

PRESS RELEASE

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Manufacturing of low-weight mirror substrates

BERLINER GLAS GROUP offers an innovative process to reduce weight and thermal expansion for mirror substrates especially for the use in micro lithography.

The product offers crucial advantages:

Light mirrors make handlings easier, the holders and adjusters need less stability, forces will be reduced and less gravity that induces deformation will be provided.

In space applications, light weighted mirrors reduce costs by taking less carrying weight. Low thermal expansion reduces deformation caused by temperature changes. Such changes occur e.g. in a satellite when it becomes exposed to sunlight or to a wafer holder in microlithography when it is exposed to Deep UV Laser radiation.

If a low expansion material is used the incoming heat flux will cause no significant deformation for the part.

BERLINER GLAS endues some well proven machining methods which can be applied with almost all materials. A long experience of CNC technology guarantees a precise shaping from a solid block of material like quartz, glass ceramics or ceramics. Bonding parts allow a smaller amount of material and closed structures. Last but not least, ceramics green machining and later sintering brings very stable structures, high flexibility in shape with low costs of green machining. This process allows only ceramics and makes a post sintering machining necessary. Nowadays, only a few low CTE ceramics are available.

The light weight process offers a weight reduction up to 90% and allows easy handling wherever big and heavy parts are in use and a high level of rigidity and fracture strength of the substrate is to be presumed.

With high knowledge of deterministic polishing techniques like mechanical sub-aperture polishing and ion beam figuring in combination with interferometer measurement technology for shape control with big apertures of up to 24 inches, BERLINER GLAS guarantees a high precision top-class product.

The BERLINER GLAS GROUP supplies precision optical components and subassemblies, technical glass and individual system solutions for the entire sector of industry that uses light. The company employs around 630 people in Germany, Switzerland and the USA.



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