

# Partner Lens



**Carl Zeiss**  
VISIONMES®

For Distortion-free Imaging

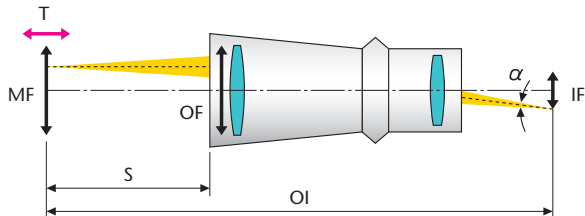
# VISIONMES® Telecentric Lens

Carl Zeiss



Ultimate Measuring Environment with Outstanding Performance

- The ultimate in distortion-free images.
- Able to recognize accurate images of the structure and form of complicated objects.
- A high performance optical lens that presents quality at the HDTV level.
- High numerical aperture (NA) enables the achievement of a bright image even in a short exposure time.
- Lineup offering a maximum diameter of ø300mm.

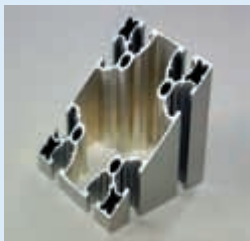


MF	Measurement Field	Measurement range (Length × Width)
OF	Object Field	Lens opening diameter at object side (ø mm)
IF	Image Field	CCD element surface
OI	Distance Between Object & Image	Distance from object surface to CCD element
S	Working Distance	Distance from end of metal material to focus position
T	Telecentric Range	Range in which measurement of an accurate image is possible if the object moves up and down
Sin α	Numerical Aperture	
Mag.	Magnification	Image field ÷ Object field

For Distortion-free Imaging

VISIONMES® Telecentric Lens

## Sample Images



### Macro Lens



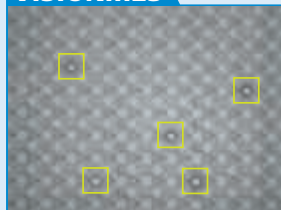
### VISIONMES



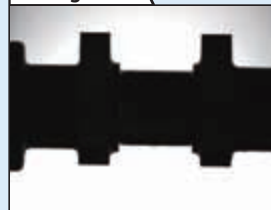
### CCTV



### VISIONMES

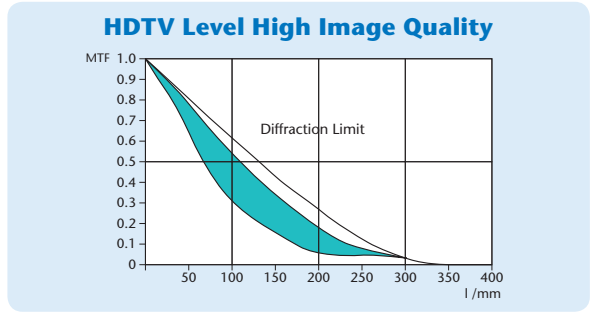
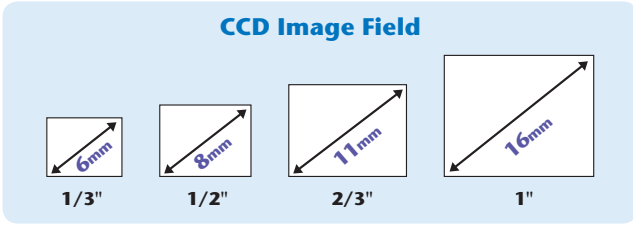


### Backlight



### Parallel Light Backlight





## Application

Early detection of defects by performing batch inspections at various inspection points on the production line.



- Molding • Casting      Wide-range, 3D inspection for dimension measurements (internal diameter, external form, diameter, concentricity)
- Semiconductors      Inspection for uneven surfaces and damage in silicon wafers, pattern verification
- Various Parts          Mass batch inspection without contact for bolts, wipers, screws, plastic parts, plastic bottles and rubber products

## Optical Specifications

### Telecentric Lens for 1/3" CCD Camera (Angle 6mm)

Model	Object Field (mm)	CCD (mm)	Image Side NA	Working Distance WD (mm)	Telecentric Range (mm)	Depth of Field (mm)	Magnification (x)	Measurement Field (mm)
18/6/0.05	18	6	0.05	66	+/-10	+/-3	0.33	10x14
35/6/0.1	35	6	0.1	67	+/-2.5	+/-7.5	0.17	20x27
70/6/0.1	70	6	0.1	113	+/-13	+/-25	0.086	41x55
105/6/0.1	105	6	0.1	182	+/-16	+/-50	0.057	62x82

### Telecentric Lens for 1/2" CCD Camera (Angle 8mm)

Model	Object Field (mm)	CCD (mm)	Image Side NA	Working Distance WD (mm)	Telecentric Range (mm)	Depth of Field (mm)	Magnification (x)	Measurement Field (mm)
11/8/0.01	11	8	0.01	160	+/-9	+/-6	0.72	6x8
35/8/0.1	35	8	0.1	64	+/-2	+/-4	0.228	21x28
70/8/0.1	70	8	0.1	103	+/-10.5	+/-16	0.114	43x55
105/8/0.1	105	8	0.1	171	+/-12	+/-33	0.076	65x83
150/8/0.1	150*	8	0.1	225	+/-35	+/-75	0.05	93x118
225/8/0.1	225*	8	0.1	340	+/-55	+/-165	0.035	140x177
300/8/0.1	300*	8	0.1	450	+/-75	+/-300	0.026	187x236

### Telecentric Lens for 2/3" CCD Camera (diagonal 11 mm)

Model	Object Field (mm)	CCD (mm)	Image Side NA	Working Distance WD (mm)	Telecentric Range (mm)	Depth of Field (mm)	Magnification (x)	Measurement Field (mm)
11/11/0.02	11	11	0.02	54	+/-2.5	+/-1.25	1	6x8
11A/11/0.02	11A (Made-to-Order)	11	0.02	17	+/-5	+/-1.25	1	6x8
11B/11/0.02	11B (Made-to-Order)	11	0.02	54	+/-5	+/-1.25	1	6x8
13/11/0.01	13	11	0.01	65	+/-2	+/-1	0.846	8x10
22/11/0.05	22	11	0.05	66	+/-2.5	+/-2	0.5	13x17
22A/11/0.05	22A	11	0.05	56	+/-5	+/-2	0.5	13x17
35/11/0.1	35	11	0.1	58	+/-1.4	+/-2	0.314	21x28
70/11/0.1	70	11	0.1	75	+/-8	+/-9	0.157	43x55
105/11/0.1	105	11	0.1	121	+/-10	+/-20	0.104	65x83
150/11/0.1	150*	11	0.1	165	+/-25	+/-38	0.07	90x120
225/11/0.1	225*	11	0.1	250	+/-44	+/-90	0.048	135x180
300/11/0.1	300*	11	0.1	335	+/-55	+/-150	0.036	180x240

### Telecentric Lens for 1" CCD Camera (Angle 16mm) (Made-to-Order)

Model	Object Field (mm)	CCD (mm)	Image Side NA	Working Distance WD (mm)	Telecentric Range (mm)	Depth of Field (mm)	Magnification (x)	Measurement Field (mm)
8/16/0.08	8*	16	0.08	50	+/-1	+/-0.05	2	3x4
16/16/0.1	16*-LD	16	0.1	92	+/-2	+/-0.2	1	6x9
32/16/0.1	32*	16	0.1	78	+/-4	+/-0.8	0.5	13x17
70/16/0.1	70*	16	0.1	58	+/-4	+/-4	0.23	40x40
150/16/0.1	150*	16	0.1	110	+/-20	+/-17	0.1	86x86
300/16/0.1	300*	16	0.1	230	+/-40	+/-60	0.05	172x172

### Telecentric Lens for 1.1" CCD Camera (Angle 18mm)

Model	Object Field (mm)	CCD (mm)	Image Side NA	Working Distance WD (mm)	Telecentric Range (mm)	Depth of Field (mm)	Magnification (x)	Measurement Field (mm)
6/18/0.029	6	18	0.029	85	+/-1	+/-0.1	3	2x3

A = Object side lens (90° L-shaped type)      \* = Variable aperture model  
 B = Imaging side lens (90° L-shaped type)      LD = Long working distance