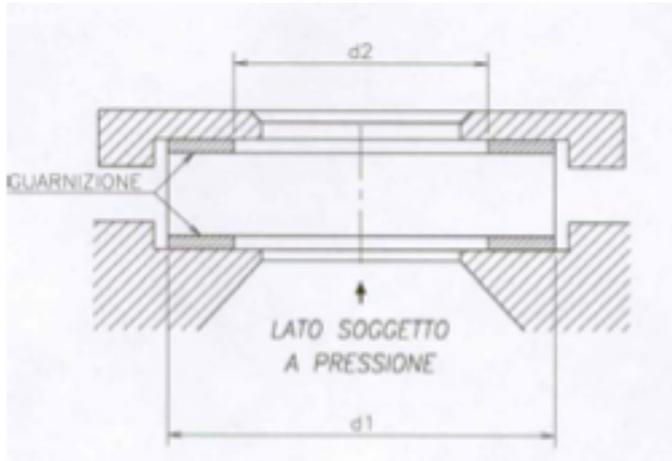


INSTRUCTIONS FOR ASSEMBLY AND CORRECT USE

ASSEMBLY DIAGRAM



Legend

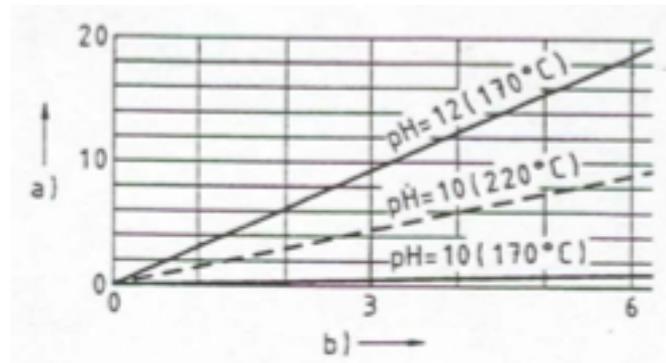
- d1: external ring diameter
d2: internal flat seal diameter
dm: (not shown in picture) average o-ring diameter in a test setup (mean between d1 and d2)

ASSEMBLY INSTRUCTIONS

- The mechanical resistance of glass is affected by cuts or superficial damage that can start off fractures. Examine the ring surface and check with your nail that there are no scratches, chipping, blisters, open bubbles or cracks before assembly. Contact the manufacturer beforehand in case of doubt.
- The assembly area must be flat, smooth and free of dirt to avoid improper stress or local strain concentrations.
- Appropriate rectangular section elastic seals must be used over the whole glass-resting surface. Seal thickness must be ≥ 3 mm.
- Glass and metal have very different thermal expansion coefficients. Always ensure a radial clearance of at least 2 mm between the glass ring and its assembly seat to avoid greater expansion of the metallic flange from adding additional stress on the glass.
- Bolt the flange gradually and avoid excessive local stress. If the bolting organs are screws or bolts, tighten them in sequence, proceeding either clockwise or counter-clockwise and in at least two further stages.
- Except where specifically prescribed by other technical norms, bolting pressure should indicatively be between 2 and 2,8 times the maximum allowable pressure and uniformly distributed over the whole edge.

INSTRUCTIONS FOR USE

- Check the sight window glass periodically to ensure there are no signs of mechanical yield or significant reductions of the resistance layer owing to erosion phenomena. Carry out these checks without removing the glass component from the window's flange. Replace any glass with scratches $\geq 0,5$ mm deep, signs of fracture or erosion. Glass opacity is a possible sign of erosion.
- The frequency of these inspections depends on the nature of the pressurized fluid and pressure values, as well as operating temperature. The main factors influencing glass erosion are pressurized fluid temperature and alkalinity levels. The following diagram offers an indication of the loss of mass, a, (in eroded mm) for the soda lime glass in relation to the time of exposure to fluids with assigned temperature and pH values, b, (in months).



Further information on the chemical resistance of soda lime glass can be found in technical standards ISO 719 (hydrolytic resistance), ISO 1776 (acid resistance) or ISO 695 (alkali resistance).

The designer of the pressure equipment for which the sight windows are intended must establish inspections and replacement frequency, using the diagram above and the technical standards mentioned as a guide and keeping his own risk analysis in mind.

Even in theoretically non-critical applications, the interval between inspections should never be greater than 6 months.

- Glass removed from sight windows, even if not apparently damaged or worn, must never be re-assembled.
- Each component in borosilicate glass for sight windows destined for use in pressurized equipment has its own well-defined field of application. Sight windows made with these glass components must never be used outside their intended application.

Minimum operating temperature:	- 200°C
Maximum operating temperature (continulative):	130°C (on a single face)
Maximum allowable pressure	For standard sizes varies from 3 to 26 bar (on a single face) depending on nominal diameter and thickness. Maximum allowable pressure must correspond to a guaranteed ultimate tensile strength of 160 N/mm ² .
Special use limitations:	Maximum operating temperature must be limited to 100°C when the pressurized fluid shows alkaline properties (pH>7). Windows manufactured with this type of glass are inappropriate for prolonged use with strongly alkaline fluids (pH>8÷8,5).