

Installation and Operation Manual

Pressure Gauge

Mechanical Services & HVAC Products

FP11 | FP12 | FP21 | FP22 | FP31 | FP32

This manual is also available online.



SAFETY PRECAUTIONS



Caution



Read and understand carefully this document prior attempting to install Fivalco® products. Failure to follow these instructions could cause severe injury, product and/or property damage.



Installation, maintenance and replacement of Fivalco® products must be implemented by an experienced, well trained installer. Wear safety glasses, helmet, hand and foot protection during installation.



The owner is responsible for maintaining the system in proper operation condition.



Fivalco shall not be held responsible for any incidents arising from improper installation, operation and maintenance work. The responsibility for this must rest with the installer and user.



Disclaimer

This manual serves as a general guideline and reference to the installers and users. Every effort has been made to ensure the information contained in this manual is accurate at the time of publication. Fivalco Limited assumes no responsibility or liability for any errors and/or misinterpretation of the information. Contact your local vendor, distributor or Fivalco Limited for detail technical data and specification of each model, and if any additional information is required. We reserve the right to alter this manual without notice.

“The quality goes in before our name goes on”



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PRESSURE GAUGE

1 GENERAL

Pressure gauges are essential instruments used across various industries and applications to measure and display the pressure of gases or liquids within a closed system. They play a crucial role in maintaining safety, efficiency, and quality control in numerous processes.

Pressure gauges operate based on the principle of converting the force exerted by a fluid (gas or liquid) into mechanical motion or an electrical signal. The specific mechanism varies depending on the gauge type, but the fundamental principle involves the deformation of a sensing element (e.g., Bourdon tube or diaphragm) under pressure, which is then translated into a readable pressure value.

Applied Standards:

EN 837-1	Bourdon tube pressure gauges, dimensions, metrology, requirements, and testing.
EN 837-2	Selection and installation recommendations for pressure gauges.
EN 837-3	Diaphragm and capsule pressure gauges, dimensions, metrology, requirements, and testing.

2 UNLOADING & TRANSPORTATION

When dealing with pressure gauges, whether for procurement, distribution, or relocation, it's essential to handle them with care to ensure their accuracy and integrity. Proper unloading and transportation practices can prevent damage and maintain the reliability of these crucial instruments.

Pressure gauges should be packaged securely to protect them from physical damage, moisture, and environmental factors during transit. Handle them gently and avoid dropping them to sudden impacts, as this can affect their calibration and accuracy. Use appropriate cushioning materials and boxes that provide protection against shocks and vibrations. Do not apply excessive force when securing or tightening fittings or connections on the products.

Proper practices are essential for preserving the functionality and accuracy of pressure gauges. Taking precautions to protect these instruments from physical damage, temperature extremes, and other potential hazards during transit will help ensure their reliability and effectiveness in various industrial applications.

3 STORAGE

The pressure gauge should be kept in its original packing until installation. The gauge should be protected from external damage during storage. Storage temperature range: -40°... 70°C. Protect the gauges from humidity and dust.

4 INSPECTION PRIOR TO INSTALLATION

Before installation, commissioning and operation, ensure that the appropriate pressure gauge has been selected in terms of measuring range, design and suitable wetted material (corrosion) for the specific measuring conditions. In order to guarantee the measuring accuracy and long-term stability specified, the corresponding load limits must be observed.

Engineers or installer shall determine the estimated pressure along the pipeline or system and select a suitable range of pressure gauge. In general, the pressure in the pipeline or system shall not be more than 75% of the full scale value of the dial range.

5 INSTALLATION

In accordance with the general technical regulations for pressure gauges (e.g. EN 837-2). When screwing the gauges in the force required for this must not be applied through the case or terminal box, rather only through the spanner flats provided for this purpose (using a suitable tool).



Correct sealing of pressure gauge connections with parallel threads ① must be made using suitable sealing rings, sealing washers or profile seals. The sealing of tapered threads (e.g. NPT threads) is made by providing the thread ② with additional sealing material such as, for example, PTFE tape (EN 837-2).



The torque depends on the seal used. Connecting the gauge using a clamp socket or a union nut is recommended, so that it is easier to orientate the gauge correctly. When a blow-out device is fitted to a pressure gauge, it must be protected against being blocked by debris and dirt. With safety pressure gauges (see dial symbol), it must be ensured that the free space behind the blow-out back is at least 15mm. After mounting, set the compensating valve (if available) from CLOSE to OPEN. Do not open the flange mounting screws.

Requirements for the installation point

If the line to the gauge is not sufficiently rigid for vibration-free mounting, a pipe-support bracket should be used to secure it (possibly via a flexible capillary). If vibration cannot be

prevented through suitable installation, liquid-filled gauges should be used. The instruments should be protected against coarse dirt and wide fluctuations in ambient temperature.

Permissible ambient and operating temperatures

When mounting the pressure gauge it must be ensured that, taking into consideration the influence of convection and heat radiation, no deviation above or below the permissible ambient and medium temperatures can occur. The influence of temperature on the display accuracy must be observed.

6 OPERATION OF PRESSURE GAUGE

Pressure gauge shall be installed with a ball valve or any kind of isolation valve for easy maintenance. For operations of the pressure gauge, turn the ball valve slowly to prevent pressure surge. Additional measures like syphon tubes are strongly recommended.

Pressure gauges have temperature limitations, and they should not be used in applications where temperatures exceed their specified operating range. High temperatures can affect the accuracy and lifespan of them. The pressure gauges are typically not designed for use with highly corrosive or aggressive chemicals or materials.

Pressure gauges should operate within their specified pressure range. Using a gauge outside its designed range can lead to inaccuracies or damage.

7 MAINTENANCE

If the pressure gauge is installed according to our standard procedures, it is maintenance free. Checks should be carried out on a regular basis to ensure the measuring accuracy of the pressure gauge. The checks or recalibrations must be carried out by qualified skilled personnel with the appropriate equipment. When dismantling, close the compensating valve (if available).

Residual media in dismantled pressure gauges can result in a risk to personnel, the environment, and equipment. Take sufficient precautionary measures.

8 WARNINGS

Only qualified persons authorized by the plant manager are permitted to install, maintain, and service the pressure gauges.

For hazardous media such as oxygen, acetylene, flammable or toxic gases or liquids, and refrigeration plants, compressors, etc., in addition to all standard regulations, the appropriate existing codes or regulations must also be followed.

After an external fire, pressure media can leak out, particularly at soft solder joints. All gauges must be checked and, if necessary, replaced before recommissioning the plant.

Non-observance of the respective regulations can result in serious injury and/or damage to equipment.



WARRANTY STATEMENT

Fivalco's products are designed, engineered and manufactured within its specification of intended use, under the highest quality control possible. Commitment on quality and performance is always at the top of our agenda.

Fivalco warrants that for a period of thirty-six (36) months following delivery, the Fivalco products will perform in accordance with published specifications, and will be free from defects in material or workmanship provided that the products are stored and installed in accordance with recommendations in our catalogues.

Fivalco's obligation shall be to replace any product found to be defective in design, material or workmanship during the warranty period. Fivalco shall not be obligated to refund the purchase price and other liabilities on monetary compensation, nor shall it be obligated to pay for any labor or costs associated with the removal of the defective products or the reinstallation of those products. No warranty coverage will be provided for products that have been altered and / or used for a purpose other than that for which they were designed or installed contrary to Fivalco's guidelines.

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