

**DATA SHEET****SCHOTT® Robax****Mechanical properties**

Density $\rho$	approx. 2.6 g/cm <sup>3</sup> (at 25 °C / 77 °F)
Bending strength $\sigma_{bb}$	approx. 35MPa*

\* The test is carried out in accordance with DIN EN 1288 part 5, with the surface in its normal condition of use as encouraged in practice.

**Impact resistance**

Comments can only be made on impact resistance when more is known about the actual application. Of particular importance here are application-specific standards that must be met with respect to strength requirements.

**Comments on mechanical properties**

Values presented regarding the strength of glass and glass-ceramic must also take into account the special properties of these materials.

In the technical sense, glass and glass-ceramic are “ideally elastic”, yet brittle materials in which there are no flow patterns. When they come into contact with materials of the same hardness, this causes surface damage in the form of fine nicks and cracks. When glass and glass-ceramic are subjected to a mechanical load, the build-up of critical stress at the points of such nicks and cracks cannot be relieved by plastic flow, as is possible with materials like metals.

The consequence of this behavior is that the structurally based high strength of glass and glass-ceramic ( $\geq 10,000$  N/mm<sup>2</sup>) is practically irrelevant. It is reduced by the effect of unavoidable surface defects (in the case of unprotected surfaces) to a practical value of approx. 20 to 200 N/mm<sup>2</sup> bending strength, depending on the surface state and test conditions.

The strength of glass and glass-ceramic is therefore not a material constant (as its density, for example), but is dependent on the following criteria:

- processing condition of the panel (incl. edge finish, boreholes, etc.)
- usage condition (type and distribution of surface defects)
- time-related conditions or alternatively the duration of the effective load
- surrounding conditions (corrosive substances, e.g. hydrofluoric acid)
- the area subject to load, as well as the thickness of the panel
- how the panel is installed

Its strength is also subject to a statistical distribution in accordance with the type and distribution of the surface defects.