OE Headquarter
Opto Engineering srl
Circonvallazione Sud, 15
46100 Mantova - Italy
phone +39 (0)376 699111
fax +39 (0)376 1581242
contact@opto-engineering.com
www.opto-engineering.com

VAT (P.IVA) IT02011230204
Cap. Soc. (i.v.) € 60.000,00
REA: MN 216669

TCDP PLUS telecentric lens configurator

How to create your optics:

1. Select the desired oculars

Basing on your camera sensor and desired FOVs dimensions choose two oculars with required camera mounts (C, F or M42x1) from the table FOV Selection Tool. Both oculars should belong to the same TCDP size group: TCDPxx096, TCDPxx120, TCDPxx144, TCDPxx192 or TCDPxx240.

2. Create your Part number

All part numbers start with "TCDP", followed by STRAIGHT ocular (low magnification path), RIGHT ANGLED ocular (high magnification path) and end with the lens TCDP size (096, 120, 144, 192 or 240)

Ocular with higher magnification must be used as a lens RIGHT ANGLED ocular.

Example:
TCDP23C2ME096 means a double magnification lens with a straight ocular 23C (0,093x magnification) with a mount C, a right angled ocular 2ME (0,136x magnification) with a mount E (M42x1), and a TCDP size group "096".

3. Ask us for a quote!

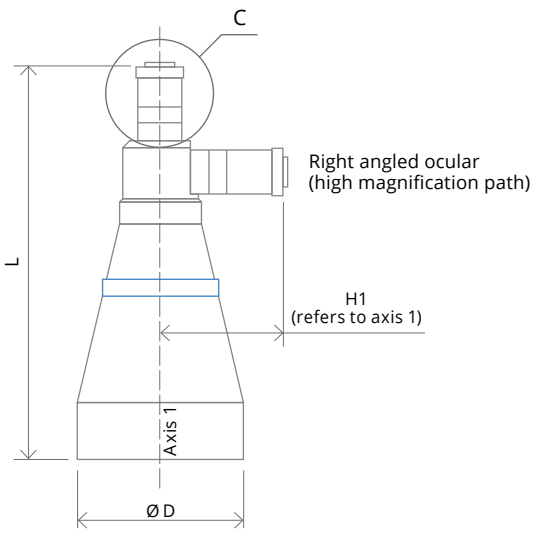
TCDP PLUS lens dimensions:

L = length of the lens from the front end to its straight ocular (low magnification path)

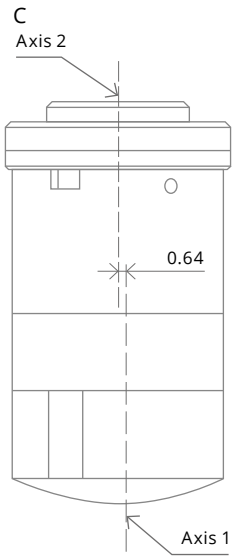
H1 = distance from the end of the right angled ocular (high magnification path) to the middle of the lens (axis 1)

D = lens diameter

Straight ocular (low magnification path)



Dimensions of a TCDP PLUS lens.



Position of axis 1 and axis 2.

OE Germany
Opto Engineerig Deutschland GmbH
Grünwald • Germany

OE USA
Texas Industrial Optics Inc.
Houston • USA

OE China
Deep View Trading & Service Co. LTD
Shanghai • China

OE Taiwan
Opto Engineering Southeast Asia LTD.
Taipei • Taiwan

OPTO ENGINEERING

FOV SELECTION TOOL

				Detector type								
				1/3"	1/2,5"	1/2"	1/1,8"	2/3" - 5 MP	KAI-2020	1"	1.2"	4/3"
										KAI-04050	KAI-4022/4021	KAI-08050
									14.8 mm diag	16 mm diag	21.5 mm diag	22.6 mm diag
				w x h	w x h	w x h	w x h	w x h	w x h	w x h	w x h	w x h
				4.8 x 3.6	5.70 x 4.28	6.4 x 4.8	7.13 x 5.37	8.45 x 7.07	11.84 x 8.88	12.8 x 9.6	15.2 x 15.2	18.1 x 13.6
Ocular	**Mount**	**Magn.**	**Image circle**	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)	(mm x mm)
				Object field of view (mm x mm)								
TCDPxx096												
13C	C	0.050	6.0	96.0 x 72.0	Ø x 85.6	Ø x 96.0	Ø x 107.4	-	-	-	-	-
12C	C	0.068	8.0	70.6 x 52.9	83.8 x 62.9	94.1 x 70.6	104.9 x 79.0	Ø x 104.0	-	-	-	-
23C	C	0.093	11.0	51.4 x 38.5	61.0 x 45.8	68.5 x 51.4	76.3 x 57.5	90.5 x 75.7	Ø x 95.1	Ø x 102.8	-	-
2MC	C	0.137	16.9	35.1 x 26.3	41.7 x 31.3	46.8 x 35.1	52.2 x 39.3	61.8 x 51.7	86.3 x 65.0	93.6 x 70.2	111.2 x 111.2	Ø x 99.5
2MF	F	0.137	16.9	35.1 x 26.3	41.7 x 31.3	46.8 x 35.1	52.2 x 39.3	61.8 x 51.7	86.3 x 65.0	93.6 x 70.2	111.2 x 111.2	Ø x 99.5
2ME	E (M42X1 FD 16mm)	0.137	16.9	35.1 x 26.3	41.7 x 31.3	46.8 x 35.1	52.2 x 39.3	61.8 x 51.7	86.3 x 65.0	93.6 x 70.2	111.2 x 111.2	Ø x 99.5
4MC	C	0.186	21.6	25.8 x 19.3	30.6 x 23.0	34.3 x 25.8	38.3 x 28.8	45.3 x 37.9	63.3 x 47.6	68.7 x 51.5	81.6 x 81.6	97.1 x 73.0
4MF	F	0.186	21.6	25.8 x 19.3	30.6 x 23.0	34.3 x 25.8	38.3 x 28.8	45.3 x 37.9	63.3 x 47.6	68.7 x 51.5	81.6 x 81.6	97.1 x 73.0
4ME	E (M42X1 FD 16mm)	0.186	21.6	25.8 x 19.3	30.6 x 23.0	34.3 x 25.8	38.3 x 28.8	45.3 x 37.9	63.3 x 47.6	68.7 x 51.5	81.6 x 81.6	97.1 x 73.0
4XC	C	0.374	11.0	12.8 x 9.6	15.3 x 11.5	17.1 x 12.8	19.1 x 14.4	22.6 x 18.9	Ø x 23.8	Ø x 25.7	-	-
TCDPxx120												
13C	C	0.038	6.0	125.2 x 93.9	Ø x 111.6	Ø x 125.2	Ø x 140.0	-	-	-	-	-
12C	C	0.052	8.0	92.1 x 69.1	109.3 x 82.1	122.8 x 92.1	136.8 x 103.0	Ø x 135.6	-	-	-	-
23C	C	0.072	11.0	67.0 x 50.3	79.6 x 59.8	89.4 x 67.0	99.6 x 75.0	118.0 x 98.7	Ø x 124.0	Ø x 134.0	-	-
2MC	C	0.104	16.5	46.2 x 34.6	54.8 x 41.2	61.5 x 46.2	68.6 x 51.6	81.3 x 68.0	113.5 x 85.4	123.1 x 92.3	146.2 x 146.2	Ø x 130.8
2MF	F	0.104	16.5	46.2 x 34.6	54.8 x 41.2	61.5 x 46.2	68.6 x 51.6	81.3 x 68.0	113.5 x 85.4	123.1 x 92.3	146.2 x 146.2	Ø x 130.8
2ME	E (M42X1 FD 16mm)	0.104	16.5	46.2 x 34.6	54.8 x 41.2	61.5 x 46.2	68.6 x 51.6	81.3 x 68.0	113.5 x 85.4	123.1 x 92.3	146.2 x 146.2	Ø x 130.8
4MC	C	0.143	21.2	33.5 x 25.1	39.8 x 29.9	44.7 x 33.5	49.8 x 37.5	59.0 x 49.3	82.3 x 62.0	89.3 x 67.0	106.1 x 106.1	126.3 x 94.9
4MF	F	0.143	21.2	33.5 x 25.1	39.8 x 29.9	44.7 x 33.5	49.8 x 37.5	59.0 x 49.3	82.3 x 62.0	89.3 x 67.0	106.1 x 106.1	126.3 x 94.9
4ME	E (M42X1 FD 16mm)	0.143	21.2	33.5 x 25.1	39.8 x 29.9	44.7 x 33.5	49.8 x 37.5	59.0 x 49.3	82.3 x 62.0	89.3 x 67.0	106.1 x 106.1	126.3 x 94.9
4XC	C	0.286	11.0	16.8 x 12.6	19.9 x 14.9	22.3 x 16.8	24.9 x 18.7	29.5 x 24.7	Ø x 31.0	Ø x 33.5	-	-
TCDPxx144												
13C	C	0.033	6.0	146.7 x 110.1	Ø x 130.8	Ø x 146.7	Ø x 164.2	-	-	-	-	-
12C	C	0.044	8.0	107.9 x 81.0	128.2 x 96.2	143.9 x 107.9	160.3 x 120.8	Ø x 159.0	-	-	-	-
23C	C	0.061	11.0	78.6 x 58.9	93.3 x 70.1	104.8 x 78.6	116.7 x 87.9	138.3 x 115.7	Ø x 145.4	Ø x 157.1	-	-
2MC	C	0.089	16.8	54.1 x 40.6	64.3 x 48.3	72.2 x 54.1	80.4 x 60.5	95.3 x 79.7	133.0 x 100.1	144.3 x 108.2	171.4 x 171.4	Ø x 153.3
2MF	F	0.089	16.8	54.1 x 40.6	64.3 x 48.3	72.2 x 54.1	80.4 x 60.5	95.3 x 79.7	133.0 x 100.1	144.3 x 108.2	171.4 x 171.4	Ø x 153.3
2ME	E (M42X1 FD 16mm)	0.089	16.8	54.1 x 40.6	64.3 x 48.3	72.2 x 54.1	80.4 x 60.5	95.3 x 79.7	133.0 x 100.1	144.3 x 108.2	171.4 x 171.4	Ø x 153.3
4MC	C	0.122	21.6	39.3 x 29.5	46.6 x 35.0	52.4 x 39.3	58.3 x 43.9	69.1 x 57.9	96.6 x 72.7	104.7 x 78.6	124.4 x 124.4	148.1 x 111.3
4MF	F	0.122	21.6	39.3 x 29.5	46.6 x 35.0	52.4 x 39.3	58.3 x 43.9	69.1 x 57.9	96.6 x 72.7	104.7 x 78.6	124.4 x 124.4	148.1 x 111.3
4ME	E (M42X1 FD 16mm)	0.122	21.6	39.3 x 29.5	46.6 x 35.0	52.4 x 39.3	58.3 x 43.9	69.1 x 57.9	96.6 x 72.7	104.7 x 78.6	124.4 x 124.4	148.1 x 111.3
4XC	C	0.244	11.0	19.6 x 14.7	23.3 x 17.5	26.2 x 19.6	29.2 x 22.0	34.6 x 28.9	Ø x 36.3	Ø x 39.3	-	-
TCDPxx192												
13C	C	0.025	6.0	195.8 x 146.9	Ø x 174.6	Ø x 195.8	Ø x 219.1	-	-	-	-	-
12C	C	0.033	8.0	144.1 x 108.0	171.1 x 128.5	192.1 x 144.1	214.0 x 161.2	Ø x 212.2	-	-	-	-
23C	C	0.046	11.0	104.9 x 78.7	124.5 x 93.5	139.8 x 104.9	155.8 x 117.3	184.6 x 154.5	Ø x 194.0	Ø x 209.7	-	-
2MC	C	0.067	16.8	72.2 x 54.1	85.7 x 64.4	96.2 x 72.2	107.2 x 80.8	127.1 x 106.3	177.4 x 133.5	192.5 x 144.4	228.6 x 228.6	Ø x 204.5
2MF	F	0.067	16.8	72.2 x 54.1	85.7 x 64.4	96.2 x 72.2	107.2 x 80.8	127.1 x 106.3	177.4 x 133.5	192.5 x 144.4	228.6 x 228.6	Ø x 204.5
2ME	E (M42X1 FD 16mm)	0.067	16.8	72.2 x 54.1	85.7 x 64.4	96.2 x 72.2	107.2 x 80.8	127.1 x 106.3	177.4 x 133.5	192.5 x 144.4	228.6 x 228.6	Ø x 204.5
4MC	C	0.092	21.6	52.5 x 39.3	62.3 x 46.8	69.9 x 52.5	77.9 x 58.7	92.3 x 77.3	129.0 x 97.0	139.9 x 104.9	166.1 x 166.1	197.8 x 148.6
4MF	F	0.092	21.6	52.5 x 39.3	62.3 x 46.8	69.9 x 52.5	77.9 x 58.7	92.3 x 77.3	129.0 x 97.0	139.9 x 104.9	166.1 x 166.1	197.8 x 148.6
4ME	E (M42X1 FD 16mm)	0.092	21.6	52.5 x 39.3	62.3 x 46.8	69.9 x 52.5	77.9 x 58.7	92.3 x 77.3	129.0 x 97.0	139.9 x 104.9	166.1 x 166.1	197.8 x 148.6
4XC	C	0.183	11.0	26.2 x 19.7	31.1 x 23.4	35.0 x 26.2	39.0 x 29.3	46.2 x 38.6	Ø x 48.5	Ø x 52.5	-	-
TCDPxx240												
23C	C	0.037	11.0	130.8 x 98.1	155.4 x 116.7	174.4 x 130.8	194.3 x 146.4	230.3 x 192.7	Ø x 242.0	Ø x 261.7	-	-
2MC	C	0.053	16.2	90.7 x 68.1	107.8 x 80.9	121.0 x 90.7	134.8 x 101.5	159.7 x 133.6	223.1 x 167.9	242.0 x 181.5	287.3 x 287.3	Ø x 257.1
2MF	F	0.053	16.2	90.7 x 68.1	107.8 x 80.9	121.0 x 90.7	134.8 x 101.5	159.7 x 133.6	223.1 x 167.9	242.0 x 181.5	287.3 x 287.3	Ø x 257.1
2ME	E (M42X1 FD 16mm)	0.053	16.2	90.7 x 68.1	107.8 x 80.9	121.0 x 90.7	134.8 x 101.5	159.7 x 133.6	223.1 x 167.9	242.0 x 181.5	287.3 x 287.3	Ø x 257.1
4MC	C	0.073	21.1	65.6 x 49.2	77.9 x 58.5	87.4 x 65.6	97.4 x 73.4	115.4 x 96.6	161.2 x 121.3	174.9 x 131.1	207.7 x 207.7	247.3 x 185.8
4MF	F	0.073	21.1	65.6 x 49.2	77.9 x 58.5	87.4 x 65.6	97.4 x 73.4	115.4 x 96.6	161.2 x 121.3	174.9 x 131.1	207.7 x 207.7	247.3 x 185.8
4ME	E (M42X1 FD 16mm)	0.073	21.1	65.6 x 49.2	77.9 x 58.5	87.4 x 65.6	97.4 x 73.4	115.4 x 96.6	161.2 x 121.3	174.9 x 131.1	207.7 x 207.7	247.3 x 185.8
4XC	C	0.147	11.0	32.7 x 24.5	38.8 x 29.1	43.5 x 32.7	48.5 x 36.5	57.5 x 48.1	Ø x 60.4	Ø x 65.3	-	-

OE Germany
Opto Engineerig Deutschland GmbH
Grünwald • Germany

OE USA
Texas Industrial Optics Inc.
Houston • USA

OE China
Deep View Trading & Service Co. LTD
Shanghai • China

OE Taiwan
Opto Engineering Southeast Asia LTD.
Taipei • Taiwan

OPTO ENGINEERING

TECHNICAL INFORMATION

Optical Specifications									Dimensions		
Ocular	Mount	Magn.	W.D.	F-Number	Telecentricity	Distortion	Field depth	CTF	L	H1	D
TCDPxx096											
13C	C	0.050	278.6	8	< 0.06 (0.08)	< 0.04 (0.10)	268	> 50	304.6	56.1	143
12C	C	0.068	278.6	8	< 0.06 (0.08)	< 0.03 (0.08)	145	> 45	318.0	69.5	143
23C	C	0.093	278.6	8	< 0.06 (0.08)	< 0.04 (0.08)	77	> 40	337.7	89.2	143
2MC	C	0.137	278.6	16	< 0.05 (0.10)	< 0.07 (0.10)	64	> 40	370.6	122.1	143
2MF	F	0.137	278.6	16	< 0.05 (0.10)	< 0.07 (0.10)	64	> 40	341.6	93.2	143
2ME	E (M42X1 FD 16mm)	0.137	278.6	16	< 0.05 (0.10)	< 0.07 (0.10)	64	> 40	372.1	123.7	143
4MC	C	0.186	278.6	16	< 0.05 (0.10)	< 0.04 (0.10)	34.2	> 35	394.5	146.0	143
4MF	F	0.186	278.6	16	< 0.05 (0.10)	< 0.04 (0.10)	34.2	> 35	365.5	117.1	143
4ME	E (M42X1 FD 16mm)	0.186	278.6	16	< 0.05 (0.10)	< 0.04 (0.10)	34.2	> 35	396.0	147.5	143
4XC	C	0.374	278.6	12	< 0.06 (0.10)	< 0.07 (0.10)	7	> 40	-	192.1	143
TCDPxx120											
13C	C	0.038	334.5	8	< 0.06 (0.08)	< 0.04 (0.10)	450	> 45	390.3	56.1	180
12C	C	0.052	334.5	8	< 0.06 (0.08)	< 0.04 (0.10)	247	> 45	403.7	71.4	180
23C	C	0.072	334.5	8	< 0.07 (0.08)	< 0.04 (0.10)	131	> 35	423.4	91.1	180
2MC	C	0.104	334.5	16	< 0.07 (0.10)	< 0.07 (0.10)	110	> 40	456.3	124.0	180
2MF	F	0.104	334.5	16	< 0.07 (0.10)	< 0.07 (0.10)	110	> 40	427.3	95.0	180
2ME	E (M42X1 FD 16mm)	0.104	334.5	16	< 0.07 (0.10)	< 0.07 (0.10)	110	> 40	457.8	125.5	180
4MC	C	0.143	334.5	16	< 0.05 (0.10)	< 0.04 (0.10)	57.8	> 30	480.1	147.8	180
4MF	F	0.143	334.5	16	< 0.05 (0.10)	< 0.04 (0.10)	57.8	> 30	451.2	118.9	180
4ME	E (M42X1 FD 16mm)	0.143	334.5	16	< 0.05 (0.10)	< 0.04 (0.10)	57.8	> 30	481.6	149.4	180
4XC	C	0.286	334.5	12	< 0.08 (0.10)	< 0.05 (0.08)	12	> 35	-	192.1	180
TCDPxx144											
13C	C	0.033	396	8	< 0.05 (0.08)	< 0.04 (0.10)	606	> 45	449.7	56.1	200
12C	C	0.044	396	8	< 0.05 (0.08)	< 0.05 (0.08)	339	> 35	463.1	71.4	200
23C	C	0.061	396	8	< 0.05 (0.08)	< 0.04 (0.08)	180	> 40	482.8	91.1	200
2MC	C	0.089	396	16	< 0.05 (0.10)	< 0.05 (0.10)	151	> 40	515.7	124.0	200
2MF	F	0.089	396	16	< 0.05 (0.10)	< 0.05 (0.10)	151	> 40	486.7	95.0	200
2ME	E (M42X1 FD 16mm)	0.089	396	16	< 0.05 (0.10)	< 0.05 (0.10)	151	> 40	517.2	125.5	200
4MC	C	0.122	396	16	< 0.05 (0.10)	< 0.04 (0.10)	79.5	> 30	539.6	147.8	200
4MF	F	0.122	396	16	< 0.05 (0.10)	< 0.04 (0.10)	79.5	> 30	510.7	118.9	200
4ME	E (M42X1 FD 16mm)	0.122	396	16	< 0.05 (0.10)	< 0.04 (0.10)	79.5	> 30	541.1	149.4	200
4XC	C	0.244	396	12	< 0.08 (0.10)	< 0.05 (0.08)	17	> 35	-	192.1	200
TCDPxx192											
13C	C	0.025	527	8	< 0.06 (0.08)	< 0.04 (0.10)	1050	> 45	590.1	56.1	260
12C	C	0.033	527	8	< 0.06 (0.08)	< 0.04 (0.08)	603	> 45	603.5	71.4	260
23C	C	0.046	527	8	< 0.06 (0.08)	< 0.05 (0.08)	320	> 35	623.2	91.1	260
2MC	C	0.067	527	16	< 0.05 (0.10)	< 0.04 (0.10)	268	> 40	656.1	124.0	260
2MF	F	0.067	527	16	< 0.05 (0.10)	< 0.04 (0.10)	268	> 40	627.2	95.0	260
2ME	E (M42X1 FD 16mm)	0.067	527	16	< 0.05 (0.10)	< 0.04 (0.10)	268	> 40	657.7	125.5	260
4MC	C	0.092	527	16	< 0.05 (0.10)	< 0.04 (0.10)	141.8	> 30	680.0	147.8	260
4MF	F	0.092	527	16	< 0.05 (0.10)	< 0.04 (0.10)	141.8	> 30	651.1	118.9	260
4ME	E (M42X1 FD 16mm)	0.092	527	16	< 0.05 (0.10)	< 0.04 (0.10)	141.8	> 30	681.5	149.4	260
4XC	C	0.183	527	12	< 0.08 (0.10)	< 0.05 (0.08)	30	> 35	-	192.1	260
TCDPxx240											
23C	C	0.037	492.8	8	< 0.03 (0.08)	< 0.04 (0.08)	498	> 45	784.9	91.1	322
2MC	C	0.053	492.8	16	< 0.05 (0.10)	< 0.04 (0.10)	424	> 40	817.8	124.0	322
2MF	F	0.053	492.8	16	< 0.05 (0.10)	< 0.04 (0.10)	424	> 40	788.8	95.0	322
2ME	E (M42X1 FD 16mm)	0.053	492.8	16	< 0.05 (0.10)	< 0.04 (0.10)	424	> 40	819.3	125.5	322
4MC	C	0.073	492.8	16	< 0.05 (0.10)	< 0.05 (0.10)	221.5	> 30	841.6	147.8	322
4MF	F	0.073	492.8	16	< 0.05 (0.10)	< 0.05 (0.10)	221.5	> 30	812.7	118.9	322
4ME	E (M42X1 FD 16mm)	0.073	492.8	16	< 0.05 (0.10)	< 0.05 (0.10)	221.5	> 30	843.2	149.4	322
4XC	C	0.147	492.8	12	< 0.06 (0.10)	< 0.08 (0.10)	47	> 45	-	192.1	322

OE Germany
Opto Engineerig Deutschland GmbH
Grünwald • Germany

OE USA
Texas Industrial Optics Inc.
Houston • USA

OE China
Deep View Trading & Service Co. LTD
Shanghai • China

OE Taiwan
Opto Engineering Southeast Asia LTD.
Taipei • Taiwan