

## Level Gauge Glass

### Technical Characteristics

Special tempered reflex and transparent level gauge glasses and disc sight glasses can be supplied in accordance to:

DIN 7080/7081  
 BS 3463  
 JIS B 8211  
 MIL G 16356 D  
 SCHOTT USA Spec

#### **Bending Strength (typical values)**

<b>Standard Level Gauge Glass</b>	
>/= 150N/mm <sup>2</sup>	21,000 psi
Average	
>/= 150N/mm <sup>2</sup>	21,000 psi
<b>High Pressure Level Gauge Glass</b>	
>/= 180N/mm <sup>2</sup>	26,000 psi
Average	
>/= 200N/mm <sup>2</sup>	26,000 psi

#### **Surface compressive Strength**

<b>Standard Level Gauge Glass</b>	
>/= 90N/mm <sup>2</sup>	13,000 psi
Average	
>/= 100N/mm <sup>2</sup>	13,000 psi
<b>High Pressure Level Gauge Glass</b>	
>/= 100N/mm <sup>2</sup>	14,500 psi
Average	
>/= 110N/mm <sup>2</sup>	16,000 psi

#### **Parallelism**

<b>Standard Level Gauge Glass</b>	
</= 0.08mm	
<b>High Pressure Level Gauge Glass</b>	
</= 0.05mm	

Bending strength is determined by the surface compression stress and the inherent resistance of the glass. The inherent resistance is heavily dependant upon the surface quality

For safety reason, the stress to the glasses caused by internal forces, thermal stress and vessel pressure have to be totally absorbed by the surface compressive stress so that a tensile stress of the glass surface is prevented

Application Conditions	Maximum permissible pressure		Maximum permissible temperature	
	bar	psi	<sup>0</sup> C	<sup>0</sup> F
Saturated steam or hot water in direct contact with reflex or transparent sight glasses	35	500	243	470
Saturated steam or hot water in direct contact with transparent sight glasses protected with mica	103	1500	320	608
Non-corrosive, non steam service and no technically significant glass attack, with reflex or transparent glass	280	4000	38	100
Transparent sight glasses in contact with medias with no technically significant glass attack	345	5000	38	100
High pressure transparent sight glasses in special armatures (gauges)	414	6000	38	100

**Flatness (max)**

Size 1-3	</= 0.05mm
Size 4-5	</= 0.08mm
Size 6-9	</= 0.13mm

**Temperature**

Thermal Shock resistance T 265 K  
 Max permissible temperature 300<sup>0</sup>C 572 <sup>0</sup>F  
 Protected with Mica 320<sup>0</sup>C 608 <sup>0</sup>F

Glass Type SUPRAX 8488	
Coefficient of expansion 20 <sup>0</sup> C/ 300 <sup>0</sup> C	4.3 x 10 <sup>-6</sup> K <sup>-1</sup>
Transformation Temperature	540 <sup>0</sup> C
Glass temperature for the viscosities dPas(Poise)	10 <sup>13.0</sup> 553 <sup>0</sup> C
	10 <sup>7.60</sup> 808 <sup>0</sup> C
	10 <sup>4.0</sup> 1200 <sup>0</sup> C

<b>Chemical characteristics</b>	<b>Hydrolytic resistance</b>	<b>Acid Resistance</b>	<b>Alkali Resistance</b>
Test acc. To	DIN ISO 719	DIN ISO 1776	DIN ISO 695
Max. abrasion acc to DIN ISO	0.1	<100 ug Na <sub>2</sub> O each 100cm <sup>2</sup>	>75-175 mg each 100cm <sup>2</sup>
MAXOS max. abrasion	0.050	<40 ug Na <sub>2</sub> O each 100cm <sup>2</sup>	>100 mg each 100cm <sup>2</sup>
MAXOS	HGB 1		Class A2