

LDV-Beam Expander

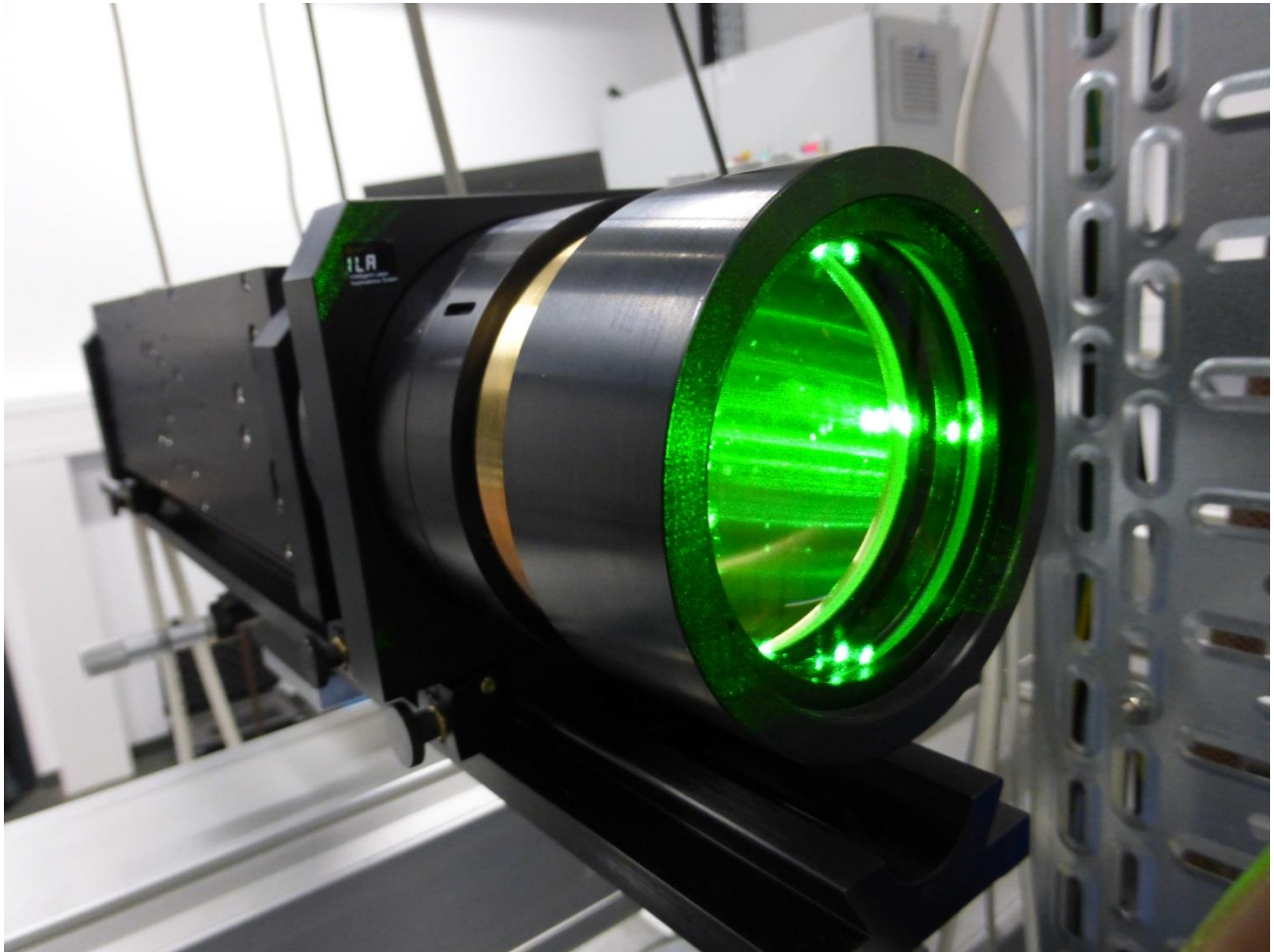


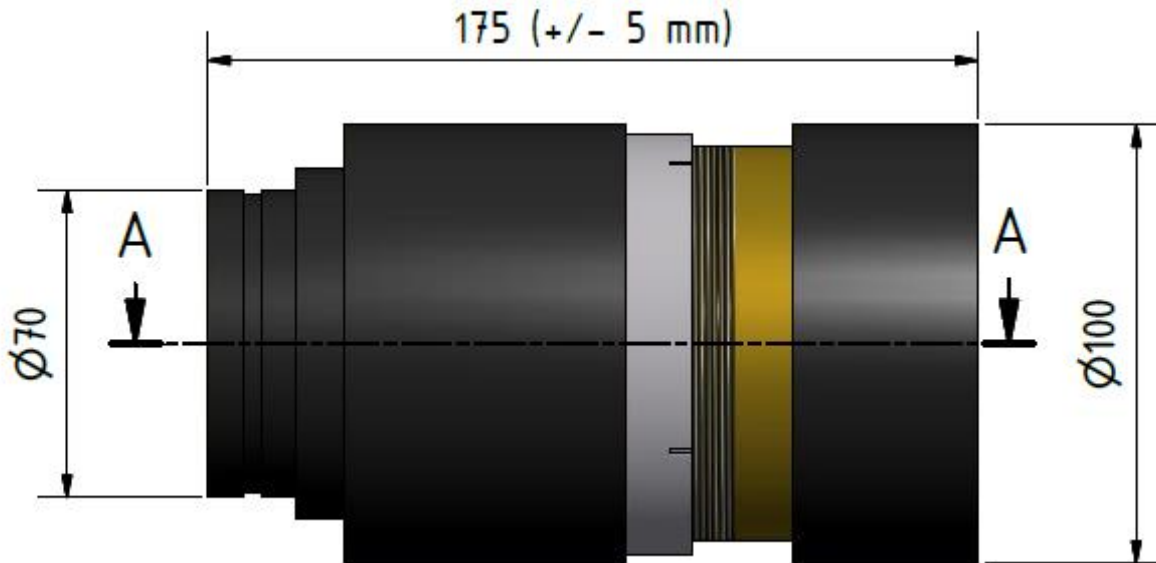
Fig.1: Beam Expander

Overview

In LDV measurements, the size of the measuring volume depends on the beam distance, the beam diameter and the focal length of the LDV probe optics. Typically, fitting a standard LDV probe such as the ILA-fp50 with a long focal length front optics, say $f=800$ mm, will result in a measuring volume length of cc. 10mm. Often this is not sufficiently small to achieve a high spatial resolution in velocity measurements.

Combining the ILA-fp50 standard LDV probe optics with a beam expander leads to a significant shortening of the measuring volume. For a focal length of 800 mm, the length of the measuring volume can be reduced by more than 50%, to 4 mm. Furthermore the smaller size of the measuring volume results in higher illumination density in the measurement volume. This means higher signal quality, and higher data rate.

The ILA beam expander uses a Galilean telescope design. The beam distance is expanded from 45 mm to 70 mm. The focal distance of the front lens can be adjusted by distance of the lenses inside the beam expander. The beam expander is mounted directly onto the fp50 LDV probe.



Specifications

		ILA fp50 standard optic		ILA fp50 with beam	
f in mm	E	MV-width dx.L in mm	MV-Length dr.L in mm	MV-width dx.L in mm	MV-Length dr.L in mm
310	1,55	0,10	1,42	0,07	0,59
500	1,55	0,17	3,69	0,11	1,54
800	1,55	0,27	9,45	0,17	3,94
1000	1,55	0,33	14,76	0,21	6,15

calculated for 532nm

Weight: ca. 2,6 kg (without front lens)
 Front lens (optional): 310mm - 1000mm
 Dimensions: d=100mm, L=175mm

