

LightTunnel™

The Challenge

Unlike competitor products, the Materion Barr Precision Optics & Thin Film Coatings hollow integrator LightTunnel™ creates enhancement of light uniformity by outstanding reflection. Used for light integration in projection systems employing DLP technology, its compact design establishes a new standard for portable projection systems. We apply our patented Silflex™ HLE7 silver coating or 400 Deflex™ 75 dielectric coating to the internal surfaces of the LightTunnel™ giving it unique advantages.

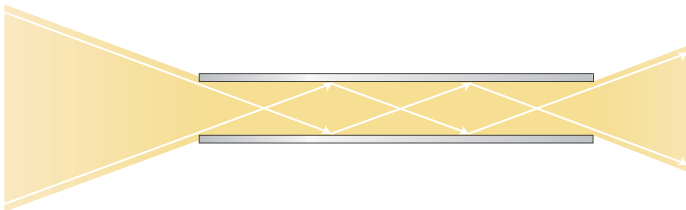
Benefits

- Enhanced light uniformity by high reflection
- Reduced flickering effects
- Reduces length of solid glass integrator rods by 50%
- Exhibits less sensitivity to dust
- Compact design for ultra compact projection displays
- No impact on color

Applications

Light integration in portable business and large venue projection systems employing DLP® technology.

Schematic of standard LightTunnel™



Overview LightTunnel™ Portfolio

Operating Temperature	R avg	up to 135°C	up to 165°C	up to 200°C	up to 400°C
Silflex™ HLE7 (AOI75, silver)	> 97.5% (98%)	BCC	BCE	SCC (step)	
400 Deflex™ 75 (AOI75, dielectric)	> 97%	400 BDC	400 BDE		400 SDC (step)



Technical Data

Dimensions

- Any customized size in rectangular or tapered versions

Substrate

- Floatglass, 1.1 ± 0.1 mm, other substrates on request

Coating

- Materion Precision Optics Silflex™ HLE7 (as per data sheet)
- Materion Precision Optics 400 Deflex™ 75 (as per data sheet)

Reflectivity

- Silflex™ HLE7: R avg. ≥ 97.5% at 420–680 nm
Optimized for random pol., AOI = 75°
- 400 Deflex™ 75: R avg. ≥ 97% at 420–680 nm
Optimized for random pol., AOI = 75°

Environmental resistance and durability test

Operating temperature

- Silflex™ HLE7: up to 200°C depending on design
- 400 Deflex™ 75: up to 400°C depending on design

Storage temperature

- – 20 to +85°C

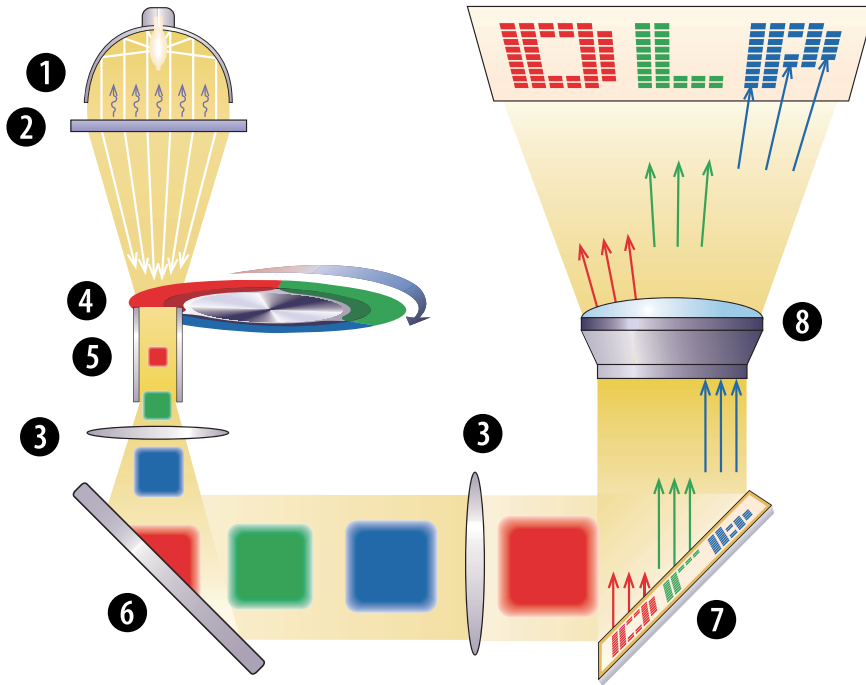
Scratches and digs (for coating only)

- Depending on specification. Typically 50/2 × 0.4; R0.2 (chips on input and output edges)

Mechanical strength

- Depending on the design, coating type, glue type and mechanical structure type

Schematic of DLP™ front projector



- ① Lamp with Cold Light Reflector
- ② UV-Guard™ Filter
- ③ Illumination Optics
- ④ ColorWheel™
- ⑤ LightTunnel™
- ⑥ Silflex™/Deflex™ Mirror
- ⑦ DMD™ (Digital Micromirror Device™)
- ⑧ Projection Lens

Materion is a global advanced materials company, dedicated to providing solutions that enable our customers' technologies and drive their growth. Our products include precious and non-precious specialty metals, precision optical filters, inorganic chemicals and powders, specialty coatings, specialty-engineered beryllium alloys, beryllium and beryllium composites, and engineered clad and plated metal systems. The Materion business is structured to enhance our ability to provide customers with innovative, best total-cost solutions.

MATERION BARR PRECISION OPTICS & THIN FILM COATINGS

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