

## 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.



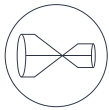
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# BI-TELECENTRIC LENS FOR 23x23mm SENSOR



National technology patent



Bilateral telecentric design



25 million pixels



Super depth of field design



01.

| 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

BI-TELECENTRIC LENS FOR 1.1" SENSOR



Bilateral telecentric design



25 million pixels



Super depth of field design

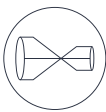


| Model         | Lighting mode | Magnification (X) | Working Distance (mm) | DOF (mm) | Iris (F) | MTF>0.3 (LP/mm) | Telecentricity (°) | Optical Distortion (%) | Mount | Sensor size | View Distance Maximum (mm) | View Distance 1" (12.8x9.6) | View Distance (mm) 1.1" (14.2x10.4) |
|---------------|---------------|-------------------|-----------------------|----------|----------|-----------------|--------------------|------------------------|-------|-------------|----------------------------|-----------------------------|-------------------------------------|
| 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                           |
| HF178-1X11    | 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                           |
| HF110-08X11   | 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                   | 2.7m     | 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                           |

- 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

For more new products, please consult the relevant sales staff

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) | 1/2.5" (5.7x4.2) | View Distance(mm) 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                         | 133x3112.6     |

- 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

For more new products, please consult the relevant sales staff

# 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             | 120-infinity          | F2.8     | C     | M43<br>P=0.75mm   | 2/3" φ11mm  | -20°C+60°C          | 330g   |

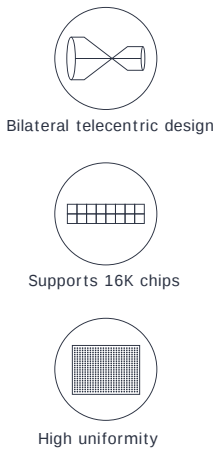
- Variable magnification to meet different sizes of product shooting
- Adjustable aperture to meet depth of field requirements
- Maximum support for 2/3" φ11mm target camera
- Excellent ultra-low distortion design of telecentric optical path
- The lightweight and targeted structural design achieves the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

## Horizontal pull-pull structure



04.

4K-16K HIGH DEFINITION LINE SCAN LENS



05.

| 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