



Armored Flat Glass Gages

Flat glass gages provide direct observation of liquid level in a process vessel. The process liquid level and liquid characteristics can be observed through the glass as it rises and falls in the gage chamber.

The six basic components of flat glass gages are as follows:

Chamber

Pressure retaining element which provides rigidity to the gage assembly and a means to connect the gage to isolation gage cocks or other vessel connections.

Penberthy's **standard chambers** have a flat gasket seat to allow for easy removal of gasket residue and fragments. Because the chamber does not have a recessed face, the gasket may be removed quickly with a flat blade.

Penberthy has an optional chamber with a recessed gasket seating surface to meet customer requirements

Slots are machined into Penberthy's transparent gage chambers rather than continuous vision slots. These cross ties between vision slots increase the mechanical integrity along the length of the chamber.

The cross tie provides a higher strength chamber due to the reduction of unsupported beam length. Chambers are available with PFA (Teflon®), PECTFE (Halar®), and PETFE (Tefzel®) lining.

Gasket

Seals the gap and prevents leaking between the glass and the chamber.

Glass

Contains the process liquid and provides the viewing window to the process liquid level.

Cushion

Protects the glass from mechanical stress points by acting as a buffer between the glass and cover.

Cover

Protects the glass from mechanical impact along the side of the chamber and provides a compression surface for the bolts/studs/nuts to hold the gasket and glass tightly against the chamber.

Bolts/Studs/Nuts

Properly torqued gage bolting applies a uniform compressive load to the gage assembly for pressure retaining purposes.

Multiple Section Gages

To meet visible glass lengths greater than Size 9 glass (12.625" [321 mm]), Penberthy stacks covers along the length of the single chamber. The maximum operating pressure and temperature ordinarily determine the largest glass size that can be used.

Vision slots are cut according to the size of the glass used and the number of sections necessary to meet the desired vision length or minimum center to center (vessel connections). Support brackets should be attached to larger gages to support the weight of the gage assembly.

The maximum number of sections (covers) that can be used on a single gage chamber is ten. If the required liquid level vision length extends beyond 139.750" [3550 mm], multiple section gages may be bridled to a standpipe or alternately top-bottom side connected.

Gage Connections

End, side and back (typically reflex only) connections can be machined into the gage chamber to provide end users with desired center to center distance and/or the optimum vision position for liquid level viewing. Connections include NPT, BSP, ANSI flanged, DIN flanged and socket weld.