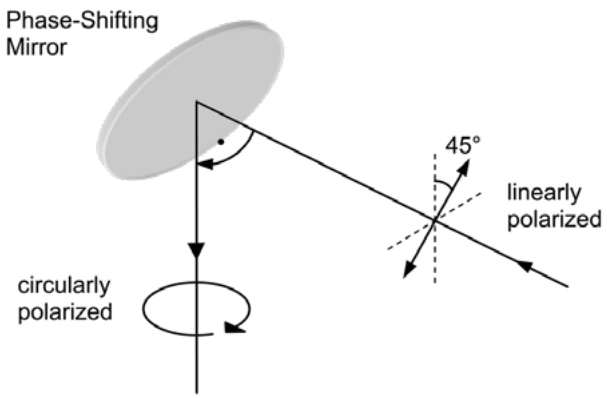
PHASE-SHIFTING MIRRORS



DESCRIPTION

The circular polarization is achieved by a λ/4 phase shift of the incident light. This occurs as a result of the coating on the mirrors, a coating which can be applied to both copper and silicon substrates.

When inserting the mirrors into the beam path, it is important to note that the exiting, linearly polarized laser beam has to hit the phase-shifting mirror at an angle of 45° and must also be polarized at 45° to the deflection plane (see drawing).

APPLICATIONS

Phase-shifting mirrors are used to convert linearly polarized light into circularly polarized light. Circularly polarized light is used, for example, in laser cutting to achieve an axis-independent, uniform cut.

SPECIFICATIONS

For 10.6 µm design wavelength	
Diameter tolerance [mm]	+0/0.2
Thickness tolerance [mm]	+0.25
Reflectivity [%]	R > 98.8
Phase retardation [°]	90 ± 6

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GOOD TO KNOW

/ Instead of using one mirror with λ/4 retardation it is possible to use two mirrors with λ/8 retardation.
/ Water-cooled phase-shifting mirrors are also available.
/ LIDT: for high power densities you may want to use a copper phase retarder as the damage threshold is higher than for a silicon phase retarder.

1. For inquiries, we need to know:

/ Diameter
/ Thickness
/ Flat or radius of curvature
/ Wavelength (if not 10.6 µm is used)
/ Material
/ Retardation

Customer designs are available upon request.

2. Handling

Safety data sheet and handling inspections are available upon request (in German only).

ORDERING CODE

Substrate: Copper

		Diameter		Thickness		Retardation
MPC	-	**(inch x 10)**	-	**(inch x 100)**	-	**X**

Example: MPC-1939-4, (λ/4-phase retarder Ø50 mm, 10 mm thick, copper)

Substrate: Silicon

		Diameter		Thickness		Retardation
MPS	-	**(inch x 10)**	-	**(inch x 100)**	-	**X**

Example: MPS-2020-4, (λ/4-phase retarder, dia 2“, 5 mm thick, silicon)

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