ Compatible ◇ Suitable – Incompatible									
Model	Format Size(Inch)								
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3
LM4NCL	–	–	–	–	–	–	✓	✓	✓
LM5NCL	–	–	–	–	–	–	✓	✓	✓
LM6NCL	–	–	–	–	–	–	✓	✓	✓
LM12NCL	–	–	–	–	–	◇	✓	✓	✓

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×

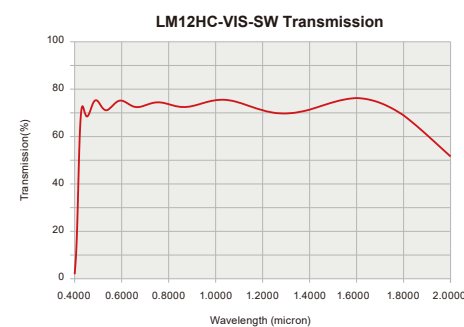
† Images may differ from the actual product.

† Images may differ from the actual product.

HC-VIS-SW Series NEW

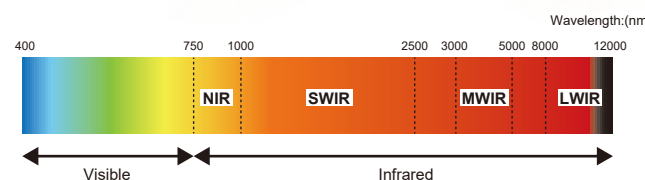
Features of HC-VIS-SW Series

- ▶ A maximum of 12 megapixel and 3.1 μ m performance can be found at select wavelength ranges.
- ▶ Virtually zero focus shift from visible to 2000nm wavelength range.
- ▶ Utilizes ultra wideband multi-coatings to increase transmission.
- ▶ Special extra low dispersion (XD) glass significantly reduces chromatic aberration, otherwise known as color fringing.
- ▶ Focal length 8mm, 16mm and 35mm : To Be Released in 2021



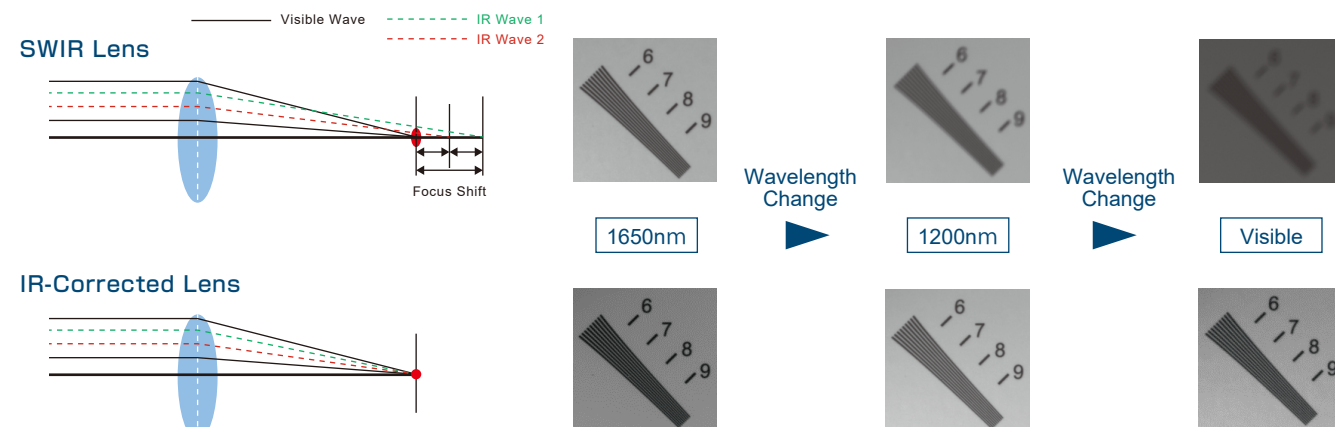
Design of IR-Corrected Lenses

In addition to having high transmission, Kowa's HC-VIS-SW series is IR-Corrected. The primary benefit for IR-Correction is that it allows an image to remain in focus even when the wavelength changes from visible to infrared or vice versa. With a standard visible, NIR or SWIR lens, a focus shift will occur due to differences in the refractive index if the wavelength fluctuates. However, by incorporating extra low dispersion (XD) glass and carefully aligning all internal lens elements, such focus shift problems are eliminated.



Example of Focus Shift

* Focusing at 1650nm



Model	Format Size(Inch)							
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/3
LM12HC-VIS-SW	—	—	—	✓	✓	✓	✓	✓
LM25HC-VIS-SW	—	—	—	✓	✓	✓	✓	✓
LM50HC-VIS-SW	—	—	—	✓	✓	✓	✓	✓

✓ Compatible ◇ Suitable — Incompatible

NEW LM12HC-VIS-SW



Model	LM12HC-VIS-SW
Focal Length(mm)	12
Image Size(mm)	12.8 × 9.6 (Φ16)
Iris Range(F-stop)	F1.8~F16
Focusing Range(m)	0.2~∞
Control	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	237.0(H)×175.0(V)
Angle of View	1 Inch 58.0×44.5
(Degrees)	2/3 Inch 41.0×31.1
1/1.8 Inch	33.8×25.5
Resolution(Center, Corner)	160lp/mm, 100lp/mm
TV Distortion(%)	-1.6
Back Focus in Air(mm)	11.1
Mount	C-mount
Filter Thread(mm)	M34×P0.5
Size(mm)(∞)	Φ38×73.5
Weight(g)	175
Temperature Range	-10°C~+50°C

NEW LM25HC-VIS-SW



Model	LM25HC-VIS-SW
Focal Length(mm)	25
Image Size(mm)	12.8 × 9.6 (Φ16)
Iris Range(F-stop)	F1.8~F16
Focusing Range(m)	0.2~∞
Control	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	109.0(H)×81.0(V)
Angle of View	1 Inch 29.2×22.0
(Degrees)	2/3 Inch 20.2×15.0
1/1.8 Inch	16.5×12.3
Resolution(Center, Corner)	160lp/mm, 100lp/mm
TV Distortion(%)	-0.97
Back Focus in Air(mm)	24.5
Mount	C-mount
Filter Thread(mm)	M27×P0.5
Size(mm)(∞)	Φ39×65.5
Weight(g)	160
Temperature Range	-10°C~+50°C

NEW LM50HC-VIS-SW

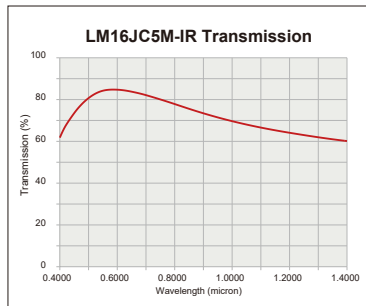


Model	LM50HC-VIS-SW
Focal Length(mm)	50
Image Size(mm)	12.8 × 9.6 (Φ16)
Iris Range(F-stop)	F2.5~F16
Focusing Range(m)	0.5~∞
Control	Manual
Focus	Manual
Shooting Range at M.O.D.(mm)	127.0(H)×95.0(V)
Angle of View	1 Inch 14.6×11.0
(Degrees)	2/3 Inch 10.0×7.6
1/1.8 Inch	8.2×6.2
Resolution(Center, Corner)	160lp/mm, 100lp/mm
TV Distortion(%)	-0.11
Back Focus in Air(mm)	34.9
Mount	C-mount
Filter Thread(mm)	M30.5×P0.5
Size(mm)(∞)	Φ39.5×71
Weight(g)	155
Temperature Range	-10°C~+50°C

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

Model	LM12HC-VIS-SW	LM25HC-VIS-SW	LM50HC-VIS-SW
(Non)M.O.D./Magnification	200mm/0.0562×	200mm/0.120×	500mm/0.101×
(1mm Ring)M.O.D./Magnification	73mm/0.139×	147mm/0.159×	418mm/0.121×
(5mm Ring)M.O.D./Magnification	12mm/0.485×	68mm/0.316×	252mm/0.200×
(10mm Ring)M.O.D./Magnification	—	37mm/0.514×	168mm/0.301×
(20mm Ring)M.O.D./Magnification	—	16mm/0.895×	102mm/0.497×

- | Model | Format Size(Inch) | | | | | | | | |
|-------------|-------------------|-----|-----|---|-------|-----|-------|-----|-----|
| | 4/3 | 1.2 | 1.1 | 1 | 1/1.2 | 2/3 | 1/1.8 | 1/2 | 1/3 |
| LM16JC5M-IR | — | — | — | — | — | ✓ | ✓ | ✓ | ✓ |
| LM25JC5M-IR | — | — | — | — | ◇ | ✓ | ✓ | ✓ | ✓ |
| LM35JC5M-IR | — | — | — | — | ◇ | ✓ | ✓ | ✓ | ✓ |



LM35JC5M-IR

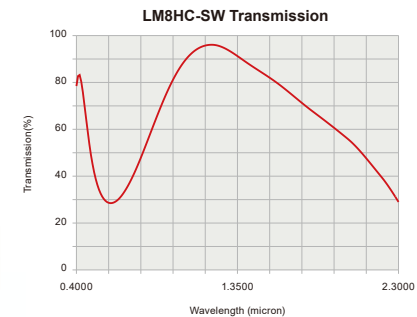


Model	LM16JC5M-IR	LM25JC5M-IR	LM35JC5M-IR
Focal Length(mm)	16	25	35
Image Size(mm)	8.8×6.6(Φ11)	8.8×6.6(Φ11)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~F16	F1.4~F16	F2.0~F22
Focusing Range(m)	0.3~∞	0.3~∞	0.3~∞
Control Iris	Manual	Manual	Manual
Focus	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	171.4(H)×127.4(V)	113.3(H)×84.5(V)	75.8(H)×56.6(V)
Angle of View	2/3 Inch 1/1.8 Inch	20.1×15.1 16.5×12.4	13.9×10.5 11.4×8.3
(Degrees)	1/2 Inch 22.6×16.9	14.6×11.0	10.2×7.6
Resolution(Center, Corner)	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm
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

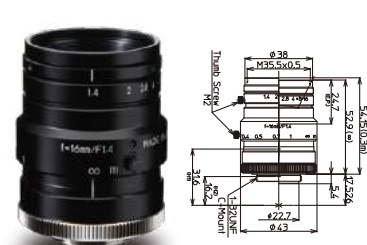
NIR

HC-SW Series

- | ✓ Compatible ◇ Suitable — Incompatible | | | | | | | | | | |
|--|-------------------|-----|-----|---|-------|-----|-----|-------|-----|-----|
| Model | Format Size(Inch) | | | | | | | | | |
| | 4/3 | 1.1 | 1.2 | 1 | 1/1.2 | 2/3 | 3/1 | 1/1.8 | 1/2 | 1/3 |
| LM8HC-SW | — | — | — | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| LM12HC-SW | — | — | ◇ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| LM16HC-SW | — | — | — | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| LM25HC-SW | — | ◇ | ◇ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| LM35HC-SW | — | ◇ | ◇ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| LM50HC-SW | — | — | — | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |



LM16HC-SW



LM50HC-SW



Model	LM8HC-SW	LM12HC-SW	LM16HC-SW	LM25HC-SW	LM35HC-SW	LM50HC-SW
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~F16	F1.4~F16	F1.4~F16	F1.4~F16	F1.4~F16	F1.4~F16
Focusing Range(m)	0.1~∞	0.3~∞	0.3~∞	0.3~∞	0.3~∞	0.5~∞
Control	Iris	Manual	Manual	Manual	Manual	Manual
	Focus	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D.(mm)	196.0(H)×143.2(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	1 inch 2/3 inch	79.4×63.0 58.3×44.7	55.6×42.5 39.1×29.5	44.3×33.6 30.8×23.2	29.3×22.0 20.2×15.1	20.9×15.8 14.4×10.8
(Degrees)	1/1.8 inch	48.5×36.9	32.1×24.2	25.3×19.0	16.5×12.4	11.8×8.8
Resolution(Center, Corner)	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm	120lp/mm, 80lp/mm
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)(∞)	Φ57×58	Φ43×51.5	Φ43×52.9	Φ43×43	Φ43×43	Φ49×48
Weight(g)	205	160	150	135	135	210
Temperature Range	-10℃~-+50℃	-10℃~-+50℃	-10℃~-+50℃	-10℃~-+50℃	-10℃~-+50℃	-10℃~-+50℃

MACHINE VISION LENSES 35

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

LF Series

Optimized design for machine vision

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

LM28LF



LM35LF



LM50LF



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) (FROM SENSOR)	0.5~∞		0.4~∞		0.4~∞	
Control	Iris		Manual		Manual	
	Focus		Manual		Manual	
Shooting Range at M.O.D.(mm)	424.3×281.1		239.9×160.3		162.9×108.9	
Angle of View	Full size		Full size		Full size	
View (Degrees)	4/3 inch		4/3 inch		4/3 inch	
	1 inch		1 inch		1 inch	
Resolution(Center, Corner)	160lp/mm, 63lp/mm		160lp/mm, 63lp/mm		160lp/mm, 63lp/mm	
TV Distortion(%)	-0.17		-0.15		-0.04	
Flange Back in Air(mm)	46.5		17.5		46.5	
Mount	Nikon F-mount		TFL-II mount		Nikon F-mount	
Filter Thread(mm)	M72×P0.75		M52×P0.75		M52×P0.75	
Size(mm)(∞)	Φ75×98		Φ75×127		Φ57.5×77	
Weight(g)	500		430		470	

Nikon is a trademark of Nikon Corporation.

CLS Series

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

LM28CLS



LM35CLS



LM50CLS



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) (FROM SENSOR)	0.5~∞	0.5~∞	0.5~∞
Control	Iris	Manual	Manual
	Focus	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)
Resolution(Center, Corner)	160lp/mm, 63lp/mm	160lp/mm, 63lp/mm	160lp/mm, 63lp/mm
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

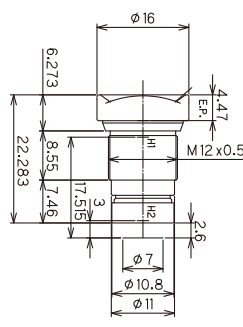
Nikon is a trademark of Nikon Corporation.

† Images may differ from the actual product.

1/2.5" MEGAPIXEL S-MOUNT LENS (3.2μm)

- ▶ Low distortion
- ▶ Wide optical design
- ▶ High transmission from VIS to NIR

LM3QS28 / 40 / 56



Model	LM3QS28	LM3QS40	LM3QS56
Focal Length(mm)	3		
Image Size	1/2.5		
Iris Range(F-stop)	F2.8	F4	F5.6
Focusing Range(m)	0.1~∞		
Angle of View	1/2.5 inch		
View (Degrees)	1/2.8 inch		
Resolution(Center, Corner)	160lp/mm, 125lp/mm		
TV Distortion(%)	0.02		
Back Focus in Air(mm)	2.6		
Mount	S-mount (M12×0.5)		
Size(mm)(∞)	Φ16×22.3		
Weight(g)	6		
Temperature Range	-10°C~+50°C		

1/3" NF-MOUNT
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



LM5NF



LM9NF



Model	LM3NF	LM5NF	LM9NF
Focal Length(mm)	2.7	4.5	9
Image Size(mm)	4.8×3.6(Φ6)	4.8×3.6(Φ6)	4.8×3.6(Φ6)
Iris Range(F-stop)	F1.8~F11	F1.8~F11	F1.8~F11
Focusing Range(m)	0.1~∞	0.1~∞	0.1~∞
Control	Iris	Manual	Manual
	Focus	Manual	Manual
Shooting Range at M.O.D.(mm)	262.7(H)×167.8(V)	122.9(H)×89.9(V)	58.1(H)×43.3(V)
Angle of View(Degrees) 1/3 Inch	102.3×76.7	59.2×45.0	30.2×22.8
Resolution(Center, Corner)	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm	100lp/mm, 60lp/mm
TV Distortion(%)	-7.3	-2.8	-0.6
Back Focus in Air(mm)	7.8	8.1	8.6
Mount	NF-mount	NF-mount	NF-mount
Size(mm)(∞)	Φ21×27	Φ21×31	Φ22×34
Weight(g)	30	35	40
Temperature Range	-10°C~+50°C	-10°C~+50°C	-10°C~+50°C

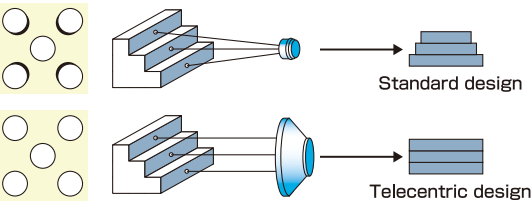
† Images may differ from the actual product.

TELECENTRIC Series

High Resolution Lenses

Features of TC Series

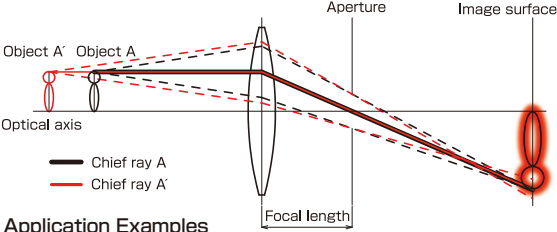
- ▶ Produces high contrast and resolution in both the center and corners.
- ▶ Virtually no TV distortion of entire image area.



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.



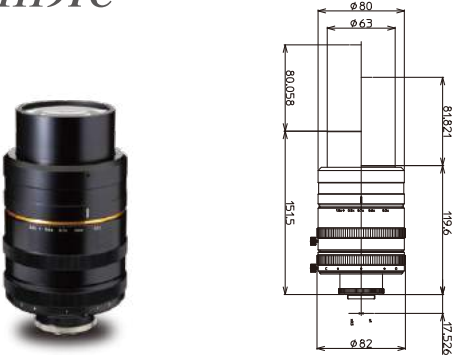
- Application Examples**
- ▶ Surface inspection of silicon wafers
 - ▶ Image defect inspections
 - ▶ Inspection of dirt on prisms and glass circuit boards
 - ▶ Measurement of thread pitches
 - ▶ Reading 2D codes

Model	Format Size(Inch)							
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2
LM1119TC	✓	✓	✓	✓	✓	✓	✓	✓
LM1138TC	✓	✓	✓	✓	✓	✓	✓	✓
LM1120TC	✓	✓	✓	✓	✓	✓	✓	✓
LM1121TC	✓	✓	✓	✓	✓	✓	✓	✓
LM1122TC	✓	✓	✓	✓	✓	✓	✓	✓
LM1123TC	✓	✓	✓	✓	✓	✓	✓	✓
LM1125TC	✓	✓	✓	✓	✓	✓	✓	✓

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

LM1119TC

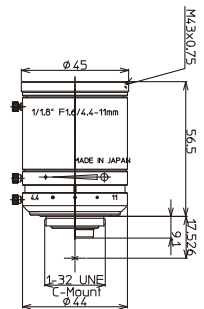


VARIFOCAL

LMVZ4411



LO-DIS
Low Distortion

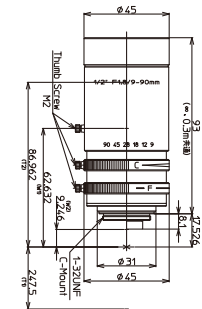


Model		LMVZ4411
Focal Length(mm)		4.4~11(2.5x)
Image Size(mm)		7.2x5.4(Φ9)
Iris Range(F-stop)		F1.6~F16
Focusing Range(m)		0.3~∞
Control	Iris	Manual
	Focus	Manual
Shooting Range at M.O.D.(mm)		W507.5x379.0/T211.4x159.0
Angle of	1/1.8 Inch	W76.6x61.2/T36.7x28.0
View	1/2 Inch	W70.2x55.5/T32.9x25.0
(Degrees)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

LMVZ990-IR



LO-DIS
Low Distortion

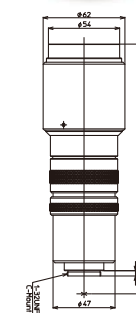


Model		LMVZ990-IR
Focal Length(mm)		9-90(10×)
Image Size(mm)		6.4×4.8(Φ8)
Iris Range(F-stop)		F1.8~F16
Focusing Range(m)		0.3~∞
Control	Iris	Manual
	Focus	Manual
Shooting Range at M.O.D.(mm)		W252.7×182.5/T94.4×70.8
Angle of View	1/2 Inch	W41.1×30.3/T4.2×3.1
(Degrees)	1/3 Inch	W30.3×22.5/T3.1×2.4
TV Distortion(%)		W-4.3/T0.3
Back Focus in Air(mm)		W15.4/T11.7
Mount		C-mount
Filter Thread(mm)		M43×P0.75
Size(mm)(∞)		Φ45×93
Weight(g)		194
Temperature Range		-10℃~+50℃

MACRO ZOOM

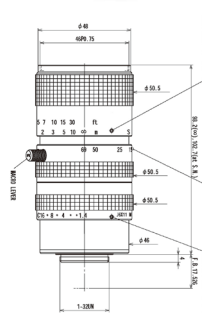
- ▶ 2 zoom ranges (6× and 10×)
- ▶ Excellent for pattern matching, measurement, inspection, and character recognition

LMZ45T3



Model	LMZ45T3				
Magnification	inf~1.1x				
Zoom Magnification	6x				
Image Size(mm)	8.8x6.6(Φ11)				
Close up lens	3Dpt.un-installed		3Dpt.installed		
Shooting Magnification	Inf~0.72x		0.053~1.1x		
W.D (mm)	Inf~M.O.D=185		WD=330~115		
Iris Range(F-stop)	F2.5~Close				
Object side N.A.	-		-		
Image side N.A.	-		-		
TV Distortion(%)	-0.3		-0.1		
Angle of View(Degrees)	2/3 inch	inf wide	27.3×20.5°	WD=330 wide	165.4×123.8
		inf tele	4.7×3.5°	WD=330 tele	28.3×21.3
		WD=185 wide WD=185 tele	67.0×50.1° 11.7×9.0	WD=115 wide WD=115 tele	43.8×32.8 7.6×5.9
	1/2 inch	inf wide	19.9×14.9°	WD=330 wide	120.0×89.8
		inf tele	3.4×2.6°	WD=330 tele	20.7×15.6
		WD=185 wide WD=185 tele	48.6×36.5° 8.7×6.6	WD=115 wide WD=115 tele	31.8×23.8 5.7×4.3
	1/3 inch	inf wide	14.9×11.2°	WD=330 wide	89.8×67.4
		inf tele	2.6×2.0°	WD=330 tele	15.6×11.7
		WD=185 wide WD=185 tele	36.5×27.3° 6.6×5.0	WD=115 wide WD=115 tele	23.8×17.9 4.3×3.3
Mount	C-mount				
Control	Iris	Manual			
	Focus	Manual			
	Zoom	Manual			
Filter Thread(mm)	M52×P0.75				
Size(mm)(∞)	Φ62×17.1				
Weight(g)	595				
Temperature Range	-10°C~+50°C				

LMZ69M



Model	LMZ69M
Focal Length(mm)	11.5~69(6×)
Image Size(mm)	8.8×6.6(Φ11)
Iris Range(F-stop)	F1.4~∞
Focusing Range(m)	1.0~∞
(Macro)	0.01
Control Iris	Manual
Focus	Manual
Zoom	Manual
Angle of View(Degrees)	W41.9°x32.0°/T7.3×5.5
Mount	C-mount
Filter Thread(mm)	M46×0.75
Size(mm)(∞)	Φ50.5×98.2
Weight(g)	300
Temperature Range	-10°C~+50°C

BUILT-TO-ORDER MODELS

SC Series

Model	LM125C	LM165C	LM255C	LM355C	LM505C	
Focal Length(mm)	12	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)	
Iris Range(F-stop)	F1.8~F16	F1.8~F16	F1.8~F16	F2.0~F16	F2.0~F16	
Focusing Range(m)	0.1~∞	0.1~∞	0.15~∞	0.2~∞	0.3~∞	
Control	Iris	Manual	Manual	Manual	Manual	
	Focus	Manual	Manual	Manual	Manual	
Shooting Range at M.O.D.(mm)	125.5(H)×93.5(V)	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	1 Inch	55.9×43.1	44.0×33.6	28.9×21.8	20.8×15.6	14.6×11.0
View	2/3 Inch	39.8×30.2	30.9×23.3	20.1×15.2	14.3×10.8	10.1×7.6
(Degrees)	1/1.8 Inch	32.9×24.9	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	160lp/mm,120lp/mm	
TV Distortion(%)	-0.55	0.02	-0.34	0.02	0.30	
Back Focus in Air(mm)	13.0	13.0	24.3	15.2	21.6	
Mount	C-mount	C-mount	C-mount	C-mount	C-mount	
Filter Thread(mm)	M40.5×P0.5	M34×P0.5	M34×P0.5	M34×P0.5	M34×P0.5	
Size(mm)(∞)	Φ43×84.0	Φ43×80.0	Φ43×89.0	Φ43×74.0	Φ43×78.5	
Weight(g)	255	240	245	200	210	
Temperature Range	-10℃~+50℃	-10℃~+50℃	-10℃~+50℃	-10℃~+50℃	-10℃~+50℃	

JC3M2 Series

Model	LM8JC3M2	LM12JC3M2	LM16JC3M2	LM25JC3M2	LM35JC3M2	LM50JC3M2	
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~Close	F1.4~Close	F1.4~F16	F1.4~F16	F2.0~F16	F2.8~F22	
Focusing Range(m)	0.1~∞	0.15~∞	0.2~∞	0.2~∞	0.2~∞	0.2~∞	
Control	Iris	Manual	Manual	Manual	Manual	Manual	
	Focus	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	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
(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
	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
Resolution(Center, Corner)	120lp/mm,100lp/mm	120lp/mm,100lp/mm	120lp/mm,100lp/mm	120lp/mm,100lp/mm	120lp/mm,100lp/mm	120lp/mm,100lp/mm	
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)(∞)	Φ34×41.6	Φ34×37	Φ33.5×36.5	Φ33.5×39.5	Φ34×36.5	Φ34×55	
Weight(g)	90	85	85	90	70	95	
Temperature Range	-10℃~+50℃	-10℃~+50℃	-10℃~+50℃	-10℃~+50℃	-10℃~+50℃	-10℃~+50℃	

HC-IR Series

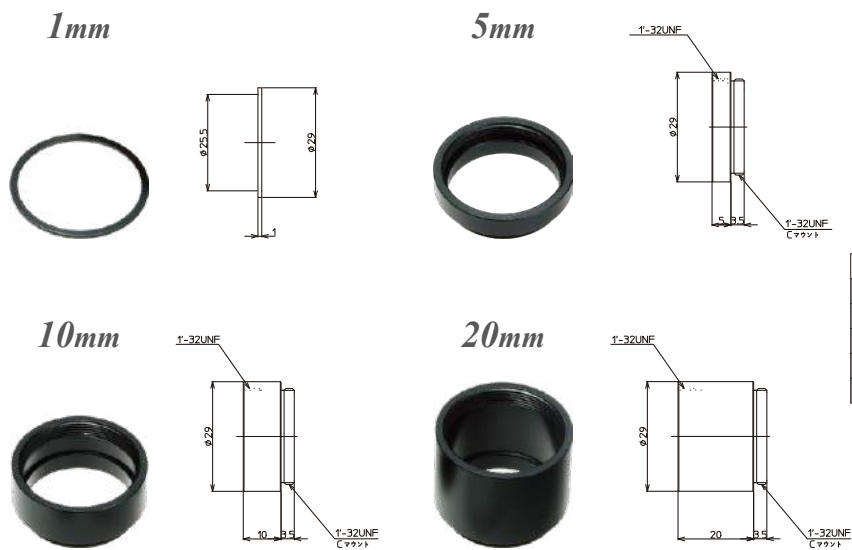
Model	LM50HC-IR	LM60HC-IR
Focal Length(mm)	50	60
Image Size(mm)	12.8×9.6(Φ16)	12.8×9.6(Φ16)
Iris Range(F-stop)	F1.8~F16	F2.0~F16
Focusing Range(m)	1.0~∞	1.0~∞
Control Iris	Manual	Manual
Focus	Manual	Manual
Shooting Range at M.O.D.(mm)	246.0(H)×184.0(V)	216.9(H)×162.1(V)
Angle of 1 Inch	14.4×10.8	12.2×9.2
View 2/3 Inch	9.9×7.5	8.4×6.3
(Degrees) 1/1.8 Inch	8.2×6.2	6.9×5.2
Resolution(Center, Corner)	160lp/mm, 125lp/mm	160lp/mm, 125lp/mm
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

LMVZ166HC

Model	LMVZ166HC	
Focal Length(mm)	16~64(4.0x)	
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	1 Inch	W45.9×34.2/T11.7×14.6
View	2/3 Inch	W31.3×23.4/T8.1×6.1
(Degrees)	1/1.8 Inch	W25.5×19.1/T6.6×5.0
TV Distortion(%)	W~3.4/T0.2	
Back Focus in Air(mm)	W29.2/T29.5	
Mount	C-mount	
Filter Thread(mm)	M58×P0.75	
Size(mm)(∞)	Φ60×124	
Weight(g)	370	
Temperature Range	-10°C~+50°C	

† Images may differ from the actual product.

Close Up Rings



Model	Specification
KW-EXT1	1mm
KW-EXT5	5mm
KW-EXT10	10mm
KW-EXT20	20mm
LMZ4S	1mm, 5mm, 10mm, 20mm

Filter Holders



- An optional filter holder can be attached to the JC5MC series. (LM12JC5MC, LM16JC5MC and LM25JC5MC)

Model	Specification
FL-12JC5MC	Φ32
FL-16JC5MC	
FL-25JC5MC	

Mount Adapters



- VM series can change the flange back by using optional mount adapters included with each lens.
Standard: M42-mount has a 17.526mm flange back distance.

Series	Mount Adapter	Flange Back (mm)	Mount
VM42	FB-1600VM	16	M42 mount
	FB-1148VM	11.48	M42 mount
	FB-1000VM	10	M42 mount
	FB-0656VM	6.56	M42 mount
	FB-1750VM	17.5	TFL-II mount

*Mount adapters do not work with VM35 series lenses.

Field of View

FC24M series

LM6FC24M

WD mm	Magni- fication	Fields of View (mm)					
		1.1"		1"		2/3"	
		H	V	H	V	H	V
1000	0.007	2252.1	1669.3	2033.1	1506.4	1377.1	1026.1
950	0.007	2141.3	1587.1	1933.1	1432.3	1309.4	975.6
900	0.007	2030.4	1505.0	1833.0	1358.1	1241.6	925.1
850	0.008	1919.6	1422.9	1732.9	1284.0	1173.8	874.6
800	0.008	1808.7	1340.7	1632.9	1209.9	1106.1	824.1
750	0.009	1697.9	1258.6	1532.8	1135.8	1038.3	773.6
700	0.009	1587.0	1176.4	1432.8	1061.6	970.5	723.1
650	0.010	1476.2	1094.3	1332.7	987.5	902.8	672.6
600	0.011	1365.3	1012.1	1232.6	913.4	835.0	622.1
550	0.012	1254.5	930.0	1132.6	839.2	767.2	571.6
500	0.013	1143.6	847.8	1032.5	765.1	699.4	521.1
450	0.014	1032.7	765.6	932.4	691.0	631.7	470.6
400	0.016	921.9	683.5	832.3	616.8	563.9	420.1
350	0.018	811.0	601.3	732.3	542.7	496.1	369.6
300	0.021	700.1	519.2	632.2	468.5	428.3	319.1
250	0.025	589.2	437.0	532.1	394.4	360.5	268.6
200	0.031	478.2	354.8	431.9	320.2	292.7	218.1
150	0.040	367.2	272.6	331.8	246.0	224.9	167.6
100	0.057	255.8	190.1	231.2	171.6	156.9	117.0

LM8FC24M

WD mm	Magni- fication	Fields of View (mm)					
		1.1"		1"		2/3"	
		H	V	H	V	H	V
1000	0.009	1688.7	1269.1	1534.6	1147.5	1050.3	783.9
950	0.009	1605.1	1206.3	1458.6	1090.8	998.3	745.1
900	0.009	1520.6	1142.9	1381.9	1033.5	945.9	706.0
850	0.010	1436.3	1079.7	1305.3	976.3	893.6	667.0
800	0.011	1353.4	1017.3	1230.0	919.9	842.0	628.5
750	0.011	1270.5	955.0	1154.6	863.5	790.4	590.0
700	0.012	1187.5	892.6	1079.2	807.2	738.8	551.5
650	0.013	1104.0	829.9	1003.3	750.5	686.9	512.7
600	0.014	1020.6	767.2	927.5	693.8	635.0	474.0
550	0.015	937.7	704.9	852.2	637.4	583.5	435.5
500	0.017	854.9	642.6	776.9	581.1	531.9	397.0
450	0.019	772.1	580.3	701.6	524.8	480.4	358.6
400	0.021	689.2	518.0	626.3	468.4	428.8	320.1
350	0.024	606.2	455.6	550.9	412.0	377.1	281.5
300	0.027	523.2	393.3	475.5	355.6	325.5	243.0
250	0.033	440.3	330.9	400.1	299.2	273.9	204.5
200	0.040	357.2	268.5	324.6	242.8	222.2	165.9
150	0.052	273.9	205.9	248.9	186.2	170.5	127.3
100	0.075	190.1	143.0	172.8	129.4	118.5	88.5

LM12FC24M

WD mm	Magni- fication	Fields of View (mm)					
		1.1"		1"		2/3"	
		H	V	H	V	H	V
1000	0.012	1174.7	883.2	1067.1	799.4	732.2	548.0
950	0.013	1117.0	839.8	1014.7	760.1	696.2	521.1
900	0.013	1059.3	796.4	962.3	720.8	660.3	494.1
850	0.014	1001.6	753.0	909.8	681.5	624.3	467.2
800	0.015	943.9	709.6	857.4	642.2	588.3	440.2
750	0.016	886.2	666.2	805.0	603.0	552.3	413.3
700	0.017	828.5	622.8	752.6	563.7	516.3	386.4
650	0.018	770.8	579.4	700.2	524.4	480.3	359.5
600	0.020	713.1	536.0	647.7	485.1	444.3	332.5
550	0.022	655.4	492.6	595.3	445.8	408.4	305.6
500	0.024	597.7	449.2	542.9	406.5	372.4	278.6
450	0.026	540.0	405.8	490.4	367.2	336.4	251.7
400	0.030	482.3	362.4	438.0	327.9	300.4	224.8
350	0.034	424.6	319.0	385.5	288.6	264.4	197.8
300	0.039	366.8	275.5	333.1	249.3	228.4	170.9
250	0.046	309.1	232.1	280.6	210.0	192.3	143.9
200	0.057	251.3	188.6	228.1	170.7	156.3	116.9
150	0.074	193.4	145.1	175.5	131.3	120.2	89.9
100	0.106	135.3	101.4	122.8	91.8	84.0	62.8

LM16FC24M

WD mm	Magni- fication	Fields of View (mm)					
		1.1"		1"		2/3"	
		H	V	H	V	H	V
1000	0.016	905.7	677.6	820.7	612.8	561.2	419.9
950	0.017	861.1	644.2	780.4	582.7	533.6	399.3
900	0.017	816.6	610.9	740.0	552.6	506.0	378.6
850	0.019	772.1	577.6	699.7	522.4	478.4	358.0
800	0.020	727.5	544.3	659.3	492.3	450.8	337.3
750	0.021	683.0	511.0	618.9	462.2	423.2	316.7
700	0.022	638.4	477.7	578.6	432.0	395.6	296.0
650	0.024	593.9	444.3	538.2	401.9	368.0	275.4
600	0.026	549.4	411.0	497.8	371.7	340.4	254.7
550	0.028	504.8	377.7	457.5	341.6	312.8	234.1
500	0.031	460.3	344.3	417.1	311.4	285.2	213.4
450	0.034	415.7	311.0	376.7	281.3	257.6	192.7
400	0.038	371.1	277.7	336.3	251.1	230.0	172.1
350	0.044	326.6	244.3	295.9	221.0	202.4	151.4
300	0.051	282.0	211.0	255.5	190.8	174.7	130.8
250	0.060	237.4	177.6	215.1	160.6	147.1	110.1
200	0.074	192.8	144.2	174.7	130.5	119.5	89.4
150	0.096	148.1	110.8	134.2	100.2	91.8	68.7
100	0.138	103.3	77.3	93.6	69.9	64.0	47.9

LM25FC24M

WD mm	Magni- fication	Fields of View (mm)					
		1.1"		1"		2/3"	
		H	V	H	V	H	V
1000	0.025	576.2	431.8	522.5	390.8	358.0	268.2
950	0.026	547.8	410.6	496.7	371.5	340.4	255.0
900	0.027	519.5	389.3	471.0	352.3	322.8	241.8
850	0.029	491.1	368.0	445.3	333.1	305.1	228.6
800	0.031	462.7	346.8	419.6	313.8	287.5	215.4
750	0.033	434.4	325.5	393.8	294.6	269.9	202.2
700	0.035	406.0	304.2	368.1	275.3	252.2	188.9
650	0.038	377.6	283.0	342.4	256.1	234.6	175.7
600	0.041	349.2	261.7	316.6	236.8	216.9	162.5
550	0.044	320.9	240.4	290.9	217.5	199.3	149.3
500	0.049	292.5	219.1	265.2	198.3	181.7	136.1
450	0.054	264.1	197.9	239.4	179.0	164.0	122.9
400	0.060	235.7	176.6	213.7	159.8	146.4	109.6
350	0.069	207.3	155.3	187.9	140.5	128.7	96.4
300	0.079	178.9	134.0	162.2	121.2	111.1	83.2
250	0.094	150.5	112.7	136.4	102.0	93.4	69.9
200	0.117	122.1	91.4	110.6	82.7	75.7	56.7
150	0.152	93.6	70.0	84.8	63.3	58.0	43.4
100	0.219	65.2	48.7	59.0	44.0	40.3	30.2

LM35FC24M

WD mm	Magni- fication	Fields of View (mm)					
		1.1"		1"		2/3"	
		H	V	H	V	H	V
1000	0.035	399.0	300.0	362.2	271.7	249.1	186.8
950	0.037	379.3	285.2	344.4	258.3	236.8	177.6
900	0.039	359.7	270.4	326.5	244.9	224.5	168.4
850	0.042	340.0	255.7	308.7	231.6	212.3	159.2
800	0.044	320.4	240.9	290.9	218.2	200.0	150.0
750	0.047	300.8	226.1	273.0	204.8	187.7	140.8
700	0.050	281.1	211.4	255.2	191.4	175.5	131.6
650	0.054	261.5	196.6	237.4	178.0	163.2	122.4
600	0.058	241.8	181.8	219.5	164.6	150.9	113.2
550	0.064	222.1	167.0	201.7	151.3	138.6	104.0
500	0.070	202.4	152.2	183.8	137.8	126.4	94.8
450	0.077	182.7	137.4	165.9	124.4	114.1	85.5
400	0.087	163.0	122.5	148.0	111.0	101.7	76.3
350	0.099	143.2	107.7	130.0	97.5	89.4	67.0
300	0.114	123.4	92.8	112.0	84.0	77.0	57.8
250	0.136	103.5	77.8	93.9	70.4	64.6	48.4
200	0.169	83.4	62.7	75.7	56.8	52.0	39.0

JC5MCseries

LM8JC5MC

WD	Magni- fication	Fields of View (mm)					
		2/3"		1/1.8"		1/2"	
		H	V	H	V	H	V
1000	0.008	1113.2	824.7	902.9	670.2	798.8	593.8
950	0.009	1058.2	784.0	858.3	637.0	759.3	564.4
900	0.009	1003.3	743.2	813.7	603.9	719.9	535.1
850	0.010	948.3	702.5	769.1	570.8	680.4	505.7
800	0.010	893.3	661.7	724.5	537.7	640.9	476.4
750	0.011	838.4	621.0	679.9	504.5	601.4	447.0
700	0.012	783.4	580.2	635.3	471.4	562.0	417.7
650	0.013	728.3	539.5	590.6	438.3	522.5	388.3
600	0.014	673.5	498.7	546.0	405.2	483.0	359.0
550	0.015	618.5	458.0	501.4	372.0	443.5	329.6
500	0.016	563.6	417.2	456.8	338.9	404.1	300.3
450	0.018	508.6	376.5	412.2	305.8	364.6	270.9
400	0.020	453.6	337.3	367.6	272.7	325.1	241.6
350	0.023	398.7	294.9	323.0	239.5	285.6	212.2
300	0.027	343.7	254.2	278.4	206.4	246.2	182.9
250	0.032	288.7	213.4	233.8	173.3	206.7	153.5
200	0.039	233.8	172.7	189.2	140.2	167.2	124.2
150	0.051	178.8	131.9	144.6	107.0	127.7	94.8

LM16JC5MC

WD	Magni- fication	Fields of View (mm)					
		2/3"		1/1.8"		1/2"	
		H	V	H	V	H	V
1000	0.016	559.6	419.0	457.4	342.6	406.2	304.4
950	0.017	532.0	398.4	434.8	325.6	386.2	289.4
900	0.018	504.4	377.6	412.2	308.6	366.2	274.2
850	0.019	476.6	356.8	389.6	291.8	346.0	259.2
800	0.020	449.0	336.2	367.0	274.8	326.0	244.2
750	0.021	421.4	315.4	344.4	257.8	305.8	229.2
700	0.022	393.8	294.8	321.8	241.0	285.8	214.0
650	0.024	366.0	274.0	299.2	224.0	265.6	199.0
600	0.026	338.4	253.4	276.6	207.0	245.6	184.0
550	0.028	310.8	232.6	254.0	190.2	225.6	169.0
500	0.031	283.2	211.8	231.2	173.2	205.4	153.8
450	0.035	255.6	191.2	208.6	156.2	185.4	138.8
400	0.039	227.8	170.4	186.0	139.2	165.2	123.8
350	0.044	200.2	149.8	163.4	122.4	145.2	108.8
300	0.051	172.6	129.0	140.8	105.4	125.0	93.6
250	0.061	145.0	108.4	118.2	88.4	105.0	78.6
200	0.080	117.2	87.6	95.6	71.6	85.0	63.6

NCM/JC1MSseries

JC3NCM

WD	Magni- fication	Fields of View (mm)					
		1/1.8"		1/2"		1/3"	
		H	V	H	V	H	V
1000	0.00360	2003.1	1513.4	1786.2	1347.7	1347.7	1011.6
950	0.00380	1904.4	1438.8	1698.1	1281.3	1281.3	961.7
900	0.00400	1805.7	1364.1	1610.1	1214.8	1214.8	911.8
850	0.00420	1706.9	1289.5	1522.0	1148.3	1148.3	861.9
800	0.00450	1608.2	1214.9	1434.0	1081.8	1081.8	812.0
750	0.00480	1509.5	1140.3	1345.9	1015.4	1015.4	762.1
700	0.00510	1410.8	1065.6	1257.9	948.9	948.9	712.2
650	0.00550	1312.1	991.0	1169.8	882.4	882.4	662.2
600	0.00590	1213.3	916.4	1081.8	816.0	816.0	612.3
550	0.00650	1114.6	841.7	993.7	749.5	749.5	562.4
500	0.00710	1015.9	767.1	905.7	683.0	683.0	512.5
450	0.00780	917.2	692.5	817.6	616.5	616.5	462.6
400	0.00880	818.5	617.8	729.5	550.1	550.1	412.7
350	0.01000	719.7	543.2	641.5	483.6	483.6	362.8
300	0.01160	621.0	468.6	553.4	417.1	417.1	312.9
250	0.01380	522.3	394.0	465.4	350.7	350.7	263.0
200	0.01700	423.6	319.3	377.3	284.2	284.2	213.1
150	0.02230	324.9	244.7	289.3	217.7	217.7	163.2
100	0.03210	226.1	170.1	201.2	151.2	151.2	113.3

LM6NCM

WD	Magni- fication	Fields of View (mm)					
		1/1.8"		1/2"		1/3"	
		H	V	H	V	H	V
1000	0.00600	-	-	1081.4	808.4	808.4	603.3
950	0.00630	-	-	1028.1	768.6	768.6	573.6
900	0.00670	-	-	974.9	728.7	728.7	543.8
850	0.00710	-	-	921.6	688.8	688.8	514.0
800	0.00750	-	-	868.3	649.0	649.0	484.3
750	0.00800	-	-	815.0	609.1	609.1	454.5
700	0.00860	-	-	761.7	569.3	569.3	424.8
650	0.00920	-	-	708.4	529.4	529.4	395.0
600	0.00990	-	-	655.1	489.5	489.5	365.3
550	0.01080	-	-	601.8	449.7	449.7	335.5
500	0.01190	-	-	548.6	409.8	409.8	305.8
450	0.01320	-	-	495.3	370.0	370.0	276.0
400	0.01480	-	-	442.0	330.1	330.1	246.2
350	0.01680	-	-	388.7	290.2	290.2	216.5
300	0.01950	-	-	335.4	250.4	250.4	186.7
250	0.02320	-	-	282.1	210.5	210.5	157.0
200	0.02860	-	-	228.8	170.7	170.7	127.2
150	0.03730	-	-	175.6	130.8	130.8	97.5
100	0.05380	-	-	122.3	90.9	90.9	67.7

LM12JC5MC

WD	Magni- fication	Fields of View (mm)					
		2/3"		1/1.8"		1/2"	
		H	V	H	V	H	V
1000	0.012	756.7	564.1	616.4	460.0	546.7	408.3
950	0.012	719.3	536.2	585.9	437.3	519.6	388.1
900	0.013	682.0	508.3	555.5	414.5	492.6	367.9
850	0.014	644.6	480.4	525.0	391.8	465.6	347.7
800	0.015	607.2	452.6	494.6	369.1	438.6	327.5
750	0.016	569.9	424.7	464.1	346.3	411.6	307.4
700	0.017	532.5	396.8	433.7	323.6	384.6	287.2
650	0.018	495.2	369.0	403.2	300.9	357.6	267.0
600	0.020	457.8	341.1	372.8	278.1	330.6	246.8
550	0.021	420.4	313.2	342.3	255.4	303.6	226.7
500	0.023	383.1	285.4	311.9	232.7	276.5	206.5
450	0.026	345.7	257.5	281.4	209.9	249.5	186.3
400	0.029	308.3	229.6	251.0	187.2	222.5	166.1
350	0.033	271.0	201.8	220.5	164.5	195.5	145.9
300	0.038	233.6	173.9	190.1	141.7	168.5	125.8
250	0.046	196.3	146.0	159.6	119.0	141.5	105.6
200	0.057	158.9	118.1	129.2	96.3	114.5	85.4

LM25JC5MC

WD	Magni- fication	Fields of View (mm)					
		2/3"		1/1.8"		1/2"	
		H	V	H	V	H	V
1000	0.025	356.8	267.6	291.8	219.0	259.4	194.6
950	0.026	339.2	254.4	277.6	208.2	246.6	185.0
900	0.027	321.6	241.2	263.2	197.4	233.8	175.4
850	0.029	304.0	228.0	248.8	186.6	221.0	165.8
800	0.031	286.4	214.8	234.4	175.8	208.2	156.2
750	0.033	268.8	201.6	220.0	165.0	195.6	146.6
700	0.035	251.4	188.4	205.6	154.2	182.8	137.0
650	0.038	233.8	175.2	191.2	143.4	170.0	127.4
600	0.041	216.2	162.0	176.8	132.6	157.2	117.8
550	0.044	198.6	148.8	162.4	121.8	144.4	108.2
500	0.049	181.0	135.6	148.0	111.0	131.6	98.6
450	0.054	163.4	122.4	133.6	100.2	118.8	89.0
400	0.061	145.8	109.2	119.2	89.4	106.0	79.4
350	0.069	128.2	96.0	104.8	78.6	93.2	69.8
300	0.080	110.6	82.8	90.4	67.8	80.4	60.2
250	0.095	93.0	69.6	76.0	57.0	67.6	50.6
200	0.120	75.4	56.4	61.6	46.2	54.8	41.0

LM4NCM

WD mm	Magni- fication	Fields of View (mm)					
		1/1.8"		1/2"		1/3"	
		H	V	H	V	H	V
1000	0.00450	1610.8	1206.3	1431.1	1071.3	1071.3	801.3
950	0.00480	1531.8	1147.1	1360.9	1018.7	1018.7	762.0
900	0.00500	1452.9	1087.9	1290.7	966.1	966.1	722.6
850	0.00530	1373.9	1028.8	1220.6	913.6	913.6	683.3
800	0.00560	1294.9	969.6	1150.4	861.0	861.0	644.0
750	0.00600	1216.0	910.4	1080.2	808.4	808.4	604.6
700	0.00640	1137.0	851.2	1010.0	755.9	755.9	565.3
650	0.00690	1058.1	792.0	939.9	703.3	703.3	526.0
600	0.00750	979.1	732.9	869.7	650.7	650.7	486.6
550	0.00810	900.2	673.7	799.5	598.2	598.2	447.3
500	0.00890	821.2	614.5	729.3	545.6	545.6	408.0
450	0.00980	742.3	555.3	659.2	493.0	493.0	368.6
400	0.01100	663.4	496.2	589.0	440.5	440.5	329.3
350	0.01250	584.4	437.0	518.8	387.9	387.9	290.0
300	0.01450	505.5	377.8	448.7	335.3	335.3	250.6
250	0.01720	426.6	318.7	378.5	282.8	282.8	211.3
200	0.02110	347.7	259.5	308.4	230.2	230.2	172.0
150	0.02740	268.8	200.4	238.3	177.7	177.7	132.6
100	0.03900	190.1	141.3	168.2	125.2	125.2	93.3

FA LENS SPECIFICATION

2" 50MEGAPIXEL 3.1μm																		
	Model	Format Size(φ)							Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
		38.0	35.0	32.0	30.0	APS-C	4/3"	1.2"										
NEW	LM18VM42 LM18VM35	—	—	✓	✓	✓	✓	✓	18	Φ32	F2.8~F16	0.1	M42 TFL	70.5×56.1	1.25	Φ79×99.6	460	6
NEW	LM25VM42 LM25VM35	◇	◇	✓	✓	✓	✓	✓	25	Φ32	F2.8~F16	0.1	M42 TFL	54.0×42.0	0.59	Φ57×102.1	400	7
NEW	LM35VM42 LM35VM35	◇	◇	✓	✓	✓	✓	✓	35	Φ32	F2.8~F16	0.1	M42 TFL	40.2×30.7	0.12	Φ54×94.3	375	7

4/3" 20 MEGAPIXEL PLUS																		
Model	Format Size(Inch)								Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2										
LM8XC	✓	✓	✓	✓	✓	✓	✓	✓	8.5	18.4×13.8(Φ23)	F2.8~F22	0.1~∞	C	93.5×77.1	0.12	Φ74×82.5	245	8
LM12XC	✓	✓	✓	✓	✓	✓	✓	✓	12	18.4×13.8(Φ23)	F2.0~F22	0.1~∞	C	74.9×59.6	0.59	Φ57×85	270	9
LM16XC	✓	✓	✓	✓	✓	✓	✓	✓	16	18.4×13.8(Φ23)	F2.0~F22	0.1~∞	C	60.6×47.2	0.02	Φ45×79.5	250	9
LM25XC	✓	✓	✓	✓	✓	✓	✓	✓	25	18.4×13.8(Φ23)	F2.0~F16	0.15~∞	C	40.9×31.1	-0.57	Φ45×89	255	9
LM35XC	✓	✓	✓	✓	✓	✓	✓	✓	35	18.4×13.8(Φ23)	F2.0~F16	0.2~∞	C	29.6×22.4	-0.17	Φ45×74	210	9
LM50XC	✓	✓	✓	✓	✓	✓	✓	✓	50	18.4×13.8(Φ23)	F2.0~F22	0.3~∞	C	20.6×15.7	0.80	Φ47×78	235	9

1.1" 24MEGAPIXEL																			
	Model	Format Size(Inch)							Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page	
		4/3	1.2	1.1	1	1/1.2	2/3	1/1.8											1/2
NEW	LM6FC24M	—	—	✓	✓	✓	✓	✓	✓	6.5	14.1×10.6(Φ17.6)	F2.5~F16	0.1~∞	C	95.7×78.7	-1.51	Φ84×79.1	300	10
NEW	LM8FC24M	—	—	✓	✓	✓	✓	✓	✓	8.5	14.1×10.6(Φ17.6)	F2.5~F16	0.1~∞	C	79.2×63.8	0.55	Φ64×73.3	230	11
NEW	LM12FC24M	—	◇	✓	✓	✓	✓	✓	✓	12	14.1×10.6(Φ17.6)	F1.8~F16	0.1~∞	C	60.0×46.9	0.26	Φ51×73.8	260	11
NEW	LM16FC24M	—	◇	✓	✓	✓	✓	✓	✓	16	14.1×10.6(Φ17.6)	F1.8~F16	0.1~∞	C	48.0×36.7	-0.4	Φ43×65.7	200	11
NEW	LM25FC24M	—	◇	✓	✓	✓	✓	✓	✓	25	14.1×10.6(Φ17.6)	F1.8~F16	0.1~∞	C	31.5×23.9	-0.3	Φ45×67.9	220	11
NEW	LM35FC24M	—	◇	✓	✓	✓	✓	✓	✓	35	14.1×10.6(Φ17.6)	F2.0~F16	0.2~∞	C	22.1×16.7	0.01	Φ45×66	205	11
NEW	LM50FC24M	—	◇	✓	✓	✓	✓	✓	✓	50	14.1×10.6(Φ17.6)	F1.8~F16	0.2~∞	C	16.1×12.1	-0.03	Φ45×74.5	205	11

1" MEGAPIXEL PLUS																		
Model	Format Size(Inch)							Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page	
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8											1/2
LM4HC	—	—	—	✓	✓	✓	✓	✓	4.7	12.8×9.6(Φ16)	F2.8~F16	0.1~∞	C	112.2×95.4	-0.58	Φ54×56.2	360	12
LM6HC	—	—	—	✓	✓	✓	✓	✓	6	12.8×9.6(Φ16)	F1.8~F11	0.1~∞	C	96.8×79.4	-0.2	Φ54×56.2	215	12
LM8HC	—	—	—	✓	✓	✓	✓	✓	8	12.8×9.6(Φ16)	F1.4~F16	0.1~∞	C	79.4×63.0	-1.2	Φ57×58	205	12
LM12HC	—	—	◇	✓	✓	✓	✓	✓	12.5	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	55.6×42.5	-1.58	Φ43×51.5	160	13
LM16HC	—	—	◇	✓	✓	✓	✓	✓	16	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	44.3×33.6	-1.0	Φ43×52.9	150	13
LM25HC	—	◇	◇	✓	✓	✓	✓	✓	25	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	29.3×22.0	-1.0	Φ43×43	135	13
LM35HC	—	◇	◇	✓	✓	✓	✓	✓	35	12.8×9.6(Φ16)	F1.4~F16	0.3~∞	C	20.9×15.8	-0.5	Φ43×43	135	13
LM50HC	—	—	◇	✓	✓	✓	✓	✓	50	12.8×9.6(Φ16)	F1.4~F16	0.5~∞	C	14.5×10.8	0.05	Φ49×48	210	13
LM75HC	—	—	◇	✓	✓	✓	✓	✓	75	12.8×9.6(Φ16)	F1.8~F16	1.0~∞	C	9.7×7.3	-0.2	Φ49×57	195	13

1" RUGGEDIZED MEGAPIXEL PLUS																		
Model	Format Size(Inch)							Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page	
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8											1/2
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	15
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	15
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	15
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	15
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	15
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	15

2/3" 10 MEGAPIXEL																		
Model	Format Size(Inch)							Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page	
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8											1/2
LM5JC10M	—	—	—	—	—	✓	✓	✓	5	8.8×6.6(Φ11)	F1.8~F16	0.1~∞	C	82.2×66.5	-0.33	Φ48×59.4	120	16
LM8JC10M	—	—	—	—	—	✓	✓	✓	8.5	8.8×6.6(Φ11)	F1.8~F22	0.1~∞	C	54.0×41.9	0.31	Φ36×56	115	17
LM12JC10M	—	—	—	—	—	✓	✓	✓	12	8.8×6.6(Φ11)	F1.8~F11	0.1~∞	C	39.1×29.8	-0.12	Φ33×53.5	105	17
LM16JC10M	—	—	—	—	◇	✓	✓	✓	16	8.8×6.6(Φ11)	F1.8~F16	0.1~∞	C	30.0×22.7	-0.20	Φ33×50	90	17
LM25JC10M	—	—	—	—	◇	✓	✓	✓	25	8.8×6.6(Φ11)	F1.8~F16	0.1~∞	C	20.0×15.1	-0.09	Φ33×45.5	95	17
LM35JC10M	—	—	—	—	◇	✓	✓	✓	35	8.8×6.6(Φ11)	F2.0~F16	0.1~∞	C	14.3×10.8	0.05	Φ43×49	160	17
LM50JC10M	—	—	—	—	◇	✓	✓	✓	50	8.8×6.6(Φ11)	F2.8~F16	0.1~∞	C	10.1×7.6	-0.02	Φ38×77	170	17

2/3" 5 MEGAPIXEL																		
Model	Format Size(Inch)								Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2										
LM12JC5M2	—	—	—	—	—	✓	✓	✓	12.5	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	38.4×29.2	-0.06	Φ38.5×52	130	18
LM16JC5M2	—	—	—	—	—	✓	✓	✓	16	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	29.9×22.7	0.03	Φ38.5×52	125	19
LM25JC5M2	—	—	—	—	◇	✓	✓	✓	25	8.8×6.6(Φ11)	F1.6~F16	0.1~∞	C	19.9×15.0	-0.01	Φ38.5×45.5	115	19
LM35JC5M2	—	—	—	—	◇	✓	✓	✓	35	8.8×6.6(Φ11)	F1.6~F16	0.18~∞	C	14.3×10.8	-0.03	Φ38.5×48	120	19

2/3" ULTRA COMPACT 5 MEGAPIXEL																		
Model	Format Size(Inch)							Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page	
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8											1/2
LM8JC5MC	—	—	—	—	—	✓	✓	✓	8	8.8×6.6(Φ11)	F2.8~F16	0.15~∞	C	57.6×44.4	-0.85	Φ32×27	55	20
LM12JC5MC	—	—	—	—	—	✓	✓	✓	12	8.8×6.6(Φ11)	F2.8~F16	0.2~∞	C	41.0×31.2	-0.27	Φ32×26.8	55	21
LM16JC5MC	—	—	—	—	—	✓	✓	✓	16	8.8×6.6(Φ11)	F2.8~F16	0.2~∞	C	30.9×23.4	-0.04	Φ32×26.5	55	21
LM25JC5MC	—	—	—	—	—	✓	✓	✓	25	8.8×6.6(Φ11)	F2.8~F16	0.2~∞	C	20.0×15.0	0.11	Φ32×25	55	21

WIDE MEGAPIXEL																		
Model	Format Size(Inch)								Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2										
LM3NCM	—	—	—	—	—	—	✓	✓	3.5	7.2×5.4(Φ9)	F2.4~F14	0.1~∞	C	89.0×73.8	0.4	Φ42×38.2	85	23
LM6NCM	—	—	—	—	—	—	◇	✓	6	6.4×4.8(Φ8)	F1.2~Close	0.1~∞	C	56.2×43.5	-0.2	Φ34×45.8	100	23
LM5JCM	—	—	—	—	—	✓	✓	✓	5	8.8×6.6(Φ11)	F2.8~F16	0.1~∞	C	82.4×66.9	0.5	Φ42×38.2	84	23

FA LENS SPECIFICATION

2/3" RUGGEDIZED WATER AND DUST RESISTANCE MEGAPIXEL * Only LM3NCM-WP : 1/1.8" MODEL

	Model	Format Size(Inch)									Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
		4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3										
NEW	LM3NCM-WP	—	—	—	—	—	—	✓	✓	✓	3.5	7.2×5.4(Φ9)	F2.8/4/5.6/8	0.1~∞	C	89.0×73.8	0.4	Φ43×38.4	80	28
	LM5JCM-WP	—	—	—	—	—	—	✓	✓	✓	5	8.8×6.6(Φ11)	F2.8/4/5.6/8	0.1~∞	C	82.4×66.9	0.5	Φ43×38.3	75	28
	LM8JCM-WP	—	—	—	—	—	—	✓	✓	✓	8	8.8×6.6(Φ11)	F1.4/4/8/16	0.1~∞	C	56.5×43.9	-0.6	Φ33×41.6	85	29
	LM12JCM-WP	—	—	—	—	—	—	✓	✓	✓	12	8.8×6.6(Φ11)	F1.4/4/8/16	0.15~∞	C	38.3×29.1	-0.07	Φ33×36.5	75	29
	LM16JCM-WP	—	—	—	—	—	—	✓	✓	✓	16	8.8×6.6(Φ11)	F1.4/4/8/16	0.2~∞	C	30.0×22.7	-0.05	Φ33×36.5	75	29
	LM25JCM-WP	—	—	—	—	—	—	✓	✓	✓	25	8.8×6.6(Φ11)	F1.4/4/8/16	0.2~∞	C	19.6×14.8	-0.04	Φ33×39.7	75	29
	LM35JCM-WP	—	—	—	◇	◇	✓	✓	✓	✓	35	8.8×6.6(Φ11)	F2/4/8/16	0.2~∞	C	14.4×10.8	-0.2	Φ33×38.8	65	29
	LM50JCM-WP	—	◇	◇	◇	◇	✓	✓	✓	✓	50	8.8×6.6(Φ11)	F2.8/4/8/16	0.2~∞	C	9.6×7.2	-0.03	Φ33×56.2	85	29

2/3" STANDARD

Model	Format Size(Inch)									Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3										
LM6JC	—	—	—	—	—	✓	✓	✓	✓	6	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	81.9×61.2	-10.7	Φ30×32.8	65	30
LM8JC	—	—	—	—	—	✓	✓	✓	✓	8	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	64.2×47.7	-6.2	Φ30×30	60	30
LM12JC	—	—	—	—	—	✓	✓	✓	✓	12	8.8×6.6(Φ11)	F1.4~F16	0.1~∞	C	42.5×31.7	-2.5	Φ30×31.5	60	30
LM16JC	—	—	—	—	—	✓	✓	✓	✓	16	8.8×6.6(Φ11)	F1.4~F16	0.2~∞	C	30.5×22.8	-1.5	Φ30×28	55	30
LM25JC	—	—	—	—	—	✓	✓	✓	✓	25	8.8×6.6(Φ11)	F1.6~F16	0.2~∞	C	21.0×15.7	-0.6	Φ30×28	55	30
LM35JC	—	—	—	—	◇	✓	✓	✓	✓	35	8.8×6.6(Φ11)	F1.6~F16	0.3~∞	C	14.4×10.8	-0.2	Φ32×36.5	85	30
LM50JC	—	—	◇	◇	◇	✓	✓	✓	✓	50	8.8×6.6(Φ11)	F2.0~F22	0.5~∞	C	10.1×7.6	-0.1	Φ32×39.5	90	31

1/1.8" STANDARD

Model	Format Size(Inch)									Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3										
LM4NCL	—	—	—	—	—	—	✓	✓	✓	3.5	7.2×5.4(Φ9)	F1.4~F16	0.2~∞	C	117.7×86.7	-28.0	Φ31×30.5	60	31
LM5NCL	—	—	—	—	—	—	✓	✓	✓	4.5	7.2×5.4(Φ9)	F1.4~F16	0.2~∞	C	88.8×66.9	-17.5	Φ31×29.5	55	31
LM6NCL	—	—	—	—	—	—	✓	✓	✓	6	7.2×5.4(Φ9)	F1.4~F16	0.2~∞	C	62.7×48.4	-1.0	Φ31×34	60	31
LM12NCL	—	—	—	—	—	◇	✓	✓	✓	12	7.2×5.4(Φ9)	F2.8~F32	0.3~∞	C	34.6×25.9	-0.8	Φ31×29.5	55	31

1" 12 MEGAPIXEL IR-CORRECTED (VIS-SWIR) 3.1μm

	Model	Format Size(Inch)									Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
		4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3										
NEW	LM12HC-VIS-SW	—	—	—	◇	✓	✓	✓	✓	✓	16	12.8 × 9.6(Φ16)	F1.8~F16	0.2~∞	C	58.0×44.5	-1.6	Φ38×73.5	175	33
NEW	LM25HC-VIS-SW	—	—	◇	◇	✓	✓	✓	✓	✓	25	12.8 × 9.6(Φ16)	F1.8~F16	0.2~∞	C	29.2×22.0	-0.97	Φ39×65.5	160	33
NEW	LM50HC-VIS-SW	◇	◇	◇	◇	✓	✓	✓	✓	✓	35	12.8 × 9.6(Φ16)	F2.5~F16	0.2~∞	C	14.6×11.0	-0.11	Φ39.5×71	155	33

2/3" 5 MEGAPIXEL IR-CORRECTED (VIS-NIR) 3.45 μm

Model	Format Size(Inch)									Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3										
LM16JC5M-IR	—	—	—	—	—	✓	✓	✓	✓	16	8.8×6.6(Φ11)	F1.4~F16	0.3~∞	C	30.9×23.2	-0.8	Φ34×44.5	100	34
LM25JC5M-IR	—	—	—	—	◇	✓	✓	✓	✓	25	8.8×6.6(Φ11)	F1.4~F16	0.3~∞	C	20.1×15.1	-0.3	Φ34×47	110	34
LM35JC5M-IR	—	—	—	—	◇	✓	✓	✓	✓	35	8.8×6.6(Φ11)	F2.0~F22	0.3~∞	C	13.9×10.5	-0.3	Φ34×43	100	34

1" SWIR MEGAPIXEL

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

LINE SCAN

Model	Format Size(Inch)								Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
	57.0	51.0	46.0	38.0	35.0	30.0	28.0	23.0										
LM28LF	—	—	—	✓	✓	✓	✓	✓	28	46.0(Φ46)	F2.8~F22	0.5~∞	Nikon F	64.6×45.8	-0.17	Φ75×98	500	36
LM35LF	—	◇	✓	✓	✓	✓	✓	✓	35	46.0(Φ46)	F2.8~F22	0.4~∞	Nikon F	53.7×37.2	-0.15	Φ57.5×71	430	36
LM50LF	—	◇	✓	✓	✓	✓	✓	✓	50	46.0(Φ46)	F2.8~F22	0.4~∞	Nikon F	39.7×27.1	-0.04	Φ57.5×77	470	36

3CMOS LARGE FORMAT

Model	Format Size(Inch)								Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
	57.0	51.0	46.0	38.0	35.0	30.0	28.0	23.0										
LM28CLS	—	—	—	—	—	✓	✓	✓	28	30.0(Φ30)	F2.8~F22	0.5~∞	Nikon F	55.2(V)	-0.1	Φ75×108	482	36
LM35CLS	—	—	—	—	—	✓	✓	✓	35	30.0(Φ30)	F2.8~F22	0.5~∞	Nikon F	46.1(V)	0.06	Φ65×108	480	36
LM50CLS	—	—	—	—	◇	✓	✓	✓	50	30.0(Φ30)	F2.8~F22	0.5~∞	Nikon F	32.3(V)	-0.1	Φ58×63.5	358	36

1/2.5" MEGAPIXEL S-MOUNT LENS

Model	Format Size(Inch)								Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page
	1.1	1	1/1.2	2/3	1/1.8	1/2	1/2.5	1/2.8										
LM3QS28	—	—	—	—	—	—	✓	—	3	5.7×4.28(Φ7.13)	F2.8	0.1~∞	S (M12×0.5)	86.7×70.6	0.02	Φ16×22.3	6	37
LM3QS40	—	—	—	—	—	—	✓	—			F4							
LM3QS56	—	—	—	—	—	—	✓	—			F5.6							

1/3" NF-MOUNT

Model	Format Size(Inch)								Focal Length(mm)	Image Size	Iris Range (F-stop)	Focusing Range(m)	Mount	Field Angle(H×V)	TV Distortion(%)	Size(mm)(∞)	Weight(g)	Page	
	4/3	1.2	1.1	1	1/1.2	2/3	1/1.8	1/2											1/3
LM3NF	—	—	—	—	—	—	—	—	✓	2.7	4.8×3.6(Φ6)	F1.8~F11	0.1~ ∞	NF	102.3×76.7	-7.3	Φ21×27	30	37
LM5NF	—	—	—	—	—	—	—	—	✓	4.5	4.8×3.6(Φ6)	F1.8~F11	0.1~ ∞	NF	59.2×45.0	-2.8	Φ21×31	35	37
LM9NF	—	—	—	—	—	—	—	◇	✓	9	4.8×3.6(Φ6)	F1.8~F11	0.1~ ∞	NF	30.2×22.8	-0.6	Φ22×34	40	37

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

Product Number Breakdown Ex. **LM 12 JCM**
① ② ③

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

②Represents focal length (fixed focal length lenses)

③Represents format sizes and lens type

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

Quick selection - How to calculate focal length

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

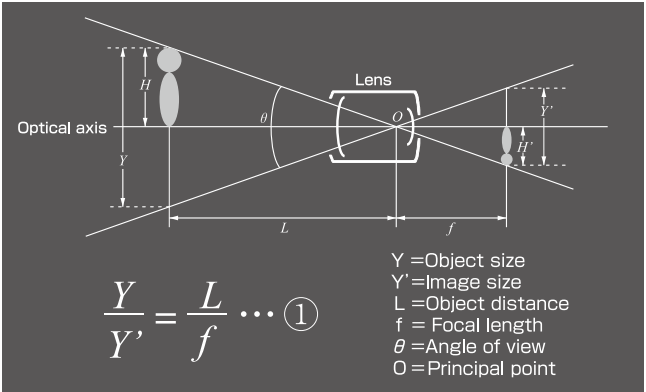
$Y=8.8\text{mm}$ (See image size chart), $L=300\text{mm}$, $Y=100\text{mm}$
 $f=300*8.8/100$
 $f=26.4\text{mm}$.
The most appropriate lens is f=25mm lens, which is close but not greater than the 26.4 derived from the calculation.
Lenses with shorter focal lengths than the given number can capture an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

Quick selection - How to calculate the angle of view

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

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

Characteristics of lenses are described below

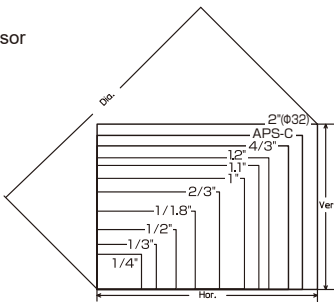


Object size..... Field range which can be captured by the image sensor
Image size See description
Object distance Distance from the lens to the object
Focal length..... Distance from the principal point to the focus point
Angle of view This angle represents a shooting range in degrees. The shorter a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

Image size

Image size represents size of camera sensor

Camera	Hor.(mm)	Ver.(mm)	Dia.(mm)
1/4inch	3.6	2.7	4.5
1/3inch	4.8	3.6	6
1/2inch	6.4	4.8	8
1/1.8inch	7.2	5.4	9
2/3inch	8.8	6.6	11
1inch	12.8	9.6	16
1.1inch	14.1	10.6	17.6
1.2inch	15.4	11.5	19.2
4/3inch	18.4	13.8	23
APS-C	22.3	16.7	27.9
2(Φ32)inch	25.6	19.2	32



F-number

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

Depth of field

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

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

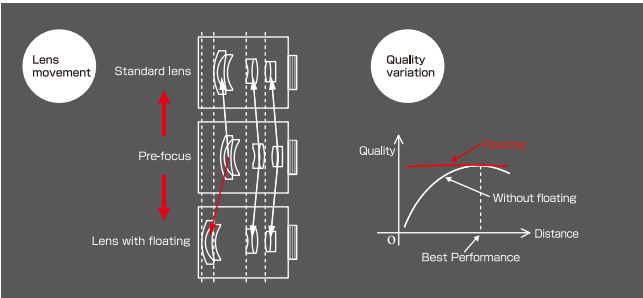
- Increasing the F-number (darker) increases the depth.
- Shortening the focal length increases the depth.
- Lengthening the object distance increases the depth.

Floating Mechanism system

The floating mechanism system is effective in preventing malfunction and increasing the life of the lens. It is also called the close distance aberration compensation mechanism.

In standard CCTV lenses, the whole or a part of the lens moves when focusing. However, moving one lens element and not the entire lens system changes the direction of the light rays and decreases the optical performance.

However, lenses with the floating mechanism system can vary the distance between the lens elements. This enables the lens to achieve the highest performance at various objective distances.



Lens processing facility

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

Examples of optical devices

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



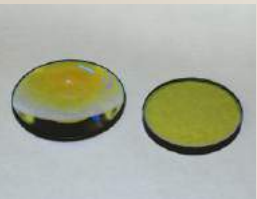
Coating machine



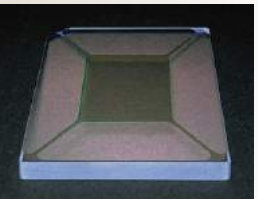
Spectrophotometer



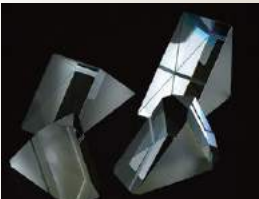
Spherical and Aspherical lenses



YAG laser cut optical devices



Special mirrors



Various prisms



Optical devices with special coatings



Ultra-precision optical devices

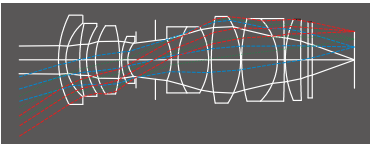
Design & Development

OEM Product Design

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

Example of Customized Optics

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



Meeting and quotation

- Meeting with customer
- Define specification
- Optical simulation
- Provide simulation results
- Quotation

Designing phase

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

Prototype and production phase

- Parts arrangement
- Assembly and adjustment
- Provide prototype
- Final evaluation
- Production



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