

# Zerodur® / Clearceram-Z

## 1. General

Zerodur® (Schott) and Clearceram-Z (Ohara) are glass ceramics with extremely low thermal expansion. They are suitable for all high-tech applications and systems in precision optics, laser technology and astronomy.

## 2. Material properties

Chemical symbol:	SiO <sub>2</sub>
Density:	2,53 g/cm <sup>3</sup>
Max. Operation Temperature:	600 °C
Heat capacity:	800 J kg <sup>-1</sup> K <sup>-1</sup>
Thermal conductivity:	1,46 W m <sup>-1</sup> K <sup>-1</sup>
Thermal expansion (CTE) Zerodur [10 <sup>-6</sup> /K]:	
Class 0	0 +/- 0,020
Class 1	0 +/- 0,050
Class 2	0 +/- 0,100

## 3. Standard Tolerances:

Diameter:	+/- 0,1 mm
Thickness:	+/- 0,1 mm
Wedge:	< 3 arc min

## 4. Surface Quality:

Figure:	up to 1/10 $\lambda$
Roughness:	< 5 nm Ra

## 5. Delivery Forms

- planar
- spherical / aspherical
- toroidal
- cylindrical

## 6. Coatings

- a) Metallic
- Gold for IR systems
  - Silver for VIS bis IR
  - Aluminium for UV-IR