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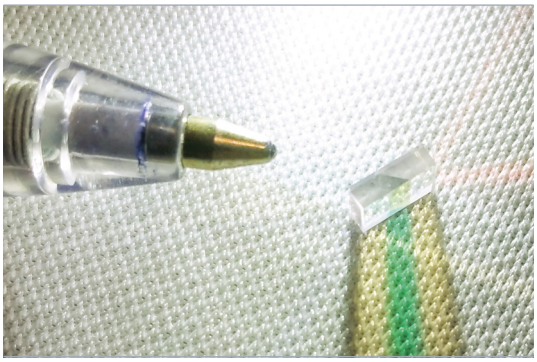
RGB Combiner for Laser Beam Scanning Displays

Combiner for LBS Display



Laser Beam Scanning displays are gaining momentum for use in Augmented Reality Smart Glasses. LBS displays use a compact MEMS-based projector and produce a bright image with rich colors by scanning a laser beams emitted from compact laser diodes for red, green and blue colors. Materion Optics Balzers offers small size and weight RGB laser combiner assemblies with excellent optical characteristics and highly accurate mechanical tolerances for minimal pointing error of the output laser beam.
Chamfer-free glass processing and edge-to-edge coating on our combiner assemblies allows us to manufacture some of the smallest and lightest components available in the market – perfect for the use in stylish and ergonomic smart glasses.

Benefits

- Combinaton and alignment of RGB laser beams with minimal pointing error
- Small size and weight
- Maximum clear aperture thanks to edge-to-edge coating
- Optional features: anti-reflective coatings, black apertures

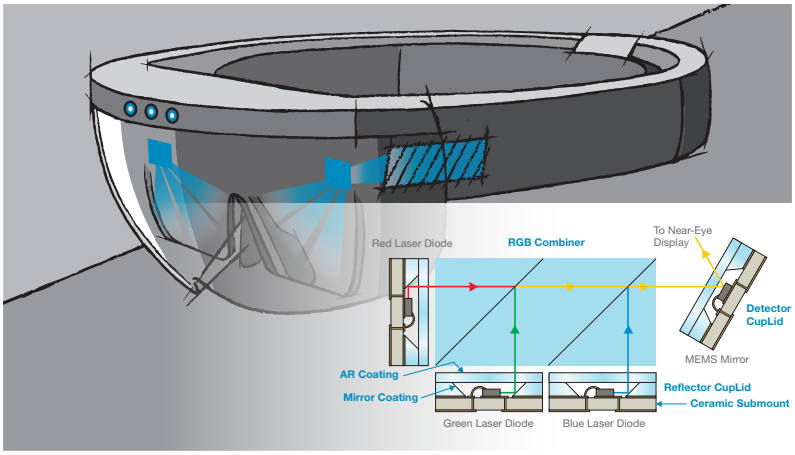
Applications

- Projection Engines with MEMS laser beamsteering display
- Augmented Reality Smart Glasses
- Pico projectors
- Automotive Windshield Head-up Display

Technical Data

Dimensions
Size 2 mm to 15 mm
Tolerances +/- 0.005 mm
Angular tolerances +/-3’
Bond line thickness < 0.01 mm
Flatness
< 0.5 fringes
Defects
Scratch/Dig 40–20
Edge chips < 0.05 mm
Glass Index Range
1.50–1.85
Spectral performance
Blue dichroic mirror
Rp (avg) > 99.5%, 440–470 nm, AOI 45+/-1°
Green dichroic mirror
Rp (avg) > 99.5%, 505–535 nm, AOI 45+/-1°
Rp (avg) < 0.5%, 440–470 nm, AOI 45+/-1°
Blue dichroic mirror
Rp (avg) > 99.5%, 440–470 nm, 505–535 nm, AOI: 45+/-1°
Rp (avg) < 0.5%, 620–660 nm, AOI: 45+/-1°

Augmented Reality Smart Glasses with CupLid



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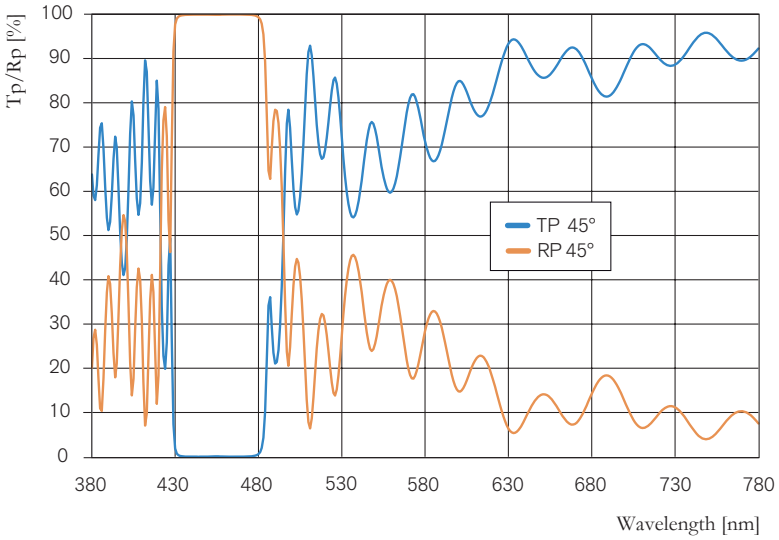
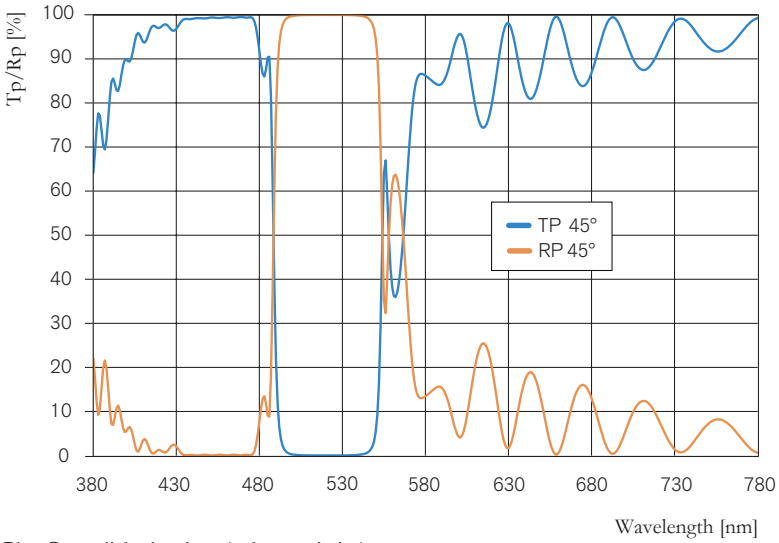
Blue mirror



Green dichroic mirror (blue transmissive)



Blue-Green dichroic mirror (red transmissive)