

## Telecentric Lens





## COMPANY PROFILE

HIFLY Technology company Limited was established in 2006 located in Shenzhen Guangdong China which is a high-tech enterprise focusing on machine vision light source, industrial camera lenses and vision system solutions.

As a global leader in machine vision solutions, we have 15 years of expertise in management, R&D, software engineers, imaging engineers and sales teams.

We are equipped with state-of-the-art production facilities, adhering to ISO 9001:2015 quality system management standard. At the same time, we have more than 30 invention patents and Certifications, serving more than 2,500 customers in 30 countries all over the world.

We eagerly await your communication, anticipating a fruitful partnership in the near future.



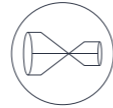
## CONTENTS

- 01 – 23x23mm Chip telecentric lens
- 02 – 1.1" Telecentric lens
- 03 – 2/3" Telecentric lens
- 04 – 2/3" Magnifying telecentric lens
- 05 – 4K–16K Line scan telecentric lens

# BI-TELECENTRIC LENS FOR 23x23mm SENSOR



National technology patent



Bilateral telecentric design



25 million pixels



Super depth of field design



Model	Lighting	Magnification (X)	WD	DOF (mm)	Aperture	MTF>0.3 (LP/mm)	Telecentricity (°)	Optical Distortion (%)	Mount	Sensor Size (mm)	View Distance Maximum (mm)	View Distance (mm)		
												1" (12.8x9.6)	1.1" (14.2x10.4)	4Klinear array (28.7)
HF250-25LM055	non-coaxial	0.55	250	3.5	F8	130	<0.03°	<0.03%	F/M58	23x23 φ30	32.5	23.2x17.4	25.6x18.7	41.8x41.8
HF130-25LM063	non-coaxial	0.63	130	2	F7.5	145	<0.03°	<0.03%	F/M58	23x23 φ30	32.5	20.3x15.2	22.3x16.3	36.5x36.5
HF175-25LM09	non-coaxial	0.9	175	0.85	F7	160	<0.03°	<0.03°	F/M58	23x23 φ30	32.5	14.2x10.6	15.6x11.4	25.5x25.5
HF110-25LM14	non-coaxial	1.4	110	0.45	F11	160	<0.03°	<0.03°	F/M58	23x23 φ30	32.5	9.1x6.8	10x7.3	16.4x16.4
HF110-25LM175	non-coaxial	1.75	110	0.3	F11	180	<0.03°	<0.03°	F/M58	23x23 φ30	32.5	7.3x5.4	58x5.8	13.1x13.1
HF110-25LM08	non-coaxial	0.8	110	4.2	F18	80	<0.03°	<0.03°	F/M58	φ30	32.5	16x12	17.6x12.8	φ37.5
HF120-25LM068	non-coaxial	0.68	120	8.5	F12	100	<0.05°	<0.05°	F/M58	φ30	32.5	18.8x14.1	20.7x15.1	φ44.1
HF158-25LM045	non-coaxial	0.45	158	6.5	F7	120	<0.05°	<0.05°	F/M58	φ30	32.5	28.4x21.3	31.3x22.8	φ66.6
HF230-25LM036	non-coaxial	0.36	230	20	F18	120	<0.05°	<0.05°	F/M58	φ30	32.5	35.5x26.6	39.1x28.6	φ83.3
HF250-25LM31	non-coaxial	0.31	250	16	F12	125	<0.05°	<0.05°	F/M58	φ30	32.5	41.2x30.9	45.4x33.2	φ96.7
HF250-25LM026	non-coaxial	0.26	250	18.5	F8	160	<0.05°	<0.05°	F/M58	φ30	32.5	49.2x36.9	54.2x39.6	φ115.3
HF285-25LM021	non-coaxial	0.21	285	22	F8	160	<0.05°	<0.05°	F/M58	φ30	32.5	60.9x45.7	67.1x49	φ142.8
HF300-25LM019	non-coaxial	0.19	300	25	F7	160	<0.05°	<0.05°	F/M58	φ30	32.5	67.3x50.5	74.2x54.2	φ157.8
HF320-25LM017	non-coaxial	0.17	320	30	F8	160	<0.05°	<0.05°	F/M58	φ30	32.5	75.2x56.4	82.9x60.5	φ176.4
HF410-25LM012	non-coaxial	0.12	410	35	F8	160	<0.05°	<0.05°	F/M58	φ30	32.5	106x80	117.5x85.8	φ250

- Maximum support for a 23\*23mm target face camera
- Excellent bilateral telecentric optical path ultra low distortion design
- Large depth of field design to meet the needs of high and low difference imaging products
- High-precision tuning The hardware measurement error in the full field of vision is <0.3 Pixel
- The lightweight fastening structure is designed to stably perform at high speed

# 01.

# BI-TELECENTRIC LENS FOR 1.1" SENSOR



Bilateral telecentric design



25 million pixels



Super depth of field design



Model	Lighting mode	Magnification (X)	Working Distance (mm)	DOF (mm)	Iris (F)	MTF>0.3 (LP/mm)	Telecentricity (°)	Optical Distortion (%)	Mount	Sensor size	View Distance Maximum (mm)	View Distance 1" (12.8x9.6)	View Distance 1.1" (14.2x10.4)
HF110-15X11	non-coaxial	1.5	110	1mm	F11	120	<0.05	<0.05%	C	1.1" φ18.5mm	12.3	8.5x6.4	9.4x6.9
HF110-1X11	non-coaxial	1	110	1.25mm	F7	120	<0.05	<0.05%	C	1.1" φ18.5mm	18.5	12.8x9.6	14.2x10.4
HF110-1X11C	coaxial	1	110	1.25mm	F7	120	<0.05	<0.05%	C	1.1" φ18.5mm	18.5	12.8x9.6	14.2x10.4
HF220-1X11	non-coaxial	1	220	0.68mm	F8.3	145	<0.05	<0.05%	C	1.1" φ18.5mm	18.5	12.8x9.6	14.2x10.4
WT-1CM1-178	non-coaxial	1	178	1.5mm	F11	110	<0.03	<0.03%	C	1.1" φ18.5mm	18.5	12.8x9.6	14.2x10.4
HF178-1X11	non-coaxial	0.8	110	2.5mm	F6	145	<0.05	<0.05%	C	1.1" φ18.5mm	23.1	16x12	17.7x13
HF220-08X11	non-coaxial	0.8	220	1.03mm	F8	125	<0.05	<0.05%	C	1.1" φ18.5mm	23.1	16x12	17.7x13
HF110-07X11	non-coaxial	0.7	110	2.5mm	F6	145	<0.05	<0.05%	C	1.1" φ18.5mm	26.4	18.2x13.7	20.2x14.8
HF220-06X11	non-coaxial	0.6	190	1.85mm	F8	125	<0.05	<0.05%	C	1.1" φ18.5mm	30.8	21.3x16	23.6x17.3
HF110-052X11	non-coaxial	0.52	110	3.5mm	F6	160	<0.05	<0.03%	C	1.1" φ18.5mm	35.5	24.6x18.4	27.3x20
HF220-05X11	non-coaxial	0.5	220	2.7mm	F8	120	<0.05	<0.05%	C	1.1" φ18.5mm	37	25.6x19.2	28.4x20.8
HF178-04X1	non-coaxial	0.4	178	3.5mm	F6	180	<0.05	<0.02%	C	1.1" φ18.5mm	46.25	32x24	35.5x26
HF178-0345X11	non-coaxial	0.345	178	4.2mm	F6	180	<0.05	<0.02%	C	1.1" φ18.5mm	53.6	37x27.8	41.1x30.1
HF200-03X11	non-coaxial	0.3	200	5.2mm	F6	160	<0.03	<0.02%	C	1.1" φ18.5mm	61.6	42.6x32	47.3x34.6
HF200-0275X11	non-coaxial	0.275	200	6mm	F6	160	<0.02	<0.05%	C	1.1" φ18.5mm	67.2	46.5x34.9	51.6x37.8
HF230-025X11	non-coaxial	0.25	230	6.5mm	F6	160	<0.02	<0.02%	C	1.1" φ18.5mm	74	51.2x38.4	56.8x41.6
HF200-022X11	non-coaxial	0.22	200	8mm	F5.3	180	<0.016	<0.05%	C	1.1" φ18.5mm	84	58.1x43.6	64.5x47.2
HF250-02X11	non-coaxial	0.2	250	11mm	F10	160	<0.05	<0.05%	C	1.1" φ18.5mm	92.5	64x48	71x52
HF230-0172X11	non-coaxial	0.172	230	12mm	F5.6	160	<0.05	<0.05%	C	1.1" φ18.5mm	107.5	74.4x55.8	82.5x60.4
HF250-0153X11	non-coaxial	0.153	250	15mm	F5.6	160	<0.05	<0.05%	C	1.1" φ18.5mm	120.9	83.6x62.7	92.8x67.9
HF300-013X11	non-coaxial	0.13	300	25mm	F6	160	<0.05	<0.05%	C	1.1" φ18.5mm	107.5	98.4x73.8	109x80
HF320-011X11	non-coaxial	0.11	320	29mm	F7	160	<0.05	<0.05%	C	1.1" φ18.5mm	107.5	116.3x87.2	129x94.5
HF410-0078X11	non-coaxial	0.078	410	65mm	F7	160	<0.05	<0.05%	C	1.1" φ18.5mm	107.5	164x123	182x133.3

# 02.

- Maximum support for a 1.1" φ19.5mm target face camera
- Excellent bilateral telecentric optical path ultra low distortion design
- Large depth of field design to meet the needs of high and low difference imaging products
- High-precision tuning The hardware measurement error in the full field of vision is <0.3 Pixel
- The lightweight fastening structure is designed to stably perform at high speed

# BI-TELECENTRIC LENS FOR 2/3" SENSOR



Bilateral telecentric design



Ultra high differentiation



Super depth of field design

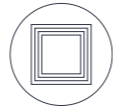


Model	Lighting mode	Magnification (X)	Working Distance (mm)	DOF (mm)	Iris (F)	MTF>0.3 (LP/mm)	Telecentricity (°)	Optical Distortion (%)	mount	Sensor size	View Distance Maximum (mm)	View Distance(mm)		
												1/2.5" (5.7x4.2)	1/2.3" (6.4x4.5)	2/3" (8.4x7.1)
HF110-2X23	non-coaxial	2	110	0.55mm	F9	125	<0.05°	<0.05%	C	2/3" φ11mm	φ5.5	2.85x2.1	3.2x2.2	4.2x3.5
HF110-2X23C	Built-in coaxial		110	0.55mm	F9	125	<0.05°	<0.05%	C	2/3" φ11mm	φ5.5	2.85x2.1	3.2x2.2	4.2x3.5
HF110-15X23	non-coaxial	1.5	110	0.85mm	F9	120	<0.05°	<0.05%	C	2/3" φ11mm	φ7.3	3.8x2.8	4.2x3	5.6x4.7
HF110-15X23C	Built-in coaxial	1.5	110	0.85mm	F9	120	<0.05°	<0.05%	C	2/3" φ11mm	φ7.3	3.8x2.8	4.2x3	5.6x4.7
HF110-1X23	non-coaxial	1	110	1.5mm	F7	125	<0.05°	<0.05%	C	2/3" φ11mm	φ11	5.7x4.2	6.4x4.5	8.4x7.1
HF110-1X23C	Built-in coaxial	1	110	1.5mm	F7	125	<0.05°	<0.05%	C	2/3" φ11mm	φ11	5.7x4.2	6.4x4.5	8.4x7.1
HF110-08X23	non-coaxial	0.8	110	1.8mm	F9	130	<0.05°	<0.05%	C	2/3" φ11mm	φ13.7	7.1x5.2	8x5.6	10.5x8.8
HF110-08X23C	Built-in coaxial	0.8	110	1.8mm	F9	130	<0.05°	<0.05%	C	2/3" φ11mm	φ13.7	7.1x5.2	8x5.6	10.5x8.8
HF110-05X23	non-coaxial	0.5	110	3.5mm	F8	120	<0.03	<0.03%	C	2/3" φ11mm	φ22	11.4x8.4	12.8x9	16.8x14.2
HF110-05X23C	Built-in coaxial	0.5	110	3.5mm	F8	120	<0.03	<0.03%	C	2/3" φ11mm	φ22	11.4x8.4	12.8x9	16.8x14.2
HF178-05X23	non-coaxial	0.5	178	4mm	F9	110	<0.03	<0.03%	C	2/3" φ11mm	φ22	11.4x8.4	12.8x9	16.8x14.2
HF275-05X23	non-coaxial	0.5	275	4.5mm	F9	110	<0.03°	<0.03%	C	2/3" φ11mm	φ22	11.4x8.4	12.8x9	16.8x14.2
HF110-03X23	non-coaxial	0.3	110	7mm	F7	130	<0.03°	<0.03%	C	2/3" φ11mm	φ36.6	19x14	21.3x15	28x23.6
HF110-03X23C	Built-in coaxial	0.3	110	7mm	F7	130	<0.03°	<0.03%	C	2/3" φ11mm	φ36.6	19x14	21.3x15	28x23.6
HF178-03X23	non-coaxial	0.3	178	6.5mm	F6	160	<0.01°	<0.03%	C	2/3" φ11mm	φ36.6	19x14	21.3x15	28x23.6
HF178-0265X23	non-coaxial	0.265	178	9mm	F6	160	<0.01°	<0.03%	C	2/3" φ11mm	φ41.5	21.5x15.8	24.1x16.9	31.6x26.7
HF200-022X23	non-coaxial	0.22	200	8.5mm	F6	160	<0.01°	<0.02%	C	2/3" φ11mm	φ50	25.9x19	29x20.4	38.1x32.2
HF178-02X23	non-coaxial	0.2	178	9mm	F7	135	<0.03°	<0.03%	C	2/3" φ11mm	φ55	28.5x21	32x22.5	42x35.5
HF158-0178X23	non-coaxial	0.178	158	17.5mm	F5.3	180	<0.05°	<0.01%	C	2/3" φ11mm	φ61.7	32x23.5	35.9x25.2	47.1x39.8
HF238-L90-015X23	non-coaxial	0.15	238	21mm	F6.5	145	<0.05°	<0.03%	C	2/3" φ11mm	φ73.3	38x28	42.6x30	56x47.3
HF200-014X23	non-coaxial	0.14	200	22mm	F6.5	145	<0.02°	<0.02%	C	2/3" φ11mm	φ78.5	40.7x30	45.7x32.1	60x50.7
HF250-012X23	non-coaxial	0.12	250	35mm	F8	125	<0.05°	<0.05%	C	2/3" φ11mm	φ91.6	47.5x35	53.3x37.5	70x59.1
HF250-0095X23	non-coaxial	0.095	250	48mm	F7.5	125	<0.05°	<0.05%	C	2/3" φ11mm	φ115.7	60x44.2	67.3x47.3	88.4x74.7
HF290-0078X23	non-coaxial	0.78	290	60mm	F5	140	<0.05°	<0.05%	C	2/3" φ11mm	φ141	73x53.8	82x57.6	107.6x91
HF320-0063X23	non-coaxial	0.063	320	85mm	F5	140	<0.05°	<0.05%	C	2/3" φ11mm	φ174.6	90.4x66.6	101.5x71.4	133x112.6

# 03.

- Maximum support fo2/3" φ11mm target face camera
- Excellent bilateral telecentric optical path ultra low distortion design
- Large depth of field design to meet the needs of high and low difference imaging products
- High-precision tuning The hardware measurement error in the full field of vision is <0.3 Pixel
- The lightweight fastening structure is designed to stably perform at high speed

# TELECENTRIC ZOOM LENS FOR 2/3" SENSOR



Variable magnification



5 mega-pixel



Super depth of field design

Model	Magnification (X)	Working Distance (mm)	Iris (F)	mount	Filter Screw Size	Sensor size	Service temperature	weight
HF-TG55X23	0-0.5	∞-infinity	F2.8	C	M43 P=0.75mm	2/3" φ11mm	-20°C+60°C	330g

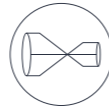
- Variable magnification to meet different sizes of product shooting
- Adjustable aperture to meet depth of field requirements
- Maximum support for 2/3" φ11mm target camera
- Excellent ultra-low distortion design of telecentric optical path
- The lightweight and targeted structural design achieves the ultimate performance in the stable state of high-speed movement

## Horizontal pull-pull structure

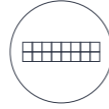


# 04.

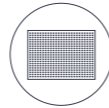
# 4K-16K HIGH DEFINITION LINE SCAN LENS



Bilateral telecentric design



Supports 16K chips



High uniformity



Model	Lighting mode	Magnification (X)	Working Distance (mm)	DOF (mm)	Iris (F)	Telecentricity (°)	Optical Distortion (%)	Mount	Sensor size	View Distance Maximum (mm)
HF82-L1-140	non-coaxial	1	140	1.2	F10	<0.04	<0.04	M95	φ82mm	82
HF63-L07-140	non-coaxial	0.7	140	2	F10	<0.04	<0.04	M72	φ63mm	90
HF63-L2-115	non-coaxial	2	115	0.4	F11	<0.04	<0.04	M72	φ63mm	31.5
HF-L162-110	non-coaxial	1.62	110	5.5	F18	<0.05	<0.05	M58/M72	φ59mm	36
HF-L139-120	non-coaxial	1.39	120	6.5	F18	<0.05	<0.05	M58/M72	φ59mm	42
HF-L091-158	non-coaxial	0.91	158	7	F8	<0.05	<0.05	M58/M72	φ59mm	64
HF-L073-230	non-coaxial	0.73	230	7	F8	<0.05	<0.05	M58/M72	φ59mm	80
HF-L063-250	non-coaxial	0.63	250	9	F10	<0.05	<0.05	M58/M72	φ59mm	93
HF-L053-250	non-coaxial	0.53	250	5.5	F8	<0.05	<0.05	M58/M72	φ59mm	111
HF-L043-285	non-coaxial	0.43	285	9	F8	<0.05	<0.05	M58/M72	φ59mm	136
HF-L039-300	non-coaxial	0.39	300	12	F8	<0.05	<0.05	M58/M72	φ59mm	150
HF-L035-320	non-coaxial	0.35	320	12	F9	<0.05	<0.05	M58/M72	φ59mm	170
HF-L025-410	non-coaxial	0.25	410	18	F9	<0.05	<0.05	M58/M72	φ59mm	240
HF29-L063-130	non-coaxial	0.63	130	2.2	F7.5	<0.03	<0.03	F	φ29mm	46
HF29-L14-110	non-coaxial	0.9	175	1.25	F7.5	<0.04	<0.04	F	φ29mm	32.2
HF29-L14-110	non-coaxial	1.4	110	0.55	F11	<0.03	<0.03	F	φ29mm	20.7
HF29-L175-110	non-coaxial	1.75	110	0.35	F11	<0.03	<0.03	F	φ29mm	16.5

- 4K-16K Multiple chips available
- Excellent optical performance with high center and edge consistency
- Excellent bilateral telecentric optical path ultra-low distortion design
- Large depth of field design to meet the needs of different height imaging products

# 05.