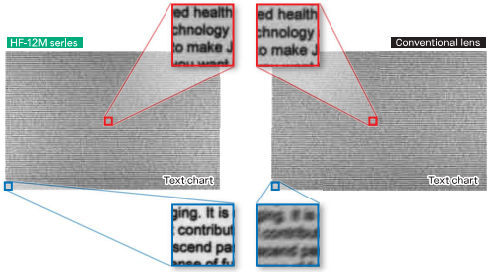
4D High Resolution Maintaining High-Resolution is about Controlling Aberration.

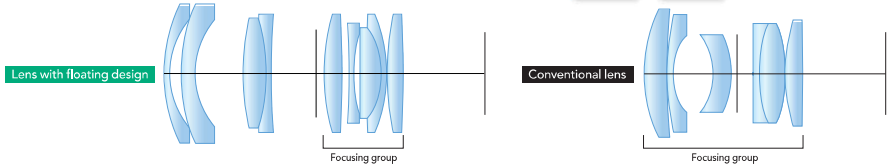
3 Technologies Supporting "4D High-Resolution"

1 Floating design technology

–Controls the drop in resolution caused by changing shooting distances–

- The lenses are designed to show the best resolution at the shooting distance most commonly used (designed distance). At this distance, the aberrations (color fringe/peripheral blur/distortion) are ideally corrected.
- Although conventional lens design technology optimally controlled aberration at the designed distance, aberration occurred at other distances and lowered resolution. The wide angle lens in particular had issues with its tendency for curvature of field (peripheral blur).
- The HF-12M series has implemented "floating design technology". "Floating lens elements" behind the iris move to focus and enable the HF-12M series to retain its highest resolution regardless of the shooting distance.





2 Eccentricity adjustment technology

–Retaining consistent resolution to the periphery of the image–

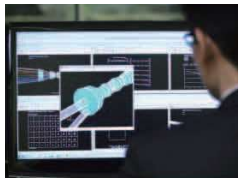
- Misalignment of the axis of the lenses during the manufacturing process prevents the intended performance from being exhibited. It is crucial to align the axis of the lenses to the micrometer level during its manufacturing process.
- The HF-12M series realized high-resolution consistent all the way to the periphery of the image. This is accomplished by detecting all lens core misalignment using proprietary inspection equipment of Fujifilm manufacturing technology and aligning the whole lens constructions with micrometer level adjustments.
- Fujifilm's proprietary manufacturing technology is utilized by applying the precision technology needed for manufacturing broadcast lenses that require high-dimensional and consistent qualities, to the manufacture of miniature lenses such as camera modules for mobile phones.

No misalignments　　Lenses are misaligned

3 Glass matching technology (Fujifilm original optical design software "FOCUS")

–Controls the drop in resolution caused by changing aperture value–

- "Lateral chromatic aberration (color fringe)" is the main cause for the drop in resolution when changing the aperture value. Due to the different refractive index of the wavelength, imaging position sometimes differs by colors. This leads to the color fringing at the edge of the frame. To control of this aberration combination of the glass materials matters. While general glass materials can correct only the 2 colors of RGB(Red, Green, Blue), Extra-low Dispersion glass material enables the correction of all three colors at high level.
- By implementing glass with Extra-low Dispersion characteristics to control lateral chromatic aberration, the HF-12M series have succeeded to maintain the high resolution even when changing the aperture value.
- Fujifilm's has developed its original lens design software "FOCUS (Fujifilm Optical Class Library and Utilities System)", which enables to decide the best glass materials from the infinite combination of possibilities.

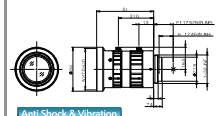


Please download the specification sheet and the drawing data.

HF-XA-5M series, 2/3"

Maximum sensor size
6mm/8mm=~2/3", 12mm/16mm/25mm/35mm=~1/1.2", 50mm=~1.1"

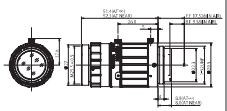
4D High Resolution



Anti Shock & Vibration

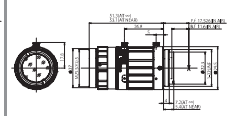
HF6XA-5M

Focal length [mm]	6
Iris range (F. no)	F1.9-F16
Angle of view	74.7°×58.1°
Working Distance*1 [mm]	∞-100
Operation of focus	Manual
Operation of iris	Manual
Filter thread [mm]	M37.5 x 0.5
Mount	C-mount
Weight (approx.) [g]	100
Sensor size(std.)*2	2/3"(3.45um)
Sensor size (max.)*3	2/3"(3.45um)
TV distortion [%]	-2.88
Dimension [mm]	Φ39×51



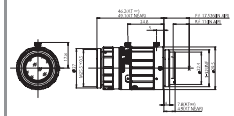
HF8XA-5M

Focal length [mm]	8
Iris range (F. no)	F1.6-F16
Angle of view	58.4°×44.6°
Working Distance*1 [mm]	∞-100
Operation of focus	Manual
Operation of iris	Manual
Filter thread [mm]	M25.5 x 0.5
Mount	C-mount
Weight (approx.) [g]	79
Sensor size(std.)*2	2/3"(3.45um)
Sensor size (max.)*3	2/3"(3.45um)
TV distortion [%]	-1.99
Dimension [mm]	Φ29.5×51.5



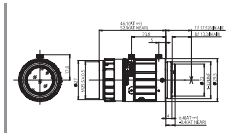
HF12XA-5M

Focal length [mm]	12
Iris range (F. no)	F1.6-F16
Angle of view	40.1°×30.3°
Working Distance*1 [mm]	∞-100
Operation of focus	Manual
Operation of iris	Manual
Filter thread [mm]	M25.5 x 0.5
Mount	C-mount
Weight (approx.) [g]	79
Sensor size(std.)*2	2/3"(3.45um)
Sensor size (max.)*3	1/1.2"(4.5um)
TV distortion [%]	-1.26
Dimension [mm]	Φ29.5×51.5



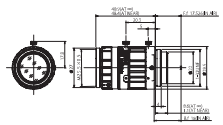
HF16XA-5M

Focal length [mm]	16
Iris range (F. no)	F1.6-F16
Angle of view	31.4°×23.7°
Working Distance*1 [mm]	∞-100
Operation of focus	Manual
Operation of iris	Manual
Filter thread [mm]	M25.5 x 0.5
Mount	C-mount
Weight (approx.) [g]	71
Sensor size(std.)*2	2/3"(3.45um)
Sensor size (max.)*3	1/1.2"(4.5um)
TV distortion [%]	-0.60
Dimension [mm]	Φ29.5×46.0



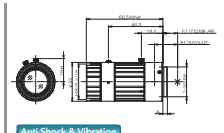
HF25XA-5M

Focal length [mm]	25
Iris range (F. no)	F1.6-F16
Angle of view	20.0°×15.0°
Working Distance*1 [mm]	∞-100
Operation of focus	Manual
Operation of iris	Manual
Filter thread [mm]	M25.5 x 0.5
Mount	C-mount
Weight (approx.) [g]	72
Sensor size(std.)*2	2/3"(3.45um)
Sensor size (max.)*3	1/1.2"(4.5um)
TV distortion [%]	-0.07
Dimension [mm]	Φ29.5×46.5



HF35XA-5M

Focal length [mm]	35
Iris range (F. no)	F1.9-F16
Angle of view	14.2°×10.7°
Working Distance *1 [mm]	∞-200
Operation of focus	Manual
Operation of iris	Manual
Filter thread [mm]	M25.5 x 0.5
Mount	C-mount
Weight (approx.) [g]	60
Sensor size(std.)*2	2/3"(3.45um)
Sensor size (max.)*3	1/1.2"(4.5um)
TV distortion [%]	0.10
Dimension [mm]	Φ29.5×41.5



Anti Shock & Vibration

HF50XA-5M NEW

Focal length [mm]	50
Iris range (F. no)	F2.4-F16
Angle of view	10.4°×7.8°
Working Distance*1 [mm]	∞-200
Operation of focus	Manual
Operation of iris	Manual
Filter thread [mm]	M30.5x0.5
Mount	C-mount
Weight (approx.) [g]	95
Sensor size(std.)*2	2/3"(3.45um)
Sensor size (max.)*3	1.1"(4.5um)
TV distortion [%]	0.01
Dimension [mm]	φ33.0×66.5

*1: From front of lens barrel

*2: Sensor size(std.):
Ideal size to maximize the target resolution

*3: Sensor size(max.):
Adaptable sensor size varies depending on the model. Please check the amount of light and resolution on the edges pertaining to your particular application.