



APPLICATION:

BOROFLOAT® sight glasses are required wherever visual inspection of processes in vessels under pressure, thermal and chemical stress must be guaranteed.

BOROFLOAT® 33 has a very low coefficient of expansion and is therefore highly temperature resistant. In addition, it has excellent thermal shock resistance.

OPERATING CONDITIONS:

The production and quality tests during the process guarantee the quality values of the glass and the tight dimensional tolerances. With these outstanding temperature properties, BOROFLOAT® sight glasses can be used for extreme conditions.

FRACTURE BEHAVIOR:

The adjacent figure shows the fracture behavior of non-thermally toughened borosilicate glass (BOROFLOAT®). It shatters coarsely and produces somewhat sharp-edged fragments.

Operating conditions:

Temperature:	450 °C long term 500 °C short term (<10 h)
Pressure:	depending on dimensions and thickness

Technical Information:

Coefficient of expansion at 20 °C/300 °C	$3,25 \times 10^{-6} \text{ K}^{-1}$
modulus of elasticity	64 kN/mm ²
Thermal conductivity at 90 °C	1.2 W/(m·K)
Stress optical coefficient K	$4,0 \times 10^{-6} \text{ mm}^2/\text{N}^{-1}$
thermal shock resistance	133 °C

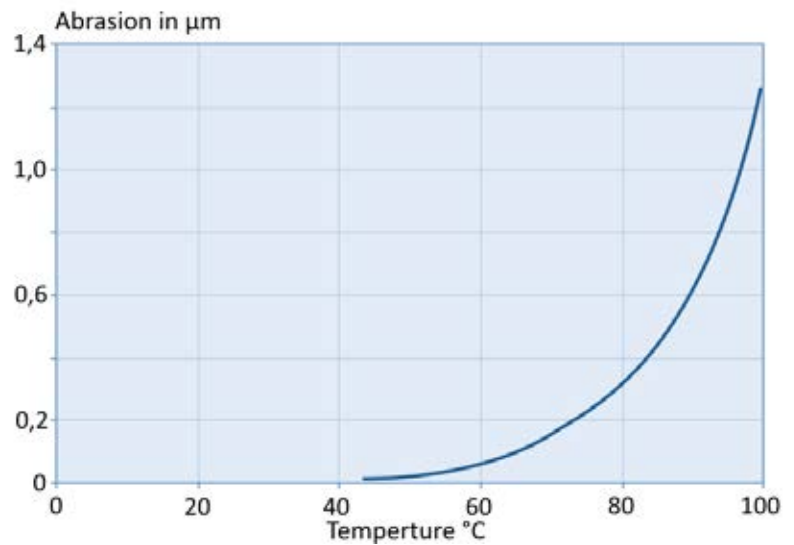
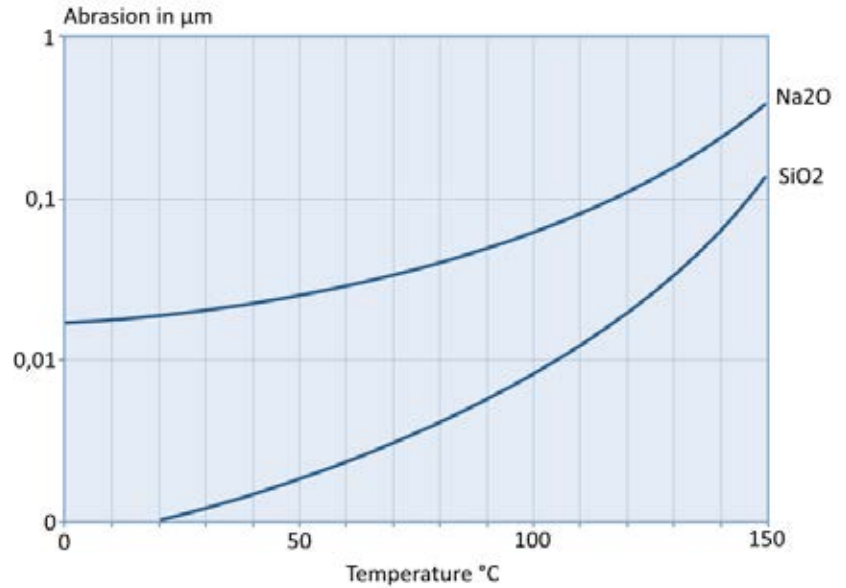
Chemical resistance:

Water resistance acc. to DIN ISO 719/720	hydrolysis class 1
Acid resistance acc. to DIN 12116	acid class 1
Alkali resistance acc. to DIN 52332	alkali class 2



ABRASION RATES:

Abrasion of BOROFLOAT® sight glass plates at different temperatures. The tests were performed with hydrochloric acid and sodium hydroxide solution. The concentration of the acid test, hydrochloric acid 6 mol/L, with an attack time of 16 hours. (Graph 1) In the alkaline solution test, caustic soda solution with 1 mol/L, at an attack time of one hour. (Graph 2)



DELIVERY FORMS AND DIMENSIONS:

We supply BOROFLOAT® sight glasses from 0.7 mm up to a thickness of 25.4 mm. Whether round, longitudinal, square or special sight glasses. We will be happy to help you with the design and selection.

Standard thicknesses

0,70	1,10	1,75	2,00	2,25	2,75	3,30	3,80	5,00	5,50	6,50	7,50	9,00	11,00
± 0,05	± 0,05	± 0,05	± 0,05	± 0,05	± 0,10	± 0,20	± 0,20	± 0,20	± 0,20	± 0,20	± 0,30	± 0,30	± 0,30

Standard thicknesses

13,00	15,00	16,00	18,00	19,00	20,00	21,00	25,40
± 0,30	± 0,40	± 0,50	± 0,50	± 0,50	± 0,70	± 0,70	± 1,00

Standard dimensions

up to 1150 x 850 mm	up to 1700 x 1300 mm	up to 2300 x 1700 mm
0,7 - 25,4 mm	16,0 - 21,0 mm	0,7 - 15,0 mm