

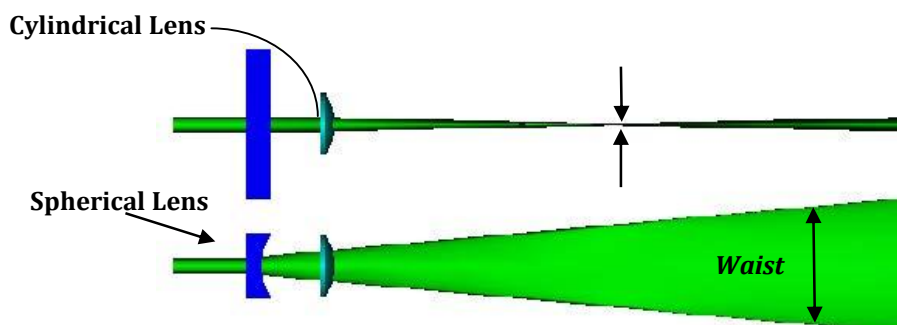
# MODEL 610026 LASER LIGHT SHEET OPTICS WITH CONTINUOUS ADJUSTABLE FOCUSING

APPLICATION NOTE LLS-001 (A4)

## Model 610026 Light Sheet Optics

The Modular 610026 light sheet optics has the capability to allow continuously adjustable focal length between 300 mm to 4000 mm, generating an extremely uniform beam thickness from the laser. The light sheet optics can handle high power laser beams up to 500 mJ, with beam diameter of up to 9 mm. This capability allows Model 610026 to be used in the study of large wind tunnels with long focusing distance.

Two cylindrical lenses are provided with the Modular light sheet optics. The cylindrical lens diverges the incident laser beam in one direction, creating a flat sheet of light. The divergence is controlled by the focal length of the lens (i.e., the shorter the focal length, the faster the sheet diverges). The cylindrical lenses can also be used in combination (for example the -25 and -14) to give additional divergences, up to 50 degrees.



## Specifications

|  |   |
|--|---|
| <b>Light Sheet Thickness</b> .....       | Variable beam waist.<br>Light sheet thickness is dependent on the laser beam thickness and the focal lens used. |
| <b>Sheet Focusing Range</b> .....        | 300 mm to 4000 mm (Dependent on beam diameter and beam divergence)  |
| <b>Optical Transmission</b> .....        | > 95%   |
| <b>Optical Wavelength</b> .....          | 400 nm to 550 nm<br>Suitable for use on Nd:YAG (532nm) and YLF lasers (527 nm)                                  |
| <b>Maximum Input Beam Diameter</b> ..... | 9 mm  |
| <b>Polarization</b> .....                | Not affected by the polarity of the laser beam coming out from the laser  |
| <b>Cylindrical Lenses</b> .....          | -15 mm Lens—25 degrees divergence<br>-25 mm Lens—14 degrees divergence  |
| <b>Dimensions</b> .....                  | Diameter—Ø 0.05 m<br>Length—0.08 m  |

\*Specifications are subject to change without notice.

Dimensions of the light sheet thickness and height at the Waist position at some discrete focusing locations (based on beam diameter of 5 mm)

| Spherical | 100 mm   |       |        | 200 mm |       |        | 500 mm |       |        | 1000 mm |       |        | 2000 mm |       |        |
|-----------|----------|-------|--------|--------|-------|--------|--------|-------|--------|---------|-------|--------|---------|-------|--------|
|           | Cyl (mm) | t (µ) | h (mm) | D (°)  | t (µ) | h (mm) | D (°)  | t (µ) | h (mm) | D (°)   | t (µ) | h (mm) | D (°)   | t (µ) | h (mm) |
| -12.7     | 10.6     | 41    | 19.9   | 21     | 88    | 23.3   | 53     | 230   | 25.2   | 106     | 466   | 25.9   | 212     | 939   | 26     |
| -25       | 10.6     | 18    | 6.9    | 21     | 42    | 10.3   | 53     | 114   | 12     | 106     | 234   | 13     | 212     | 474   | 13     |
| -50       |          |       |        | 21     | 18    | 3.4    | 53     | 54    | 5.5    | 106     | 114   | 6.2    | 212     | 234   | 6.5    |
| -100      |          |       |        |        |       |        | 53     | 24    | 2.1    | 106     | 54    | 2.7    | 212     | 114   | 3.1    |
| -200      |          |       |        |        |       |        | 53     | 9     | 0.34   | 106     | 24    | 1.0    | 212     | 54    | 1.4    |

t: Thickness of the light sheet at the waist in µm

h: Height of the light sheet at the waist in mm

D: Divergence of the light sheet in degrees



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