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HF50HA-1S

Technical Datasheet

2/3"

Fujinon HF-HA-1S Series

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Fujifilm's Fujinon HF-HA-1S series lenses offer a 6.2µm pixel pitch (equivalent to 1.5 megapixels) and are suitable for up to 2/3" sensors (with the exception of the DF6HA-1S which can handle up to 1/2"). The HF-HA-1S series is the successor of the HF-HA-1B series and offers the same optical performance and the same mechanical dimensions, now with Anti Shock & Vibration Technology. These lenses offer a compact design with an outer diameter of 29.5-31.5mm.

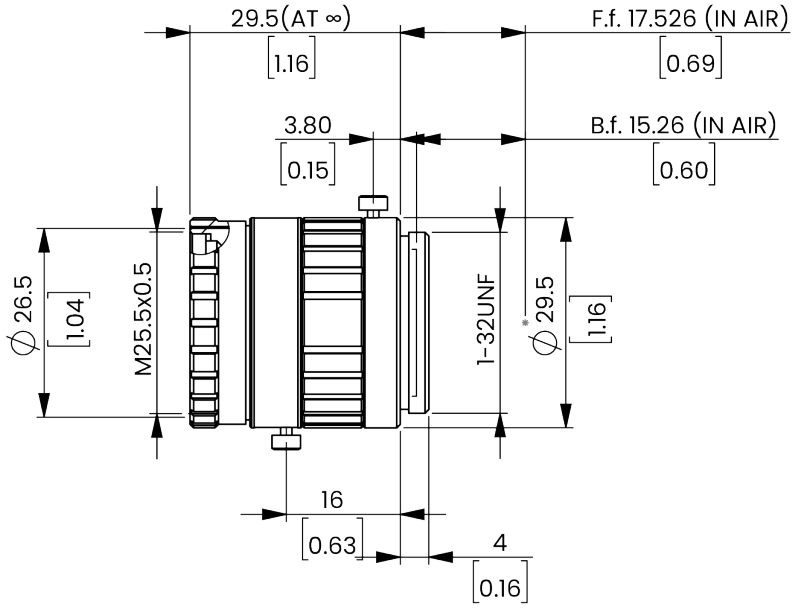
Specification Highlights

FOCAL LENGTH:	50 mm	**WORKING DISTANCE:**	500 mm - Infinity
FORMAT:	2/3"	**FILTER THREAD:**	M25.5 x 0.5
PIXEL SIZE:	6.2 µm	**WEIGHT:**	40 grams
LENS MOUNT:	C-Mount	**RESOLUTION MP:**	1.5 MP
APERTURE:	F2.3-F22	**LENS CLASS:**	Fixed Focal Length

Full Specifications

Focal Length	50 mm	Flange Back	17.526 mm
Focal Length Design Value	49.56 mm	Entrance Pupil Position (From Mount)	6.05 mm
Iris Range (f-number)	F2.3-F22	Exit Pupil Position (From Image Plane)	-25.15 mm
Angle of View	10.1° x 7.6° (2/3")	Front Principal Point (From Mount)	-42.63 mm
Working Distance (From Front of Lens Barrel)	500 mm - Infinity	Rear Principal Point (From Mount)	-35.04 mm
Operation of Focus	Manual	Distance Between Principal Points	10.59 mm
Operation of Iris	Manual	TV Distortion	0.06%
Filter Thread	M25.5 x 0.5	Dimensions	ϕ29.5 × 29.5
Mount	C-Mount	Chief Ray Angle	12.25°
Weight	40 Grams	Relative Illumination (Aperture F4.0; Image Height at Diagonal)	97%
Sensor Size (Standard)	2/3" (6.2 µm)	Relative Illumination (Aperture at Full Open; Image Height at Diagonal)	61%
Back Focal Length (In Air)	15.24 mm	Operation Temperature	-10°C - +50°C

Dimensions



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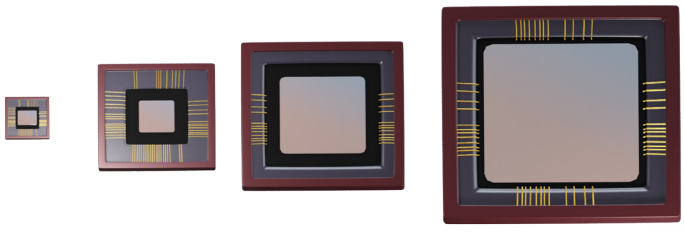
HF50HA-1S REFERENCE FOV CHART

Working Distance (mm)	Optical Magnification	Extension Ring (mm)	Field of View (mm)									
			2/3"		1/1.8"		1/2"		1/2.5"		1/3"	
			H	V	H	V	H	V	H	V	H	V
1500	0.034x	-	254.9	191.2	206.3	154.8	185.4	139.1	165.3	124.0	139.1	104.4
1450	0.036x	-	246.0	184.6	199.1	149.4	179.0	134.3	159.6	119.7	134.3	100.7
1400	0.037x	-	237.1	177.9	191.9	144.0	172.5	129.5	153.8	115.4	129.5	97.1
1350	0.038x	-	228.3	171.3	184.8	138.6	166.1	124.6	148.1	111.1	124.6	93.5
1300	0.040x	-	219.4	164.6	177.6	133.2	159.7	119.8	142.3	106.8	119.8	89.9
1250	0.042x	-	210.6	158.0	170.4	127.9	153.2	114.9	136.6	102.4	114.9	86.2
1200	0.044x	-	201.7	151.3	163.2	122.5	146.8	110.1	130.8	98.1	110.1	82.6
1150	0.046x	-	192.8	144.7	156.1	117.1	140.3	105.3	125.1	93.8	105.3	79.0
1100	0.048x	-	184.0	138.0	148.9	111.7	133.9	100.4	119.3	89.5	100.4	75.3
1050	0.050x	-	175.1	131.4	141.7	106.3	127.4	95.6	113.6	85.2	95.6	71.7
1000	0.053x	-	166.3	124.7	134.5	100.9	121.0	90.7	107.8	80.9	90.7	68.1
950	0.056x	-	157.4	118.1	127.4	95.6	114.5	85.9	102.1	76.6	85.9	64.4
900	0.059x	-	148.5	111.4	120.2	90.2	108.1	81.1	96.3	72.3	81.1	60.8
850	0.063x	-	139.7	104.8	113.0	84.8	101.6	76.2	90.6	67.9	76.2	57.2
800	0.067x	-	130.8	98.1	105.9	79.4	95.2	71.4	84.8	63.6	71.4	53.5
750	0.072x	-	121.9	91.5	98.7	74.0	88.7	66.5	79.1	59.3	66.5	49.9
700	0.078x	-	113.1	84.8	91.5	68.6	82.3	61.7	73.3	55.0	61.7	46.3
650	0.084x	-	104.2	78.2	84.3	63.3	75.8	56.9	67.6	50.7	56.9	42.7
600	0.092x	-	95.4	71.5	77.2	57.9	69.4	52.0	61.8	46.4	52.0	39.0
550	0.102x	-	86.5	64.9	70.0	52.5	62.9	47.2	56.1	42.1	47.2	35.4
500	0.113x	-	77.6	58.2	62.8	47.1	56.5	42.3	50.3	37.7	42.3	31.8
450	0.128x	-	68.8	51.6	55.6	41.7	50.0	37.5	44.6	33.4	37.5	28.1
400	0.147x	1	59.9	44.9	48.5	36.3	43.6	32.7	38.8	29.1	32.7	24.5
350	0.172x	5	51.0	38.3	41.3	31.0	37.1	27.8	33.1	24.8	27.8	20.9
300	0.209x	5	42.1	31.6	34.1	25.6	30.6	23.0	27.3	20.5	23.0	17.2
250	0.265x	10	33.3	24.9	26.9	20.2	24.2	18.1	21.6	16.2	18.1	13.6
200	0.361x	15	24.4	18.3	19.7	14.8	17.7	13.3	15.8	11.9	13.3	10.0
150	0.533x	20	16.5	12.4	13.4	10.0	12.0	9.0	10.7	8.0	9.0	6.8

FOV Charts are intended to be used as general guidance and are not guaranteed to be accurate as all sensors do not have the same dimensions, including sensors with the same format size. For the most accurate approximations, please use a lens calculator that accounts for your specific sensor dimensions



1/6" 1/3" 2/3" 1"

Sensor Formats

It is important to make sure you size your lens to the correct sensor size (format). The image you get from a 2/3" format lens will provide a smaller Field of View when used with a 1/3" format sensor than it will provide when used with a 2/3" format sensor, even with the same working distance

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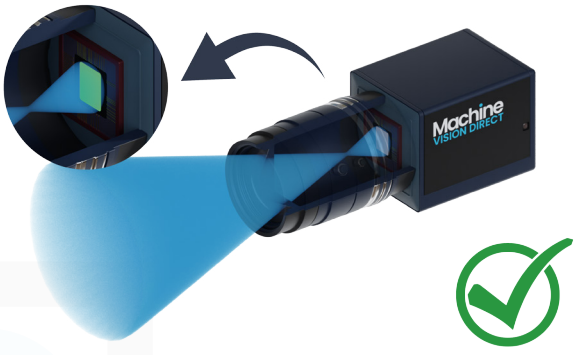
Sensor Size Compatibility Chart

Model (Old Model Name)	Compatible format sizes								Focal length (mm)
	4/3	1.1	1	1/1.2	2/3	1/1.8	1/2	1/3	
DF6HA-1.5 (DF6HA-1B)	-	-	-	-	-	-	●	●	6
HF9HA-1S (HF9HA-1B)	-	-	-	-	●	●	●	●	9
HF12.5HA-1S (HF12.5HA-1B)	-	-	-	-	●	●	●	●	12.5
HF16HA-1S (HF16HA-1B)	-	-	-	-	●	●	●	●	16
HF25HA-1S (HF25HA-1B)	-	-	-	-	●	●	●	●	25
HF35HA-1S (HF35HA-1B)	-	-	-	-	●	●	●	●	35
HF50HA-1S (HF50HA-1B)	-	-	-	-	●	●	●	●	50
HF75HA-1S (HF75HA-1B)	-	-	-	-	●	●	●	●	75

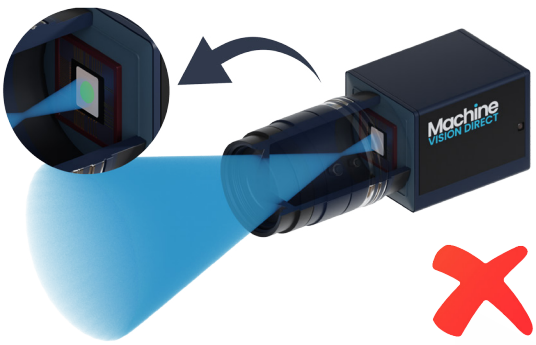
● Compatible sensor size (std.): Ideal size to maximize the target resolution.

Please note that not all sizes of sensors are listed on this chart. It is generally okay to use larger format lenses with smaller format sensors, but not the other way around



Properly Sized Lens Format

A camera with a properly sized lens will project an image that will cover the whole sensor



Undersized Lens Format

A camera with an undersized lens format will project an image that will not cover the whole sensor. This will cause vignetting of the image

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HF-HA-1S SERIES LENSES

DF6HA-1S

FOCAL LENGTH: 6 mm
APERTURE: F1.2-F16
WORKING DISTANCE: 100 mm - Infinity
FORMAT: 1/2″
FILTER THREAD: M27 x 0.5

ORDER NOW

HF9HA-1S

FOCAL LENGTH: 9 mm
APERTURE: F1.4-F16
WORKING DISTANCE: 100 mm - Infinity
FORMAT: 2/3″
FILTER THREAD: M27 x 0.5

ORDER NOW

HF12.5HA-1S

FOCAL LENGTH: 12.5 mm
APERTURE: F1.4-F16
WORKING DISTANCE: 100 mm - Infinity
FORMAT: 2/3″
FILTER THREAD: M25.5 x 0.5

ORDER NOW

HF16HA-1S

FOCAL LENGTH: 16 mm
APERTURE: F1.4-F16
WORKING DISTANCE: 100 mm - Infinity
FORMAT: 2/3″
FILTER THREAD: M25.5 x 0.5

ORDER NOW

HF25HA-1S

FOCAL LENGTH: 25 mm
APERTURE: F1.4-F16
WORKING DISTANCE: 150 mm - Infinity
FORMAT: 2/3″
FILTER THREAD: M25.5 x 0.5

ORDER NOW

HF35HA-1S

FOCAL LENGTH: 35 mm
APERTURE: F1.6-F22
WORKING DISTANCE: 250 mm - Infinity
FORMAT: 2/3″
FILTER THREAD: M25.5 x 0.5

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HF50HA-1S

FOCAL LENGTH: 50 mm
APERTURE: F2.3-F22
WORKING DISTANCE: 500 mm - Infinity
FORMAT: 2/3″
FILTER THREAD: M25.5 x 0.5

ORDER NOW

HF75HA-1S

FOCAL LENGTH: 75 mm
APERTURE: F2.8-F22
WORKING DISTANCE: 100 mm - Infinity
FORMAT: 2/3″
FILTER THREAD: M30.5 x 0.5

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FUJINON LENS SERIES

HF-HA-1S

FOCAL LENGTH: 6 mm, 9 mm, 12.5 mm 16 mm, 25 mm, 35 mm 50 mm, 75 mm
PIXEL SIZE: 6.2 µm
FORMAT: 2/3″
RESOLUTION: 1.5 MP

VIEW SERIES

HF-SA

FOCAL LENGTH: 12.5 mm, 16 mm, 25 mm 35 mm, 50 mm, 75 mm
PIXEL SIZE: 3.45 µm
FORMAT: 2/3″
RESOLUTION: 5 MP

VIEW SERIES

HF-XA-5M

FOCAL LENGTH: 6 mm, 8 mm, 12 mm 16 mm, 25 mm 35 mm, 50 mm
PIXEL SIZE: 3.45 µm
FORMAT: 2/3″
RESOLUTION: 5 MP

VIEW SERIES

HF-XA-1F

FOCAL LENGTH: 8 mm, 12 mm, 16 mm 25 mm, 35 mm
PIXEL SIZE: 3.45 µm
FORMAT: 2/3″
RESOLUTION: 5 MP

VIEW SERIES

HF-12M

FOCAL LENGTH: 8 mm, 12 mm, 16 mm 25 mm, 35 mm
PIXEL SIZE: 2.1 µm
FORMAT: 2/3″
RESOLUTION: 12 MP

VIEW SERIES

CF-ZA-1S

FOCAL LENGTH: 8 mm, 12 mm, 16 mm 25 mm, 35 mm, 50 mm
PIXEL SIZE: 2.74 µm
FORMAT: 1.1″
RESOLUTION: 23 MP

VIEW SERIES

CF-HA

FOCAL LENGTH: 12.5 mm, 16 mm, 25 mm 35 mm, 50 mm, 75 mm
PIXEL SIZE: 7.4 µm
FORMAT: 1″
RESOLUTION: 1.5 MP

VIEW SERIES

FE185

FOCAL LENGTH: 6 mm, 9 mm, 12.5 mm 16 mm, 25 mm, 35 mm 50 mm, 75 mm
PIXEL SIZE: 6.2 µm
FORMAT: 2/3″
RESOLUTION: 1.5 MP

VIEW SERIES

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