

## Telecentric Lens

DTTL-X Series Telecentric Lens

---

**Model No:**

1.1 Chip 0-199mm



DTTL-X Series

1.1CHIP 0-199mm

Target camera



- Professional customization of multiples and depth of field
- Dual telecentric design High definition Standard C interface
- High definition High resolution
- Can be equipped with a dedicated parallel light source

| Type    | Lens Model      | Mag    | WD  | DOF<br>mm | Telecen<br>-tricity | Optical<br>distortion | Aperture<br>F/# | Mtf>0.3<br>(lp/mm) | Mount | 2/3CCD"<br>(18*13.5)mm | 1"CCD<br>(12.8*9.6)mm | 1.1"CCD<br>(14*10.3)mm |
|---------|-----------------|--------|-----|-----------|---------------------|-----------------------|-----------------|--------------------|-------|------------------------|-----------------------|------------------------|
| Coaxial | DTTL65-028T23   | 0.28X  | 65  | 0.9       | <0.1                | <0.1                  | 6               | 150                | C     | 31.4*23.6              | NA                    | NA                     |
|         | DTTL65-033T10   | 0.33X  | 65  | 6.3       | <0.1                | <0.1                  | 8               | 100                | C     | 26.7*20                | 38.8*29.1             | NA                     |
|         | DTTL90-06T10    | 0.6X   | 90  | 2.8       | <0.1                | <0.1                  | 12              | 110                | C     | 14.6*11                | 21.3*16               | NA                     |
|         | DTTL100-025T6   | 0.25X  | 100 | 7.5       | <0.1                | <0.1                  | 6               | 125                | C     | NA                     | NA                    | NA                     |
|         | DTTL110-02T25   | 0.2X   | 110 | 10.3      | <0.1                | <0.1                  | 5               | 100                | C     | NA                     | NA                    | NA                     |
|         | DTTL120-0088T23 | 0.088X | 120 | 16.0      | <0.1                | <0.1                  | 6               | 200                | C     | Φ100                   | NA                    | NA                     |
|         | DTTL120-016T20  | 0.16X  | 120 | 21.9      | <0.1                | <0.1                  | 7               | 150                | C     | 55*41.3                | 80*60                 | 87.5*64.4              |
|         | DTTL120-07T20   | 0.7X   | 120 | 1.3       | <0.1                | <0.1                  | 11              | 70                 | C     | 12.5*9.4               | 18.3*13.7             | 20*14.7                |
|         | DTTL130-035T20  | 0.35X  | 130 | 5.9       | <0.1                | <0.1                  | 8               | 120                | C     | 25.1*18.8              | 36.5*27.4             | 40*29.4                |
|         | DTTL130-08T20HR | 0.8X   | 130 | 1.4       | <0.1                | <0.1                  | 7               | 105                | C     | 11*8.3                 | 16*12                 | 17.5*12.9              |
|         | DTTL135-06T20   | 0.6X   | 135 | 5.0       | <0.1                | <0.1                  | 14              | 65                 | C     | 14.6*11                | 21.3*16               | 23.3*17.2              |
|         | DTTL140-021T23  | 0.21X  | 140 | 10.9      | <0.1                | <0.1                  | 6               | 160                | C     | 41.9*31.4              | NA                    | NA                     |
|         | DTTL140-06T23   | 0.6X   | 140 | 2.8       | <0.1                | <0.1                  | 10              | 85                 | C     | 14.6*11                | NA                    | NA                     |
|         | DTTL140-09T20   | 0.9X   | 140 | 1.2       | <0.1                | <0.1                  | 11              | 85                 | C     | 9.7*7.3                | 14.2*10.6             | 15.5*11.4              |
|         | DTTL150-013T23  | 0.13X  | 150 | 21.2      | <0.1                | <0.1                  | 4               | 120                | C     | 67.7*50.8              | NA                    | NA                     |
|         | DTTL160-07T10   | 0.7X   | 160 | 2.0       | <0.1                | <0.1                  | 9               | 90                 | C     | 12.5*9.4               | 18.2*13.7             | NA                     |
|         | DTTL150-05T23   | 0.5X   | 150 | 4.0       | <0.1                | <0.1                  | 8               | 90                 | C     | 17.6*13.2              | NA                    | NA                     |
|         | DTTL180-02T23   | 0.2X   | 180 | 24.8      | <0.1                | <0.1                  | 6               | 120                | C     | 44*33                  | NA                    | NA                     |
|         | DTTL180-03T23   | 0.3X   | 180 | 11.0      | <0.1                | <0.1                  | 8               | 100                | C     | 29.3*22                | NA                    | NA                     |
|         | DTTL180-08T20HR | 0.8X   | 180 | 1.5       | <0.1                | <0.1                  | 11              | 90                 | C     | 11*8.3                 | 16*12                 | 17.5*12.9              |
|         | DTTL180-1T20HR  | 1.0X   | 180 | 1.2       | <0.1                | <0.1                  | 11              | 80                 | C     | 8.8*6.6                | 12.8*9.6              | 14*10.3                |
|         | DTTL190-024T23  | 0.24X  | 190 | 6.9       | <0.1                | <0.1                  | 5               | 155                | C     | 36.7*27.5              | NA                    | NA                     |
|         | DTTL190-04T20   | 0.4X   | 190 | 3.4       | <0.1                | <0.1                  | 7               | 115                | C     | 22*16.5                | 32*24                 | 35*25.8                |

|                    |       |
|--------------------|-------|
| Mag                | 0.28X |
| WD                 | 65    |
| DOF(mm)            | 0.9   |
| Telecentricity     | <0.1  |
| Optical distortion | <0.1  |
| Aperture(F/#)      | 6     |
| MTF>0.3(lp/mm)     | 150   |
| Mount              | C     |

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 31.4*23.6 |
| 1" CCD(12.8*9.6)mm  | NA        |
| 1.1" CCD(14*10.3)mm | NA        |

|                    |       |
|--------------------|-------|
| Mag                | 0.33X |
| WD                 | 65    |
| DOF(mm)            | 6.3   |
| Telecentricity     | <0.1  |
| Optical distortion | <0.1  |
| Aperture(F/#)      | 8     |
| MTF>0.3(lp/mm)     | 100   |
| Mount              | C     |

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 26.7*20   |
| 1" CCD(12.8*9.6)mm  | 38.8*29.1 |
| 1.1" CCD(14*10.3)mm | NA        |

Technical drawing of the front view of a mechanical part. The drawing shows a cylindrical component with various diameters and dimensions. Key features include:

- Top flange with a diameter of  $\phi 45$ .
- Central shaft with a diameter of  $\phi 35$ .
- A section line (break symbol) on the left side.
- Dimensions: 39.72 (total height), 24 (height of the central section), 26 (height of the bottom section), 17.75 (height of the base), and 23.5 (width of the central section).
- A hole with a diameter of  $\phi 18$  in the central section.
- A hole with a diameter of  $\phi 38$  in the base.
- A label "C 接口" (C interface) pointing to the base.

|                    |      |
|--------------------|------|
| Mag                | 0.6X |
| WD                 | 90   |
| DOF(mm)            | 2.8  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 12   |
| MTF>0.3(lp/mm)     | 110  |
| Mount              | C    |

|                     |         |
|---------------------|---------|
| 2/3" CCD(8.8*6.6)mm | 14.6*11 |
| 1" CCD(12.8*9.6)mm  | 21.3*16 |
| 1.1" CCD(14*10.3)mm | NA      |

|                    |       |
|--------------------|-------|
| Mag                | 0.25X |
| WD                 | 100   |
| DOF(mm)            | 7.5   |
| Telecentricity     | <0.1  |
| Optical distortion | <0.1  |
| Aperture(F/#)      | 6     |
| MTF>0.3(lp/mm)     | 125   |
| Mount              | C     |

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 25.6*19.2 |
| 1" CCD(12.8*9.6)mm  | NA        |
| 1.1" CCD(14*10.3)mm | NA        |

|                    |      |
|--------------------|------|
| Mag                | 0.2X |
| WD                 | 110  |
| DOF(mm)            | 10.3 |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 5    |
| MTF>0.3(lp/mm)     | 100  |
| Mount              | C    |

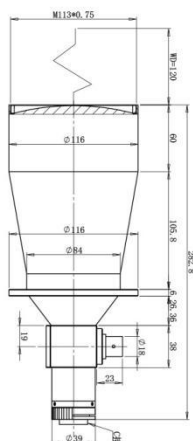
|                        |           |
|------------------------|-----------|
| 1/2.5" CCD(5.7*4.28)mm | 28.5*21.4 |
| 1" CCD(12.8*9.6)mm     | NA        |
| 1.1" CCD(14*10.3)mm    | NA        |

[illegible]

|                    |        |
|--------------------|--------|
| Mag                | 0.088X |
| WD                 | 120    |
| DOF(mm)            | 16.0   |
| Telecentricity     | <0.1   |
| Optical distortion | <0.1   |
| Aperture(F/#)      | 6      |
| MTF>0.3(lp/mm)     | 200    |
| Mount              | C      |

|                     |      |
|---------------------|------|
| 2/3" CCD(8.8*6.6)mm | Φ100 |
| 1" CCD(12.8*9.6)mm  | NA   |
| 1.1" CCD(14*10.3)mm | NA   |

### DTTL120-016T20



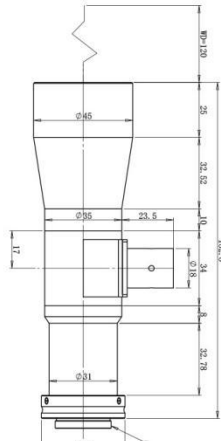
#### Main parameters

|                    |       |
|--------------------|-------|
| Mag                | 0.16X |
| WD                 | 120   |
| DOF(mm)            | 21.9  |
| Telecentricity     | <0.1  |
| Optical distortion | <0.1  |
| Aperture(F/#)      | 7     |
| MTF>0.3(lp/mm)     | 150   |
| Mount              | C     |

#### Field of view

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 55°41.3   |
| 1" CCD(12.8*9.6)mm  | 80°60     |
| 1.1" CCD(14*10.3)mm | 87.5°64.4 |

### DTTL120-07T20



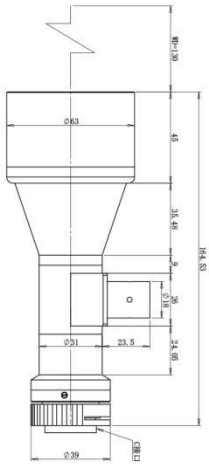
#### Main parameters

|                    |      |
|--------------------|------|
| Mag                | 0.7X |
| WD                 | 120  |
| DOF(mm)            | 1.3  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 11   |
| MTF>0.3(lp/mm)     | 70   |
| Mount              | C    |

#### Field of view

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 12.5°9.4  |
| 1" CCD(12.8*9.6)mm  | 18.3°13.7 |
| 1.1" CCD(14*10.3)mm | 20°14.7   |

### DTTL130-035T20



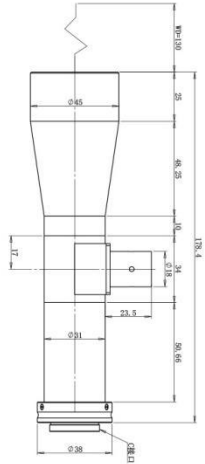
#### Main parameters

|                    |       |
|--------------------|-------|
| Mag                | 0.35X |
| WD                 | 130   |
| DOF(mm)            | 5.9   |
| Telecentricity     | <0.1  |
| Optical distortion | <0.1  |
| Aperture(F/#)      | 8     |
| MTF>0.3(lp/mm)     | 120   |
| Mount              | C     |

#### Field of view

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 25.1°18.8 |
| 1" CCD(12.8*9.6)mm  | 36.5°27.4 |
| 1.1" CCD(14*10.3)mm | 40°29.4   |

### DTTL130-08T20HR



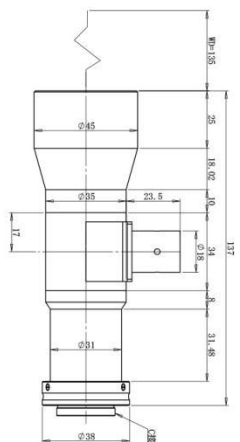
#### Main parameters

|                    |      |
|--------------------|------|
| Mag                | 0.8X |
| WD                 | 130  |
| DOF(mm)            | 1.4  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 7    |
| MTF>0.3(lp/mm)     | 105  |
| Mount              | C    |

#### Field of view

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 11°8.3    |
| 1" CCD(12.8*9.6)mm  | 16°12     |
| 1.1" CCD(14*10.3)mm | 17.5°12.9 |

### DTTL135-06T20



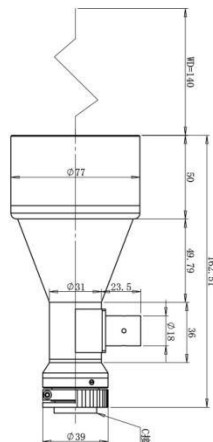
#### Main parameters

|                    |      |
|--------------------|------|
| Mag                | 0.6X |
| WD                 | 135  |
| DOF(mm)            | 5.0  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 14   |
| MTF>0.3(lp/mm)     | 65   |
| Mount              | C    |

#### Field of view

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 14.6°11   |
| 1" CCD(12.8*9.6)mm  | 21.3°16   |
| 1.1" CCD(14*10.3)mm | 23.3°17.2 |

### DTTL140-021T23

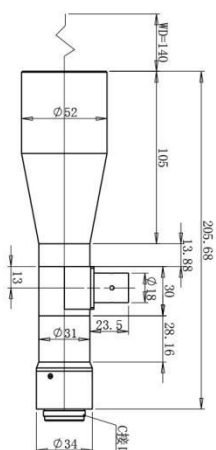


#### Main parameters

|                    |       |
|--------------------|-------|
| Mag                | 0.21X |
| WD                 | 140   |
| DOF(mm)            | 10.9  |
| Telecentricity     | <0.1  |
| Optical distortion | <0.1  |
| Aperture(F/#)      | 6     |
| MTF>0.3(lp/mm)     | 160   |
| Mount              | C     |

#### Field of view

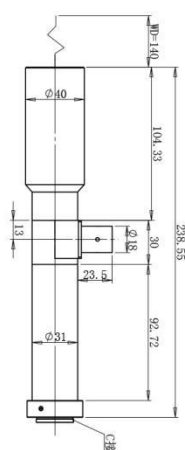
|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 41.9°31.4 |
| 1" CCD(12.8*9.6)mm  | NA        |
| 1.1" CCD(14*10.3)mm | NA        |

**DTTL140-06T23****Main parameters**

|                    |      |
|--------------------|------|
| Mag                | 0.6X |
| WD                 | 140  |
| DOF(mm)            | 2.8  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 10   |
| MTF>0.3(lp/mm)     | 85   |
| Mount              | C    |

**Field of view**

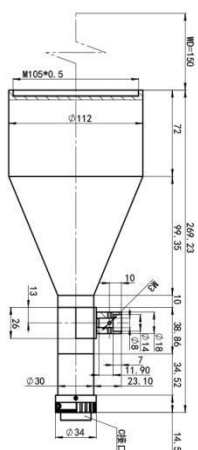
|                     |         |
|---------------------|---------|
| 2/3" CCD(8.8*6.6)mm | 14.6*11 |
| 1" CCD(12.8*9.6)mm  | NA      |
| 1.1" CCD(14*10.3)mm | NA      |

**DTTL140-09T20****Main parameters**

|                    |      |
|--------------------|------|
| Mag                | 0.9X |
| WD                 | 140  |
| DOF(mm)            | 1.2  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 11   |
| MTF>0.3(lp/mm)     | 85   |
| Mount              | C    |

**Field of view**

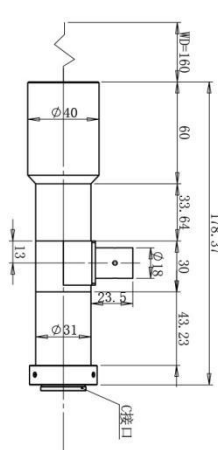
|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 9.7*7.3   |
| 1" CCD(12.8*9.6)mm  | 14.2*10.6 |
| 1.1" CCD(14*10.3)mm | 15.5*11.4 |

**DTTL150-013T23****Main parameters**

|                    |       |
|--------------------|-------|
| Mag                | 0.13X |
| WD                 | 150   |
| DOF(mm)            | 21.2  |
| Telecentricity     | <0.1  |
| Optical distortion | <0.1  |
| Aperture(F/#)      | 4     |
| MTF>0.3(lp/mm)     | 120   |
| Mount              | C     |

**Field of view**

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 67.7*50.8 |
| 1" CCD(12.8*9.6)mm  | NA        |
| 1.1" CCD(14*10.3)mm | NA        |

**DTTL160-07T10****Main parameters**

|                    |      |
|--------------------|------|
| Mag                | 0.7X |
| WD                 | 160  |
| DOF(mm)            | 2.0  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 9    |
| MTF>0.3(lp/mm)     | 90   |
| Mount              | C    |

**Field of view**

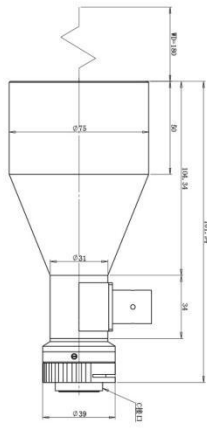
|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 12.5*9.4  |
| 1" CCD(12.8*9.6)mm  | 18.2*13.7 |
| 1.1" CCD(14*10.3)mm | NA        |

**DTTL150-05T23****Main parameters**

|                    |      |
|--------------------|------|
| Mag                | 0.5X |
| WD                 | 150  |
| DOF(mm)            | 4.0  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 8    |
| MTF>0.3(lp/mm)     | 90   |
| Mount              | C    |

**Field of view**

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 17.6*13.2 |
| 1" CCD(12.8*9.6)mm  | NA        |
| 1.1" CCD(14*10.3)mm | NA        |

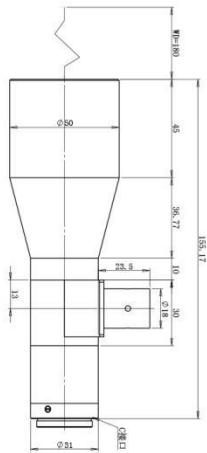
**DTTL180-02T23****Main parameters**

|                    |      |
|--------------------|------|
| Mag                | 0.2X |
| WD                 | 180  |
| DOF(mm)            | 24.8 |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 6    |
| MTF>0.3(lp/mm)     | 120  |
| Mount              | C    |

**Field of view**

|                     |       |
|---------------------|-------|
| 2/3" CCD(8.8*6.6)mm | 44*33 |
| 1" CCD(12.8*9.6)mm  | NA    |
| 1.1" CCD(14*10.3)mm | NA    |

### DTTL180-03T23



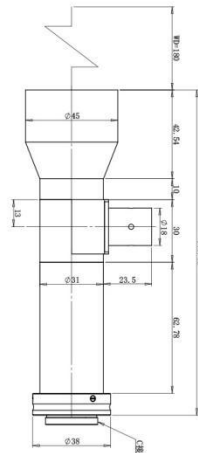
#### Main parameters

|                    |      |
|--------------------|------|
| Mag                | 0.3X |
| WD                 | 180  |
| DOF(mm)            | 11.0 |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 8    |
| MTF>0.3(lp/mm)     | 100  |
| Mount              | C    |

#### Field of view

|                     |         |
|---------------------|---------|
| 2/3" CCD(8.8*6.6)mm | 29.3°22 |
| 1" CCD(12.8*9.6)mm  | NA      |
| 1.1" CCD(14*10.3)mm | NA      |

### DTTL180-08T20HR



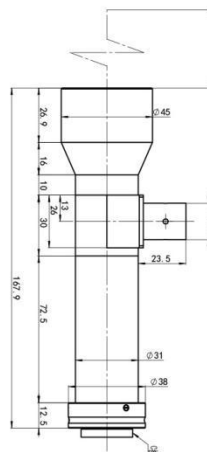
#### Main parameters

|                    |      |
|--------------------|------|
| Mag                | 0.8X |
| WD                 | 180  |
| DOF(mm)            | 1.5  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 11   |
| MTF>0.3(lp/mm)     | 90   |
| Mount              | C    |

#### Field of view

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 11°8.3    |
| 1" CCD(12.8*9.6)mm  | 16°12     |
| 1.1" CCD(14*10.3)mm | 17.5°12.9 |

### DTTL180-1T20HR



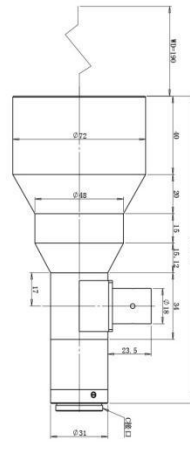
#### Main parameters

|                    |      |
|--------------------|------|
| Mag                | 1.0X |
| WD                 | 180  |
| DOF(mm)            | 1.2  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 11   |
| MTF>0.3(lp/mm)     | 80   |
| Mount              | C    |

#### Field of view

|                     |          |
|---------------------|----------|
| 2/3" CCD(8.8*6.6)mm | 8.8°6.6  |
| 1" CCD(12.8*9.6)mm  | 12.8°9.6 |
| 1.1" CCD(14*10.3)mm | 14°10.3  |

### DTTL190-024T23



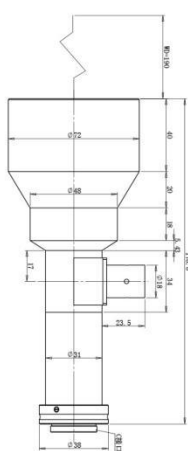
#### Main parameters

|                    |       |
|--------------------|-------|
| Mag                | 0.24X |
| WD                 | 190   |
| DOF(mm)            | 6.9   |
| Telecentricity     | <0.1  |
| Optical distortion | <0.1  |
| Aperture(F/#)      | 5     |
| MTF>0.3(lp/mm)     | 155   |
| Mount              | C     |

#### Field of view

|                     |           |
|---------------------|-----------|
| 2/3" CCD(8.8*6.6)mm | 36.7°27.5 |
| 1" CCD(12.8*9.6)mm  | NA        |
| 1.1" CCD(14*10.3)mm | NA        |

### DTTL190-04T20



#### Main parameters

|                    |      |
|--------------------|------|
| Mag                | 0.4X |
| WD                 | 190  |
| DOF(mm)            | 3.4  |
| Telecentricity     | <0.1 |
| Optical distortion | <0.1 |
| Aperture(F/#)      | 7    |
| MTF>0.3(lp/mm)     | 115  |
| Mount              | C    |

#### Field of view

|                     |         |
|---------------------|---------|
| 2/3" CCD(8.8*6.6)mm | 22°16.5 |
| 1" CCD(12.8*9.6)mm  | 32°24   |
| 1.1" CCD(14*10.3)mm | 35°25.8 |