

Manually Tunable Lens ML-20-35



The curvature of the lens can be manually changed from convex to flat to concave by rotating the outer ring attached to the lens. The focal length is accordingly tuned to a desired value. Optotune currently offers three lens versions:

- ML-20-35-VIS-HR: High refractive index ($n_D = 1.559$), visible anti-reflection coating (400 – 700 nm)
- ML-20-35-VIS-LD: High Abbe number ($V = 100$), visible anti-reflection coating (400 - 700 nm)
- ML-20-35-NIR-HR: High refractive index ($n_D = 1.559$), visible anti-reflection coating (700 – 1100 nm)
- ML-20-35-NIR-LD: High Abbe number ($V = 100$), near infrared anti-reflection coating (700 – 1100 nm)

The following table gives the specification of our standard manual lens. Lens aperture, thickness and tuning range can be adapted on demand.

Mechanical specifications

External diameter	35	mm
Clear aperture ¹	20	mm
Thickness	8	mm
Weight	11.35	g
Lifecycles	>100'000	

Optical specifications

	ML-20-35-VIS-HR ML-20-35-NIR-HR	ML-20-35-VIS-LD ML-20-35-NIR-LD
Focal tuning range @ 525nm	-40 ... inf ... +40 mm	-80 .. inf .. 80 mm
Dispersion		
n_F (486.1nm)	1.572	1.302
n_D (589.3nm)	1.559	1.300
n_C (656.3nm)	1.554	1.299
Abbe number V	31	100
Lens type	from plano-convex to plano-concave	
Transmission spectrum	see Figure 2	
Optical damage threshold @ 1064nm	10	kW/cm ²
Polarization	Preserving	

Thermal specifications

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

Test conditions

Lens diameter used for characterization
 Temperature

80 % of clear aperture
 20° C

¹ Recommended useful aperture is 80% of clear aperture

Figure 1 shows the dimensions of the ML-20-35 lens. According to Fig. 1, the focal range is measured from the housing. The ring is used to set the focal range to the desired value.

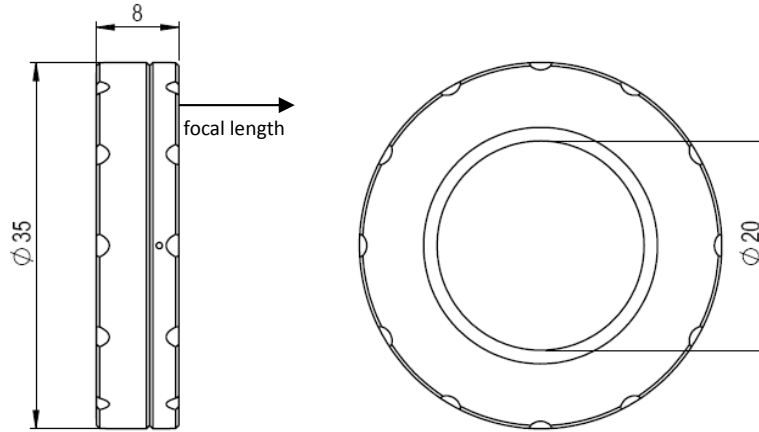


Figure 1: Mechanical drawing (unit: mm)

The materials used exhibit a transmission of over 90% in the range of 250 – 2500 nm. However, customized anti-reflection coatings may be needed for the cover glasses. Figure 2 shows the transmission spectrum for our two standard broadband coatings (visible and near infrared).

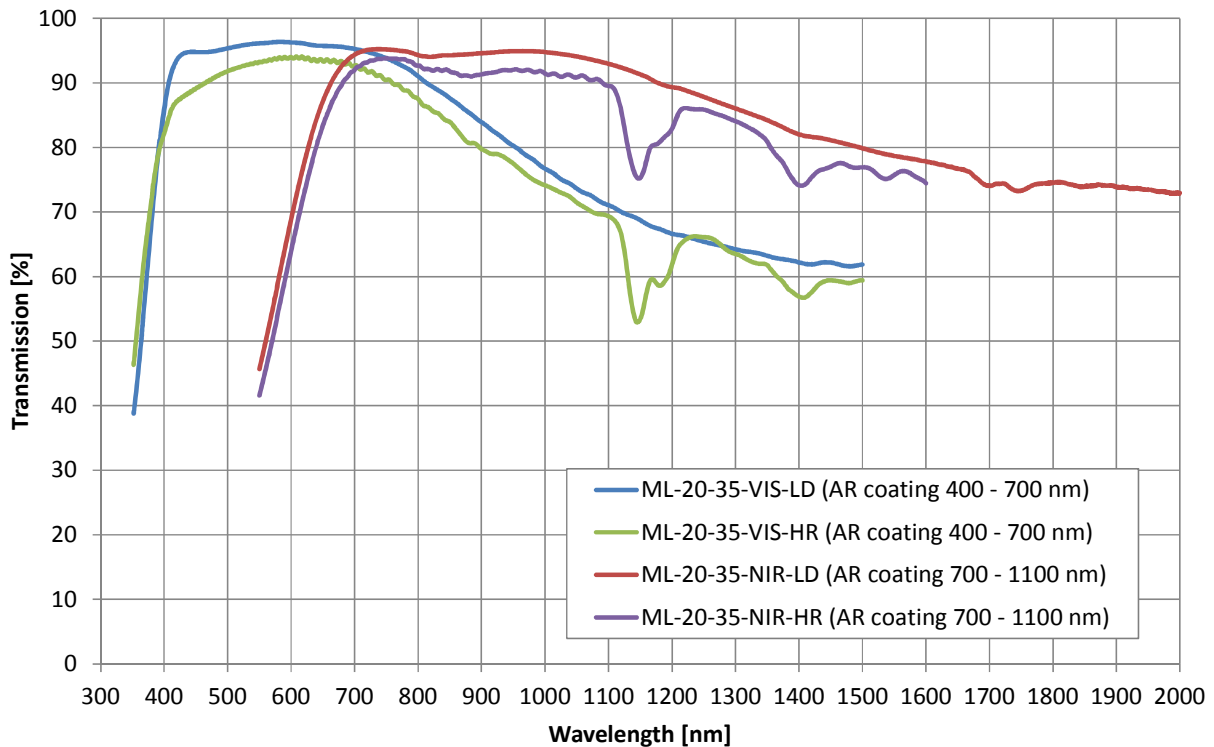


Figure 2: Transmission spectrum of the ML-20-35 with standard broad-band coatings

Examples of mounting possibilities for the ML-20-35 lens include:



G024504000



G061047000



CP03/M



KM200V/M



NT03-676