

Aluminium-Coated Mirrors

The unique design freedom provided by injection molding of plastics enables the cost-efficient production of highly complex mirrors—for example, with multiple functional surfaces or microstructures. Plastic mirrors offer general advantages due to their lower weight and high impact resistance.

Thanks to our high-precision tool inserts with outstanding surface qualities, our mirrors come close to the quality of glass mirrors. This makes them suitable for imaging optics—such as mirrors for head-up displays—and thus extends their use well beyond classic applications as cost-effective reflectors in lamps and headlights.

For many applications, aluminum coating is sufficient. Since aluminum oxidizes easily, the surface must be protected. We apply a highly flexible, plasma-polymerized protective layer made from hexamethyldisiloxane (HMDSO).

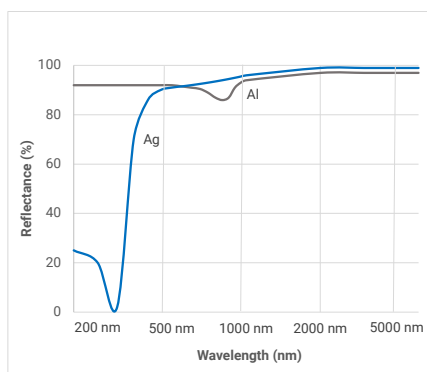


Our standard systems are based on PC and COP plastic materials and use our gentle PVD process for metallization, which is optimized for strong adhesion.

We can also selectively limit (mask) the metallized area of the product, enabling highly complex components—for instance, combinations of lens and mirror arrays. In these systems, light enters the component through the non-metallized areas, is precisely reflected by the metallized regions, and exits again through the non-metallized side.

The reflectivity of the aluminum layer is largely independent of the angle of incidence. This significantly expands the design boundaries of prisms or lenses that rely on internal reflective surfaces based on total internal reflection.

Reflectivity Values



Environmental Requirements

Test Conditions	Details
Cold	-25°C, 96h
Dry Heat	+80°C, 96h
Temperature Cycling	-25°C, 3h +80°C, 3h