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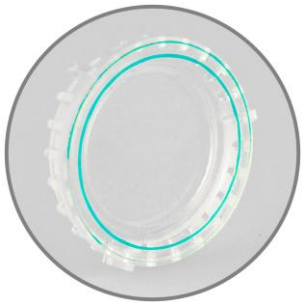
Manually tunable lens ML-18-30



The ML-18-30 is a core lens element only. Its curvature is manually changed from flat to convex by pressing a ring (lens shaper) of the size of the aperture into the core lens element. This axial travel is realized by a rotating actuation together with the inclination of the helix structure at the outer face of the lens (see also Figure 1). Design files to build a housing for the ML-18-30 with the appropriate actuation mechanism are available on request. Optotune currently offers the following lens version for this model:

- ML-18-30-NOC-MR: Medium refractive index (n_D = 1.382), no anti-reflection coating

The following table gives the specification of the manually tunable lens. Lens aperture, thickness and focal tuning range can be adapted on demand as they are based on the housing, which will be designed by the customer. In order to clean the lens we recommend to use dust-free pressured air. Isopropanol or similar cleaning fluids might damage the lens's surface.

Mechanical specifications

External diameter	30	mm
Clear aperture[1]	18	mm
Thickness	5.5	mm
Weight	3.5	g

Optical specifications

	ML-18-30-NOC-MR
Focal tuning range @ 525nm	inf … +35 mm
(based on housing shown in Figure 2)	0 … 28 dpt
Dispersion (at 20°C) 486.1nm	1.387
589.3nm	1.382
656.3nm	1.380
Abbe number V	63
Lens type	from plano-convex to flat
Container material	Polycarbonate (coating available on request)
Transmission	91%
Polarization	Preserving

Thermal specifications

Storage temperature	[-40,+85]	°C
Operating temperature	[-20,+65]	°C

[1] Recommended useful aperture is 80% of clear aperture

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Figure 1 shows the dimensions of the ML-18-30 lens. According to Figure 1, the focal range is measured from the outer ring. In the neutral position the membrane is flat, 0.5 mm below the outer ring. At full deflection the membrane is pushed 1.7 mm below the edge of the outer ring.

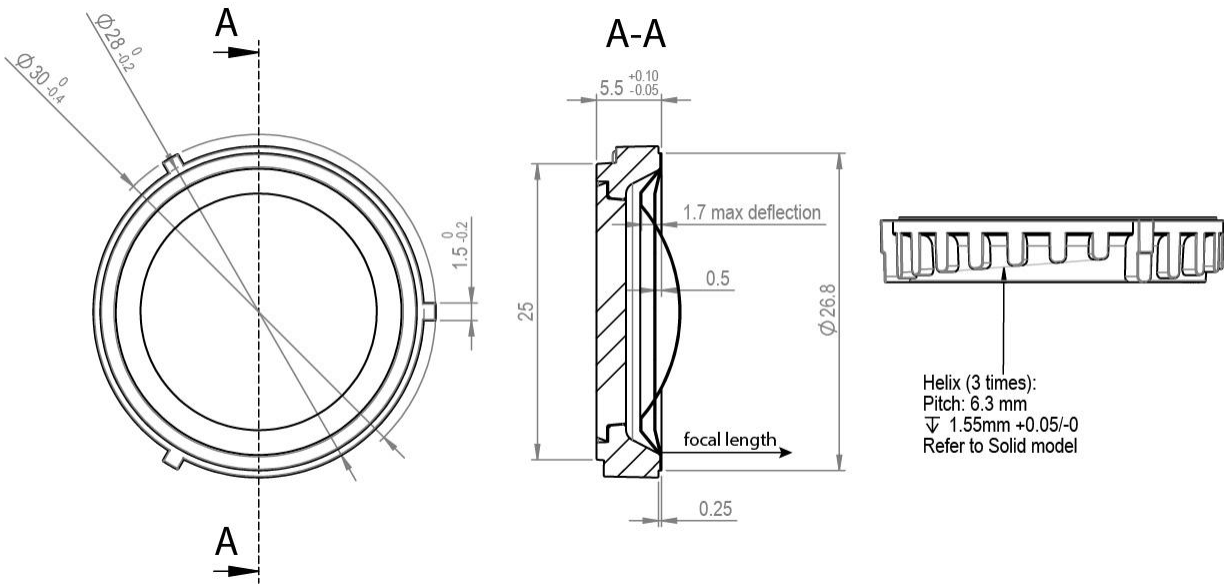

Figure 1: Mechanical drawing (unit: mm).

When integrated in a housing, the inclination of the helix allows changing the focal length. In Figure 2 we present a specific example of a housing for the lens ML-18-30. The tuning range of focal length given in the above table is based on this housing. By turning the outer ring, the focal length is changed continuously.

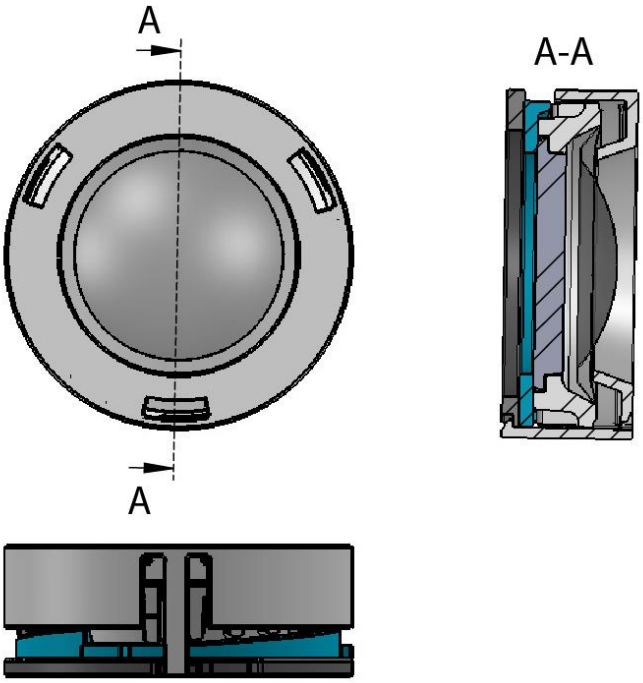

Figure 2: Example of a housing that contains the ML-18-30 lens.

For more information on optical and mechanical parameters, please contact sales@optotune.com.

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