

OPERATING AND MAINTENANCE INFORMATION FOR PRESSURE GAUGES

Unpacking

Please check the packing material carefully in order to avoid loss of spare parts. The protection cap of the connection may not be removed before connecting the gauge to the measuring line in order to avoid any foreign substances to enter the pressure chamber.

Installation and commissioning

The mounting position of the pressure gauge should have good access and be possibly located above the measuring point for the measuring of gas pressure. In order to avoid time lags, the distance between measuring point and the gauge should be kept short (see EN 837-1..3). The max. Allowed pressure rating shall be used according to the given information on the gauge.

The installation of a shut-off device between the measuring point and the gauge is recommended; this device being needed for change of gauge or zero point checking during the running plant. The shut-off devices have to be kept closed until final commissioning. The shut-off device should have a test connection. In case pressure strokes can be expected, a suitable protection has to be provided. The measuring line should provide a solid and vibration-free installation; if necessary the gauge needs an instrument support or front-/ back flange for panel-/wall-mounting. The gauges have to be installed taking care of the permitted working temperature. In order to achieve this, the gauge and the shut-off device should be protected using either long measuring lines or syphons. Temperature can influence the accurate indication. Maximum allowed temperatures using bourdon-tube gauges(brass) are - 40..+60°C; using bourdon-tube gauges(st. steel) -40...+200°C, with diaphragm pressure gauges generally -20....+60°C and for capsule gauges -20...+100°C.

The measuring line for a gas pressure gauge shall have a suitable position; avoiding any condensed water to enter the measuring element. A discharge device has to be provided in case the instrument cannot be placed above the measuring point. An additional fluid column may only be used, if this specific pressure is calibrated and clearly marked on the dial to avoid any wrong pressure indication.

Sealing or lens scanning discs are used to tighten the connections of the instrument towards the measuring line. Commonly used for the connection are tightening couplings or union nuts thus enabling to set the best readable position of the gauge. Tighten or remove the gauge from the measuring line use only socket and not casing.

Before connecting the gauge to the measuring line it is important to clean the line with the medium or clean compressed air. During a hydraulic test of piping or tanks the maximum indicated pressure of the gauge may not be exceeded (see drawing: mark "A" next page). Should the expected pressure exceed the maximum, the gauge has to be disconnected or removed from the measuring line.

The gauge must be set into a pressureless position before removing from the line; if needed the measuring line has to be emptied. Both diaphragm and capsule pressure gauges have a screwed connection between upper- and lower flange. This connection may not be opened at any time. Medium can remain in removed gauges; these can be poisoning for the environment. Please take care. Pressure gauges used for water or aqueous solution shall be protected against freezing.

Handling

Open the shut-off devices slowly. Quick opening might damage the gauge. After opening, the gauge shall be checked for a short time.

Checking on tightness is a major job being done at this stage of installation. For this purpose, the instrument has to be exposed to operational pressure. Close the shut-off device towards the measuring line. A leakage can be seen when the pointer moves towards the zero-point (check also temperature alterations and condensation). The leakage must be located and cleared with suitable methods. The leakage test has to be repeated.

The pressure range for dead load is marked "A" (see drawing below) on the dial. For zero-point check during running process the shut-off devices have to be closed and the measuring element relieved. The pointer must be positioned within the mark "B" (see drawing below) zero-point range on the dial. The measuring element will be destroyed in most cases if the pointer is placed outside the a.m. range. The gauge has to be checked more precisely to avoid any false indication and possible accidents.

The gauge indication might be checked during running process. For this purpose the gauge will be closed towards the measuring line using the shut-off device; the gauge may get a test pressure through the test connection of the shut-off device. Indicating pressure gauges are maintenance-free.

Differential pressure gauge

Differential pressure gauges are equipped with two pressure connections.

Installation: Connect the connecting pivot marked "+" with the expectedly higher measuring pressure; the connecting pivot marked "-" with the expectedly lower measuring pressure. A pressure balance valve (see Z 518/ Z 519) is recommended to protect the gauge. This valve connects the two measuring chambers on both sides of the measuring element during commissioning or decommissioning of the gauge. The two chambers will be separated when both pressure lines are opened resp. closed. This method will be used to avoid any one-sided loading which could lead to an overload of the measuring element.

