

LM1119TC LM1138TC LM1120TC LM1121TC LM1122TC LM1123TC LM1125TC LM50TC

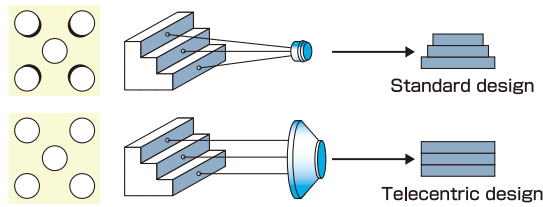
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## TELECENTRIC Series

### High Resolution Lenses

#### Features of TC Series

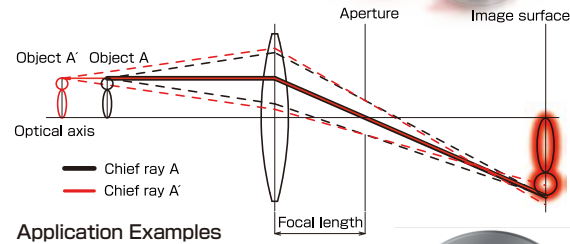
- ▶ Produces high contrast and resolution in both the center and corners.
- ▶ Virtually no TV distortion of entire image area.



Telecentric Optical System

In a telecentric optical system, there is no change in magnification when focusing. Thus, the magnification remains constant at different working distances. Similarly, the movement of an object also does not change the magnification, which makes a telecentric lens ideal for measuring objects with high accuracy.

In a telecentric optical system, the chief rays are parallel to the optical axis. As a result, the aperture becomes greater as the magnification is fixed by the focusing rays. This means that the F-number on a telecentric lens tends to be larger when compared to a standard megapixel lens.



Application Examples

- ▶ Surface inspection of silicon wafers
- ▶ Image defect inspections
- ▶ Inspection of dirt on prisms and glass circuit boards
- ▶ Measurement of thread pitches
- ▶ Reading 2D codes



For more information please contact:

**BOCK OPTRONICS INC.**  
14 Steinway Blvd., Unit 7  
Toronto, Ontario M9W 6M6

Tel: (416) 674-2804  
sales@bockoptronics.ca  
www.bockoptronics.ca

### 2/3" TELECENTRIC 5 MEGAPIXEL PLUS

- ▶ Telecentric lens with variable magnification
- ▶ Able to adjust the magnification to match with the pixel size of the camera
- ▶ Lenses are designed with an optical magnification that is ideal for over 5 megapixels
- ▶ Distortion free lenses of less than 0.02%. TV distortion is limited to 0.25% on the entire image area even when used with a 5 megapixel camera

#### LM1120TC



#### LM1121TC



2/3" 1/1.8" 1/2" 5MEGA+ C-mnt METAL DIS-F  
Megapixel C-mount Metal Body Distortion Free

2/3" 1/1.8" 1/2" 5MEGA+ C-mnt METAL DIS-F  
Megapixel C-mount Metal Body Distortion Free

#### LM1122TC



#### LM1123TC



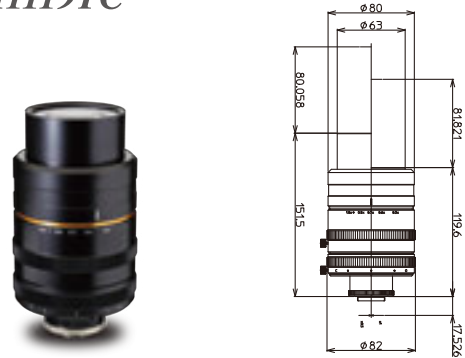
2/3" 1/1.8" 1/2" 5MEGA+ C-mnt METAL DIS-F  
Megapixel C-mount Metal Body Distortion Free

2/3" 1/1.8" 1/2" 5MEGA+ C-mnt METAL DIS-F  
Megapixel C-mount Metal Body Distortion Free

### 4/3" MACRO ZOOM 21 MEGAPIXEL

- ▶ Telecentric lens with variable magnification
- ▶ Able to resolve up to 21 megapixels
- ▶ 0.5x~1.0x for macro use

#### LM1119TC



1.1" 4/3" 1" 2/3" ZOOM 21MEGA C-mnt METAL  
Manual Zoom Lens Megapixel C-mount Metal Body

### 4/3" MACRO 21 MEGAPIXEL

- ▶ 2.0x for macro use
- ▶ Able to resolve up to 21 megapixels

#### LM1138TC



1.1" 4/3" 1" 2/3" 21MEGA C-mnt METAL  
Megapixel C-mount Metal Body

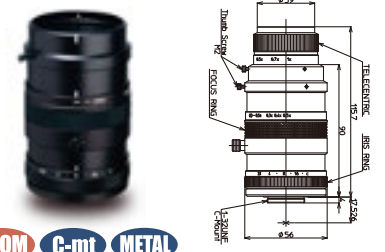
Model	LM1119TC		LM1138TC	
Magnification	0.5~1.0x		2.0x	
Image Size	18.4x13.8(Φ23)		18.4x13.8(Φ23)	
Shooting Magnification	0.5x	1.0x	2.0x	
Objective N.A.	0.05		0.1	
W.D(mm)	80		80.6	
Shooting Range (mm)	4/3 inch	36.8x27.6	18.4x13.8	9.20x6.90
	1 inch	25.6x19.2	12.8x9.6	6.40x4.8
	2/3 inch	17.6x13.2	8.8x6.6	4.4x3.3
TV Distortion(%)	0.1		0.1	
Back Focus in Air(mm)	14.7		15.0	
Mount	C-mount		C-mount	
Resolution	120lp/mm		120lp/mm	
Size	Φ82x151.5		Φ64x151.0	
Weight(g)	1000		830	
Temperature Range	-10°C~+50°C		-10°C~+50°C	
Storage Temperature Range	-20°C~+60°C		-20°C~+60°C	

† Images may differ from the actual product.

### 2/3" MACRO ZOOM

- ▶ Telecentric lens with variable magnification
- ▶ 0.3x~1.0x for macro use

#### LM50TC



#### LM1125TC



2/3" 1/1.8" 1/2" 5MEGA+ C-mnt METAL DIS-F  
Megapixel C-mount Metal Body Distortion Free

2/3" 1/1.8" 1/2" ZOOM C-mnt METAL  
Manual Zoom Lens C-mount Metal Body

Model	LM1120TC			LM1121TC			LM1122TC			LM1123TC			LM1125TC			LM50TC		
Magnification	3.45~4.4x			1.725~2.2x			1.15~1.47x			0.69~0.88x			0.346~0.44x			0.3~1.0x		
Image Size	8.8x6.6(Φ11)			8.8x6.6(Φ11)			8.8x6.6(Φ11)			8.8x6.6(Φ11)			8.8x6.6(Φ11)			8.8x6.6(Φ11)		
Shooting Magnification	3.45x	4.0x	4.4x	1.725x	2.0x	2.2x	1.15x	1.3x	1.47x	0.69x	0.8x	0.88x	0.346x	0.4x	0.44x	0.3x	1.0x	
Objective N.A.	0.2	0.2	0.2	0.131	0.131	0.131	0.101	0.101	0.101	0.07	0.07	0.07	0.04	0.04	0.04	0.038	0.100	
W.D(mm)	65.9	65.9	65.9	114.8	111.4	109.4	111.6	111.6	111.6	111.0	112.7	112.7	112.7	112.7	112.7	193.4	81.8	
Shooting Range (mm)	2/3 inch	1.9x2.6	1.7x2.2	1.5x2.0	5.1x3.8	4.4x3.3	4.0x3.0	7.6x5.7	6.6x5.0	6.0x4.5	12.7x9.6	11.0x8.2	10.0x7.5	19.1x25.4	16.5x22.0	15.0x20.0	29.5x22.2	8.8x6.6
	1/1.8 inch	1.6x2.1	1.4x1.8	1.2x1.6	4.2x3.1	3.6x2.7	3.3x2.4	6.3x4.7	5.5x4.1	4.9x3.7	10.4x7.8	9.0x6.7	8.2x6.1	15.7x20.9	13.6x18.1	12.3x16.5	24.1x18.0	7.2x5.4
	1/2 inch	1.4x1.9	1.2x1.6	1.1x1.5	3.7x2.8	3.2x2.4	2.9x2.2	5.6x4.2	4.9x3.7	4.3x3.3	9.3x7.0	8.0x6.0	7.3x5.5	13.9x18.6	12.1x16.1	11.0x14.6	21.4x16.0	6.4x4.8
TV Distortion(%)	0.015	0.003	-0.002	0.011	0.004	0.001	-0.015	-0.001	0.011	-0.001	-0.009	0.005	0.02	-0.009	0.01	-0.19	-0.1	
Back Focus in Air(mm)	17.1	24.5	30	55.8	67.7	76.3	18.7	23.6	29.8	34	28.8	25.3	17.6	17	16.5		22.0	
Mount	C-mount			C-mount			C-mount			C-mount			C-mount			C-mount		
Resolution	120lp/mm			120lp/mm			120lp/mm			120lp/mm			120lp/mm			120lp/mm		
Filter Thread(mm)	-			-			-			-			-			M37.5xP0.5		
Size(mm)	Φ57x180.0			Φ48x147.5			Φ50x123.9			Φ50x121.5			Φ51.5x142.3			Φ56x115.7		
Weight(g)	645			420			330			290			395			317		
Temperature Range	-10°C~+50°C			-10°C~+50°C			-10°C~+50°C			-10°C~+50°C			-10°C~+50°C			-10°C~+50°C		
Storage Temperature Range	-20°C~+60°C			-20°C~+60°C			-20°C~+60°C			-20°C~+60°C			-20°C~+60°C			-20°C~+60°C		

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