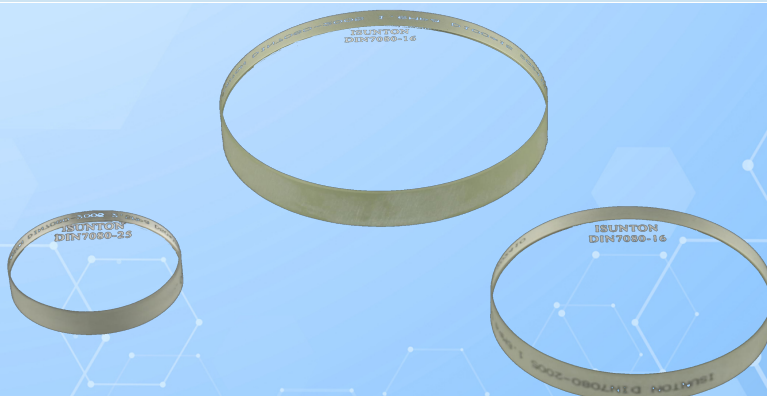




USAGE

DIN7080

safety sight glasses are used wherever processes in container or flow sight glasses need to be reliably monitored under thermal and chemical stress. They enable safe visual inspection and contribute significantly to process control and safety. The high durability of these sight glasses is based on a special borosilicate glass, which is characterized by excellent chemical resistance, extraordinary purity, and high homogeneity. Thanks to the characteristic low thermal expansion of borosilicate, the glass can be thermally pre-stressed (tempered), giving it particularly high temperature cycling resistance. This combination of material properties and thermal treatment make sight glasses a safe and durable solution for demanding industrial applications.

APPLICATION PROPERTIES

Through production and quality inspections in the process flow, the property values of the glasses and the tight dimensional tolerances are guaranteed. With these excellent safety features, LUMIGLAS® safety sight glasses can be used in extreme conditions.

FRACTURE BEHAVIOR

In the adjacent images, the fracture behavior of thermally pre-stressed borosilicate glass can be seen. It shatters without leaving sharp-edged break pieces. The glass break resembles a safety windshield in a car or safety glass.

Operating conditions according to DIN 7080:

Temperature:	280 °C in continuous operation 300 °C for max. 300 operating hours 320 °C ¹ with mica protection in continuous operation
Pressure:	See table

Technical information

Coefficient of expansion at 20 °C/300 °C	$4.1 \times 10^{-6} \text{ K}^{-1}$
Elastic modulus	$67 \times 103 \text{ N/mm}^2$
Thermal conductivity at 90 °C	1.2 W/(m·K)
Stress-optical coefficient K	$3.2 \times 10^{-6} \text{ mm}^2/\text{N}$
Temperature change resistance	230 °C

CHEMICAL RESISTANCE

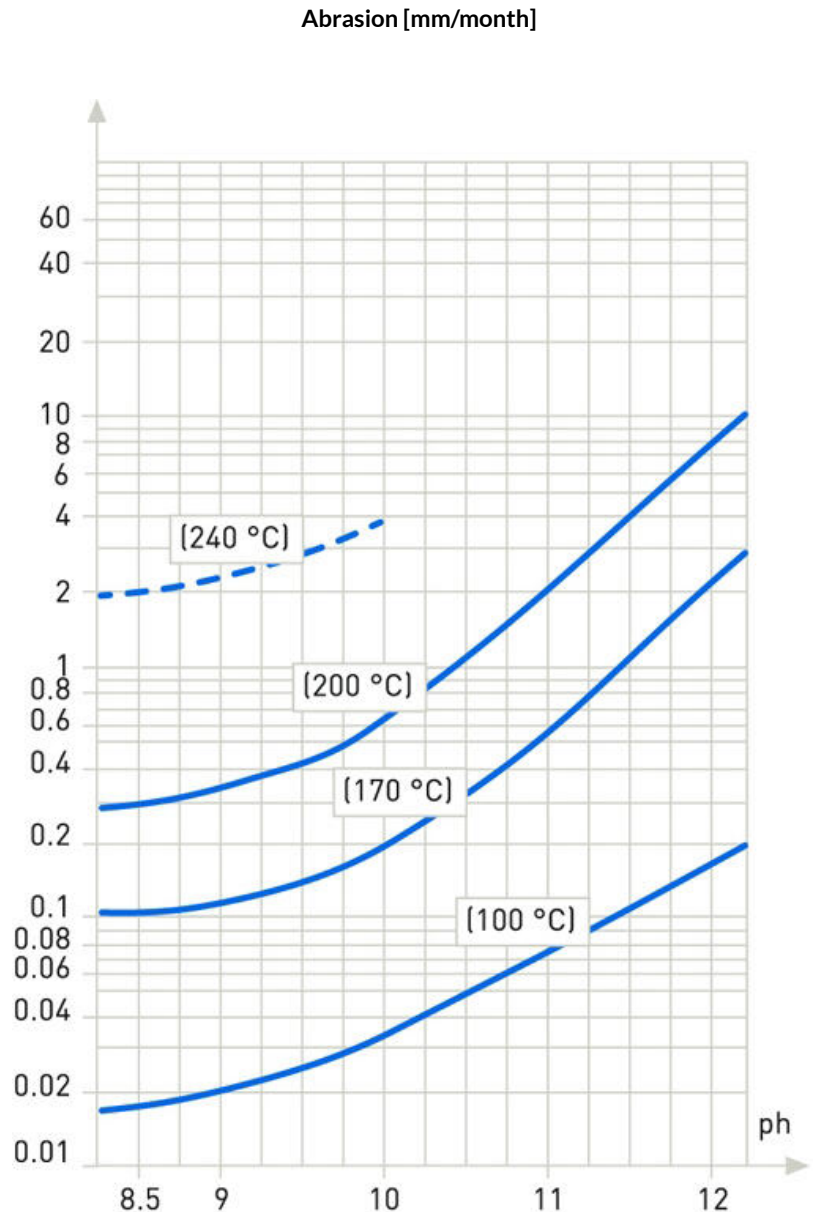
Chemical resistance

Water resistance according to DIN ISO 719/720	Hydrolysis class 1
Acid resistance according to DIN 12116	Acid class 1
Alkali resistance according to DIN 52332	Alkali class 2



DEDUCTION RATES

Material removal of LUMIGLAS glass plates according to DIN 7080 in aqueous phase at various temperatures as a function of the pH value.



DIMENSIONAL TOLERANCES

The dimensional tolerances are based on DIN 7080 for sight glass plates made of borosilicate glass. In the adjacent table, the expected dimensional tolerances can be taken.

Tolerances according to DIN 7080

Diameter	Tolerance
up to 135 mm	± 0.5 mm
150 to 200 mm	± 0.8 mm
over 200 mm	± 1.0 mm
Thickness	
up to 20 mm	+ 0.50 mm / - 0.25 mm
over 20 mm	+ 0.80 mm / - 0.40 mm

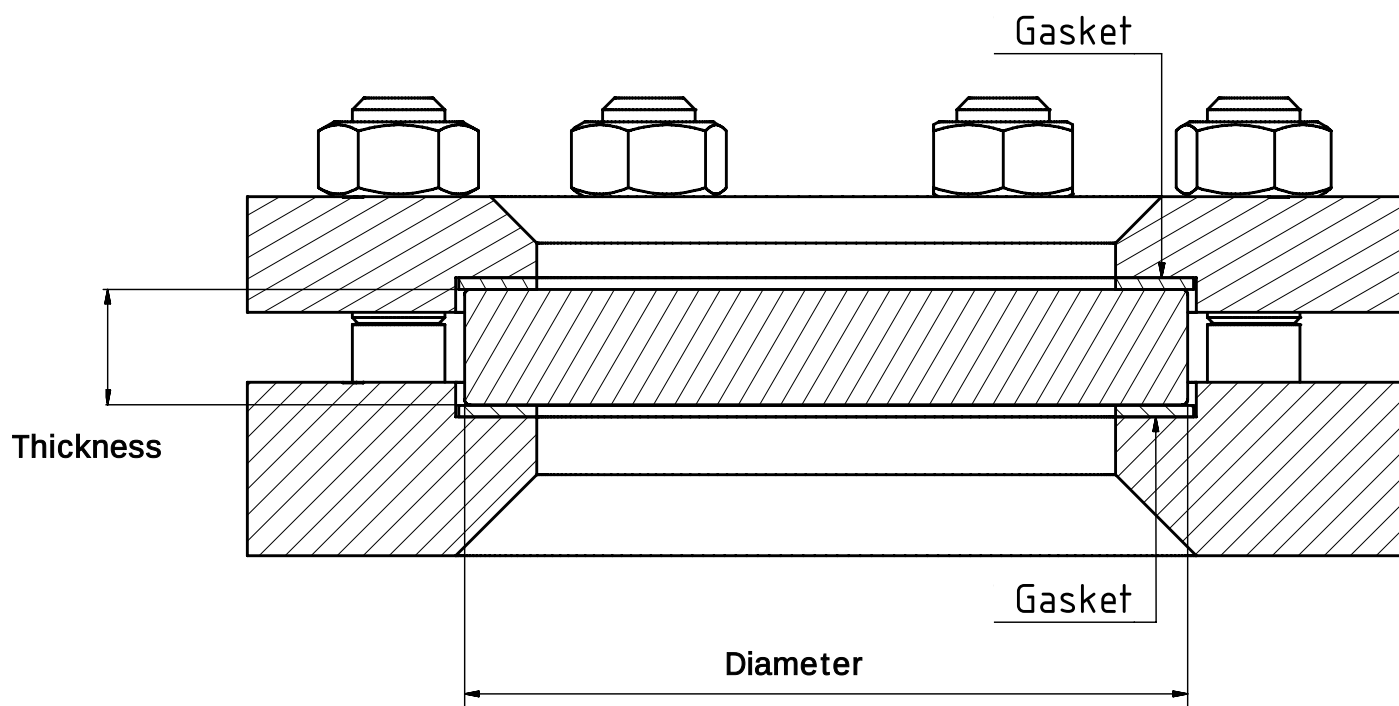
PERMISSIBLE MATERIAL DEFECTS

Round bubbles enclosed in glass may have a maximum diameter of 2 mm. Oval bubbles may not exceed the value $(\text{length} + \text{width})/2 = 2 \text{ mm}$. Tapered bubbles are not permissible.

Permissible bubble frequency

Bubble Diameter d3	Permissible Bubble Frequency
$d3 < 0.3$	3 pieces per cm ² visible surface
$0.3 \leq d3 \leq 0.5$	10 pieces per sight glass plate
$0.5 < d3 \leq 1$	4 pieces per sight glass plate
d3	pieces per sight glass plate

Standard dimensions according to DIN 7080					Special dimensions in reference to DIN 7080				
Dimension	Name	Permissible pressure in bar	MAXOS® product code	LUMIGLAS® product code	Dimension	Name	Permissible pressure in bar	MAXOS® product code	LUMIGLAS® product code
Ø 45 x 10 mm	din7080-40	40	2071554	LMX2071554	Ø 24 x 10 mm	din7080-150	150	2071640	LMX2071640
Ø 45 x 12 mm	din7080-50	50	2071556	LMX2071556	Ø 30 x 12 mm	din7080-150	150	2071622	LMX2071622
Ø 50 x 10 mm	din7080-25	25	2071558	LMX2071558	Ø 30 x 15 mm	din7080-200	200	2071533	LMX2071533
Ø 50 x 12 mm	din7080-40	40	2071561	LMX2071561	Ø 31,6 x 12,75 mm	din7080-150	150	2071598	LMX2071598
Ø 60 x 10 mm	din7080-16	16	2071560	LMX2071560	Ø 33 x 14 mm	din7080-150	150	2071557	LMX2071557
Ø 60 x 12 mm	din7080-25	25	2071562	LMX2071562	Ø 34 x 17 mm	din7080-200	200	2071552	LMX2071552
Ø 60 x 15 mm	din7080-40	40	2071563	LMX2071563	Ø 40 x 10 mm	din7080-40	40	2071624	LMX2071624
Ø 63 x 10 mm	din7080-16	16	2071566	LMX2071566	Ø 40 x 12 mm	din7080-50	50	2071555	LMX2071555
Ø 63 x 12 mm	din7080-25	25	2071567	LMX2071567	Ø 44 x 10 mm	din7080-40	40	2071603	LMX2071603
Ø 63 x 15 mm	din7080-40	40	2071569	LMX2071569	Ø 44 x 12 mm	din7080-50	50	2071564	LMX2071564
Ø 80 x 12 mm	din7080-16	16	2071573	LMX2071573	Ø 55 x 6,5 mm	din7080-6	6	2071626	LMX2071626
Ø 80 x 15 mm	din7080-25	25	2071575	LMX2071575	Ø 55 x 10 mm	din7080-25	25	2071559	LMX2071559
Ø 80 x 20 mm	din7080-40	40	2071576	LMX2071576	Ø 60 x 20 mm	din7080-95	95	2071604	LMX2071604
Ø 100 x 15 mm	din7080-16	16	2071578	LMX2071578	Ø 63 x 8 mm	din7080-8	8	2071565	LMX2071565
Ø 100 x 20 mm	din7080-25	25	2071579	LMX2071579	Ø 65 x 10 mm	din7080-12	12	2071629	LMX2071629
Ø 100 x 25 mm	din7080-40	40	2071580	LMX2071580	Ø 65 x 15 mm	din7080-40	40	2071606	LMX2071606
Ø 125 x 15 mm	din7080-10	10	2071581	LMX2071581	Ø 70 x 12 mm	din7080-16	16	2071568	LMX2071568
Ø 125 x 20 mm	din7080-16	16	2071582	LMX2071582	Ø 70 x 15 mm	din7080-25	25	2071570	LMX2071570
Ø 125 x 25 mm	din7080-25	25	2071583	LMX2071583	Ø 75 x 12 mm	din7080-16	16	2071607	LMX2071607
Ø 135 x 25 mm	din7080-25	25	2071644	LMX2071644	Ø 80 x 10 mm	din7080-10	10	2071571	LMX2071571
Ø 150 x 20 mm	din7080-10	10	2071586	LMX2071586	Ø 86 x 12 mm	din7080-10	10	2071610	LMX2071610
Ø 150 x 25 mm	din7080-16	16	2071587	LMX2071587	Ø 90 x 10 mm	din7080-8	8	2071572	LMX2071572
Ø 150 x 30 mm	din7080-25	25	2071588	LMX2071588	Ø 92 x 10 mm	din7080-8	8	2071625	LMX2071625
Ø 175 x 20 mm	din7080-10	10	2071589	LMX2071589	Ø 94 x 12 mm	din7080-10	10	2071671	LMX2071671
Ø 175 x 25 mm	din7080-16	16	2071590	LMX2071590	Ø 95 x 10 mm	din7080-6	6	2071649	LMX2071649
Ø 175 x 30 mm	din7080-25	25	2071591	LMX2071591	Ø 95 x 15 mm	din7080-16	16	2071574	LMX2071574
Ø 200 x 20 mm	din7080-8	8	2071592	LMX2071592	Ø 100 x 10 mm	din7080-7	7	2071577	LMX2071577
Ø 200 x 25 mm	din7080-10	10	2071593	LMX2071593	Ø 100 x 12 mm	din7080-10	10	2071642	LMX2071642
Ø 200 x 30 mm	din7080-16	16	2071594	LMX2071594	Ø 105 x 15 mm	din7080-16	16	2071662	LMX2071662
Ø 250 x 25 mm	din7080-8	8	2071595	LMX2071595	Ø 110 x 12,5 mm	din7080-10	10	2071674	LMX2071674
Ø 250 x 30 mm	din7080-10	10	2071596	LMX2071596	Ø 110 x 20 mm	din7080-25	25	2071613	LMX2071613
Ø 265 x 30 mm	din7080-8	8	2071628	LMX2071628	Ø 113 x 15 mm	din7080-10	10	2071672	LMX2071672
					Ø 115 x 15 mm	din7080-10	10	2071612	LMX2071612
					Ø 120 x 10 mm	din7080-4	4	2071611	LMX2071611
					Ø 120 x 15 mm	din7080-10	10	2071630	LMX2071630
					Ø 120 x 18 mm	din7080-16	16	2071663	LMX2071663
					Ø 125 x 30 mm	din7080-40	40	2071584	LMX2071584
					Ø 130 x 15 mm	din7080-10	10	2071643	LMX2071643
					Ø 135 x 15 mm	din7080-8	8	2071615	LMX2071615
					Ø 140 x 15 mm	din7080-8	8	2071666	LMX2071666
					Ø 150 x 10 mm	din7080-2	2	2071664	LMX2071664
					Ø 150 x 15 mm	din7080-8	8	2071585	LMX2071585
					Ø 160 x 20 mm	din7080-12	12	2071617	LMX2071617
					Ø 170 x 15 mm	din7080-5	5	2071645	LMX2071645
					Ø 170 x 20 mm	din7080-10	10	2071670	LMX2071670
					Ø 210 x 25 mm	din7080-10	10	2071621	LMX2071621
					Ø 250 x 20 mm	din7080-4	4	2071673	LMX2071673



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