

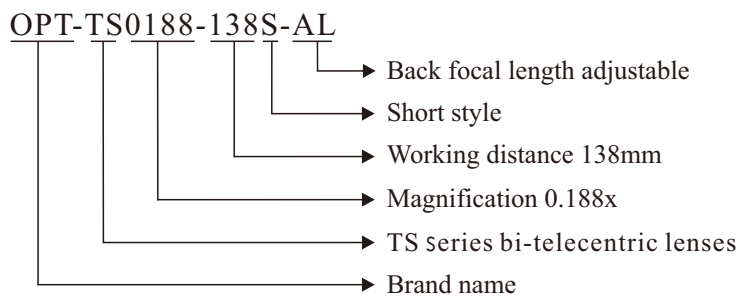
TS Series Large FOV Bi-telecentric Lenses



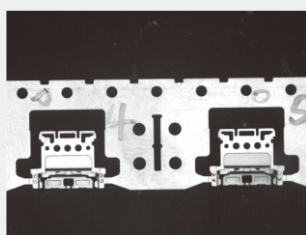
Product Features

- 1** Max FOV up to 240mm
- 2** Compatible to 1/2.5"~1" C mount cameras or 4/3"~59mm F/M mount cameras
- 3** Bi-telecentric design, excellent imaging performance
- 4** Large aperture, high telecentricity, low distortion, large depth of field
- 5** Broad range of 42 standard models and nearly one hundred non-standard models for choices

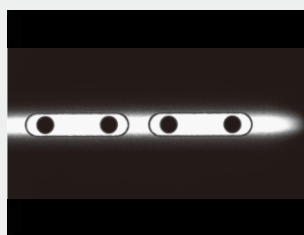
Slection Guide



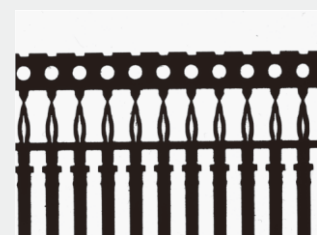
Application Examples



Metal elastic piece soldering inspection



Mobile phone back cover measurement



Connector dimension measurement

Model Table

No.	Model	WD (mm) [1]	Mag. (x)	Image circle (∅mm)	Aperture (F/#) [2]	Distortion (% Max)	DOF (mm) [3]	Mount	Weight (kg)	FOV (mm×mm)			
										1/2.5"	1/1.8"	2/3"	1"
										5.7×4.2	7.2×5.4	8.4×7.1	12.4×9.8
1	OPT-TS0277-73	73±1	0.277	7.2	4.2	0.1	4.52	C	0.28	20.6×15.2	-	-	-
2	OPT-TS0346-73	73±1	0.346	9	4.6	0.1	3.17	C	0.29	16.5×12.1	20.8×15.6	-	-
3	OPT-TS0438-73	73±1	0.438	11.4	6.0	0.1	2.58	C	0.31	13×9.6	16.4×12.3	19.2×16.2	-
4	OPT-TS0638-73	73±1	0.638	16.6	8.7	0.1	1.76	C	0.35	8.9×6.6	11.3×8.5	13.2×11.1	19.4×15.4
5	OPT-TS0200-110	110±2	0.200	7.2	4.2	0.1	8.66	C	0.40	28.5×21	-	-	-
6	OPT-TS0250-110	110±2	0.250	9	4.6	0.1	6.07	C	0.41	22.8×16.8	28.8×21.6	-	-
7	OPT-TS0317-110	110±2	0.317	11.4	5.4	0.1	4.43	C	0.42	18×13.3	22.7×17	26.5×22.4	-
8	OPT-TS0460-110	110±2	0.460	16.6	7.8	0.1	3.04	C	0.47	12.4×9.1	15.7×11.7	18.3×15.4	27×21.3
9	OPT-TS0188-138S-AL	138±3	0.188	9	5.3	0.1	12.37	C	0.40	30.3×22.3	38.3×28.7	-	-
10	OPT-TS0238-138S-AL	138±3	0.238	11.4	6.7	0.1	9.76	C	0.50	24×17.7	30.3×22.7	35.3×29.8	-
11	OPT-TS0346-138S-AL	138±3	0.346	16.6	9.8	0.1	6.75	C	0.50	16.47×12.14	20.8×15.6	24.3×20.5	35.8×28.3
12	OPT-TS0113-189-AL	189±3	0.113	7.2	4.2	0.1	27.14	C	0.81	50.4×37.2	-	-	-
13	OPT-TS0140-189-AL	189±3	0.140	9	5.3	0.1	22.31	C	0.82	40.7×30	51.4×38.6	-	-
14	OPT-TS0178-189-AL	189±3	0.178	11.4	5.4	0.1	14.06	C	0.83	32×23.6	40.5×30.3	47.2×39.9	-
15	OPT-TS0258-189-AL	189±3	0.258	16.6	9.8	0.1	12.15	C	0.88	22.1×16.3	27.9×20.9	32.6×27.5	48.1×38
16	OPT-TS0090-228-AL	228±4	0.090	7.2	4.2	0.1	42.78	C	1.49	63.3×46.7	-	-	-
17	OPT-TS0113-228-AL	228±4	0.113	9	5.3	0.1	34.24	C	1.50	50.4×37.2	63.7×47.8	-	-
18	OPT-TS0142-228-AL	228±4	0.142	11.4	5.4	0.1	22.09	C	1.52	40.1×29.6	50.7×38	59.2×50	-
19	OPT-TS0206-228-AL	228±4	0.206	16.6	9.8	0.1	19.05	C	1.56	27.7×20.4	35×26.2	40.8×34.5	60.2×47.6
20	OPT-TS0072-258-AL	258±4	0.072	7.2	4.2	0.1	66.84	C	3.02	79.2×58.3	-	-	-
21	OPT-TS0090-258-AL	258±4	0.090	9	4.6	0.1	46.85	C	3.04	63.3×46.7	80×60	-	-
22	OPT-TS0114-258-AL	258±4	0.114	11.4	5.4	0.1	34.28	C	3.05	50×36.8	63.2×47.4	73.7×62.3	-
23	OPT-TS0166-258-AL	258±4	0.166	16.6	6.5	0.1	19.46	C	3.09	34.3×25.3	43.4×32.5	50.6×42.8	74.7×59
24	OPT-TS0060-280-AL	280±5	0.060	7.2	4.2	0.1	96.25	C	4.17	95×70	-	-	-
25	OPT-TS0075-280-AL	280±5	0.075	9	4.6	0.1	67.47	C	4.18	76×56	96×72	-	-
26	OPT-TS0095-280-AL	280±5	0.095	11.4	4.9	0.1	44.79	C	4.20	60×44.2	75.8×56.8	88.4×74.7	-
27	OPT-TS0138-280-AL	280±5	0.138	16.6	6.5	0.1	28.16	C	4.24	41.3×30.4	52.2×39.1	60.9×51.5	89.9×71
28	OPT-TS0048-300-AL	300±5	0.048	7.2	4.2	0.1	150.39	C	5.65	118.8×87.5	-	-	-
29	OPT-TS0060-300-AL	300±5	0.060	9	4.6	0.1	105.42	C	5.66	95×70	120×90	-	-
30	OPT-TS0076-300-AL	300±5	0.076	11.4	4.9	0.1	69.99	C	5.68	75×55.3	94.7×71.1	110.5×93.4	-
31	OPT-TS0110-300-AL	300±5	0.110	16.6	6.5	0.1	44.32	C	5.72	51.8×38.2	65.5×49.1	76.4×64.6	112.7×89.1
32	OPT-TS0060-330-AL	330±5	0.060	11.4	4.9	0.1	112.29	C	11.02	95×70	120×90	140×118.3	-
33	OPT-TS0087-330-AL	330±5	0.087	16.6	6.5	0.1	70.85	C	11.10	65.5×48.3	82.8×62.1	96.6×81.6	142.5×112.6
34	OPT-TS0048-410-AL	410±6	0.048	11.4	4.9	0.1	179.17	C	25.50	120×88.4	151.6×113.7	176.8×149.5	-
35	OPT-TS0069-410-AL	410±6	0.069	16.6	6.5	0.1	112.63	C	25.60	82.6×60.9	104.4×78.3	121.7×103	179.7×142

No.	Model	WD (mm) [1]	Mag. (x)	Image circle (∅mm)	Aperture (F/#) [2]	Distortion (% Max)	DOF (mm) [3]	Mount	Weight (kg)	FOV (mm×mm)			
										2k×10μm	4k×7μm	8k×5μm	35mm Full
										20.48	28.67	40.96	36.1×24.1
36	OPT-TS0688-189-AL	189±3	0.688	44	25.9	0.1	4.51	F	1.20	29.8	41.7	59.6	52.5×35
37	OPT-TS0550-228-AL	228±4	0.550	44	25.9	0.1	7.06	F	1.90	37.3	52.2	74.5	65.6×43.8
38	OPT-TS0440-258-AL	258±4	0.440	44	17.2	0.1	7.33	F	3.40	46.6	65.2	93.2	82.1×54.8
39	OPT-TS0367-280-AL	280±5	0.367	44	14.8	0.1	9.07	F	4.59	55.9	78.2	111.7	98.4×65.7
40	OPT-TS0293-300-AL	300±5	0.293	44	14.8	0.1	14.22	F	6.07	70	98	139.9	123.2×82.3
41	OPT-TS0230-330-AL	330±5	0.230	44	10.3	0.1	16.06	F	11.40	89.1	124.8	178.3	157×104.8
42	OPT-TS0183-410-AL	410±6	0.183	44	10.3	0.1	25.37	F	25.90	112	156.8	224.0	197.3×131.7

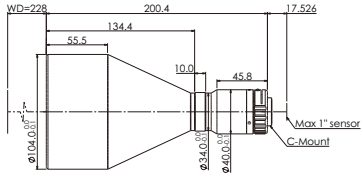
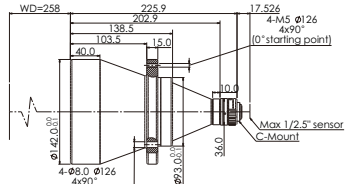
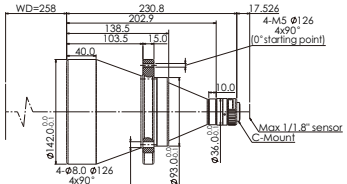
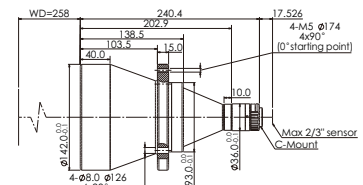
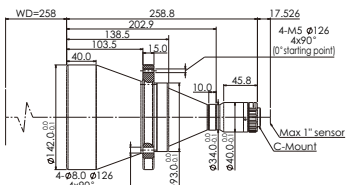
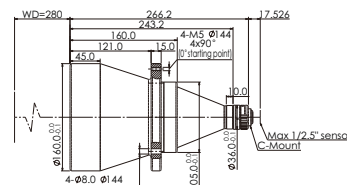
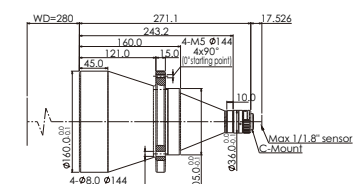
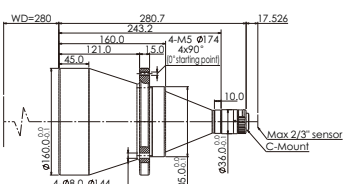
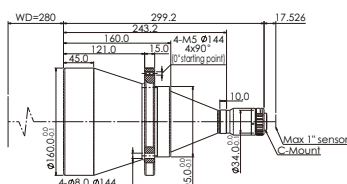
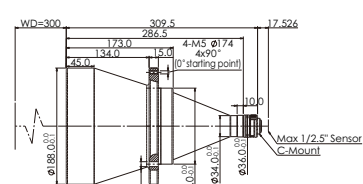
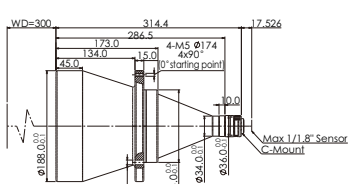
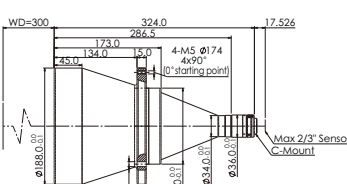
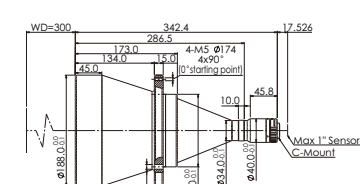
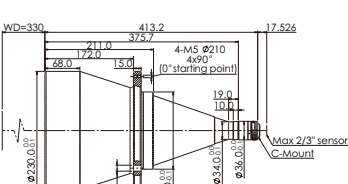
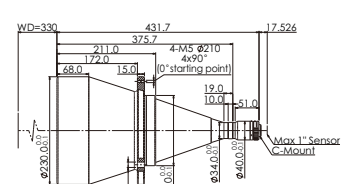
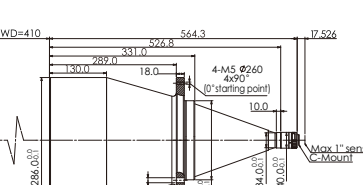
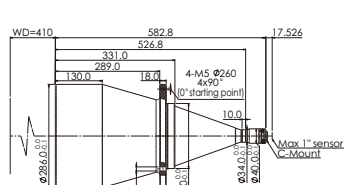
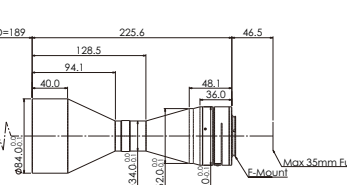
Remarks:

1. Working distance, the distance between the front end of the mechanics and the object.
2. The real F# of a lens when using. Lenses with smaller apertures can be workable.
3. At the borders of the DOF the image still can be used for measurement. But only half of the nominal DOF can get sharp images.

Dimensional Drawings [mm]

<p>1 OPT-TS0277-73</p>	<p>2 OPT-TS0346-73</p>	<p>3 OPT-TS0438-73</p>
<p>4 OPT-TS0638-73</p>	<p>5 OPT-TS0200-110</p>	<p>6 OPT-TS0250-110</p>
<p>7 OPT-TS0317-110</p>	<p>8 OPT-TS0460-110</p>	<p>9 OPT-TS0188-138S-AL</p>
<p>10 OPT-TS0238-138S-AL</p>	<p>11 OPT-TS0346-138S-AL</p>	<p>12 OPT-TS0113-189-AL</p>
<p>13 OPT-TS0140-189-AL</p>	<p>14 OPT-TS0178-189-AL</p>	<p>15 OPT-TS0258-189-AL</p>
<p>16 OPT-TS0090-228-AL</p>	<p>17 OPT-TS0113-228-AL</p>	<p>18 OPT-TS0142-228-AL</p>

Dimensional Drawings [mm]

<p>19 OPT-TS0206-228-AL</p> 	<p>20 OPT-TS0072-258-AL</p> 	<p>21 OPT-TS0090-258-AL</p> 
<p>22 OPT-TS0114-258-AL</p> 	<p>23 OPT-TS0166-258-AL</p> 	<p>24 OPT-TS0060-280-AL</p> 
<p>25 OPT-TS0075-280-AL</p> 	<p>26 OPT-TS0095-280-AL</p> 	<p>27 OPT-TS0138-280-AL</p> 
<p>28 OPT-TS0048-300-AL</p> 	<p>29 OPT-TS0060-300-AL</p> 	<p>30 OPT-TS0076-300-AL</p> 
<p>31 OPT-TS0110-300-AL</p> 	<p>32 OPT-TS0060-330-AL</p> 	<p>33 OPT-TS0087-330-AL</p> 
<p>34 OPT-TS0048-410-AL</p> 	<p>35 OPT-TS0069-410-AL</p> 	<p>36 OPT-TS0688-189-AL</p> 

Dimensional Drawings [mm]

