



Hippo Series Telecentric Lenses



Product Features

- High resolution, low distortion, compatible with cameras up to 1.1" sensor size
- The entire series has a wide magnification range, with multiple magnifications available from 0.3X to 4X
- Telecentric light path design, high telecentricity, optional built-in coaxial light illumination specifications

Resolution Comparison



Image taken by Cheetah



Image taken by other lens

Selection Guide

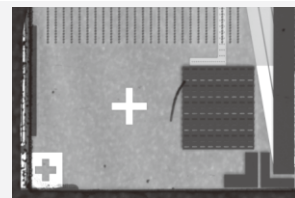
OPT-CH10-110C-F6.5

- F/#: 6.5
- C: Coaxial point light illumination can be built-in; FC: Built-in coaxial surface illumination available.
- Object side working distance (WD): 110 mm
- Magnification: 1.0X
- Cheetah Series Telecentric Lenses
- Brand name

Application Cases



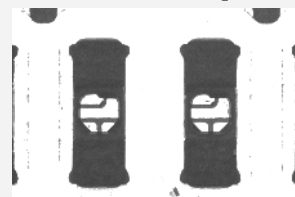
MARK point positioning



LCD screen MARK positioning



Resolution board imaging effect



LED defect detection

Model Table

No.	Model	WD (mm) ^[1]	Mag.	Sensor Ø (mm)	Aperture (F/#) ^{[2][4]}	Distortion (Max.)	DOF (mm) ^[3]	MTF30 (lp/mm)	Telecentricity (Max.)	O/I (mm)	Weight (kg)	FOV. Ø (mm)
1	OPT-HP03-110-F6.5	110±2	0.3X	18.4(1.1")	F6.5	<0.1%	5.96	145	0.10°	292.6	0.86	61.33
2	OPT-HP04-190-VI	190±2	0.4X	18.4(1.1")	F6.5~F44	<0.1%	3.35~22.69	145~25	0.10°	381.6	0.719	46
3	OPT-HP05-110-F6.5	110±2	0.5X	18.4(1.1")	F6.5	<0.2%	2.15	145	0.10°	284.6	0.52	36.80
4	OPT-HP08-110-F6.5	110±2	0.8X	18.4(1.1")	F6.5	<0.1%	0.84	145	0.10°	278.7	0.51	23.00
5	OPT-HP10-110-F7	110±2	1.0X	18.4(1.1")	F7.0	<0.1%	0.58	130	0.10°	273.6	0.36	18.40
6	OPT-HP15-110-F7	110±2	1.5X	18.4(1.1")	F7.0	<0.2%	0.26	135	0.10°	275.6	0.46	12.27
7	OPT-HP20-65-F7	65±2	2.0X	18.4(1.1")	F7.0	<0.1%	0.14	130	0.10°	233.6	0.46	9.20
8	OPT-HP40-65-F12	65±2	4.0X	18.4(1.1")	F11.8	<0.1%	0.06	80	0.10°	252.6	0.51	4.60



Model Table

No.	Model	WD (mm) ^[1]	Mag.	Sensor Ø (mm)	Aperture (F/#) ^{[2][4]}	Distortion (Max.)	DOF (mm) ^[3]	MTF30 (lp/mm)	Telecentricity (Max.)	O/I (mm)	Weight (kg)	FOV. Ø (mm)
9	OPT-HP03-110C-F6.5	110±2	0.3	18.4(1.1")	F6.5	<0.1%	5.96	145	0.10°	292.7	0.92	61.33
10	OPT-HP03-110FC-F6.5	110±2	0.3	18.4(1.1")	F6.5	<0.1%	5.96	145	0.10°	292.7	0.92	61.33
11	OPT-HP05-110C-F6.5	110±2	0.5	18.4(1.1")	F6.5	<0.2%	2.15	145	0.10°	284.7	0.58	36.80
12	OPT-HP05-110FC-F6.5	110±2	0.5	18.4(1.1")	F6.5	<0.2%	2.15	145	0.10°	284.7	0.58	36.80
13	OPT-HP08-110C-F6.5	110±2	0.8	18.4(1.1")	F6.5	<0.1%	0.84	145	0.10°	278.7	0.57	23.00
14	OPT-HP08-110FC-F6.5	110±2	0.8	18.4(1.1")	F6.5	<0.1%	0.84	145	0.10°	278.7	0.57	23.00
15	OPT-HP10-110C-F7	110±2	1.0	18.4(1.1")	F7.0	<0.1%	0.58	130	0.10°	273.6	0.41	18.40
16	OPT-HP10-110FC-F7	110±2	1.0	18.4(1.1")	F7.0	<0.1%	0.58	130	0.10°	273.6	0.41	18.40
17	OPT-HP15-110C-F7	110±2	1.5	18.4(1.1")	F7.0	<0.2%	0.26	135	0.10°	275.6	0.49	12.27
18	OPT-HP20-65C-F7	65±2	2.0	18.4(1.1")	F7.0	<0.1%	0.14	130	0.10°	233.6	0.49	9.20
19	OPT-HP40-65C-F12	65±2	4.0	18.4(1.1")	F11.8	<0.1%	0.06	80	0.10°	252.6	0.53	4.60

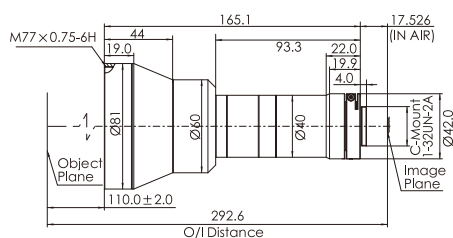
Notes:

- Working distance (WD): the distance between the foremost part of the lens and the object.
- Aperture F/#: the actual working F/# the telecentric lens.
- depth of field: for telecentric lens, depth of field is estimated by the formula: $DOF (mm) = F / \# * P * k / \beta^2$, F / #: for the lens of the actual work of the number of F; P: is the sensor pixel size, here take 5.5 μm calculations; β : the lens of the magnification; k is the decision of the specific application of the dimensionless parameter, if it is the application of the measurement of k = 0.015, if it is a defect detection k = 0.008, the table is calculated by taking 0.015. At the edge of the nominal depth of field, the image can still be used for measurement, but half the nominal value is recommended to obtain a clearer image.
- there are a variety of aperture specifications can be selected, 0.3X ~ 0.8X has a small aperture F8 and F11 optional; 1.0X ~ 2.0X has a small aperture F11 and F16 optional; 4.0X has a small aperture F16 and F22 optional.
- Both light sources support the shooting of highly reflective objects, if you want to shoot low-reflective objects, it is recommended to use a dedicated surface light source to get better lighting effects. If optional dedicated surface light source, you need to purchase a separate light source, OPT-FL4120-HP-X for 0.3X ~ 0.8X; OPT-FL3820-HP10-X for 1.0X; where X indicates the color of the light source, there are red, green, blue, and white light available.

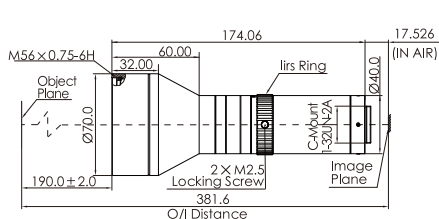
No.	Model	*Power Dissipation ○	*Power consumption ●	*Power consumption ●	*Power consumption ●	Size (mm)	Recommended controller
1	OPT-FL4120-HP-X	2.88W@24V				41×20×22.8	OPT-API024-4
2	OPT-FL3820-HP10-X					38×20×17.8	

Dimensions (mm)

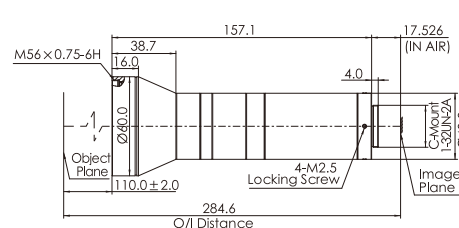
1.OPT-HP03-110-F6.5



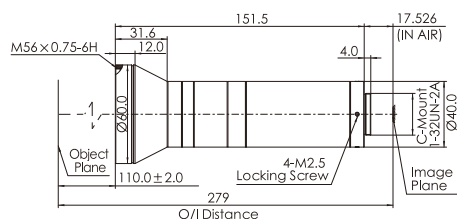
2.OPT-HP04-190-VI



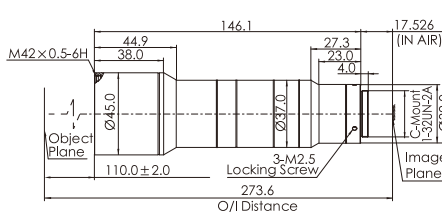
3.OPT-HP05-110-F6.5



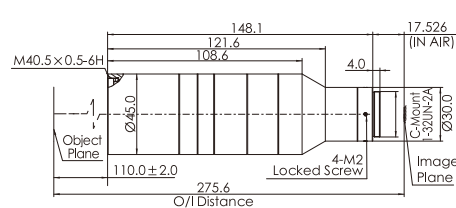
4.OPT-HP08-110-F6.5



5.OPT-HP10-110-F7



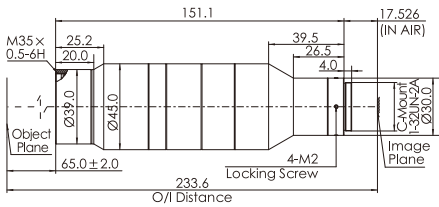
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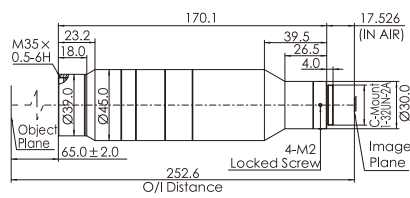


Dimensions (mm)

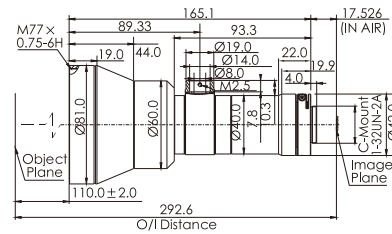
7.OPT-HP20-65-F7



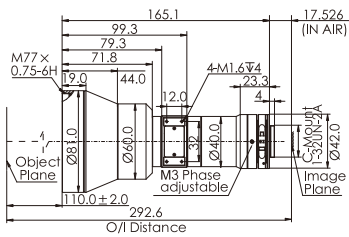
8.OPT-HP40-65-F12



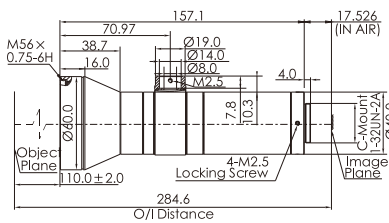
9.OPT-HP03-110C-F6.5



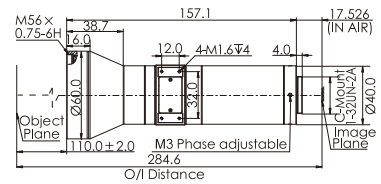
10.OPT-HP03-110FC-F6.5



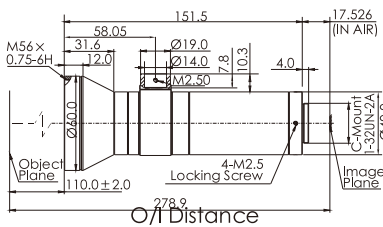
11.OPT-HP05-110C-F6.5



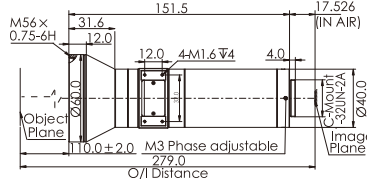
12.OPT-HP05-110FC-F6.5



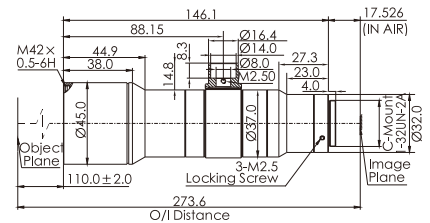
13.OPT-HP08-110C-F6.5



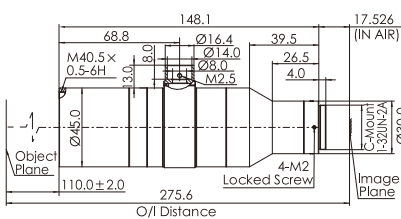
14.OPT-HP08-110FC-F6.5



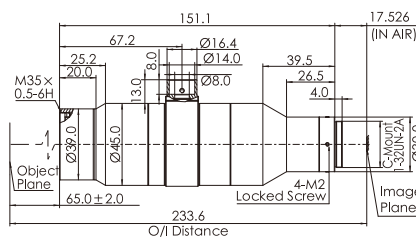
15.OPT-HP10-110C-F7



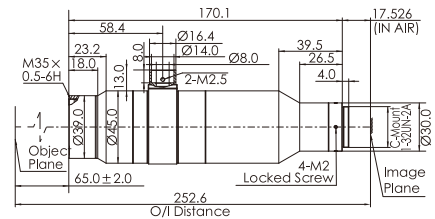
16.OPT-HP15-110C-F7



17.OPT-HP20-65C-F7



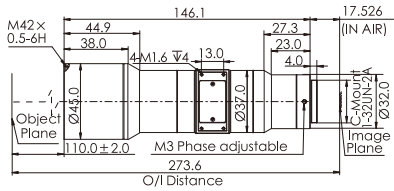
18.OPT-HP40-65C-F12



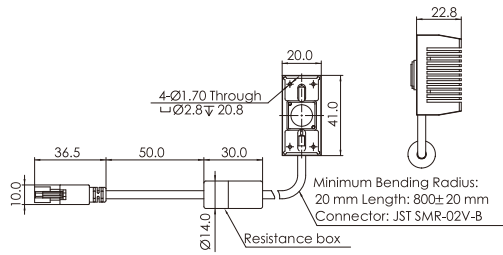


Dimensions (mm)

19.OPT-HP10-110C-F7



1.OPT-FL4120-HP-X



2.OPT-FL3820-HP10-X

