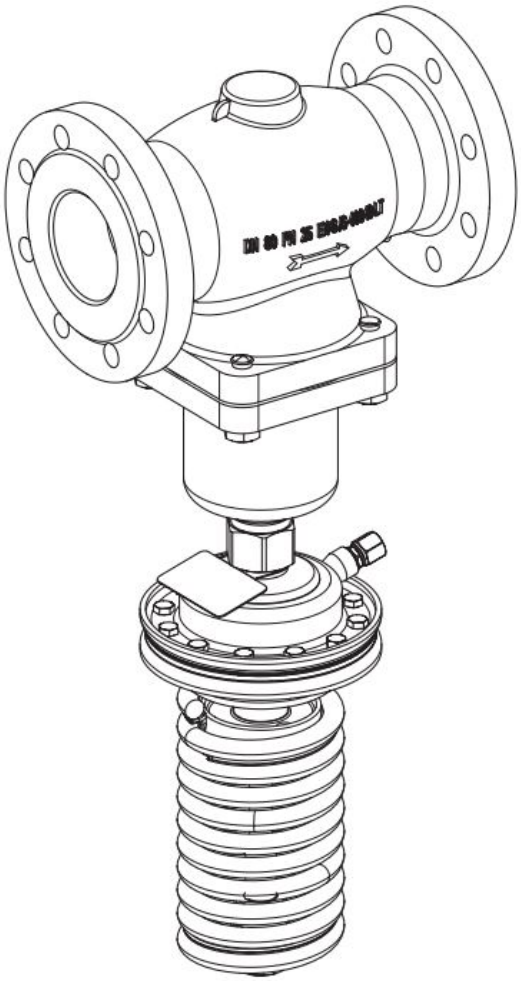
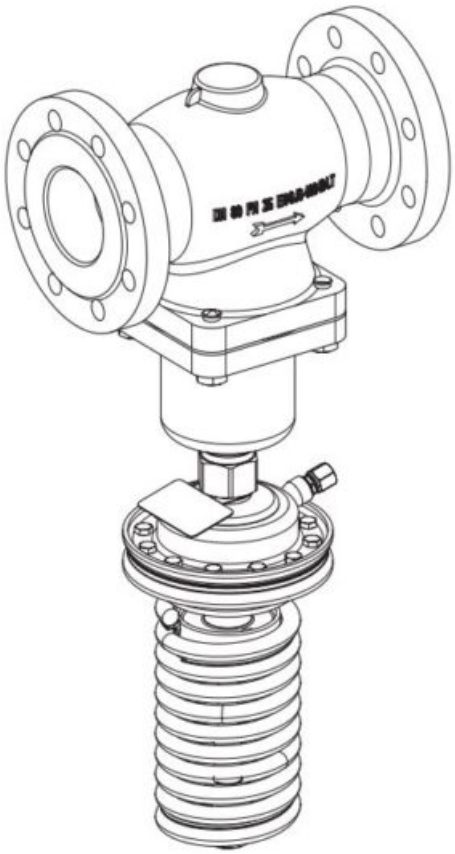


Danfoss AFA / VFG 2(1) Pressure Relief Controller User Guide

ENGINEERING TOMORROW

Contents

Danfoss AFA / VFG 2(1) Pressure Relief Controller User Guide



AFA/VFG 2(1) / 73696430

www.danfoss.com

MAINTENANCE
FREE

❶

DN 15-125
T_{max} = 150 °C

VFG 2(1)

DN 150-250
T_{max} = 140 °C

VFG 2(1)

DN 150-250
T_{max} = 200 °C

VFG 2

DN 150-250
T_{max} = 200 °C

VFG 2

AFA

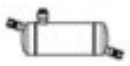
AFA

AFA

AFA

1×

V1, V2 (630 cm²)



1×

V1, V2 (630 cm²)

AF (1x)

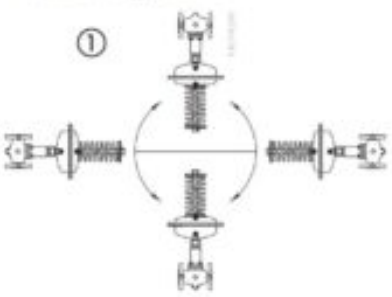
AF (1x)

AF (1x)

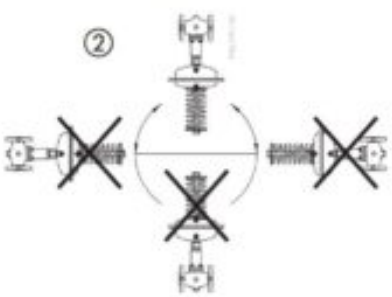
AF (1x)

❷

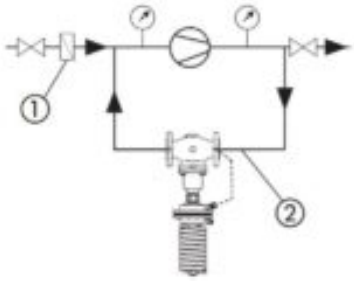
DN 15-80 T_{max} ≤ 120 °C

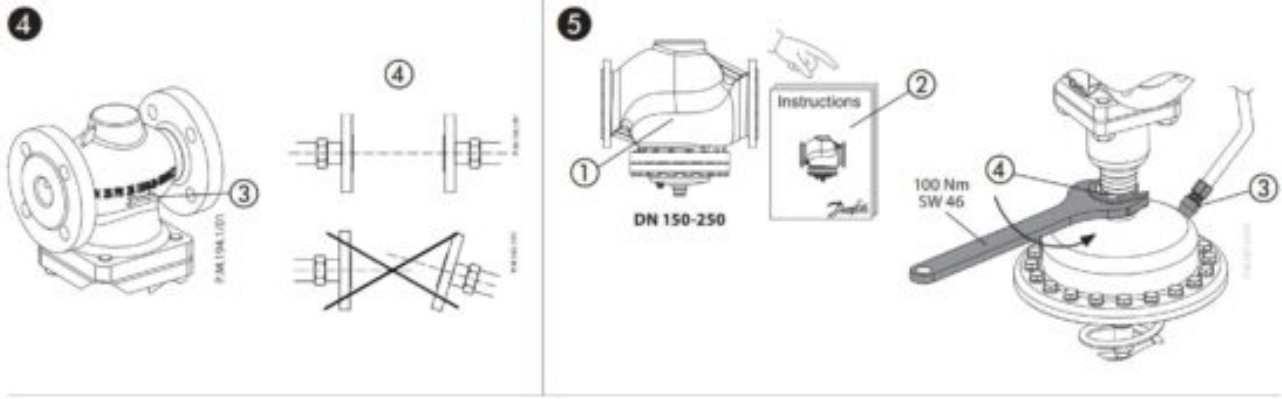


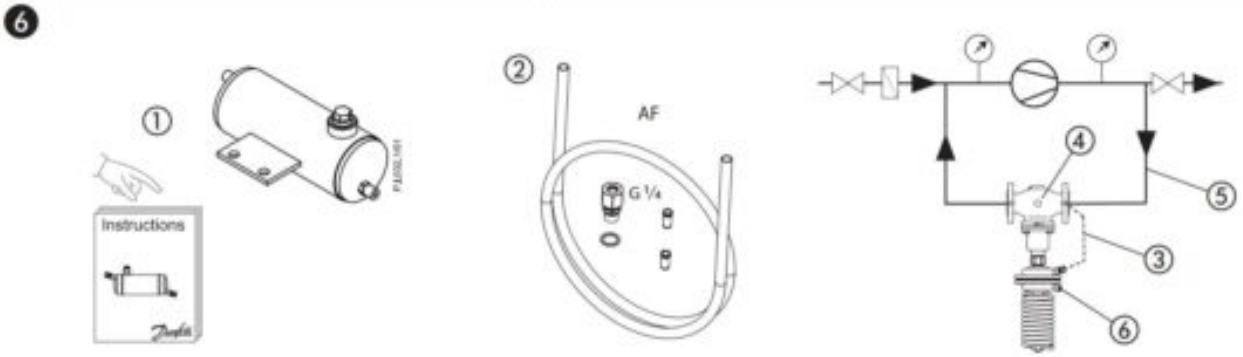
DN 15-80 T_{max} > 120 °C; DN 100-250

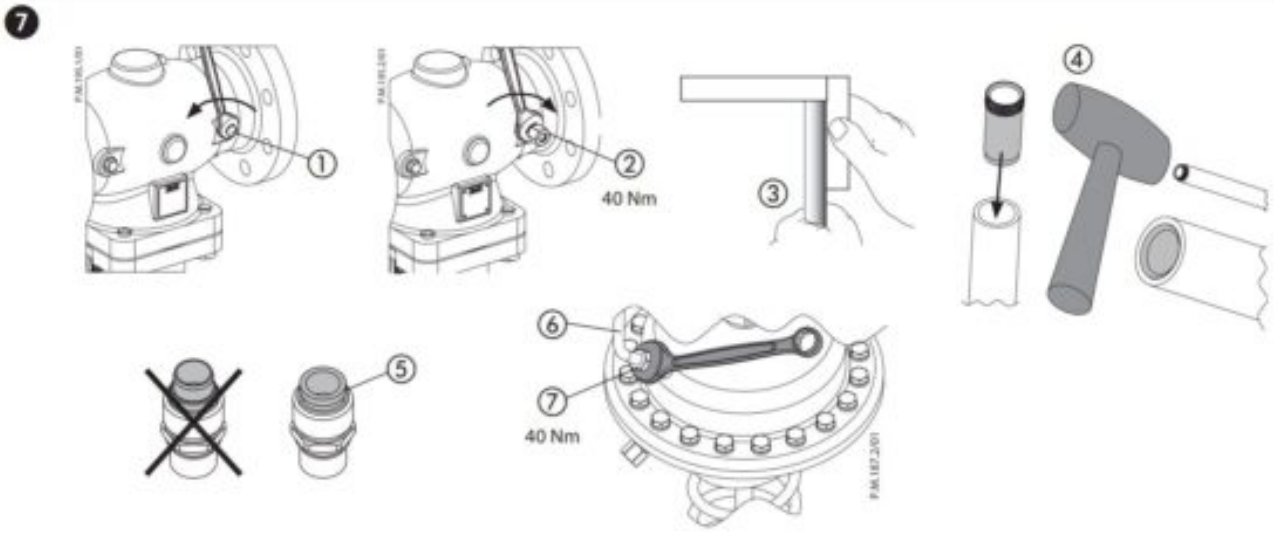


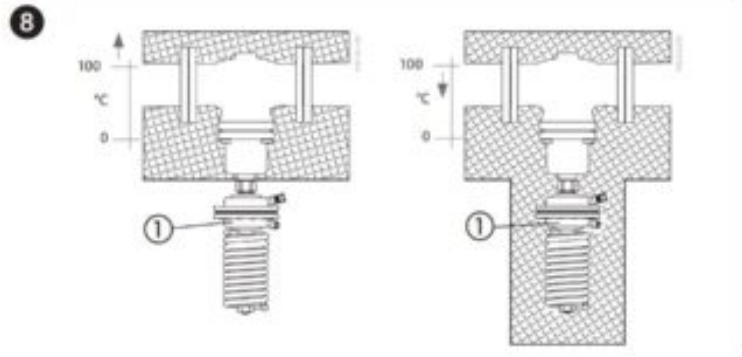
❸

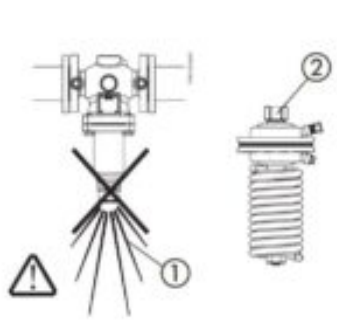



4
3
4
5
Instructions
2
1
DN 150-250
100 Nm
SW 46
4
3

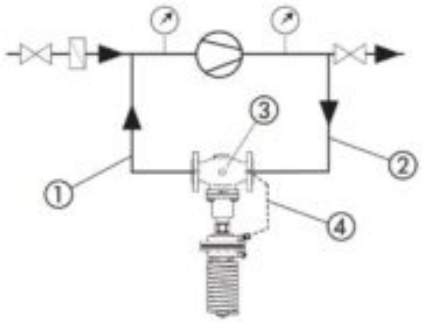

6
1
Instructions
2
AF
G ¼
4
5
3
6

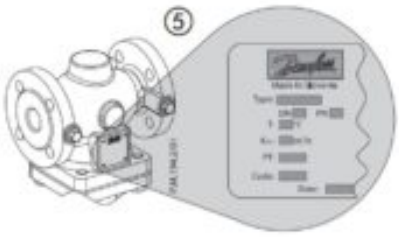

7
1
2
40 Nm
3
4
5
6
7
40 Nm

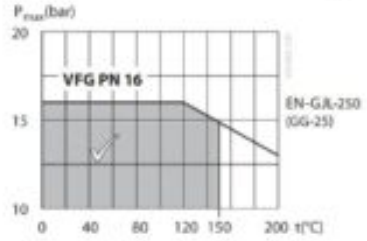

8
100
°C
0
1
100
°C
0
1

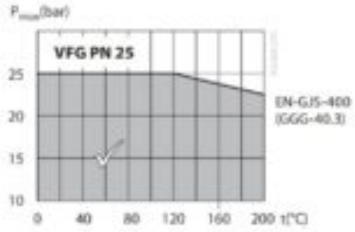

9
2
1

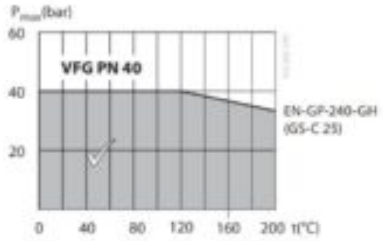
10


1
2
3
4

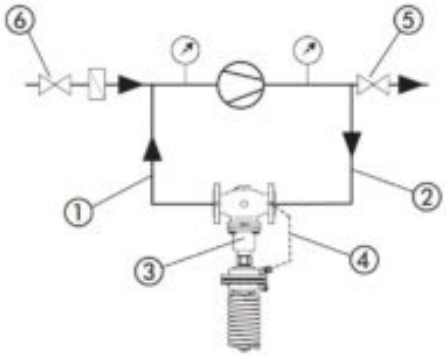

5

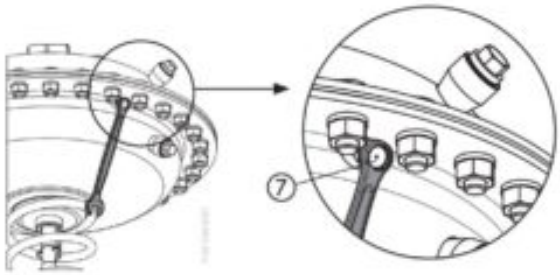

P max (bar)
20
15
10
VFG PN 16
EN-GJL-250
(GG-25)
0
40
80
120
150
200 t(°C)


P max (bar)
25
20
15
10
VFG PN 25
EN-GJS-400
(GGG-40.3)
0
40
80
120
160
200 t(°C)

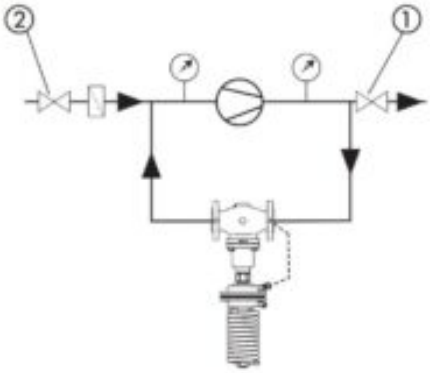

P max (bar)
60
40
20
VFG PN 40
EN-GP-240-GH
(GS-C 25)
0
40
80
120
160
200 t(°C)

11

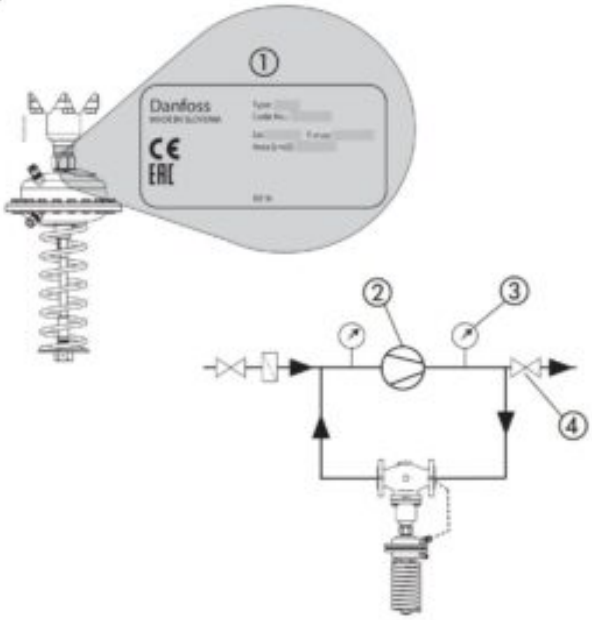

1
2
3
4
5
6


7

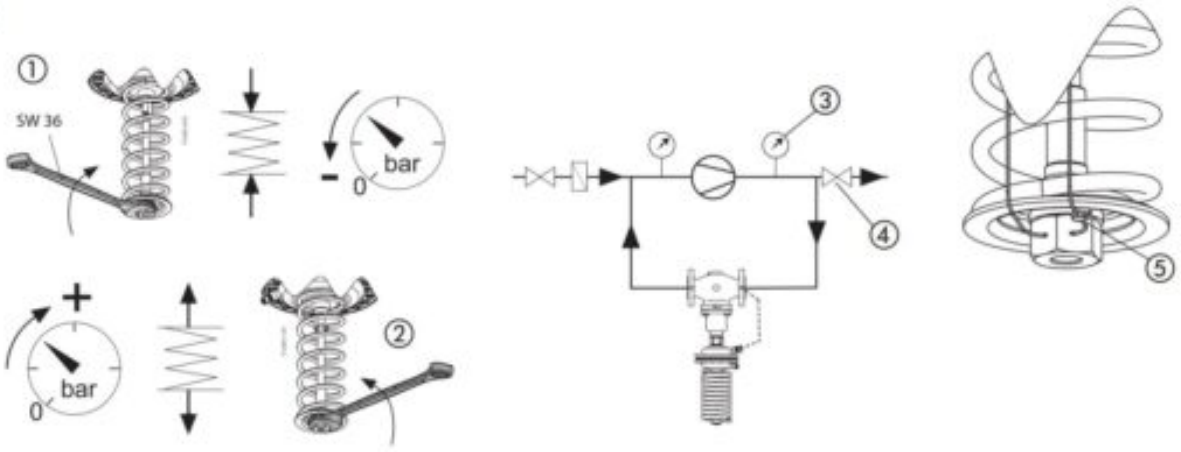
12


1
2

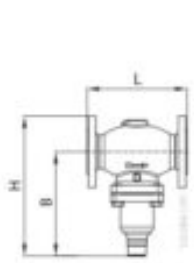
13


1
Danfoss
2
3
4

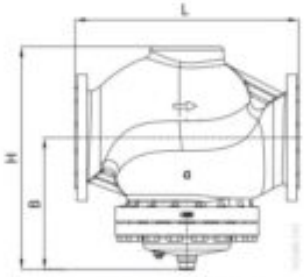
14



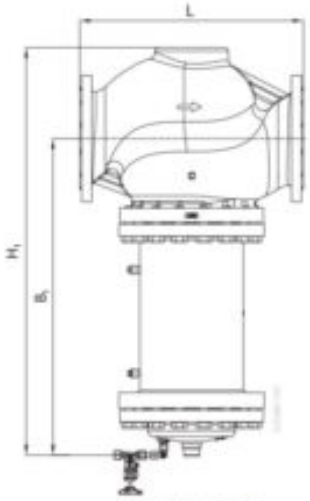
15



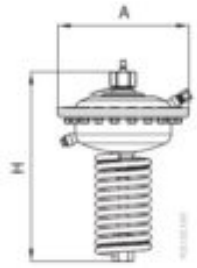
VFG DN 15-125



VFG DN 150-250



VFG DN 150-250
with valve body extension
up to 200 °C



VFG 2, VFG 21 Valves

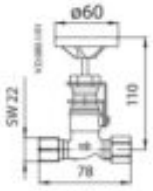
DN		15	20	25	32	40	50	65	80	100	125	150	200	250
L	mm	130	150	160	180	200	230	290	310	350	400	480	600	730
B		213	213	239	239	241	241	276	276	381	381	326	354	401
H		267	267	304	304	323	323	370	370	505	505	505	591	661
B_1	mm	-										620	852	1199
H_1												799	1089	1459

AFA Actuator

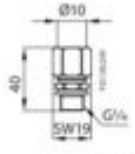
Actuator size	cm^2	32	80	250	630
A	mm	172	172	263	380
H		425	420	430	505

Seal pot V1

Seal pot V2



Shut off valve



Compression fitting

Safety Notes

 Prior to assembly and commissioning to avoid injury of persons and damages of the devices, it is absolutely necessary to carefully read and observe these instructions.

Necessary assembly, start-up, and maintenance work must be performed only by qualified, trained and authorized personnel.

Prior to assembly and maintenance work on the controller, the system must be:

- depressurized,
- cooled down,
- emptied and
- cleaned.

Please comply with the instructions of the
system manufacturer or system operator.

Definition of Application

The controller is used for pressure relief of steam, water and water glycol mixtures for heating, district heating and cooling systems.

The technical data on the label plates determinethe use.

Scope of Delivery ❶

Impulse tube AF, accessory, for connection to
the pipeline.

Mounting ❷

Admissible Installation Positions
DN 15-80 media temperatures up to 120 °C:
Can be installed in any position ①.

DN 100-250 and DN 15-80, media temperatures higher >120 °C.

Installation only permitted in horizontal pipelines with the actuator hanging downwards ②.

Installation Scheme ❸

Note: The valve is closed without pressure and is opening on rising pressure ② before the valve.

Valve Installation ❹

1. Install strainer ❸ ① before the controller.
2. Rinse system prior to installing the valve.
3. Observe flow direction ③ on the valve body.
   Flanges ④ in the pipeline must be in parallel position and sealing surfaces must be clean and without any damage.
4. Install the valve.
5. Tighten screws crosswise in 3 steps up to the max. torque.

Valve Actuator Installation ❺

Valves DN 150 – 250 ① :
The actuator stem must be screwed into the valve stem.
Observe the Installation Instructions ② for the DN 150 – 250 valves.

Valves DN 15-125:

1. Place actuator at the valve.
2. Align actuator, observe position of impulse tube connection ③.
3. Tighten union nut ④
   Torque 100 Nm

Impulse Tube Installation ❻

Note: When installing seal pots ①, please observe the Installation Instructions for the seal pots.

Which impulse tubes to use?
Use the impulse tube set AF (1×) ②:
Order No.: 003G1391 or use the following pipes:

Stainless steel	Ø 10×0.8	DIN 17458
		DIN 2391
Steel	Ø 10×1	DIN 2391
Copper	Ø 10×1	DIN 1754

The impulse tube ③ can be connected directly to the valve ④ or to the pipeline ⑤.

⚠ ⑥ ventilation socket, do not connect impulse tube.

Installation ❼

1. Remove plug ① at the valve.
2. Screwed in threaded joint G ¼ ② with copper seal, Torque 40 Nm.
3. Cut pipe in rectangular sections ③ and burr.
4. For copper pipe: insert sockets ④ on both sides.
5. Verify the correct position of the cutting ring ⑤.
6. Press impulse tube ⑥ into the threaded joint up to its stop.
7. Tighten union nut ⑦ Torque 40 Nm

Insulation ❽

For media temperatures up to 100 °C the pressure actuator ① may be insulated.

Dismounting ❾

Danger
Danger of injury by hot water!
Valve without actuator is open ①, seal ② is in the actuator.
Prior to dismounting, depressurize system!
Carry out dismounting in reverse order to mounting.

Leak and Pressure Tests ❿

Observe max. permitted pressure, see below.
The pressure ① behind the valve must not exceed the pressure ② before the valve.

Caution:
The valve is closed without pressure and is opening on rising pressure before the valve. Non-compliance may

cause damages at the controller ③.

Prior to pressure tests, it is absolutely
necessary to remove the impulse tube at the valve ④.

Close connections with plugs G ¼ ISO 228.
Max. pressure [bar] with connected impulse tube

AFA cm^2	32	80	250	630
bar	**16**	**6**	**1.5**	**0.5**

Observe nominal pressure ⑤ of the valve.
Max. test pressure is 1.5 × PN.

Filling the System, First Start-up

⚠ The pressure ① behind the valve must not exceed the pressure ② before the valve.

Caution:
The valve is closed without pressure and is
opening on rising pressure before the valve.

⚠ Non-compliance may cause damages at the controller ③ .

1. Open shut-off valve ④ at the impulse tube, if any.
2. Slowly open shut-off unit ⑥.
3. Slowly open shut-off unit ⑤.
4. Only for actuator 630 cm^2:

Open ventilation screw ⑦ by about 2 turns.
As soon as water is penetrating, close screw.

Putting out of Operation

1. Slowly close shut-off units ①.
2. Slowly close shut-off units ②.

Setpoint Adjustment

Set-point range see rating plate ①.

1. Start system, see section “First Start-up”.
2. Start pump ②.
3. Observe pressure indicator ③.
4. Slightly close fitting ④ behind the pump (in flow direction) so that the pressure ③ is rising.
5. Adjusting the setpoint ：

   Turning to the right ① reduces the set-point (unstressing the spring, tension spring)

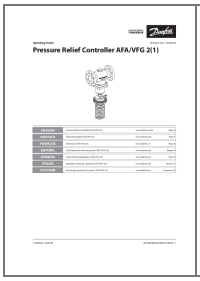
   Turning to the left ② increases the set-point (stressing the spring)
6. If the required pressure ③ cannot be set, further close the fitting ④.
7. The set-point adjuster ⑤ may be sealed.

Dimensions, Weights

Danfoss A/S
Climate Solutions • danfoss.com • +45 7488 2222

Read More About This Manual & Download PDF:

Documents / Resources

	Danfoss AFA / VFG 2(1) Pressure Relief Controller [pdf] User Guide AFA VFG 2 1 Pressure Relief Controller, AFA VFG 2 1, Pressure Relief Controller, Controller

References

- Danfoss - Engineering Tomorrow | Danfoss
- Danfoss Deutschland | Klima | Kälte | Heizung | Antriebe | Hydraulik | Danfoss
- Danfoss España: Soluciones innovadoras y ahorro de energía | Danfoss
- Danfoss France - économie d'énergie et solutions innovantes | Danfoss
- Danfoss – Engineering Tomorrow | Danfoss
- Группа Danfoss A/S остановила деятельность на территории Российской Федерации и Республики Беларусь. | Danfoss
- Danfoss – morgondagens teknik, idag | Danfoss