

Selection Guide — LUMIGLAS® Type 76 Fused Sight Glass for Welding Neck Flanges

Document No.: LMX-SEL-76 | Revision: A | Standards: DIN 7079 · DIN 7080 · DIN 28121 | PED 2014/68/EU · AD-Merkblatt W0/TRD 100 | TÜV

1. Six-Step Selection Process

Work through the steps below to specify the correct LUMIGLAS® Type 76 fused sight glass disc for your welding neck flange assembly.

Step 1	Confirm assembly standard Verify the housing is to DIN 28121 or a welding neck flange with flat or raised faces of the same dimensions. Record d1 (outer diameter, mm) and d2 (inner/viewing diameter, mm) from the housing drawing.
Step 2	Determine operating pressure Identify the maximum operating pressure (bar). Cross-reference d1 with the dimensional table (Section 4) to confirm the required glass thickness S. Standard ratings are 16 bar and 40 bar.
Step 3	Determine temperature range Record minimum and maximum operating temperatures. The minimum temperature determines the ring material. The maximum temperature must not exceed the ring material rated maximum — even briefly.
Step 4	Assess chemical compatibility Identify the process medium. Use the ring material matrix (Section 3) to select the correct ring material. For alkali or caustic media, also specify mica disc protection.
Step 5	Confirm supply requirements Specify: d1, d2, pressure rating, operating temp range, ring material, assembly standard, quantity and required delivery. Specify EN 10204-3.1 (standard) or 3.2 (third-party, on request).
Step 6	Contact Lumistar Provide the above details to sophia@js-lumiglas.com or via WhatsApp +86 189 1303 5768 for a technical confirmation and quotation.

2. Fused Sight Glass vs. Conventional Glass Disc

Property	Conventional Glass Disc	LUMIGLAS® Type 76 Fused Sight Glass
Failure risk	High — can fracture suddenly without warning under thermal or pressure shock	Effectively eliminated — compressive prestress prevents crack propagation
Installation tolerance	High sensitivity to uneven bolt torque — over-tightening causes immediate or delayed fracture	High resistance to bending and over-tightening — simple, safe installation
Impact & vibration	Low — brittle fracture under mechanical shock	Extreme resistance to impact, pressure and temperature
Reusability	Single-use — must be replaced after every removal	Reusable — remove, clean, refit in same or different compatible assembly
Service documentation	Standard EN 10204 cert	EN 10204-3.1/3.2; PED 2014/68/EU; AD-Merkblatt W0/TRD 100; TÜV (in process)

3. Ring Material Selection Matrix

Select ring material based on the combination of minimum operating temperature and process medium chemistry. Borosilicate glass resistance applies equally to all ring material options.

Process Medium / Condition	S355J2+N (C. Steel)	1.4462 (Duplex SS)	2.4602 (HC-22)	2.4605 (HC-276)	2.4610 (HC-4)
Water, steam, general hydrocarbons	✓	✓	✓	✓	✓
Chloride-rich / offshore environments	✗ (pitting)	✓ (limited)	✓	✓	✓
Oxidising acids (HNO ₃ , HClO ₄)	✗	✓ (dilute)	✓	✓	✓
Hydrofluoric acid (HF)	✗	✗	✗	✗	— Consult
Strong alkalis / caustic + mica disc	✓	✓	✓	✓	✓
Seawater / saline media	✗	✓	✓	✓	✓
Low-temperature cryogenic	✗ (min -10°C)	✓ (min -30°C)	✓ (min -60°C)	✓ (min -60°C)	✓ (min -60°C)

High-temperature steam above 280°C	✓	✗ (max 280°C)	✓	✓	✓
Pharmaceutical / GMP	✗	✓ (EP)	✓	✓	✓

Mica Disc Protection

For alkali/caustic service or any process medium that may chemically attack the borosilicate glass surface, always specify mica disc protection. The mica shield sits between the glass and the process medium, protecting the glass while maintaining full rated pressure and temperature. Mica protection is strongly recommended for all boiler water and steam service.

4. Pressure & Temperature Operating Envelope

Use the table below to confirm the correct supply route based on your pressure and temperature requirements. For dimension-specific pressure ratings refer to the standard dimension table below.

Pressure Range	Temperature Range	Ring Material	Supply Status / Notes
Up to 16 bar	−10°C to +300°C	S355J2+N or any ring material	Standard — all d1 sizes
Up to 40 bar	−10°C to +300°C	S355J2+N or any ring material	Standard — check d1/S table for thickness
Up to 40 bar	−30°C to +280°C	Duplex SS (1.4462)	Standard — verify min temp rating
Up to 40 bar	−60°C to +300°C	Hastelloy C-22 / C-276 / C-4	Standard — verify d1 limit for C-4
>40 bar	Any rated range	Hastelloy ring options	Special design — contact Lumistar
Any pressure	<−10°C	Duplex SS or Hastelloy	Verify ring material min. temp.

Pressures above 40 bar

For operating pressures above 40 bar, contact Lumistar with your full requirements (d1, d2, pressure, temperature, process medium). Custom-engineered Type 76 fused sight glass discs for higher pressure service are available.

4.1 Standard Dimension & Pressure Rating Reference

All dimensions in mm. Confirm final values against the official datasheet before ordering.

Nominal size	Max. operating pressure					
	16 bar			40 bar		
	d1	d2	S	d1	d2	S
25	70	30	10	70	30	15
32	82	40	12	82	40	15
40	92	45	15	92	45	20
50	107	50	15	107	50	20
65	127	70	15	127	70	25
80	142	75	20	142	75	25
100	162	80	20	162	80	25
125	192	100	20	192	100	30
150	218	100	25	218	100	35
200	273	120	30	273	120	40

d1 = outer diameter (mm) · d2 = inner/viewing diameter (mm) · S = glass thickness (mm) · Higher pressures and non-standard dimensions available on request.

5. Industry Application Reference

Industry	Typical Application	Recommended Specification
Chemical & Petrochemical	DIN 28121 reactor / column sight windows	Hastelloy C-22; EN 10204-3.1 cert; confirm chemical compatibility with ring material
Pharmaceutical / GMP	DIN 28121 vessel viewports, sterile process lines	Duplex SS 1.4462 (electropolished); EN 10204-3.2 cert on request
Food & Beverage	Process vessel and mixer sight ports	Duplex SS 1.4462; confirm gasket material is food-grade
Power Generation /	Steam drum and vessel	S355J2+N or Hastelloy; mica disc protection for caustic boiler water

Steam	viewports	
Offshore & Subsea	High-pressure separator and injection line viewports	Hastelloy C-22 ring; EN 10204-3.2 on request
Refrigeration / Cold Utilities	Chiller and cold process vessel viewports	Duplex SS or Hastelloy; confirm min. temperature down to –60°C where needed
Industrial Gas / Cryogenic	Tank and pipeline viewports where cryogenic temperatures occur	Hastelloy ring; verify minimum temperature rating vs process

6. Information Required for Quotation

To provide an accurate quotation and technical confirmation, please supply the following when contacting Lumistar:

- Outer diameter d1 (mm) and inner/viewing diameter d2 (mm) — from housing drawing
- Maximum operating pressure (bar) and operating temperature range (minimum and maximum °C)
- Ring material required (or process medium details for material recommendation)
- Assembly standard: DIN 28121 / welding neck flange with flat or raised face / other
- Quantity and required delivery schedule
- Certification level: EN 10204-3.1 (standard) or EN 10204-3.2 (third-party inspection, on request)
- Any special requirements: mica disc protection, non-standard dimensions, special alloy rings

Request a Quote — LUMIGLAS® Type 76

Provide: d1, d2, pressure rating, operating temperature, ring material, assembly standard
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