

INSTALLATION, OPERATION & MAINTENANCE MANUAL FOR Series 2211DPG: SDT Differential Pressure Gauge Single diaphragm type



Strataa gauges are manufactured as per EN 837-3 (in general) & under strict quality control, hence, are expected to be in reliable service for longer period, if selected, installed and maintained properly and guidelines given herein.

The differential pressure gauges are generally used to measure the differential pressure between two lines i.e., LP and HP. In these gauges pressure is measured by the deflection of diaphragm.

DIAPHRAGM:

Either metallic or non-metallic diaphragms are used as sensing element. A diaphragm shell is a single circular metallic disc corrugated.

DIAPHRAGM CELL:

The diaphragm is attached or sandwiched with this diaphragm cell in between two side chambers.

SELECTION:

Each gauge manufactured by Strataa is designed to meet specific requirement. With the wide variety of gauges, it's very important to select the gauge with proper specifications. Selection parameters like range, process temperature, process media's chemical properties, mounting location, environmental conditions like corrosive atmosphere, excessive heat or cold, vibration, rapid fluctuation of pressure, importance & reliability in terms of accuracy has to be taken care properly.

Working pressure should be between 25% to 75% of rated pressure range of gauge. Though gauges are supplied with the over pressure limit of 130% of rated pressure, excessive range can deteriorate the life and reliability of gauge. Diaphragm is selected according to the measuring range of pressure. Material of diaphragm is selected according to the application, which can be Monel, Hastelloy-C, Titanium, Tantalum, AISI 316L etc. Different types of coating, lining, or plating can be done on wetted parts and diaphragms like PTFE.

It is very essential to see that static pressure is taken into consideration while selecting the gauges.

Special care is to be taken while selecting the material of diaphragm pressure gauges for services like urea, chlorine, HCL etc. or other acids or corrosive liquids. The temperature of process of which measurements are being done also to be kept in mind while selecting the gauges. Care must be taken while using gauges for oxygen, acetylene, food, acids etc. Sensing material should be selected in accordance with the application.

INSTALLATION & MAINTENENCE:

Normally gauges should be installed with the face of dial in vertical position. If not specified while placing the order, the mounting details, weight of working parts may influence the observations.

- 1) Gauges with direct mounting should be mounted to the point by tightening hexagon or square. Case of the gauge should not be used for fixing the same. Pressure connecting pipes should be flexible enough to not to put extra strain on the gauges.
- 2) Use of siphon is advised between gauge and the source, while using in steam application. Steam must be condensed before entering in gauge element. The siphon should be filled with water before putting into service.
- 3) In a continuous operation of process, isolation valve is to be used to isolate the gauge, when it's not observed continuously, or it is to be removed from the service without affecting the operation.
- 4) To prevent the effect of vibration, liquid filled gauges to be used. For oxygen service no exceeding liquid is to be filled, which may cause serious problems. Special care is to be taken while choosing the filling liquid for high temperature application.
- 5) Snubbers and Gauge Savers to be used while putting the gauge in line where pressure fluctuation is high.
- 6) Safety Glass to be used as window in critical applications, like Shatter-Proof, Toughened and Plexi glass etc.

- 7) To protect the gauge from corrosive or any other process media which may cause damage to measuring system, chemical seal is to be used. Media should not be allowed to enter in element with temperature exceeding 100°C especially with non-ferrous material of element.
- 8) Gauge should not be subjected to rapid pressure fluctuation, pressure shock, heat, vibration or any other destructive phenomenon without using suitable accessories.
- 9) Seating washers to be used in connection line of proper material so that they do not fray or extrude. Use of rubber should be avoided. Below 60 bar working pressure, washer with material leather, vulcanizer, nylon etc. & above that metallic washer like annealed copper / aluminium etc. to be used.
- 10) To drain out the condensed liquid, while using the gauge for air or gas application, impulse pipe should rise continuously to gauge.
- 11) Accuracy of the gauge is to be checked after certain intervals. In case of any drift or pointer shift, the pointer setting can be done to adjust the readings after opening the bezel by moving it in anti-clockwise direction. Use suitable tools like wooden jig and rubber belt for opening the bezel. Check the readings after setting to ensure that the setting done is correct.
- 12) The gauge should be always fitted with manifold to have simultaneous opening of both the ports so that service should reach to diaphragm at the same time since the static pressure is always more than the range (beyond 130% of over range). Only one side opening of isolation valve will immediately damage the diaphragm.
- 13) It is generally to be installed on 2" sanction pipe or a proper gauge board since the back chamber is heavy in construction.
- 14) It is always advised that single port (HP line) should be put into a separate test bench and range can be tested before installation.
- 15) While mounting the gauge on panel, the care should be taken that panel sheet thickness should be sufficient to take the load of the gauge which is approximately 4-6 kg/cm².
- 16) Temperature Error:
When temperature of the pressure element deviates from +20 °C,
Rising temperature: +0.6%/10 °C of the true scale value.
Falling: -0.6%/10 °C of the true scale value

CAUTION:

- 1) Do not remove the gauge when the system is in pressurized condition.
- 2) Do not tighten by grasping the case of the gauge as this may cause damage.
- 3) Do not give pressure from LP side while checking or calibration.

Refer our product catalogues of Series 2211DPG: SDT Differential Pressure Gauge Single diaphragm type.