2/3" Megapixel Anti-Vibration and Shock

Ruggedized Megapixel Lenses

JCM-V SERIES

High Resolution FA lens

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

Features

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

LM8JCM-V

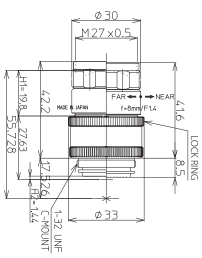
LM12JCM-V

LM16JCM-V

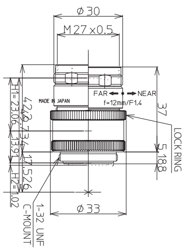
LM25JCM-V

LM35JCM-V

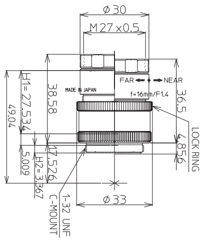
LM50JCM-V



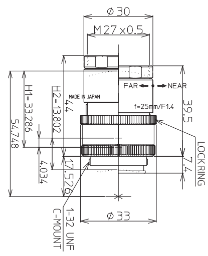
2/3" 1/1.8" 1/2" 8mm
FIXED MEGA C-mt
Fixed Focal Megapixel C-mount
METAL
Metal Body



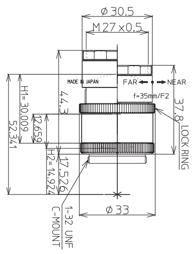
2/3" 1/1.8" 1/2" 12mm
FIXED MEGA C-mt
固定焦点 メガピクセル Cマウント
METAL
メタルボディ



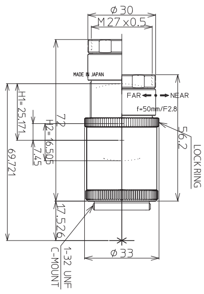
2/3" 1/1.8" 1/2" 16mm
FIXED MEGA C-mt
Fixed Focal Megapixel C-mount
METAL FLOAT
Metal Body Floating



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



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



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

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	F2.0/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	Manual	Manual	Manual	Manual	Manual	Manual
	Focus	Manual	Manual	Manual	Manual	Manual	Manual
Shooting Range at M.O.D. (mm)		120.3(H)×90.0(V)	110.0(H)×82.5(V)	112.8(H)×84.4(V)	71.1(H)×53.3(V)	47.9(H)×35.8(V)	29.3(H)×21.9(V)
Angle of	2/3 Inch	56.5×43.9	38.3×29.1	30.0×22.7	19.6×14.8	14.4×10.8	9.6×7.2
View	1/1.8 Inch	47.4×36.3	31.7×24.0	24.7×18.6	16.1×12.1	11.8×8.8	7.9×5.9
(Degrees)	1/2 Inch	42.6×32.5	28.3×21.4	21.8×16.4	14.0×10.5	10.5×7.9	7.0×5.2
TV Distortion (%)		−0.6	−0.07	−0.05	−0.04	−0.2	−0.03
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	Φ33.0×37.8	Φ33.0×56.2
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

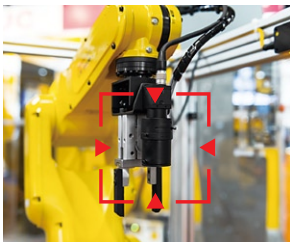
† Images may differ from the actual product.

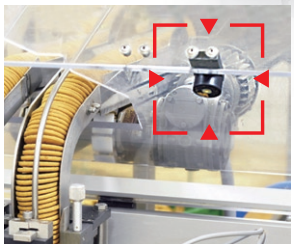
JCM-V SERIES

Vibration Test for JCM-V Lens Series

I. Background

Lenses used in vision systems for manufacturing, quality inspection, packaging, and robotics applications are often placed in environments that directly or indirectly produce strong vibration and shock. Due to an increasing demand for more durable high quality optics, Kowa has developed a brand new megapixel anti-shock and vibration JCM-V lens series designed for ruggedized use.





II. Specifications

1. The conventional locking screw system for fixing adjustable iris blades has been replaced with a system that utilizes robust interchangeable iris plates to set the F-Stop.

Variable step up ring

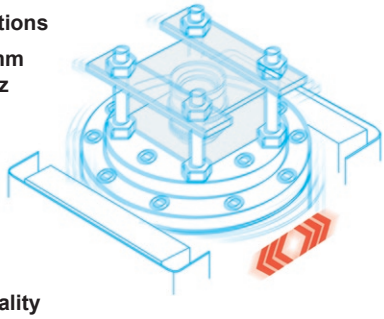
2. The conventional locking screw system for fixing the focus ring position has been replaced with a system that utilizes a two way reversible nut to lock in the focus position.

Double nut way

3. All internal lens elements are glued together for maximum stability.

III. Test Results

1. Vibration Test Conditions
   - Sub-amplitude: 0.7mm
   - Frequency: 10-500Hz
   - Acceleration: 5G



2. Comparison of Mechanical Damage: JCM-V Lens Versus Standard Lens

   2a. Standard High Resolution Lens from Manufacturer A:
   The iris and focus screws became loose and eventually unscrewed off the lens within a period of 3 days. The glass elements then broke off from the metal housing.

   2b. Kowa's Anti-shock and Vibration JCM-V Lens:
   Even after 1 week of continuous testing, the JCM-V lens remained undamaged without any discernable change.

3. Effects on Image Quality

   3a. After exposing the 2 lenses to vibration for 3 hours based on the test conditions mentioned above, we measured the pixel deviation from the center.

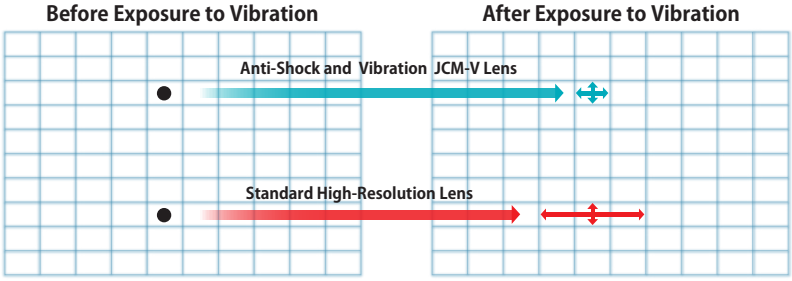
   3b. Camera Specifications: 5 megapixels (2448 x 2048 / 1 pixel: 3.45µm)

   3c. Pixel Deviation from the Center:

   Standard High Resolution Lens from Manufacturer A:
   X-axis: 3.1 pixel deviation
   Y-axis: -1.0 pixel deviation

   JCM-V Lens:
   X-axis: 0.2 pixel deviation
   Y-axis: -0.2 pixel deviation

After exposure to vibration, the standard high resolution lens produced a pixel deviation on average of over 3 pixels in the X-axis and over 1 pixel in the Y-axis. In comparison, the JCM-V lens produced a pixel deviation on average that was under 1 pixel. Thus, exposure to vibration had little effect on the JCM-V lens producing an accurate image.



＊The JMC-V lens had a deviation of less than 1 pixel while the standard high resolution lens had a deviation of 3 pixels.(Illustration of Pixel Deviation.)

Kowa

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