

**Flow Regulator  
Type 45-9 N**



*Fig. 1 · Type 45-9 N*

**Mounting and  
operating instructions**

**EB 3138 EN**

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### 1. Design and principle of operation

The flow regulator consists of the valve body with restriction, seat and plug, and the closing actuator with operating diaphragm.

Especially in local heat supply systems and heating systems, the regulator's task is to limit flow rate to the adjusted set point.

The medium flows through the valve in the direction indicated by the arrow on the body. The flow rate is influenced by the areas released by the adjustable restriction (11) and the valve plug (3).

The integrated positioning spring (5) determines the upper differential pressure of 0.2 bar.

The high pressure upstream of the restriction is transmitted to the high-pressure side of the actuator through the attached control line (7).

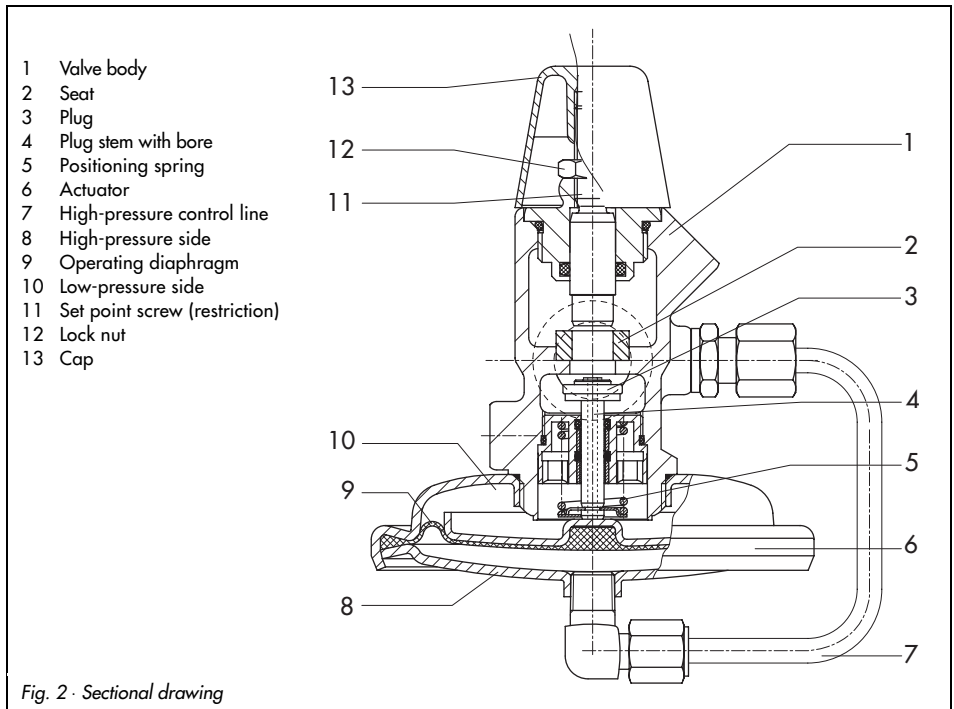
The low pressure generated downstream of the restriction acts on the low pressure side (10) of the operating diaphragm (9) via a bore in the plug stem.

The differential pressure created by the restriction (special differential pressure) is converted into a positioning force at the operating diaphragm. This force is used to adjust the valve. The valve closes when the flow rate increases.

Turn the set point screw (13) to adjust the flow rate.



- ▶ *The device may only be assembled, started up or operated by trained and experienced personnel familiar with the product. According to these mounting and operating instructions, trained personnel is referred to as 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 applicable standards.*
- ▶ *Any hazards which could be caused at the regulator by the process medium or the operating pressure are to be prevented by means of the appropriate measures.*
- ▶ *In addition, it is necessary to make sure that the regulator is only used in areas where the operating pressure and temperature do not exceed the operating values which are based on the valve sizing data submitted in the order.*
- ▶ *Proper shipping and appropriate storage are assumed.*



## 2. Installation

### 2.1 Mounting position

Preferably, the flow regulator is to be installed in a horizontal pipeline with the actuator vertically suspended. Flow direction must correspond to the direction indicated by the arrow on the body.

### 2.2 Strainer

To prevent that any sealing parts, globules and other impurities carried along by the process medium impair the proper functioning of the valve, above all the tight shut-off,

install a strainer (SAMSON Type 1 NI) upstream of the regulator. Flow direction must correspond to the direction indicated by the arrow on the body.

The filter element must be vertically suspended. Remember to leave enough space to remove it.

### 2.3 Shut-off valve, pressure gauge

We recommend to install one hand-operated shut-off valve upstream of the strainer and one downstream of the regulator to be able to shut down the plant for cleaning and maintenance and when the plant is not used for longer periods of time.

To monitor pressures in the plant, install a pressure gauge upstream and downstream of the regulator.

### 3. Set point adjustment

To adjust or alter the flow set point, proceed as follows:

- ▶ Screw off cap (13). Loosen lock nut (12). Turn set point screw (11) clockwise to the stop with a 4 mm Allen key.
- ▶ Refer to the diagram (Fig. 3) to find out the required number of revolutions to set the desired flow rate.
- ▶ Turn set point screw (11) counterclockwise for required number of revolutions.

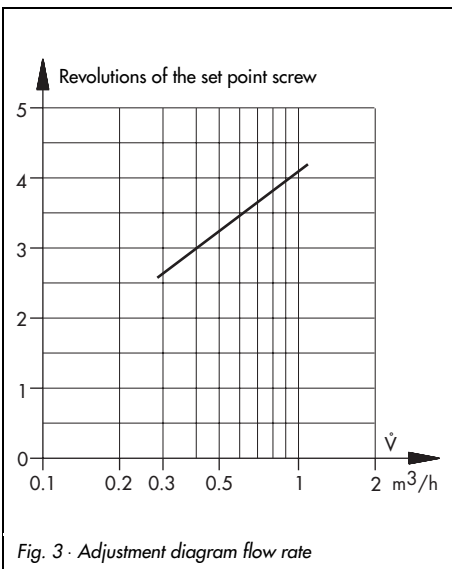


Fig. 3 - Adjustment diagram flow rate

For exact adjustment, verify set value with a flow meter.

- ▶ Clockwise turning of the set point screw (11) closes the restriction and causes the flow rate to decrease. Counterclockwise turning of the screw opens the restriction and causes the flow rate to increase.
- ▶ When desired flow rate is reached, fasten lock nut (12) and screw cap (13) back on.

### 4. Troubleshooting

If the flow rate deviates considerably from the adjusted set point, check for blockages in the control line first. In addition, there may be deposits on the seat and plug, or their tight closure may be impaired by natural wear. Check the regulator and replace it if necessary.

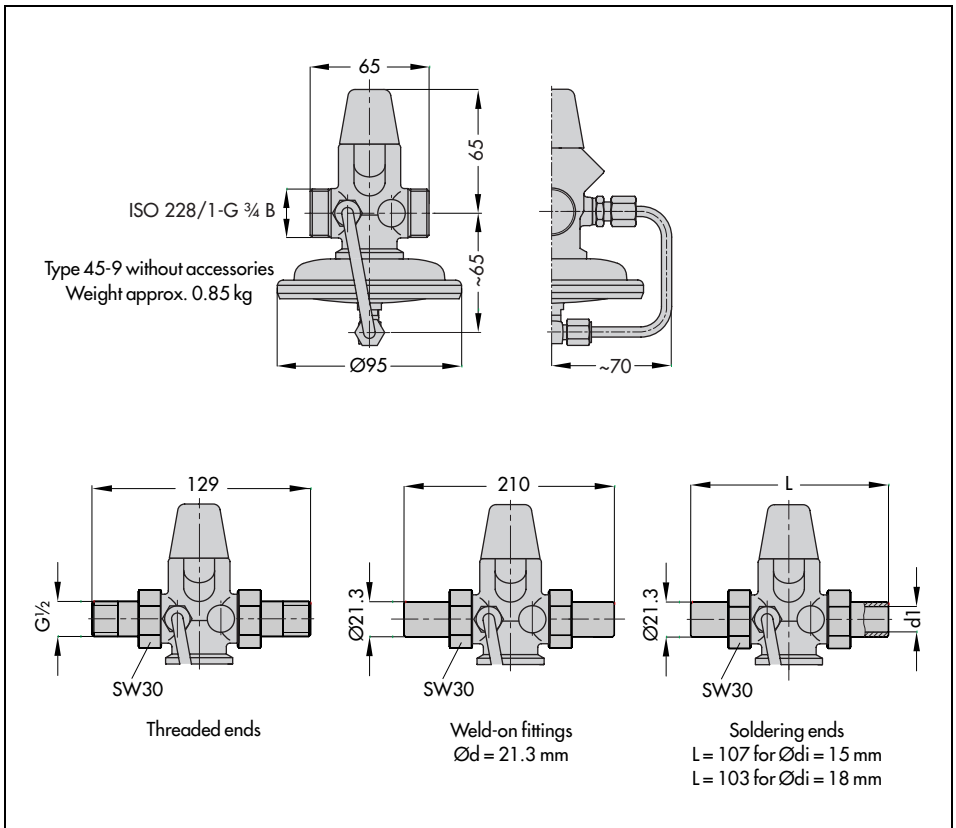
#### **WARNING**

*When assembling or disassembling the regulator, make sure the relevant section of the pipeline is depressurized and drained.*



*For high medium temperatures, allow the section of the pipeline to cool down.*

## 5. Dimensions in mm



## 6. Customer inquiries

Please submit the following details in your inquiry:

- ▶ Type and nominal size of the flow regulator
- ▶ Order and product number (written on the name plate)
- ▶ Upstream and downstream pressure
- ▶ Flow rate in m<sup>3</sup>/h
- ▶ Has a strainer been installed?
- ▶ Installation drawing



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