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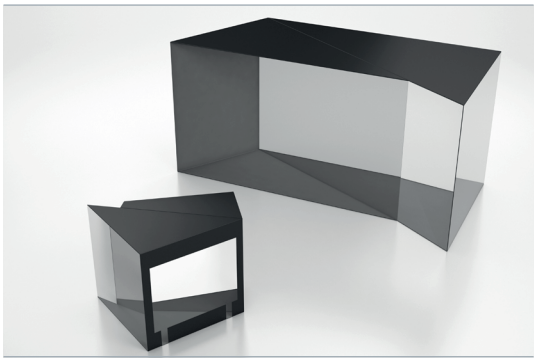
LightGate™ for DLP Projection

Setting higher standards for TIR- and RTIR-Prism Assemblies

New competence has enabled Materion Balzers Optics to improve the standards in LightGate™ manufacturing (a.k.a. TIR- and RTIR-Prisms). Our bonding technology reduces the air-gap height to 2 µm and provides complete air-gap sealing, resulting in less longterm image degradation by preventing dust or gas from enterning the gap. Precision blackening technology allows accurate positioning and patterning of the absorbtive paint. And envisioning a growing market, all processes have been automated to meet high quality standards at very large production volumes.



Benefits

- Reduced air-gap height for better image contrast
- Sealed air-gap to keep out dust
- Narrow bonding line for large clear aperture
- Precision blackening with patterning capability
- Large glass selection
- Automated manufacturing for reliable high volume production
- Integration of lens or other optical or mechanical parts possible
- Customized design

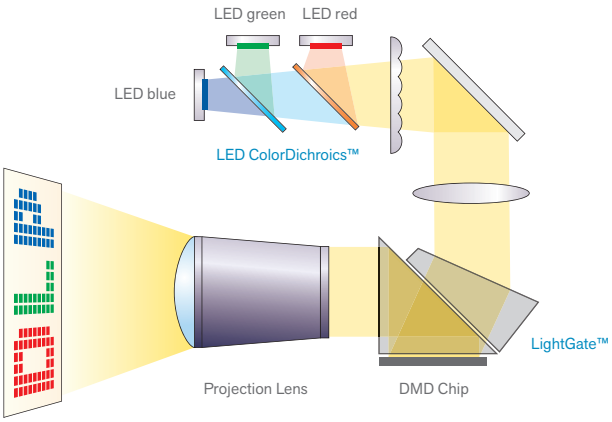
Technical Data

Dimensions	Available for DLP chip sizes from 0.2" to 0.47" (other sizes upon request)
Materials	Wide selection, including high-index glass
Thin Film Coating	High-transmissive, large angle AR coating
Air-gap	Minimum 2 µm ± 1 µm, partially or completely sealed
Glue area	Max 1.3 mm from edge
Blackening	Precision patterning of high absorbing black paint
Black paint stability	>120°C
High-volume capacity	Automated manufacturing

Applications

- Various projector types using DLP technology
- Pico- and Embedded Projectors
- Business-, Education- and Large Venue Projectors
- LED Projectors
- Laser Projectors
- Hybrid Laser-Phosphor Projectors
- Other DLP based applications

System schematic – LED projector system with Lightgate™



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LightGate™ configurations

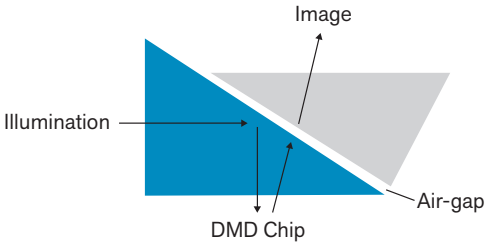


Fig. 1: TIR prism configuration

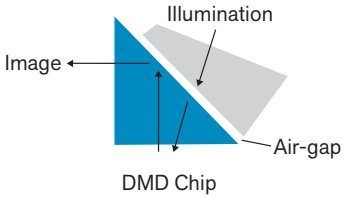


Fig. 2: RTIR prism configuration

Sealed air-gap

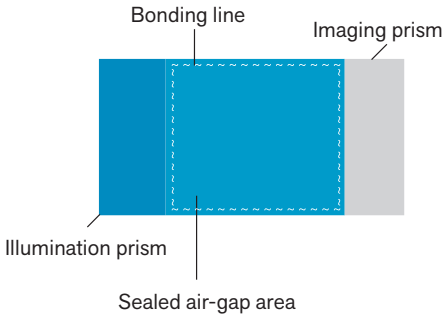
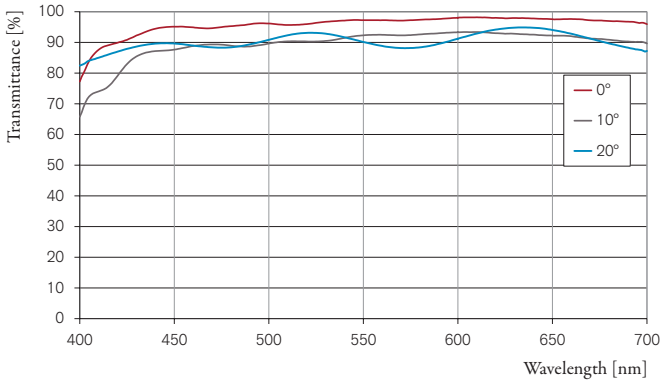
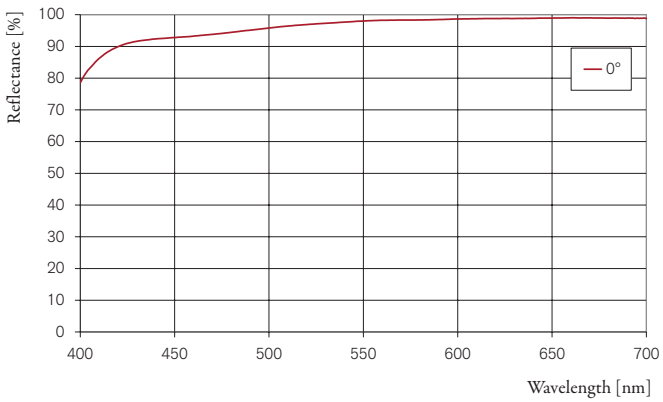


Fig. 3: LightGate™ (TIR configuration) top-view

Transmittance – RTIR configuration, N-SF10 glass



Reflectance – RTIR configuration, N-SF10 glass



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