

## BI-TELECENTRIC LENS FOR DETECTORS UP TO 2/3"



| Part Number                        | TC 23 24         |              |
|------------------------------------|------------------|--------------|
| <b>Magnification</b>               |                  | 0,350 +/- 3% |
| <b>Field Of View</b>               | <b>(mm x mm)</b> |              |
| with 1/4" (3,6 x 2,7) detector     |                  | 10,3 x 7,7   |
| with 1/3" (4,8 x 3,6) detector     |                  | 13,7 x 10,3  |
| with 1/2" (6,4 x 4,8) detector     |                  | 18,3 x 13,7  |
| with 1/1.8" (7,13 x 5,37) detector |                  | 20,4 x 15,3  |
| with 2/3" (8,8 x 6,6) detector     |                  | 25,1 x 18,9  |
| <b>Working Distance</b>            | <b>(mm)</b>      | 69,2 +/- 2   |
| <b>Working F-number</b>            |                  | 8            |
| <b>Telecentricity</b>              | <b>(degree)</b>  | < 0,1        |
| <b>Distortion</b>                  | <b>(%)</b>       | < 0,10       |
| <b>Field Depth</b>                 | <b>(mm)</b>      | 5,0          |
| <b>CTF @70 lp/mm</b>               | <b>(%)</b>       | > 45         |
| <b>Image side N.A.</b>             |                  | 0,0620       |
| <b>Object side N.A.</b>            |                  | 0,0220       |
| <b>Mount</b>                       |                  | C            |
| <b>Length</b>                      | <b>(mm)</b>      | 137,5        |
| <b>External diameter</b>           | <b>(mm)</b>      | 44,0         |
| <b>Weight</b>                      | <b>(g)</b>       | 410          |

### ACCESSORIES AND OPTIONS:



**Collimated/Telecentric illumination:**  
compatible with LTCL24 illuminator;  
green light suggested.



**Coaxial illumination:**  
not available.



**Back Light illumination:**  
Compatible with LTBK36 and LTBK48  
illuminators.



**Clamping Mechanics:**  
compatible with CMHO24.

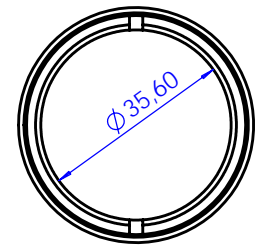
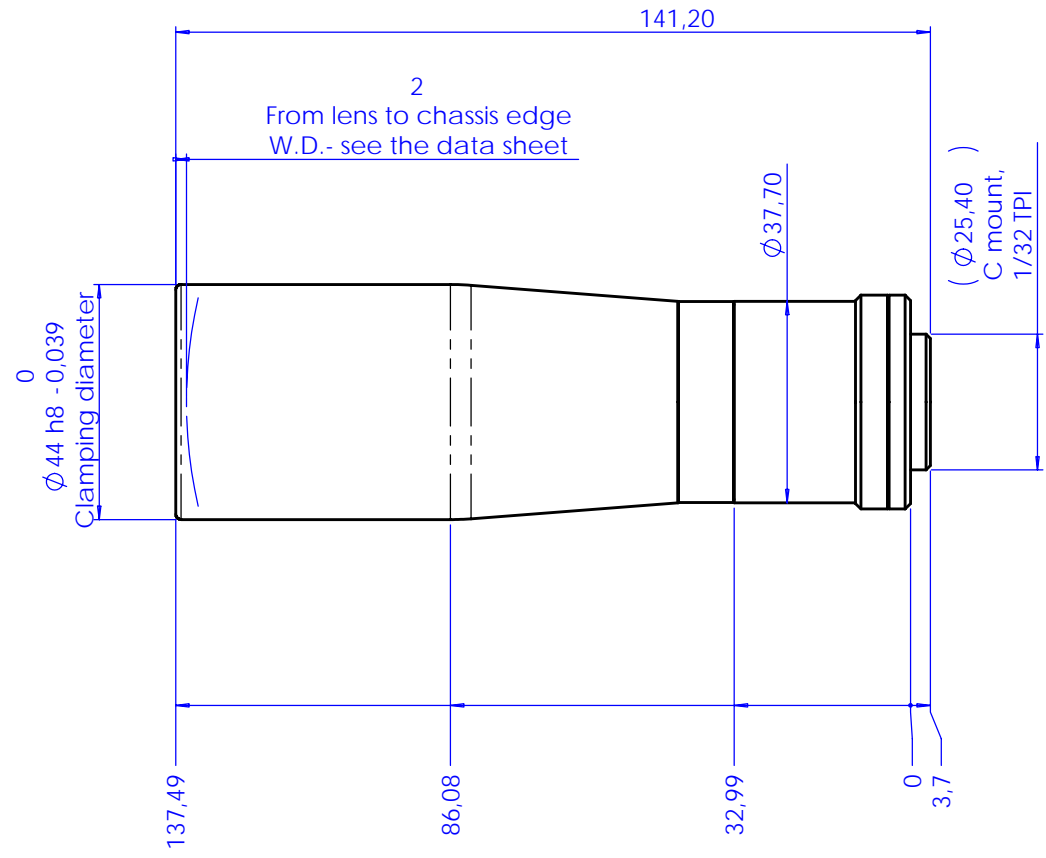


**Direct illumination:**  
compatible with LTRN36 diffusive  
anular illuminators.



**Filters:**  
filters can be inserted in the rear part  
of the lens, by means of TC Filter Kit.

| Rev No. | Description        | Date     | Name      |
|---------|--------------------|----------|-----------|
| A       | First light        | 01/05/03 | A.Vismara |
| D       | Redesign           | 18/07/06 | A.Vismara |
| E       | Length of C thread | 12/01/09 | A.Vismara |



|  |      |      |             |  |                      |       |          |
|--|------|------|-------------|--|----------------------|-------|----------|
| Material   | N.A. |      |             | Mass   | 0.41 kg              | Scale | 1:1      |
| Surface treatment  | N.A. |      |             | Project-Prod.Item/Instrument<br>Telecentric lens 23 24 |                      |       |          |
| Geometrical tolerance (ISO 2768-2)   |      |      | Class       | K  | Description          |       |          |
| Linear tolerance (ISO 2768-2)  |      |      | Class       | m  | Undimensioned bevels | 1x45° | Assembly |
| 0.5  | >3-  | >6-  | >30-        | >120   | >400-                | >1000 |          |
| +3   | 6    | 30   | 120         | +400   | +1000                | +2000 | R 0.5    |
| ±0.1   | ±0.1 | ±0.2 | ±0.3        | ±0.5   | ±0.8                 | ±1.2  | ±2       |
| www.opto-engineering.com   |      |      | Date        |  | Name                 |       |          |
|  |      |      | Designed    | 18/07/06   | A.Vismara            |       |          |
|  |      |      | Draw        | 12/01/09   | A.Vismara            |       |          |
|  |      |      | Checked     | X  | C. Sedazzari         |       |          |
| OPTO ENGINEERING S.r.l. - 46100 Mantova Italy - Via Cremona, 28 - Tel. +39 0376 229585 - e-mail: info@opto-engineering.com - http://www.opto-engineering.com |      |      | Drawing No. |  | 01501-0-E            |       | Sheet    |
|  |      |      |             |  |                      |       | 1/1      |
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