Group 24/01

Pressure Regulators
Ø 125 mm

Type 24/01 – 01
24/01 – 02
24/01 – 03

Features

• Great control accuracy
• No maintenance
• Long service life

The pressure regulator constitutes a reducing valve for compressed air and inert gases. The instrument is characterized by the constancy of the downstream pressure which is maintained in fixed limits-irrespective of fluctuations of the upstream pressure and variations of the flow.

The instrument is suitable for such services where a precise and constant pressure is required, in spite of an intermittent consumption of the medium. Preferred fields of application are e.g. pressure reducing units of widely extended air conduit systems, test benches for fittings supply of several pneumatic measuring and control instruments etc. with air. The pressure regulator may also be of good use a reducing and overflow valve for the charging of closed pressure tanks and remote control of airoperated final control elements with spacious working chambers.

The downstream pressure is set either mechanically by handwheel or pneumatically by remote control. Both settings can be combined. In such a case the downstream pressure I equal to the total of the mechanically and pneumatically set pressures.

The pressure regulator can be incorporated in a pipeline without any special supporting system, but is also available for flush mounting.

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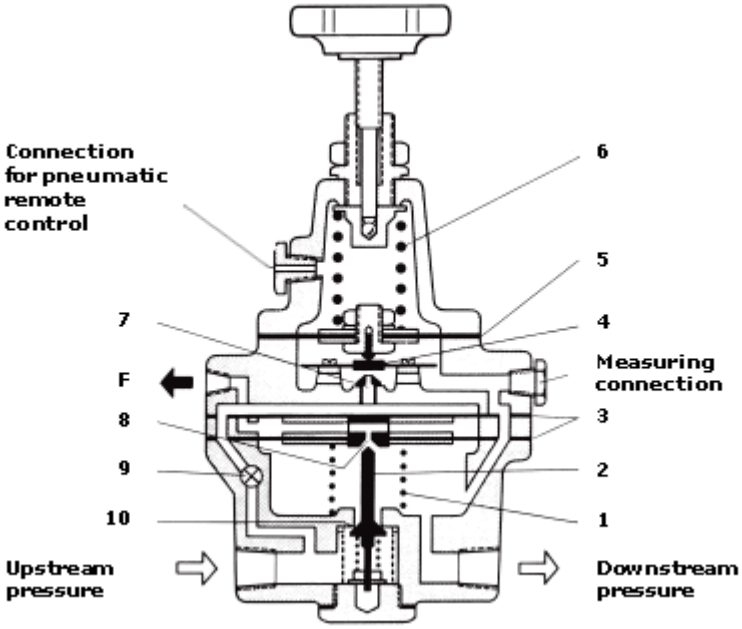
Method of operation



The task of the pressure regulator comprises the reduction of the upstream pressure to an adjustable downstream pressure and its control with high constancy-irrespective of variations of the upstream pressure and flow.

The diaphragm (5) permits a force comparison of the set point and actual value. The force of the set point constitutes the force of the helical spring (6). The force of the actual value is the resultant from the downstream pressures and the effective area of the diaphragm (5). The stadiness of the downstream pressure is attained in such a manner that already insignificant motions of the diaphragm (5) control the inlet and outlet seats (10 and 8) by means of a pilot. On the other hand, more important motions of the diaphragm (5), caused by the set point spring (6), might produce an undesired variation in the force of the set point and hereby a fluctuating downstream pressure (actual value).

The baffle plate (4) to which the motion of the diaphragm (5) is transmitted, and the nozzle (7) are actuators of high sensibility which is still increased by a constant pressure drop on the nozzle (7). This pressure drop is produced by the spring (1) because it maintains a steady difference between the pressure on the top of the diaphragm (3) and the downstream pressure. This difference in pressure is equal to the quotient resulting from the force of the spring (1) and the effective area of the double diaphragm (3).

Course of action: If the downstream pressure should decrease either by an increase of the flow or a decrease of the upstream pressure or the set point is of a higher rating, the diaphragm (5) and thus the baffle plate is moving downward. The nozzle (7) is slightly opened. The pressure on the top of the double diaphragm (3) increases. Hereby the double diaphragm (3) and the outlet seat (8) will be pressed down. The double plug (2) closed the outlet seat (8) and opens the inlet seat (10). The previous discrepancy is then balanced.

This action occurs in a reversed order, if the downstream pressure should increase or a lower set point should be set. The air in excess is flowing through the outlet seat (8) into the open air (F).

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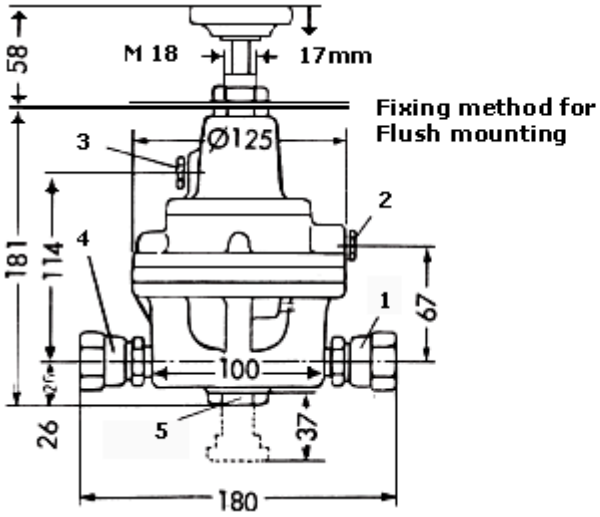
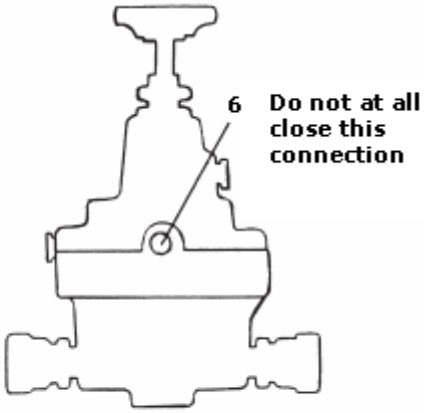
Technical Data

	Group 24/01
Admissible temperature:	-20 to 60°C
Air consumption:	0.03 to 0.7 Nm³/h as a function of the upstream pressure
Construction materials:	bottom part of molded brass, material no. 2.0400 center and upper parts aluminium casing, material no. 3.2153 small parts of stainless steel, brass, nickel, bronze, spring steel diaphragm of Buna N with wear-resistant tissue lining The exterior of the instrument is coated with weatherproof blue-grey baking enamel.
Connections:	see dimensional drawing
Weight:	3.7 kg approx.

Dimensional drawing (dimension in mm)





Do not at all close this connection
(A Deflection by tube is only required, if gases should be present which are injurios to health or easily inflammable.)

1 Downstream pressure connection: Standardized screwed connection
4 Upstream pressure connection: for metal tube Ø 18 x 1.5 mm
2 Measuring connection for the downstream pressure:
threaded hole ¼" NPT (this connection is closed by a threaded nipple on delivery)
3 Connection for the pneumatic remote control:
threaded hole ¼" NPT (connection is provided with a drilled out threaded nipple on delivery)
5 Filter (removable for cleaning)
6 Connection for a possible required deflection of the air consumption: threaded hole ¼" NPT

On demand is available:
Gauges for the measuring connection 2
Threaded reducing sockets for the connection 3 and 6

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Instrument types

Types	upstream Pv In kp/cm^2 max. Pv	min. Pv	downstream pressure Pm in kp/cm^2	Flow C in Nm^3/h
24/01 - 01	7,5	1.2 x Pm	0.25 to 2.5	28 to 150
24/01 - 02	15		1 to 10	50 to 350
24/01 - 03	32		2.5 to 25	100 to 700

Order Text

Pressure regulator Ø 125 mm

Type 24/01- …(see „Technical data“)

Right of modifications reserved

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