360° view with just 1 camera

PERICENTRIC LENSES are an exclusive product developed by Opto Engineering® to enable 3D peripheral vision of objects without the aid of mirrors.

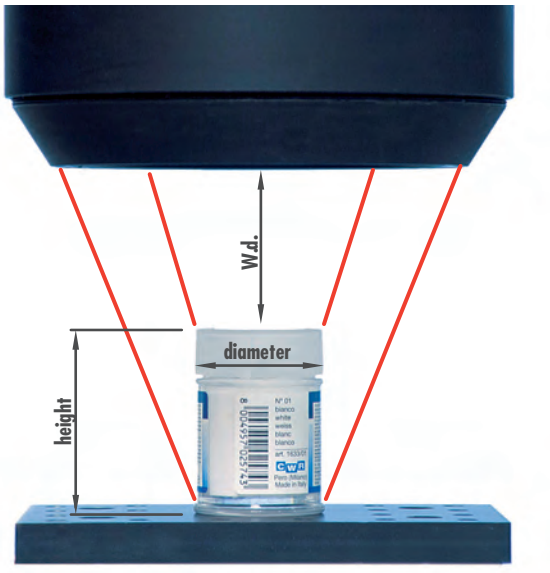
By means of this unique optical design, just one camera shot is enough to capture the top and side views of an object.

The name "pericentric" is because of the specific path of the light rays: the aperture pupil is seen from object space as if it was moving around the peripheral zone of the front optical group.

KEY ADVANTAGES

1. **Just one camera:** no need for multiple cameras placed around and over the object
2. **Fast image analysis:** no image matching software is needed as the picture is not segmented
3. **Single point of view:** no perspective effects typical of multi-image systems
4. **Smooth on-line integration:** inspected parts pass unobstacled in the free space below the lens

part number		PC13030HP	PC12030HP
detector size		1/3"	1/2"
min. FOV (diam x height)	(mm x mm)	20x60	20x60
typ. FOV (diam x height)	(mm x mm)	30x30	30x30
max. FOV (diam x height)	(mm x mm)	60x20	60x20
wavelength range	(nm)	450 .. 650	450 .. 650
working distance	(mm)	20 .. 80	20 .. 80
CTF @ 50 lp/mm	(%)	> 30	> 25
f-number		4-16	4-16
diameter	(mm)	197	197
length	(mm)	448	448
weight	(g)	6800	6800
mount		C	C



r (%) = height/detector short side

Pericentric lenses are designed to work with 1/2" and 1/3" detectors.
The choice of such detectors grants the most appropriate optical magnification factor to achieve the field depth required by high resolution 3D pericentric imaging.

The image of the front surface of the object and its sides are inscribed into the short side of the camera detector.

The smaller the object diameter, the larger the object height which can be inspected, while thin objects can be inspected over a larger diameter.

The table below shows possible combinations of *object diameters* and *heights* along with the appropriate working distance and recommended F-number.

The "r" parameter is the ratio between the lateral view size (the circular crown thickness) and the vertical side of the detector, thus providing accurate information on the image geometry and the side view resolution.

PC13030HP field of view

diameter (mm)	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %
20	7	79	16	10	13	79	8	20	20	65	16	26	30	61	12	30	40	55	14	34	60	25	16	37
25	8	71	4	17	17	63	10	21	25	55	14	26	38	40	14	30	50	30	16	30				
30	10	65	4	13	20	55	8	19	30	42	12	25	45	35	12	29								
40	13	52	6	12	27	43	12	20	40	27	12	25												
50	17	36	6	13	33	20	8	15																
60	20	23	4	11																				

PC12030HP field of view

diameter (mm)	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %	height (mm)	w.d. (mm)	F/#	r %
20	7	76	16	10	13	70	24	15	20	65	24	28	30	55	16	32	40	45	24	32	60	27	24	35
25	8	72	12	11	17	63	12	18	25	54	16	28	38	40	16	32	50	29	16	32				
30	10	66	12	11	20	56	12	19	30	45	16	25	45	30	16	35								
40	13	54	6	11	27	36	16	20	40	27	24	23												
50	17	32	12	13	33	20	16	18																
60	20	22	12	11																				