Important guidelines for mounting and use of sight glass fittings, toughened glasses and luminaires:

Before installation and operation/servicing, please read and follow all commissioning and servicing instructions.

1. Installation of sight glass fittings

The installation by welding, brazing etc, must be free of distortion and thus carried out by suitably qualified and authorized personnel.

2. Installing toughened glass discs into a sight glass assembly

2.1 Operating safety of sight glasses depends to a great extent upon their correct installation.

2.2 The gasket seating surfaces in the flanges must be plane, flat and smooth. Ensure the gasket edges are not trapped by, or foul, the flange gasket recess wall.

2.3 The glass disc, with gaskets appropriate to the process application fitted to its top and bottom faces must be located concentrically in the flange assembly.

2.4 Only use gaskets which are in good condition, flat and free of dirt and grease.

2.5 Before tightening nuts or bolts ensure once more that cover and base flanges are correctly aligned and surfaces parallel to one another.

2.6 Tighten the nuts or bolts progressively in diametrically opposed pairs. Tightening moments can be obtained from the relevant data sheets accompanying product (or consult supplier).

2.7 Further tightening down may be required after assembly has bedded down under operating temperature and pressure.

2.8 When installing quartz sight glass discs follow manufacturers' instructions!

3. Max. loading of toughened sight glass discs

3.1 Correctly fitted sight glass discs must be used within the working temperature and pressure ranges laid down for them otherwise they may fail.

3.2 Temperature cycling to be within permitted limits:

- Sodalime glass (DIN 8902), max permissible temperature: +150° C. Temperature change within one minute max from 120° C to 20° C with glass fully immersed.
- Borosilicate glass (DIN 7080), max permissible temp.: + 280° C. Temperature change within one minute max from 230° C to 20° C with glass fully immersed.

3.3 Avoid spraying sight glasses which are still hot with cold fluid. Warning! This can lead to glass disc breakage.

3.4 Safety Precautions when using sight glass discs:

3.4.1 Scheduled Maintenance:
Sight glasses must be included in preventive maintenance, and regularly checked either visually or by ultra sound measurement of wall thickness. Where a disc shows any damage it must be exchanged promptly with the plant shut down. Further, a thorough and regular check of the sight glass should lead to a down time to suit the particular vessel; this will promote a routine for glass exchange suited to the process.

3.4.2 Breakage of glass disc:
In spite of careful fitting and operation in accordance with instructions, it is possible though rare, that due to external effects a glass disc can fail. It is necessary, particularly in the case of critical processes such as in the food industry, that the plant manufacturer or operator takes appropriate safety measures to prevent glass fragments finding their way into the product.

3.5 After dismantling a sight glass assembly, and in accordance with DIN 7080 standard requirements for all type of sight glass disc, the glass disc and gaskets are replaced with new ones before the assembly is put back into operation. This is particularly important where pressure vessels and/or aggressive media are concerned.
The following wording as extracted from DIN 7080 refers:
"Sight glass discs may only be installed by personnel who are thoroughly versed about the following requirements:

- careful treatment of sight glass discs
- cleaning of recesses, discs, gaskets and accessories prior to installation, i. e. the removal of foreign matter (e. g. machining swarf);
- even tightening up of holding down bolts.

Sight glass discs removed from assemblies following operational service may not be reused."

4. Sight glass wiper

4.1 Check that wiper assembly is correctly installed (see separate installation instruction)!

4.2 Wipers may only be used within temperature and pressure ranges specified.

4.3 Drive/spindle housing should be periodically checked to ensure a good seal; if necessary tighten threaded bushes/glands, replace defective seals, clean wiper arms and blades to remove accumulated foreign matter or replace (see installation instruction).

5. Spray device

The spray fluid temperature should be as near as possible to that of vessel contents. On no account use cold spray fluid on hot glass disc (see ‚temperature cycling' under point 3).

6. Sight glass luminaires

6.1 Always ensure that luminaire is connected to correct supply voltage as indicated on identity plate.

6.2 All luminaires are purpose designed and exclusively made for mounting onto flanged sight glass assemblies.

6.3 Never use the luminaire in place of cover flange or a complete sight glass fitting.

6.4 Only certain models of luminaire may be used in continuous ON mode; please check before confirming order; if in doubt ask supplier or manufacturer.

6.5 Luminaires with built in ‚non maintained' switches are for intermittent use and may only be operated with those switches.

6.6 Luminaires intended by the user for continuous ‚ON' mode operation should be controlled by separate external ON/OFF switch.

6.7 The following should also be noted

- Max. permissible temperature at cable entry not to be exceeded (see data sheet).
- Max. permissible temperature of glass not to be exceeded (Vessel temperature + temperature increase caused by luminaire = sight glass temperature; check by measurement!)

6.8. When replacing lamps use identical type with identical power rating; never exceed max. permissible lamp rating recommended for any given luminaire.

6.9 When changing lamps, check condition of lamp socket as a matter of course.

6.10 Excessive voltage will shorten lamp life.

7. Ex Hazardous areas

Ex hazard rated luminaires must not be installed or serviced other than by suitably qualified and authorised personnel. Data and instructions contained in relevant approval test certificates (certificates of conformity) must be adhered to. Some Ex luminaire models are works fitted with permanently encapsulated (resin cast) cable tails; on no account attempt to unscrew or remove cable entry gland! Any inappropriate change in components of Ex certified luminaires can render the relevant certificate invalid.

8. Hinged or screwed sight glass assemblies

Before use, ensure the seals are functioning (if necessary tighten securing nuts/bolts).
The seal between hinged ports and vessel flange is ensured by correctly seated components; flanges to mate up parallel by correctly adjusted swing-bolt/hinge assembly and undamaged, clean seals free of grease.
In the case of hinged units, ensure the material of the hinged glass serround is compatible with vessel contents. When used on pressure vessels, ensure max. operating pressure specified for the sight glass is exceeded.

If in doubt, consult supplier or manufacturer!

All dimensions in mm unless stated otherwise. Subject to change without prior notice.
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