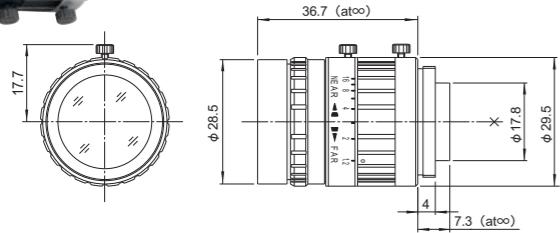


# For FA/Machine Vision Fixed Focal

## DF6HA-1B

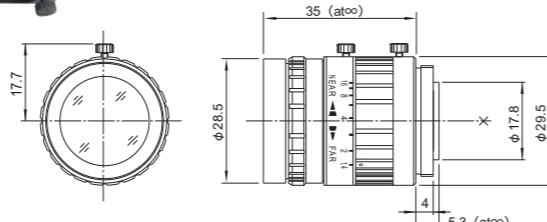
FIXED WIDE 1.5 Mega MANUAL C-MT METAL F1.2



Unit : mm

## HF9HA-1B

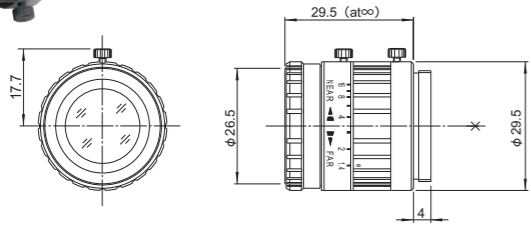
FIXED WIDE 1.5 Mega MANUAL C-MT METAL F1.4



Unit : mm

## HF12.5HA-1B

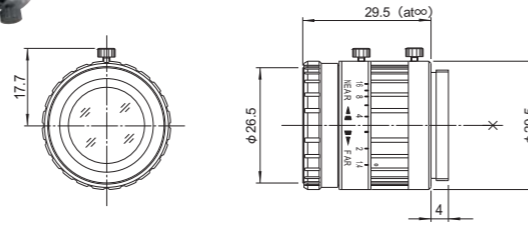
FIXED 1.5 Mega MANUAL C-MT METAL F1.4



Unit : mm

## HF16HA-1B

FIXED 1.5 Mega MANUAL C-MT METAL F1.4



Unit : mm

### Feature Indications

- FIXED** Fixed Focal  
High performance single focal lens for the best image quality
- MANUAL** Manual Iris  
Manually-operated iris
- C-mt** C Mount  
Screw-in mounting commonly used in FA lenses
- F1.4** Wide Aperture Rate  
Lens with the wide aperture rate, optimizing the sensitivity of cameras
- WIDE** Wide Angle  
Wide angle lens which ensures wide field of view
- 1.5 Mega** For Megapixel Camera  
For 1.5 Megapixel Camera
- METAL** Metal Mount  
Metal mounting with high accuracy and durability

... With locking knob for iris and focus

### Model Explanation

Image Size	<b>H</b>	<b>F</b>	<b>9</b>	<b>HA-1</b>	<b>SA-1</b> 5 megapixel
<b>D</b> ...1/2" <b>H</b> ...2/3" <b>C</b> ...1"	Fixed Focal	Focal Length	Megapixel Support	<b>HA-1B</b> 1.5 megapixel	

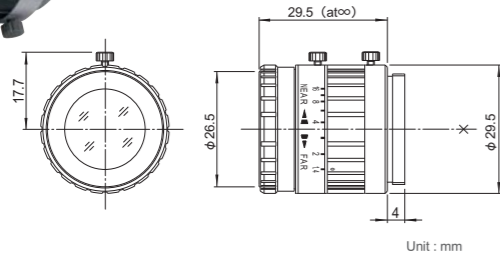
### 1.5 Megapixel

- High-resolution design, providing support for up to 1.5 megapixel camera resolution.
- Low-distortion design achieving accurate image input.
- Focus & iris lock tab provided, supporting environments such as vibration.

	DF6HA-1B		HF9HA-1B		HF12.5HA-1B		HF16HA-1B		
Focal Length (mm)	6		9		12.5		16		
Iris Range	F1.2~F16		F1.4~F16		F1.4~F16		F1.4~F16		
Operation	Focus	Manual		Manual		Manual		Manual	
	Iris	Manual		Manual		Manual		Manual	
Angle Of View (HxV)	1/2"	56°09' × 43°36'	2/3"	52°06' × 40°16'	2/3"	38°47' × 29°35'	2/3"	30°45' × 23°18'	
	1/3"	43°36' × 33°24'	1/2"	39°09' × 29°52'	1/2"	28°43' × 21°44'	1/2"	22°37' × 17°04'	
	1/4"	33°24' × 25°22'	1/3"	29°52' × 22°37'	1/3"	21°44' × 16°23'	1/3"	17°04' × 12°50'	
Focusing Range (From Front Of The Lens) (m)	∞ ~ 0.1		∞ ~ 0.1		∞ ~ 0.1		∞ ~ 0.1		
Object Dimensions at M.O.D. (HxV) (mm)	1/2"	122 × 92	2/3"	108 × 81	2/3"	78 × 58	2/3"	63 × 47	
	1/3"	92 × 69	1/2"	79 × 59	1/2"	57 × 42	1/2"	46 × 34	
	1/4"	69 × 52	1/3"	59 × 44	1/3"	42 × 32	1/3"	34 × 26	
Back Focal Distance (in air) (mm)	11.44		13.48		15.09		15.15		
Exit Pupil Position (From Image Plane) (mm)	-46		-28		-31		-31		
Filter Thread (mm)	M27 × 0.5		M27 × 0.5		M25.5 × 0.5		M25.5 × 0.5		
Mount	C		C		C		C		
Mass (g)	55		55		45		45		
Remarks	With Metal Mount		With Metal Mount		With Metal Mount		With Metal Mount		

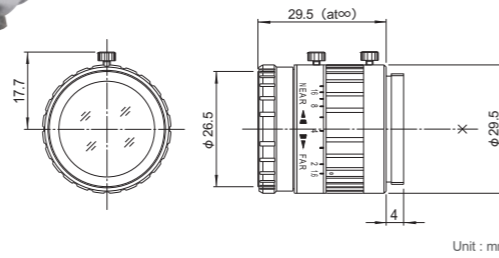
# For FA/Machine Vision Fixed Focal

## HF25HA-1B



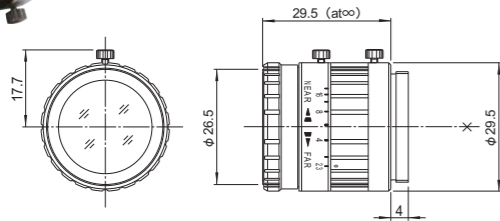
Unit : mm

## HF35HA-1B



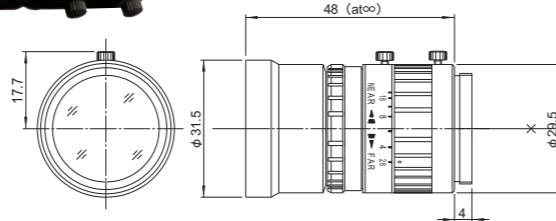
Unit : mm

## HF50HA-1B



Unit : mm

## HF75HA-1B



Unit : mm

### Feature Indications

- FIXED** Fixed Focal  
High performance single focal lens for the best image quality
- 1.5 Mega** For Megapixel Camera  
For 1.5 Megapixel Camera
- MANUAL** Manual Iris  
Manually-operated iris
- METAL** Metal Mount  
Metal mounting with high accuracy and durability
- F1.4 F1.6** Wide Aperture Rate  
Lens with the wide aperture rate, optimizing the sensitivity of cameras
- C-mt** C Mount  
Screw-in mounting commonly used in FA lenses

... With locking knob for iris and focus

### Model Explanation

Image Size	<b>H</b>	<b>F</b>	<b>25</b>	<b>HA-1</b>	<b>SA-1</b> 5 megapixel
<b>D</b> ...1/2" <b>H</b> ...2/3" <b>C</b> ...1"	Fixed Focal	Focal Length	Megapixel Support	<b>HA-1B</b> 1.5 megapixel	

### 1.5 Megapixel

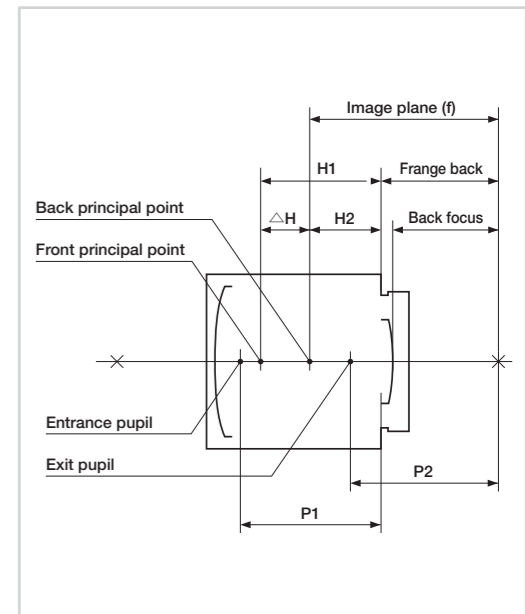
- High-resolution design, providing support for up to 1.5 megapixel camera resolution.
- Low-distortion design achieving accurate image input.
- Focus & iris lock tab provided, supporting environments such as vibration.

	HF25HA-1B	HF35HA-1B	HF50HA-1B	HF75HA-1B
Focal Length (mm)	25	35	50	75
Iris Range	F1.4-F16	F1.6-F22	F2.3-F22	F2.8-F22
Operation	Focus	Manual	Manual	Manual
	Iris	Manual	Manual	Manual
Angle Of View (H×V)	2/3"	19°58' × 15°02'	14°20' × 10°46'	10°03' × 7°33'
	1/2"	14°35' × 10°58'	10°27' × 7°51'	7°19' × 5°30'
	1/3"	10°58' × 8°14'	7°51' × 5°53'	5°30' × 4°07'
Focusing Range (From Front Of The Lens) (m)	∞ ~ 0.15	∞ ~ 0.25	∞ ~ 0.5	∞ ~ 1.1
Object Dimensions at M.O.D. (H×V) (mm)	2/3"	53 × 40	59 × 44	77 × 57
	1/2"	38 × 29	43 × 32	56 × 42
	1/3"	29 × 22	32 × 24	42 × 31
Back Focal Distance (in air) (mm)	14.58	15.03	15.26	15.74
Exit Pupil Position (From Image Plane) (mm)	-32	-27	-25	-27
Filter Thread (mm)	M25.5 × 0.5	M25.5 × 0.5	M25.5 × 0.5	M30.5 × 0.5
Mount	C	C	C	C
Mass (g)	45	45	45	55
Remarks	With Metal Mount	With Metal Mount	With Metal Mount	With Metal Mount

# OPTICAL DATA (FA/Machine Vision LENS)

Sensor size	Product name	Focal Length	Aperture/Full open	Front principal point H1 (from Mount)	Back principal point H2 (from Mount)	Distance between the principal points ΔH
1/2"	DF6HA-1B	6.15	1.2	-16.45	11.38	27.82
	HF9HA-1B	9.23	1.4	-12.91	8.30	21.21
	HF12.5HA-1B	12.88	1.4	-2.85	4.64	7.49
	HF16HA-1B	16.49	1.4	3.05	1.03	-2.02
	HF25HA-1B	25.81	1.4	1.82	-8.28	-10.10
	HF35HA-1B	34.99	1.6	-9.00	-17.47	-8.46
2/3"	HF50HA-1B	49.57	2.3	-42.64	-32.04	10.59
	HF75HA-1B	75.01	2.8	-100.77	-57.48	43.29
	HF12.5SA-1	12.83	1.4	-33.68	4.70	38.37
	HF16SA-1	16.33	1.4	-24.15	1.20	25.35
	HF25SA-1	24.00	1.4	-23.47	-6.47	17.00
	HF35SA-1	35.74	1.4	-1.27	-18.21	-16.94
	HF50SA-1	51.72	1.8	-1.87	-34.19	-32.32
	HF75SA-1	74.97	1.8	-34.56	-57.45	-22.89
	HF35SR4A-SA1L	35.00	2.0	-19.33	-17.47	1.85
	HF50SR4A-SA1L	50.00	2.8	18.09	-32.47	-50.56
1"	CF12.5HA-1	12.83	1.4	-33.68	4.70	38.37
	CF16HA-1	16.33	1.4	-24.15	1.20	25.35
	CF25HA-1	24.00	1.4	-23.47	-6.47	17.00
	CF35HA-1	35.74	1.4	-1.27	-18.21	-16.94
	CF50HA-1	51.72	1.8	-1.87	-34.19	-32.32
	CF75HA-1	74.97	1.8	-34.56	-57.45	-22.89
1/3" (3CCD)	TF2.8DA-8	2.86	2.2	-33.74	14.67	48.41
	TF4DA-8	4.15	2.2	-28.46	13.37	41.83
	TF8DA-8B	8.23	2.2	-10.81	9.30	20.10
	TF15DA-8	15.26	2.2	-0.33	2.27	2.60
	TF25DA-8B	24.94	2.2	14.49	-7.42	-21.91
Fish-Eye	FE185C046HA-1	1.43	1.4	-38.26	16.10	54.36
	FE185C057HA-1	1.78	1.4	-37.55	15.75	53.30
	FE185C086HA-1	2.68	1.8	-35.00	14.85	49.85

Entrance pupil position P1 (from Mount)	Exit pupil position P2 (from Image plane)	Back focal distance (in air)	Distortion	Relative illumination (Aperture: at full open. Image height: at diagonal)
-21.8	-46	11.44	-1.93%	39
-19.1	-28	13.48	-2.09%	32
-10.3	-31	15.09	-2.01%	35
-4.5	-30	15.15	-0.96%	35
-3.0	-32	14.58	-0.27%	46
2.1	-27	15.00	0.03%	56
5.8	-25	15.25	0.04%	61
35.4	-27	15.75	0.27%	63
-44.9	-101	16.07	-0.30%	68
-38.9	-172	17.99	-0.08%	78
-43.3	-139	22.32	-0.18%	72
-2.1	-37	14.99	-0.07%	62
0.5	-49	17.81	-0.03%	75
-2.2	-52	24.43	-0.03%	72
-37.8	-74	19.65	-0.02%	74
-26.7	-484	19.16	0.07%	80
-44.9	-101	16.07	0.17%	40
-38.9	-172	17.99	0.31%	34
-43.3	-139	22.32	0.02%	39
-2.1	-37	14.99	-0.15%	43
0.5	-49	17.81	-0.06%	62
-2.2	-52	24.43	-0.06%	67
-36.7	101	14.51	-6.25%	51
-32.8	88	14.61	-3.78%	53
-18.6	-178	14.83	-1.32%	30
-12.9	-89	16.32	-0.33%	34
-5.1	-120	15.12	-0.12%	30
-39.7	-227	9.70	-0.47% ※	75
-39.3	-66	9.70	-0.80% ※	74
-37.5	-41	9.75	-0.53% ※	84



※ $y=f\theta$