Danfoss AFA 2 Pressure Relief Controllers User Guide

Contents

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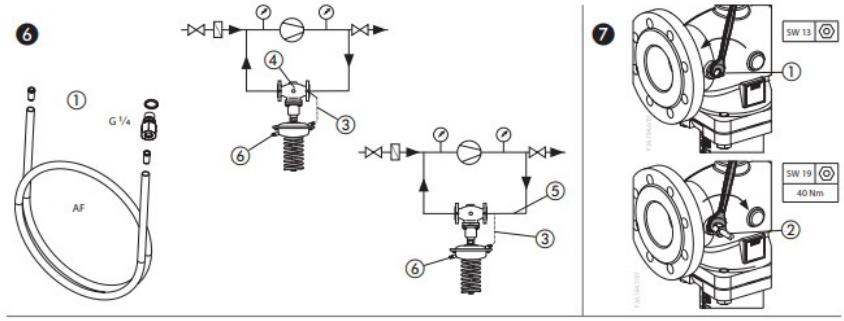
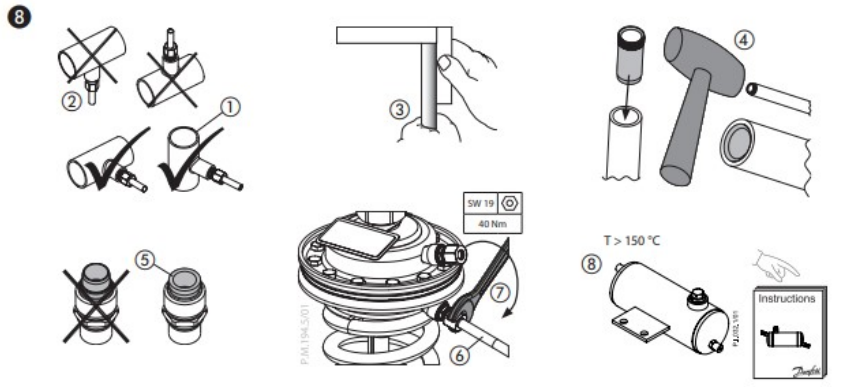
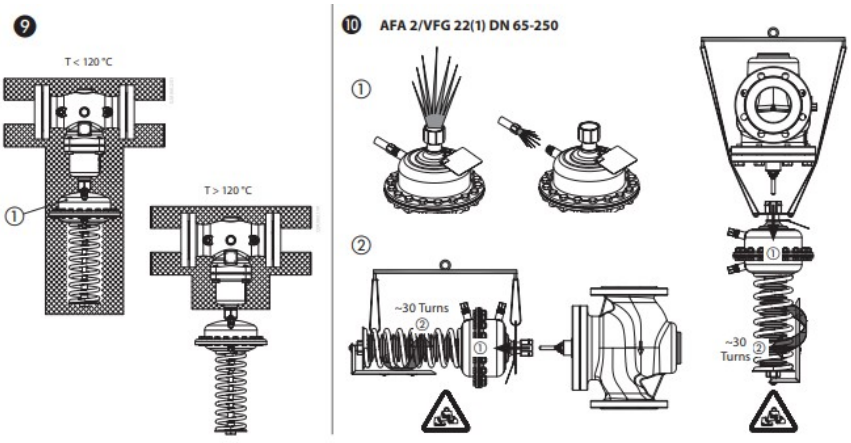
AFA 2 / VFG 2(1) DN 15-250, VFG 22(1) DN 65-250







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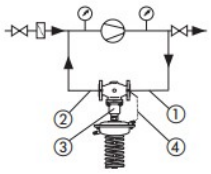
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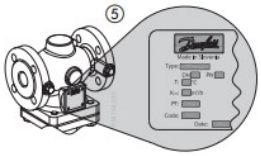
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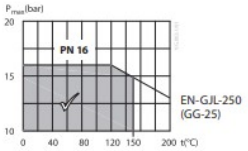
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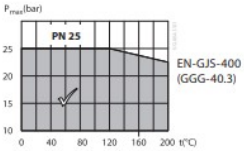
20
15
10
PN 16
0 40 80 120 150 200 t(°C)
EN-GJL-250
(GG-25)


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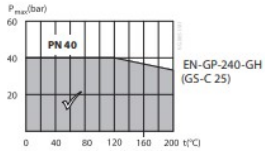
15
10
PN 25
0 40 80 120 160 200 t(°C)
EN-GJS-400
(GGG-40.3)


P max (bar)
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20
PN 40
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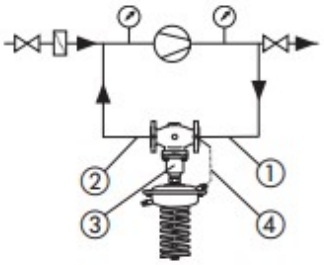
EN-GP-240-GH
(GS-C 25)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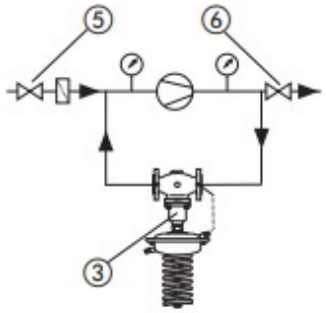
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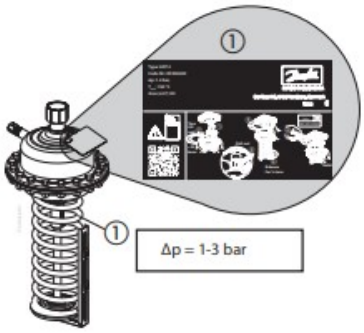
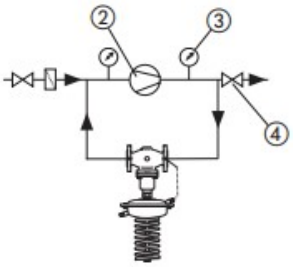

1
1
Δp = 1-3 bar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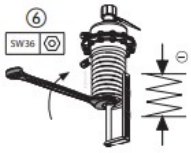
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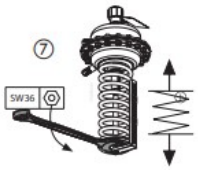
SW36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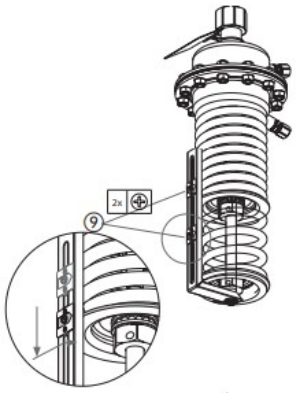
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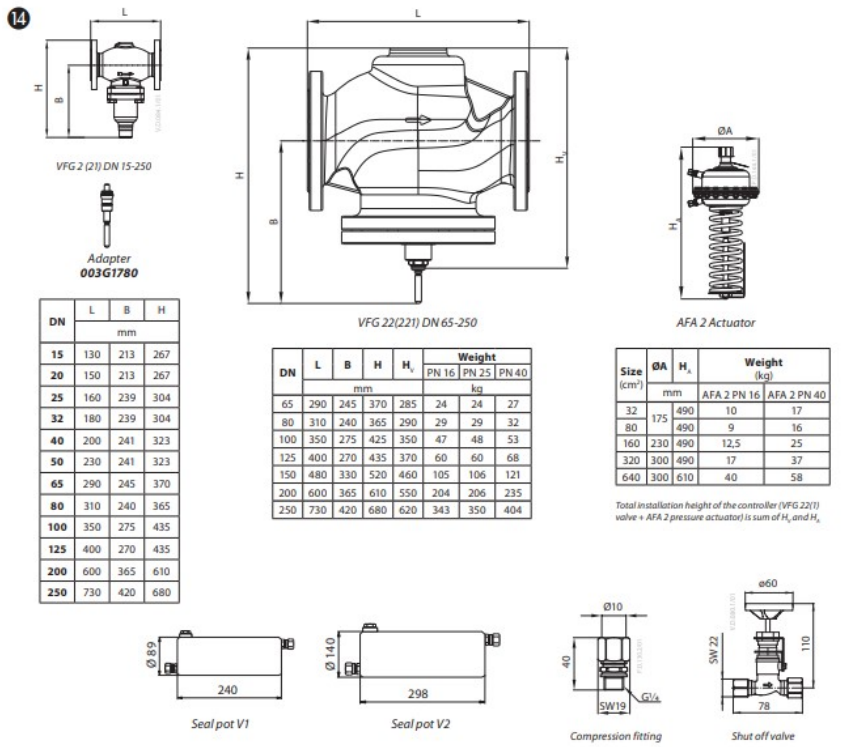

DN	L	B	H
	mm		
15	130	213	267
20	150	213	267
25	160	239	304
32	180	239	304
40	200	241	323
50	230	241	323
65	290	245	370
80	310	240	365
100	350	275	435
125	400	270	435
200	600	365	610
250	730	420	680

DN	L	B	H	H_V	Weight		
					PN 16	PN 25	PN 40
	mm				kg		
65	290	245	370	285	24	24	27
80	310	240	365	290	29	29	32
100	350	275	425	350	47	48	53
125	400	270	435	370	60	60	68
150	480	330	520	460	105	106	121
200	600	365	610	550	204	206	235
250	730	420	680	620	343	350	404

Size (cm^2)	ØA	H_A	Weight (kg)	
	mm		AFA 2 PN 16	AFA 2 PN 40
32	175	490	10	17
80		490	9	16
160	230	490	12,5	25
320	300	490	17	37
640	300	610	40	58

Total installation height of the controller (VFG 22(1) valve + AFA 2 pressure actuator) is sum of H_A and H_V

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 water and water glycol mixtures for heating, district heating and cooling systems.

The technical data on the label plates determine the use.

Scope of Delivery ❶

*) adapter 003G1780, accessory sold separately,
**) Impulse tube AF, accessory sold separately

Assembly

Admissible Installation Positions ❷

① media temperatures up to 150 °C: Can be installed in any position.

② media temperatures > 150 °C. Installation permitted only in horizontal pipelines with the actuator oriented downwards.

Installation Location and Installation Scheme ❺

Valve Installation ❹

1. Install strainer ① before the
2. Rinse system prior to installing the
3. Observe flow direction ② on valve
4. Install
5. Tighten screws crosswise in 3 steps up to the torque.

Actuator Installation ❺

1. Remove the spindle protection cup and release the valve spindle by removing the nut, washer and cardboard
2. Align the actuator stem with the valve stem, connect both stems and turn gently the whole pressure actuator clockwise with both hands, until the stems are fully connected (valve stem fully screwed into the actuator stem).

3. Release spring (unstress) and release the uninon nut by pulling out the blocking
4. Tight the union nut by hand or with wrench key using minimal force
5. Release the pressure actuator by turning it counter clockwise for approximately half a
6. Observe the position of impulse tubes connection to the valve and align the actuator
7. Hold the actuator in the position and tight the union nut to the valve with 100- 120 Nm

Impulse Tube mounting ❻

- Which impulse tubes to use?

The impulse tube set AF (2×) ❻① can be used: Order No.: **003G1391**

or use the following pipes:

Steel / Stainless steel	Ø 10×1	ISO 1127 D3/T3
Copper	Ø 10×1	Cu-DHP R200 EN12449

•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.

Connection to the valve ❼

1. Remove plug ① at the
2. Screw in threaded joint G 1/4 ② with copper seal, Torque 40

– or –

Connection to the Pipeline ❸①

No connection downwards/upwards ②, could bring dirt/air into an impulse tube.

1. Cut pipe in rectangular sections ③ and
2. For copper pipe:

insert sockets ④ on both sides.

3. Verify the correct position of the cutting ring ⑤.
4. Press impulse tube ⑥ into the threaded joint up to its
5. Tighten union nut ⑦ Torque 40

Insulation ❾

For media temperatures up to 120 °C the pressure actuator may be insulated ①.

Dismounting ❿

Prior to dismounting depressurize system or use shut off valves on the impulse tubes!①

Carry out dismounting in following steps: ②

1. Fasten pressure actuator with the safety bands to the fixed points in surroundings
2. Before releasing the actuator, fully release the union nut

3. Hold the pressure actuator with both hands, and release it by turning it counter clockwise ~30 During turning, control the actuator weight all the time to prevent unexpected fall of detached actuator.
4. Carefully remove the actuator from the

Before installing actuator back to the valve, setting spring must be fully released again.

Leak and Pressure Test

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

Observe nominal pressure ⑤ of the valve.

Caution:

The valve is closed without pressure and it opens on rising pressure before the valve.
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 2 cm2	32	80	160	320	640
bar	16	5	2.5	1.3	0.35

Max. test pressure with disconnected impulse tube must not exceed the plant testing pressure and must always be lower than 1.5 × PN.

Non-compliance may cause damages at the controller ③.

Filling the System, Start-up

Non-compliance may cause damages at the controller ③.

1. Open shut-off devices that are possibly available at the impulse tubes ④.
2. Slowly open valves in the
3. Slowly open shut-off device ⑤.
4. Slowly open shut-off device ⑥.

Putting out of Operation

1. Slowly close shut-off device ⑤.
2. Slowly close shut-off device ⑥.

Setpoint Adjustment

1. Set-point range see rating plate ①
2. Start-up of system, see section .
3. Start pump ②
4. Observe pressure indicator ③
5. Slightly close fitting ④ behind the pump (in flow direction) so that the pressure ③ is
6. Adjustment of the pressure in front of the valve
    - Turning to the right ⑥ reduces the set-point (unstressing the spring – tension spring)
    - Turning to the left ⑦ increases the set-point (stressing the spring)
7. If the required pressure ③ cannot be set, further close the fitting ④.
8. The set-point adjuster ⑧ may be
9. Release the not yet used pointer ⑨, move it to the set position and fix it with the screw to mark setting position

Dimensions

Flanges: connection dimensions acc. to DIN 2501, seal form C

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References

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