



TC16M Series bi-telecentric lenses have been specifically designed to fit 35 mm format (36 x 24 mm) detectors with very high resolution, such as 11M, 16M or 29Mpix. This combination is the typical choice for extremely accurate measurement of large parts (i.e. engine parts, glass or metal sheets, PCBs and electronic components, LCDs, ...).

TC16M lenses are also perfectly suitable for 4kpix and 8kpix linescan cameras and can be successfully used to determine the diameter of cylindrical objects (shafts, turned metal parts, machine tools, ...).

Besides the standard F-mount any other mechanical interface can be easily supplied on request.

		DETECTOR TYPE				OPTICAL SPECIFICATIONS						DIMENSIONS		
Part Number	Magn.	35 mm	line - 8k	line - 4k	line - 2k	W.D. 1	F/N 2	Telecentricity 3 typical (max) (deg)	Distortion 4 typical (max) (%)	Field Depth 5 (mm)	CTF @50 lp/mm %	Mount	Length 6 (mm)	Diam. (mm)
		w x h	8k x 5um	4k x 7um	2k x 10um									
	(x)	36 x 24 (mm x mm)	40,96 (mm)	28,67 (mm)	20,48 (mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)
	OBJECT FIELD OF VIEW (mm)													
TC 16M 009	4,000	9,0 x 6,0	10,2	7,2	5,1	57,8	22	< 0,03 (0,05)	< 0,03 (0,05)	0,15	> 20	F	486,2	44,0
TC 16M 012	3,000	12,0 x 8,0	13,7	9,6	6,8	57,8	18	< 0,03 (0,05)	< 0,03 (0,05)	0,20	> 30	F	377,0	44,0
TC 16M 018	2,000	18,0 x 12,0	20,5	14,3	10,2	57,8	16	< 0,03 (0,05)	< 0,03 (0,05)	0,30	> 40	F	257,8	44,0
TC 16M 036	1,000	36,0 x 24,0	41,0	28,7	20,5	103,0	16	< 0,03 (0,05)	< 0,02 (0,03)	1,0	> 30	F	309,0	61,0
TC 16M 048	0,751	48,0 x 32,0	54,6	38,2	27,3	127,0	16	< 0,06 (0,10)	< 0,05 (0,10)	2,0	> 30	F	315,2	75,0
TC 16M 056	0,641	56,2 x 37,5	63,9	44,7	31,9	150,0	16	< 0,04 (0,08)	< 0,04 (0,10)	2,5	> 40	F	338,5	80,0
TC 16M 064	0,561	64,3 x 42,9	73,1	51,1	36,5	171,0	16	< 0,04 (0,08)	< 0,06 (0,15)	4,0	> 30	F	358,6	100,0
TC 16M 080	0,463	77,8 x 51,9	88,4	61,9	44,2	198,0	16	< 0,03 (0,08)	< 0,09 (0,20)	5,0	> 30	F	405,4	116,0
TC 16M 096	0,380	94,8 x 63,2	107,7	75,4	53,9	263,0	16	< 0,06 (0,08)	< 0,07 (0,15)	9,0	> 40	F	481,2	143,0
TC 16M 120	0,289	124,9 x 83,3	141,9	99,3	70,9	333,0	16	< 0,05 (0,08)	< 0,05 (0,10)	15,0	> 40	F	538,0	180,0
TC 16M 144	0,245	147,1 x 98,1	167,1	117,0	83,6	398,0	16	< 0,05 (0,08)	< 0,08 (0,20)	19,0	> 40	F	597,8	200,0

1 Working Distance: distance between the front lens and the object. Set this distance within +/- 3% of the nominal value for maximum resolution and minimum distortion.

2 Working F-number: the real F-number of a lens when used as a macro. Lenses with smaller apertures can be supplied on request.

3 Maximum slope of chief rays inside the lens: when converted to millirad, it gives the maximum measurement error for any millimeter of object displacement. Typical (average production) values and maximum (guaranteed) values are listed.

4 Percent deviation of the real image compared to an ideal, undistorted image: typical (average production) values and maximum (guaranteed) values are listed.

5 At the borders of the field depth the image can be still used for measurement but, to get a very sharp image, only half of the nominal field depth should be considered.

6 Measured from the front end of the mechanics to the camera flange.