

Differential Pressure Regulators
Type 45-1 N
Type 45-3 N



Type 45-1 N



Type 45-3 N

Fig. 1 · Differential pressure regulators

**Mounting and
Operating Instructions**

EB 3140 EN

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1 Design and principle of operation

The differential pressure regulators consist of a control valve and a closing actuator with an operating diaphragm.

The regulators have a fixed set point predetermined by the set point spring in the valve body.

The differential pressure regulators are designed to keep the differential pressure between the upstream and downstream lines constant.

The valve closes when the differential pressure rises.

Type 45-1 N, installed in flow pipe:

The medium flows through the valve in the direction indicated by the arrow. The pressure in the outlet (high pressure) is transmitted to the top diaphragm chamber through the at-

tached control line (10) and the low pressure from the return flow pipe is transmitted to the bottom diaphragm chamber of the actuator through the control line (5) which must be attached externally on site.

Type 45-3 N, installed in return flow pipe:

The upstream pressure (low pressure) is transmitted through the bore (8) in the valve body to the bottom diaphragm chamber and the high pressure from the flow pipe is transmitted to the top diaphragm chamber of the actuator through the control line (5) which must be attached externally on site. The differential pressure creates a positioning force at the operating diaphragm which is used to position the plug depending on the force of the set point spring (3).

General safety instructions



- ▶ *The regulators must be installed, started up and serviced by fully trained and qualified personnel only, observing the accepted industry codes and practices. Make sure employees or third persons are not exposed to any danger.*

According to these mounting and operating instructions, trained personnel refers to individuals who are able to judge the work they are assigned to and recognize possible dangers due to their specialized training, their knowledge and experience as well as their knowledge of the relevant standards.

- ▶ *Any hazards which could be caused in the regulator by the process medium or operating pressure are to be prevented by means of appropriate measures.*
 - ▶ *Make sure that the regulator is only used in applications where the operating pressure and temperatures do not exceed the operating values based on the sizing data submitted in the order.*
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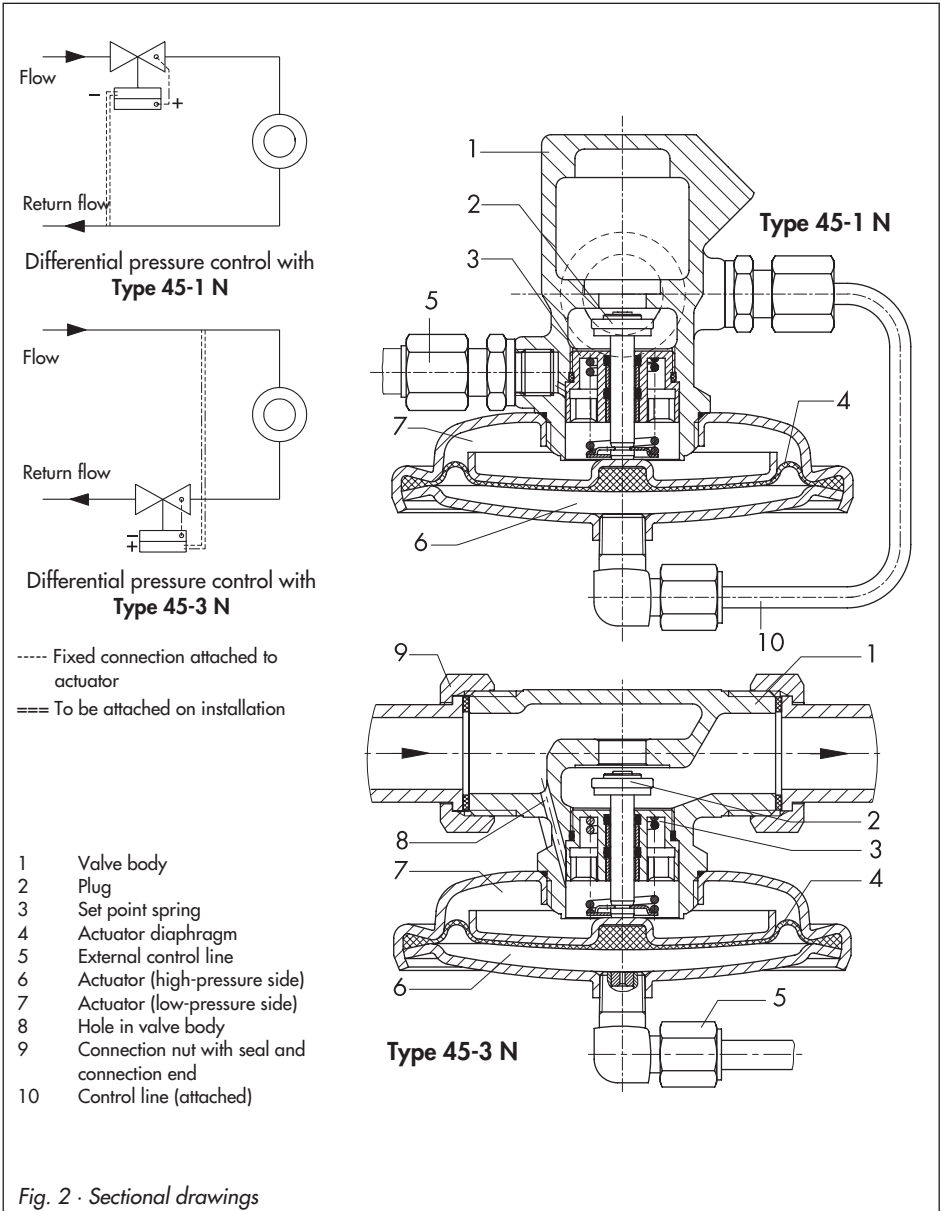


Fig. 2 · Sectional drawings

2 Installation

2.1 Mounting position

We recommend installing the differential pressure regulator in horizontal pipelines with the actuator suspended downward. However, other installation positions are possible.

The medium must flow through the valve in the direction indicated by the arrow on the valve body.

2.2 Control line

A control line with a 6 mm diameter must be adapted and attached at the place of installation. Route the control line as indicated in the installation drawing (Fig. 2).

2.3 Strainer

Since sealing parts, globules and other impurities carried along by the medium may impair the proper functioning of the valve and especially the tight shut-off, a strainer (SAMSON Type 1 NI) must be installed upstream of the differential pressure regulator.

- ▶ Install the strainer so that the medium flows through it in the direction indicated by the arrow on the strainer body.
- ▶ The filter element must be suspended downwards.
- ▶ Remember to leave enough space to remove it.

2.4 Shut-off valves and pressure gauges

We recommend the installation of hand-operated shut-off valves both upstream and downstream of the strainer. This allows the plant to be shut down for cleaning or maintenance or when the plant is not operated for extended periods.

Install a pressure gauge upstream and downstream of the valve to monitor the pressures prevailing in the plant.

3 Troubleshooting · Customer service

If the differential pressure deviates considerably from the set point, the cause may be a clogged up seat or plug, or the valve seat and plug no longer shut-off tightly because of wear and tear. If the regulator starts leaking, check the regulator and replace, if necessary.

NOTICE

Always relieve the pressure from the plant section to be worked on and drain it prior to performing any assembly work on the regulator. Remove the regulator from the pipeline to perform any assembly work.

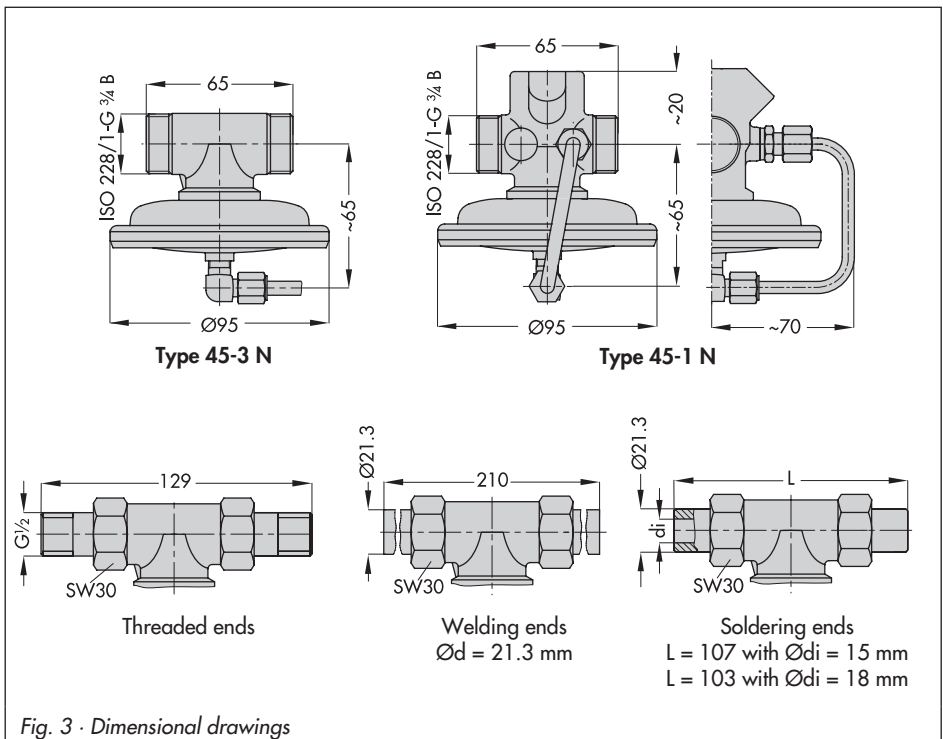
Should any malfunctions or any defect occur, SAMSON's After-Sales Service is prepared to help you on site.

You can also send the defective regulator directly to your local SAMSON representative for repair. Addresses of SAMSON subsidiaries, agencies and service centers are listed in the product catalogs and in the Internet at www.samson.de.

To allow SAMSON to find the fault and to have an idea of the installation situation, specify the following details (refer to the nameplate):

- ▶ Type and nominal size of the regulator
- ▶ Order no. and product no. (written on nameplate)
- ▶ Upstream and downstream pressure
- ▶ Flow rate in m³/h
- ▶ Has a strainer been installed?
- ▶ Installation drawing

4 Dimensions in mm





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