



# PCCD2M | DATASHEET

## Pericentric catadioptric lens for 1" sensors



### KEY ADVANTAGES

#### 360° imaging of small objects

Parts down to 7.5 mm in diameter can be imaged

#### Extra wide lateral viewing angle

Object sides viewing angle approaches 45°

#### Compactness

The lens can be easily held and integrated in any system

#### Perfect chromatic correction

For RGB camera applications and color inspection

**PCCD series** are catadioptric lenses exclusively developed and manufactured by Opto Engineering® to enable the 360° side view of small objects.

### SPECIFICATIONS

#### Optical specifications

Image circle	(mm)	9.6
Min sensor size		1"
Working distance with minimum object size <sup>1</sup>	(mm)	53
Working distance with medium object size <sup>1</sup>	(mm)	28
Working distance with maximum object size <sup>1</sup>	(mm)	5
<i>f/N</i>		1.4 - close
Viewing angle	(°)	35

#### Mechanical specifications

Mount		C
Length <sup>3</sup>	(mm)	113.8
Diameter	(mm)	143.0
Mass	(g)	1002

<sup>1</sup> Working distance: distance between the front end of the mechanics and the object.

<sup>2</sup> Measured from the front end of the mechanics to the camera flange.

### FIELD OF VIEW

#### Field of view (diameter x height)

Minimum	(mm x mm)	7.5 x 5.0
Medium	(mm x mm)	25.0 x 17.0
Maximum	(mm x mm)	35.0 x 25.0

### COMPATIBLE PRODUCTS

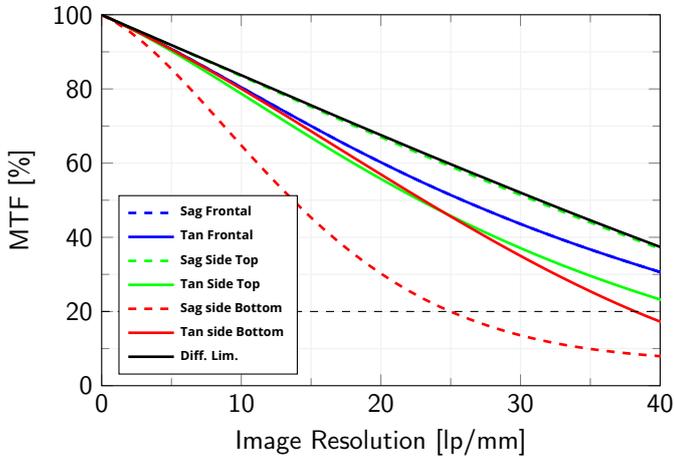
Full list of compatible products available [here](#).



A wide selection of innovative machine vision components.

All product specifications and data are subject to change without notice to improve reliability, functionality, design or other. Photos and pictures are for illustration purposes only. Data are reported by design, actual lens performance may vary due to manufacturing tolerances.

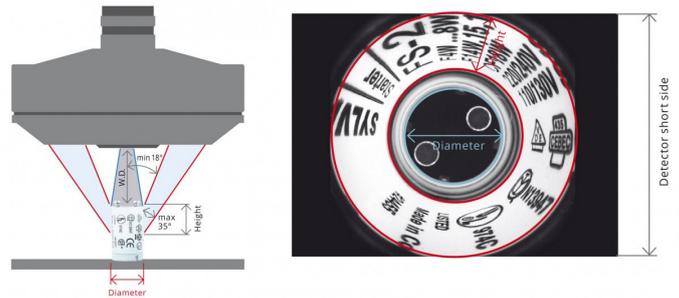
### Image Resolution



Modulation Transfer Function (MTF) vs. Image Resolution, wavelength range 486 nm - 656 nm at  $wf/1.4$  - close of cylindrical object of diameter 25 mm and height of 17 mm

### PCCD IMAGING SETUP

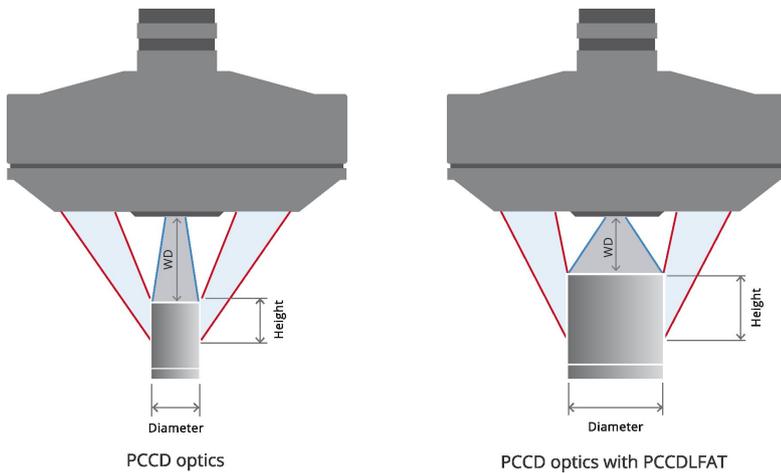
The image of the external walls of the object, captured through the catadioptric system, is inscribed into the short side of the camera detector within a circular crown. On the other hand, the top of the object is directly imaged onto the central part of the detector area: both the lateral and top view of the object are in perfect focus at the same time.



### RECOMMENDED ACCESSORIES

Opto Engineering® Suggests the following accessories when using PCCD Lenses:

- **PCCDLFAT**, interchangeable attachment for extra-wide PCCD field of view. By replacing the pre-assembled protective window with the PCCDLFATL attachment, PCCDL optics can inspect the TOP and SIDES of objects with even larger diameters (beyond 25 mm).
- **CMHOPCCD**, Clamping mechanics for PCCD 0xx lenses



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## Field Of View

Diameter [mm]	Height [mm]	Working distance [mm]	Top view [mm]	Working distance with PCCDLFAT [mm]	Top view with PCCDLFAT [mm]
7.5	4.2	50.5	22.9	47.2	78.9
10	6.1	46.7	22.3	43.4	73.9
15	9.7	39.2	21.2	35.9	63.9
20	13.3	31.7	20	28.4	53.9
25	17	24.2	18.8	20.9	44
30	20.6	16.7	17.7	13.4	34
35	24.2	9.2	16.5	5.9	24
40	27.9	1.7	15.3	0	16.2
45	25.7	0	15	-	-
50	21.9	0	15	-	-
55	18	0	15	-	-
60	14.1	0	15	-	-
65	10.3	0	15	-	-
70	6.4	0	15	-	-
75	2.5	0	15	-	-