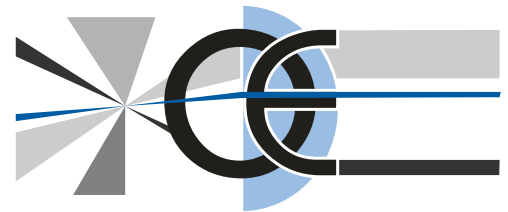


ZERO DISTORTION MACRO LENSES



WWW.OPTO-ENGINEERING.COM

MC SERIES

ZERO DISTORTION MACRO LENSES



MC SERIES is a family of macro lenses designed to look at small objects with very high image resolution and nearly zero distortion.

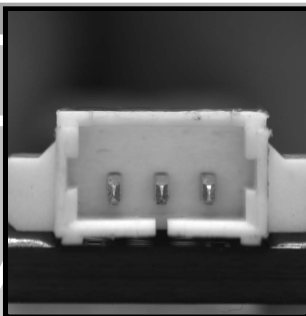
Typically small fields are observed with a long focal length lens with an additional spacer, used to correct the working distance.



Unfortunately this approach leads to several problems like:

- high image distortion
- image resolution loss (the corner focus is very poor)
- poor depth of field
- too large lens diameter (no room for illuminating devices)

All these drawbacks are overcome with MC series, specifically designed for situations like this. In addition, MC SERIES lenses are perfectly suitable for dimensional measurement applications, because of their very low distortion and high resolution at any magnification.



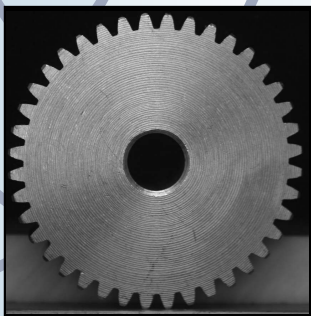
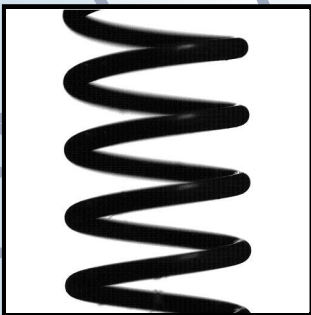
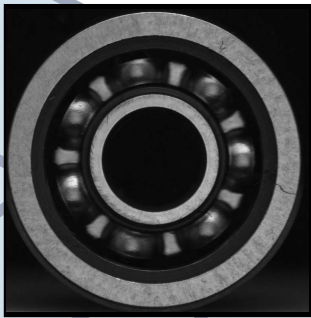
APPLICATIONS:

- **Dimensional Measurement of precision mechanical parts**
- **Electronic components and boards inspection**
- **Web and tissue inspection**
- **Printing industry**
- **Microbiology**
- **Forensic Sciences**
- **Videomicroscopy**

ZERO DISTORTION MACRO LENSES

MC SERIES

ZERO DISTORTION MACRO LENSES



OPTIMIZED FOR MACRO USE

NEARLY ZERO DISTORTION

TAILORED FOR 4 MICRON PIXEL SIZE

OPTIMIZED FIELD DEPTH

Model	Magnification X	W.D. (mm)	F-number	Field Depth (mm)	Distortion	DETECTOR/OBJECT FIELD SIZE									
						1/4"		1/3"		1/2"		1/1.8"		2/3"	
						w	h	w	h	w	h	w	h	w	h
						3,6 x 2,7 (mm) (mm)	4,8 x 3,6 (mm) (mm)	6,4 x 4,8 (mm) (mm)	7,13 x 5,37 (mm) (mm)	8,8 x 6,6 (mm) (mm)					
MC3.00X	3	29	20	0,2	<0,01%	1,2 x 0,9	1,6 x 1,2	2,13 x 1,6	2,38 x 1,79	2,93 x 2,2					
MC2.00X	2	33	16	0,4	<0,01%	1,8 x 1,35	2,4 x 1,8	3,2 x 2,4	3,56 x 2,68	4,4 x 3,3					
MC1.50X	1,5	38	13	0,5	<0,01%	2,4 x 1,8	3,2 x 2,4	4,27 x 3,2	4,75 x 3,58	5,87 x 4,4					
MC1.00X	1	47	10	0,7	<0,01%	3,6 x 2,7	4,8 x 3,6	6,4 x 4,8	7,13 x 5,37	8,8 x 6,6					
MC0.75X	0,75	58	9	1,4	<0,02%	4,8 x 3,6	6,4 x 4,8	8,53 x 6,4	9,5 x 7,16	11,7 x 8,8					
MC0.50X	0,5	75	8	2,1	<0,02%	7,2 x 5,4	9,6 x 7,2	12,8 x 9,6	14,3 x 10,7	17,6 x 13,2					
MC0.33X	0,333	102	7	3,5	<0,05%	10,8 x 8,11	14,4 x 10,8	19,2 x 14,4	21,4 x 16,1	26,4 x 19,8					



OPTO ENGINEERING S.R.L.

Via Cremona, 28

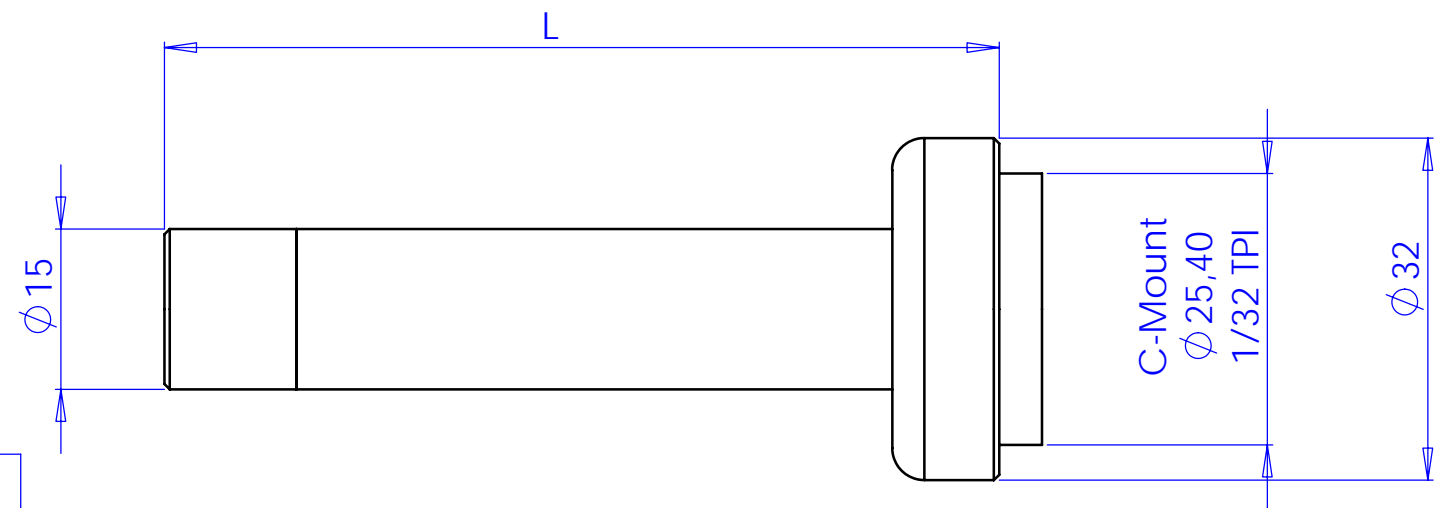
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fax: +39-(0)376-229829

e-mail: info@opto-engineering.com

Rev No.	Description	Date	Name



CONF.	L (mm)
MC 033 X	31.04
MC 050 X	35.72
MC 075 X	42.83
MC 100 X	49.86
MC 150 X	63.95
MC 200 X	78.10
MC 300 X	106.47

Material			Mass	Scale 2:1																															
Surface treatment			Project-Prod.Item/Instrument																																
Geometrical tolerance (ISO 2768-2)		<table border="1"> <tr> <th>Class</th> <th>K</th> <th>Undimensioned bevels</th> <th>1x45°</th> </tr> <tr> <td>0.5</td> <td>>30+</td> <td>>6+</td> <td>>30+</td> </tr> <tr> <td>+3</td> <td>>6</td> <td>30</td> <td>120</td> </tr> <tr> <td>±0.1</td> <td>±0.1</td> <td>±0.2</td> <td>±0.3</td> </tr> <tr> <td></td> <td></td> <td></td> <td>±0.5</td> </tr> <tr> <td></td> <td></td> <td></td> <td>±0.8</td> </tr> <tr> <td></td> <td></td> <td></td> <td>±1.2</td> </tr> <tr> <td></td> <td></td> <td></td> <td>±2</td> </tr> </table>	Class	K	Undimensioned bevels	1x45°	0.5	>30+	>6+	>30+	+3	>6	30	120	±0.1	±0.1	±0.2	±0.3				±0.5				±0.8				±1.2				±2	Description
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		Date	Name	Drawing No.																															
Designed				Sheet																															
Draw				1/1																															
Checked																																			
<i>Reproduction forbidden without specific authorization</i>																																			