

Pressure relief controller V22 D28

For heavy oil and high-viscosity media

Instructions for Mounting, Start-up and Maintenance



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Pressure relief controller is designed for modulating control of the pressure in technical devices operating with heavy oil and other high-viscosity media with temperature of up to 140°C.

Pressure relief controller may only operate in the required mounting position and with the medium stated above. Operation in conditions which differ from the technical requirements is not allowed. Ensure that the ranges stated in Technical data are strictly observed.

Check if the shipment is complete. In case the goods are damaged during transport, immediately inform transport agent and manufacturer. If the goods are transhipped during the transport, the original packing must be used. Storage location must be clean and dry. Storage and transport temperature:

Warranty is applied according to the delivery conditions valid in the time of delivery. Warranty becomes void if mounting and start-up is not performed according to Instructions for Mounting, start-up and Maintenance. Mounting, start-up and maintenance may only be performed by authorized personnel.

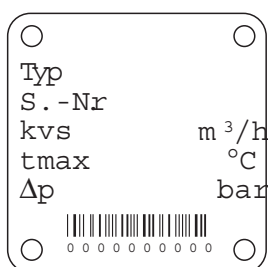
1.1 Correct application

1.2 Incorrect application

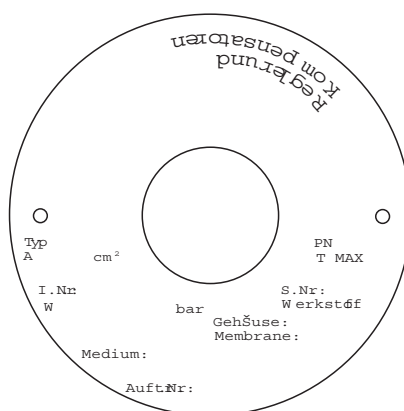
1.3 Storage, transport and packing

1.4 Warranty

Valve



Actuator



1.5 Nameplate

Fig. 1: Nameplate

Design

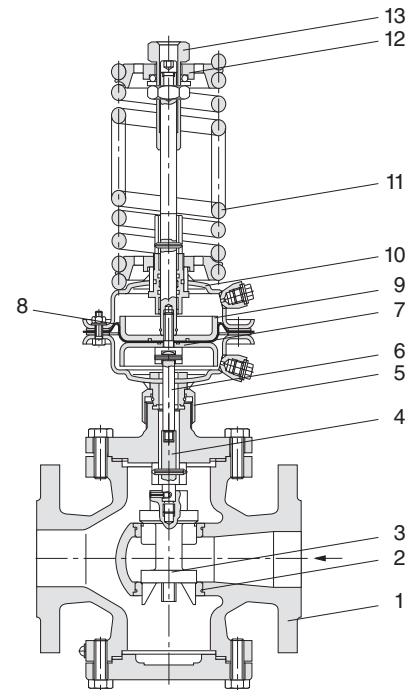
1.6 Design

V22 Valve

- 1 Valve body
- 2 Seat
- 3 Valve cone
- 4 Plug stem

D28 Control element

- 5 Coupling nut
- 6 Actuator stem
- 7 Diaphragm plate
- 8 Diaphragm
- 9 Larger Diaphragm plate
- 10 Diaphragm housing
- 11 Set-up spring
- 12 Pressure element with spheres
- 13 Set point adjustment



1.7 Technical data

Table 1: Technical data valve V22

Nominal size	DN	15	20	25	32	40	50	65
kvs	(m ³ /h)	3,6	6,6	9,3	13,5	23,5	35	55
Differential pressure Δp_{max}	(bar)	16	16	16	16	16	16	16
Nominal flow	(m ³ /h)	1,5	3	4,5	7	11	18	27
Weight	(kg)	5,5	6	9	12	15	19	30
Max. operating temperature		140 °C						
Body material		GGG-40.3						
Max. operating pressure		Nominal pressure PN 16 (DIN 2401), do not exceed Δp_{max}						

Table 2: Technical data actuator D28

Control element D28	Size (cm ²)	32	80
Set point acc. to the spring colour	silver (bar)	3-11	1-5
	yellow (bar)	-	0,5-2,5
	black (bar)	10-16	-
Weight	approx. (kg)	8,0	7,5
Nominal pressure		25	
Material	body	Steel, mat. No. 1.0338, chromated	
	diaphragm	FKM	

Please read carefully and observe the Instructions for Mounting Start-up and Maintenance prior to starting any work on the device. Also observe the Operating Conditions and Guidelines of the Professional Association "Süddeutsche Edel- und Unedelmetallberufsgenossenschaft", Stuttgart, Hausmanstrasse 6, as well as valid DIN guidelines.

Make sure that the pipes which are connected to the device are depressurized and enough time is allowed for the pipes to cool down. Shut-off valves in the relevant section of the pipeline must be secured against accidental opening. Before starting welding procedures, necessary fire-preventing measures must be taken.

Flush the pipe system before mounting the flow regulator. Pressure test must be performed before mounting takes place or test pressure must not exceed max. differential pressure across the flow regulator.

Controller must be installed in horizontal pipeline with the actuator in pointing upwards. This mounting position enables the transfer of media temperature to the actuator. The medium must flow through the valve in the direction indicated by the arrow on the valve body. Installation of strainer is strongly recommended as well as the installation of shut-off valves and pressure gauges upstream and downstream of the pressure relief controller. Avoid mechanical stress of the valve body during installation of pipes. The operation of pressure relief controller does not require any control lines.

In case valve and actuator are delivered separately, both parts must be joined. Firstly put the actuator on valve neck and then screw (clockwise) the actuator stem into the valve stem until it stops. Unscrew the joint for one turn (counter clockwise) to prevent any additional tension between actuator and valve. Fasten the actuator onto the valve neck with the R 1 ¼" coupling nut.

Recommended layout

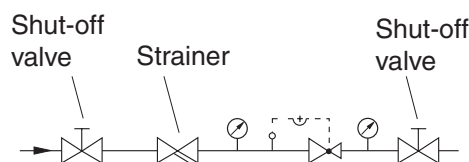


Fig. 3: Recommended layout

Pressure reduction in heavy-oil igniting devices

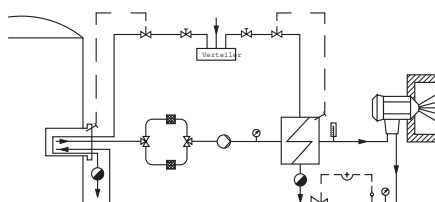


Fig 4: Application example

2.1 Safety notes

2.2 Safety precautions on the site

2.3 Mechanical mounting

2.4 Application examples

Mounting

2.5 Dimensions

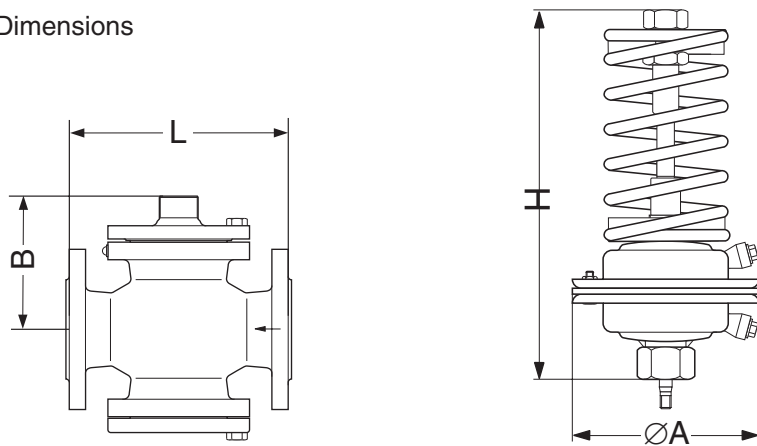
Table 3: Dimensions of valve V22

Nominal size	DN	15	20	25	32	40	50	65
L	(mm)	130	150	160	180	200	230	290
B	(mm)	100	105	115	125	135	140	150

Table 4: Dimensions of actuator D28

Control element D28	Size (cm ²)	32	80
∅ A	(mm)	172	172
H	(mm)	480	485

Fig. 5: Dimensions



After opening shut-off valves the medium flows through the valve and acts with its pressure on the control diaphragm of the actuator through the internal channels. After the system or end user is filled-up and the pressure reaches the pre-set value, the cross-section of flow in the valve changes proportional to the difference of the set point. The required equilibrium between pressure in the diaphragm chamber and setting force holds the valve stem and thus the valve cone in the position which gives the required flow.

Make sure that the operating values for temperature and pressure, stated in technical data are not exceeded. Pipeline system must be equipped with elements which compensate excessive stretch- or torsion forces. Avoid sudden pressure drops, which means that quick shut-off valves can be used as an emergency valves only.

Caution!

Sealing of the upper and lower valve parts is performed when the valve is installed on the actuator. Therefore system must be depressurized before dismantling the actuator from the valve.

Pressurize the system by turning on the circulation pump while shut-off valve in front of the regulator remains closed. Slowly open the shut-off valves and check the pressure relief controller connection for leaking. Adjust the required pressure by turning the set-up nut while watching the pressure gauge at the same time (Fig. 2, pos. 13). Turn the nut counter clockwise to increase the pressure and clockwise to reduce the pressure. The adjustment range can be obtained from the nameplate. After short operating time check all connections and ventilating plugs for leaking.

3.1 Principle of operation

3.2 Special notes

3.3 Start-up

Maintenance

- | | |
|--------------------------------|--|
| 4.1 Maintenance | Pressure relief controller V22 D28 is maintenance free under normal operating conditions. |
| 4.2 Repair instructions | Prior to working on the regulator depressurize and cool down the device. Perform repairs according to section 2.3. Follow the instructions in section 3.3 to perform start-up procedure. |
| 4.3 Troubleshooting | The pressure exceeds or does not reach the set point. Possible reasons:

- valve does not close
- actuator is out of order |
| 4.4 Solution | Replace the valve
In case the valve leaks, the possible cause may be impurities in the valve or valve cone and seat being worn out. Replace or repair the valve.

Replace the actuator
In case actuator is not working the diaphragm chamber may be blocked by the deposits or the diaphragm is defective. Replace the actuator. |
| 4.5 Spare parts | Should you order spare parts please submit the data about control valve type, nominal size, actuator size and set point range. Please send your order to the address stated in 4.7 or to the manufacturer.
Spare part
- Valve V22 DN ... PN 16
- Actuator D28, operating surface ... set point ... |