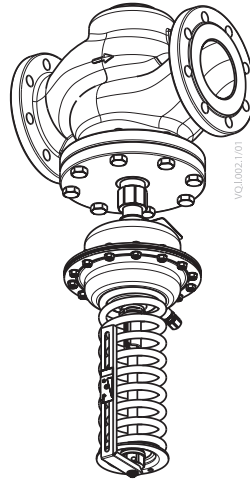


Operating Guide

AFPA 2 / VFG 2 (21) DN 15-250 VFG 22 (221) DN 65-250



ENGLISH

AFPA 2 / VFG 2 (21) DN 15-250, VFG 22 (221) DN 65-250

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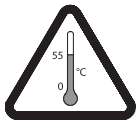


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AFPA 2 / VFG 2 (21) DN 15-250, VFG 22 (221) DN 65-250



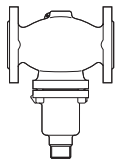
MAINTENANCE
FREE



	3 mm	SW13, 19, 36, 46

1

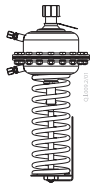
DN 15-50
 $T_{max} = 150\text{ }^{\circ}\text{C}$



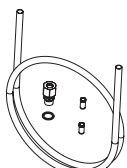
Bellows
VFG2, VFG21



adapter **003G1780***

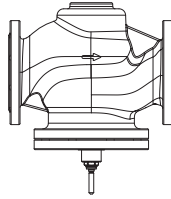


AFPA 2

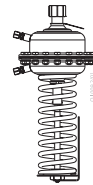


AF (2x)**

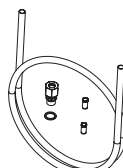
DN 65-250
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Piston
VFG22, VFG221

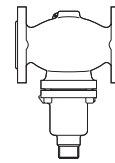


AFPA 2

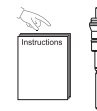


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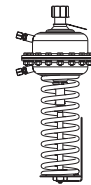
DN 15-250
 $T_{max} = 200\text{ }^{\circ}\text{C}$



Bellows
VFG2

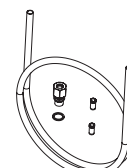


adapter **003G1780***



AFPA 2

1x
V1, V2 (630 cm²)

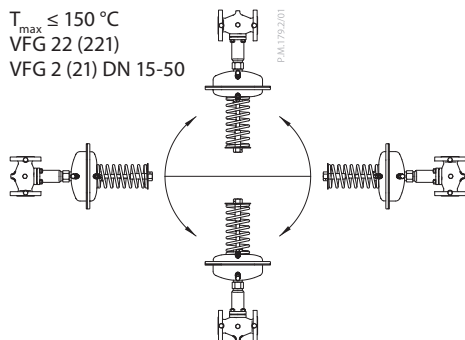


AF (2x)**

2

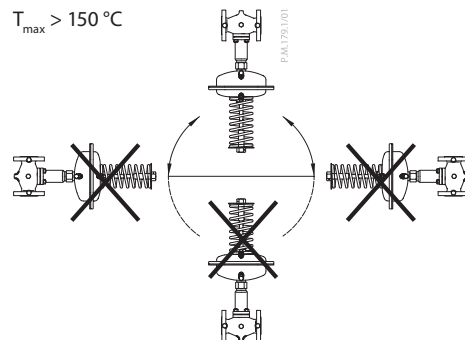
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$T_{max} \leq 150\text{ }^{\circ}\text{C}$
VFG 22 (221)
VFG 2 (21) DN 15-50

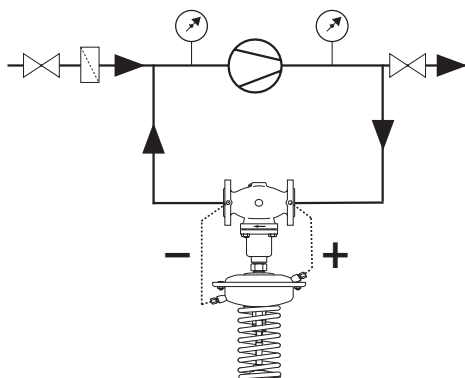


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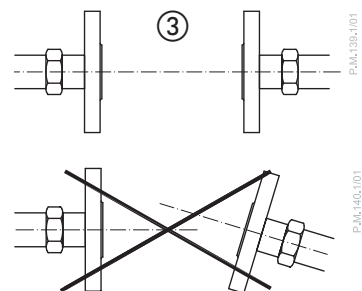
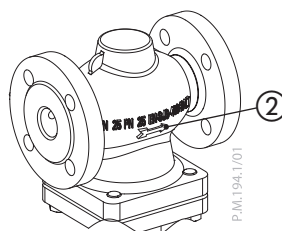
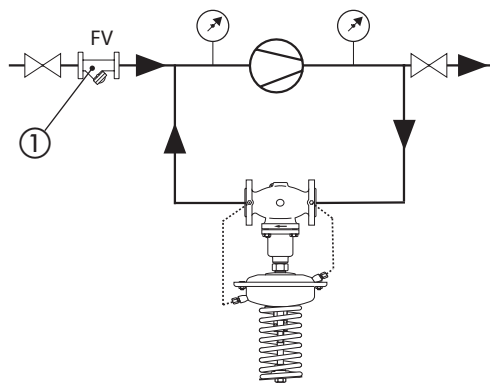
$T_{max} > 150\text{ }^{\circ}\text{C}$



3



4

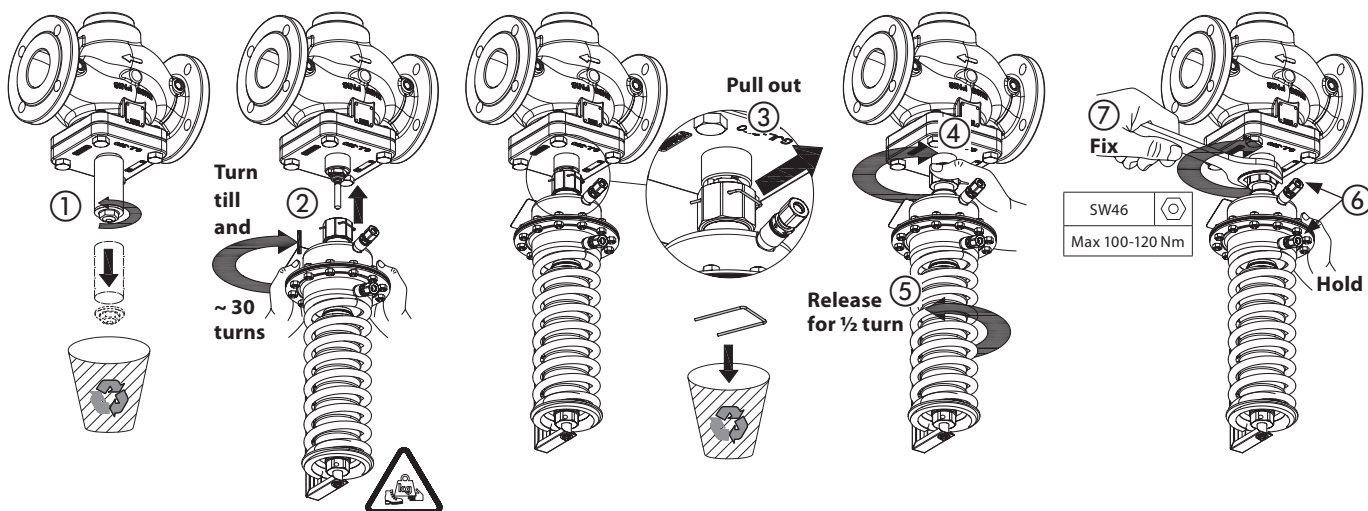


P.M.138.1/01

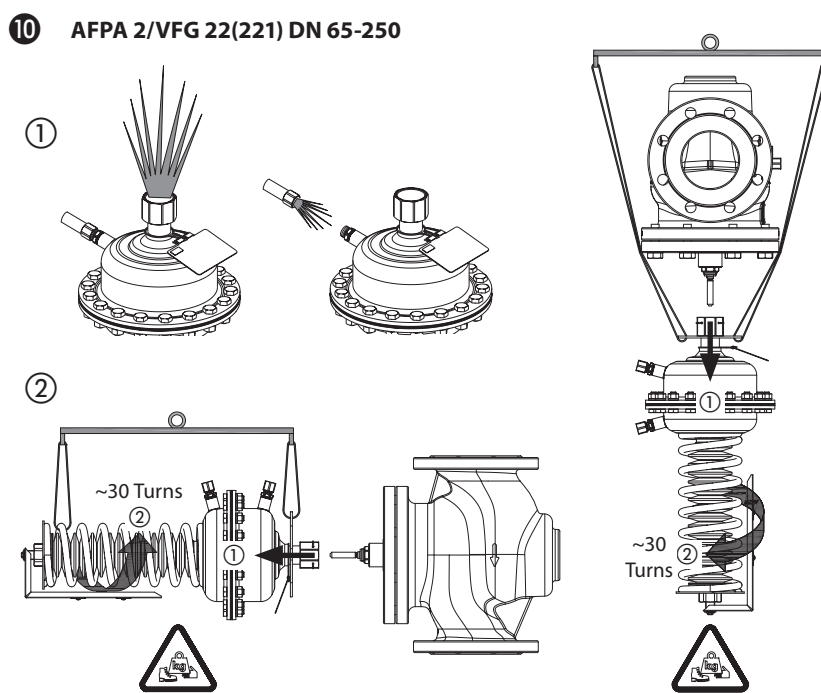
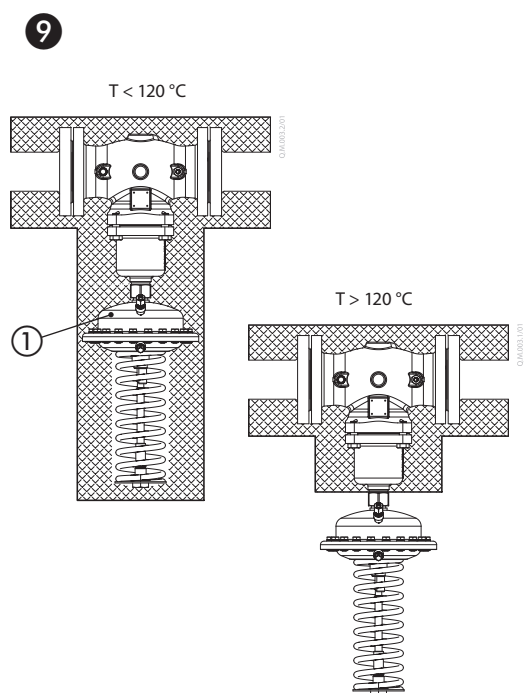
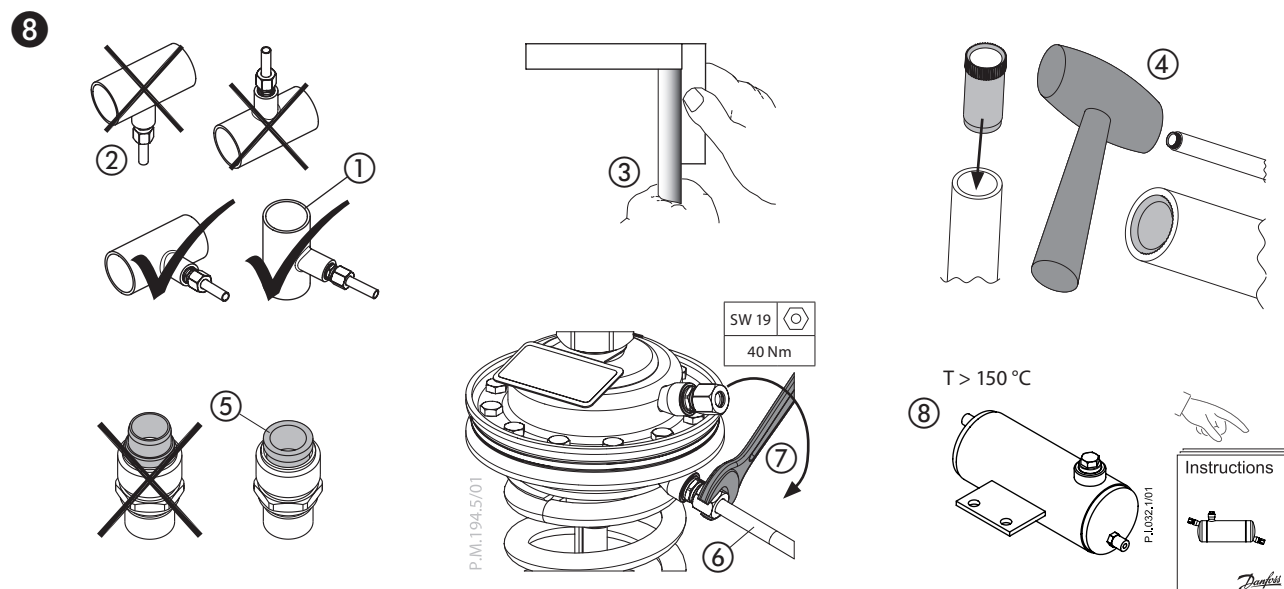
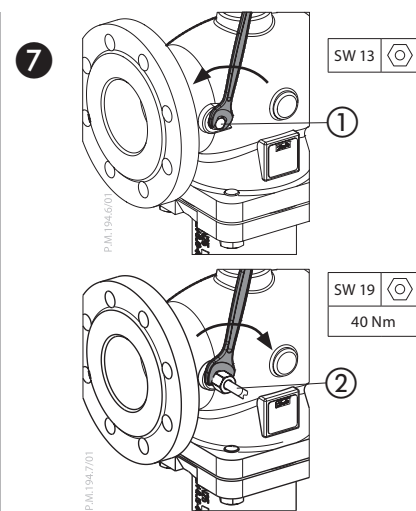
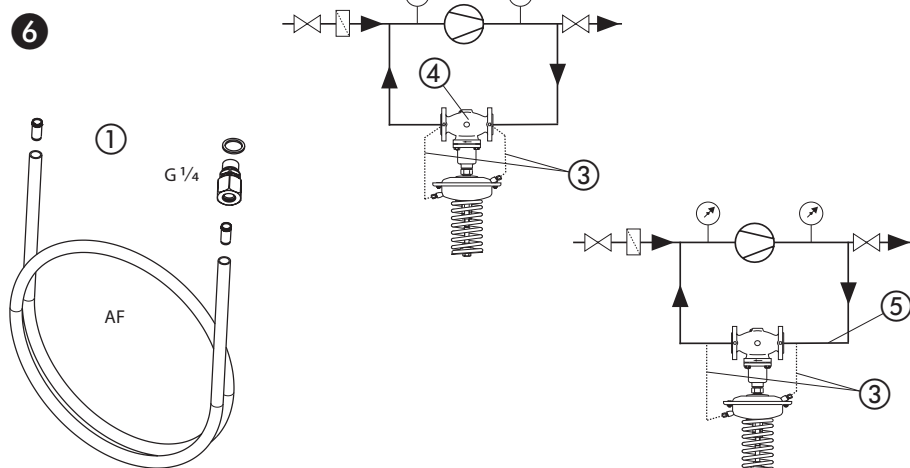
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5

AFPA 2/VFG 22(221) DN 65-250

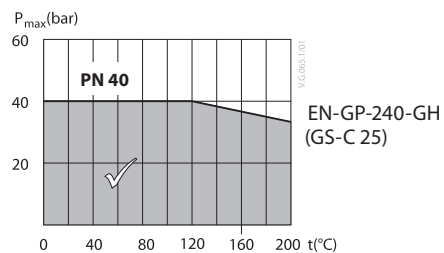
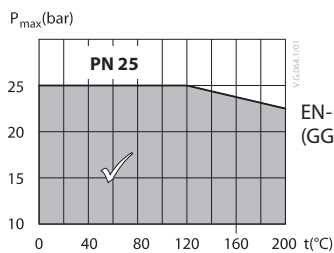
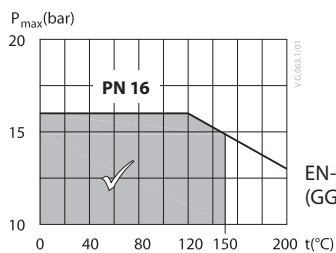
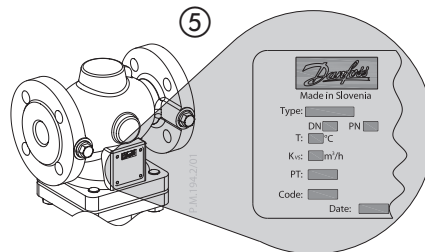
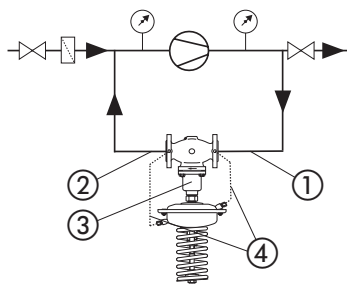


AFPA 2 / VFG 2 (21) DN 15-250, VFG 22 (221) DN 65-250

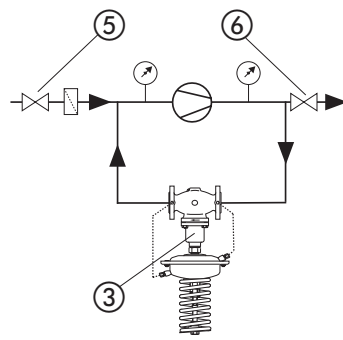
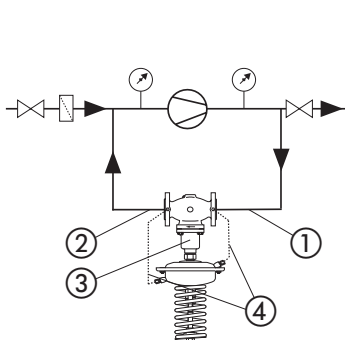


AFPA 2 / VFG 2 (21) DN 15-250, VFG 22 (221) DN 65-250

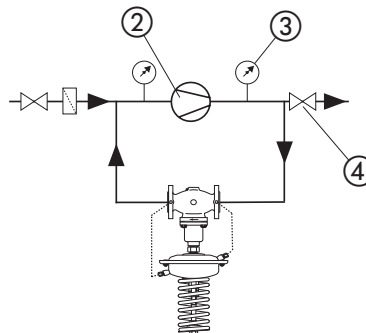
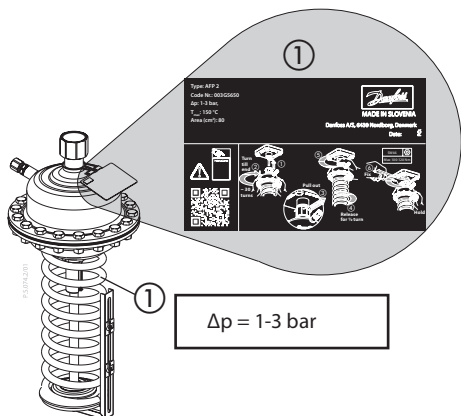
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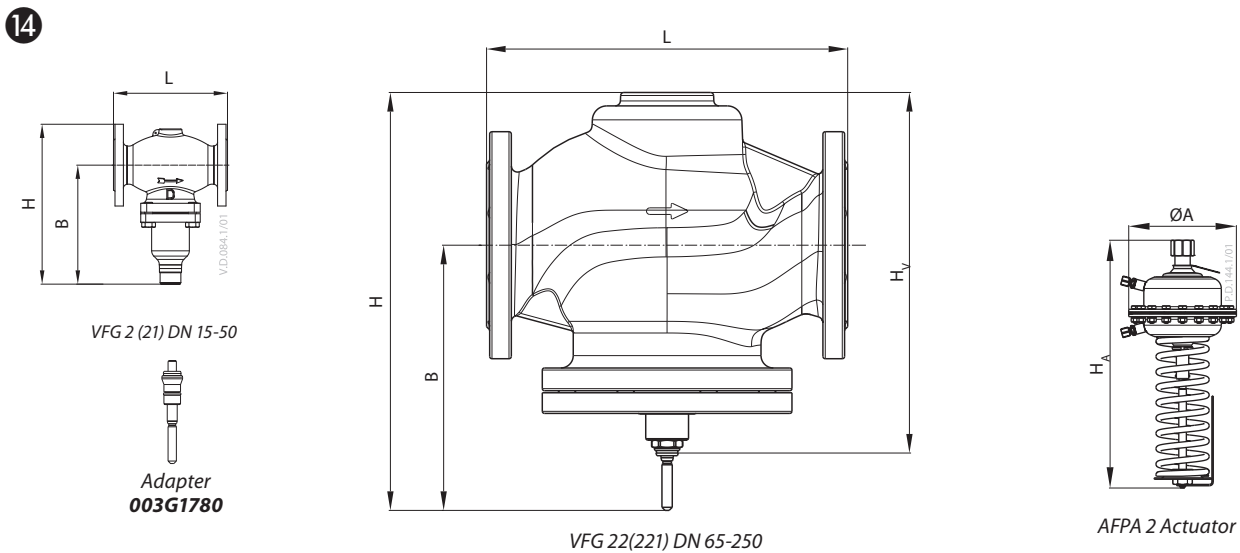
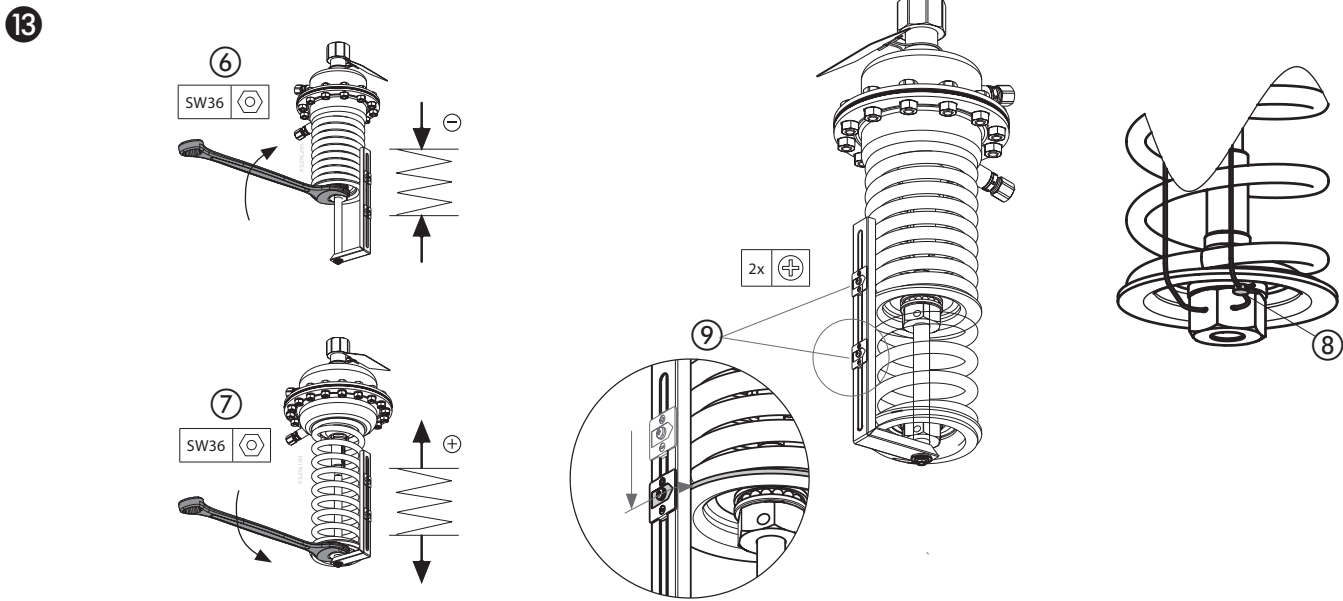
12



13



AFPA 2 / VFG 2 (21) DN 15-250, VFG 22 (221) DN 65-250

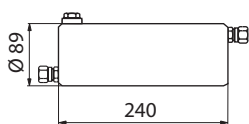


DN	15	20	25	32	40	50
L	130	150	160	180	200	230
B	213	213	239	239	241	241
H	267	267	304	304	323	323

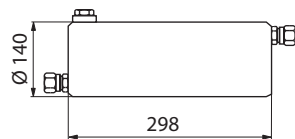
DN	L	B	H	H _v	Weight		
					PN 16	PN 25	PN 40
mm							
kg							
65	290	220	345	285	24	25	26
80	310	220	345	285	29	30	32
100	350	260	405	345	47	48	50
125	400	260	425	365	60	62	60
150	480	325	515	455	105	108	130
200	600	360	605	545	204	210	260
250	730	420	675	615	343	353	375

Size (cm ²)	ØA	H _A	Weight (kg)
	mm		
32	175	512	9
80	175	512	9
160	228	512	10
320	295	512	15
630	300	635	36

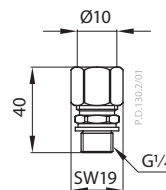
Total installation height of the controller (VFG 22(1) valve + AFPA 2 pressure actuator) is sum of H_v and H_A



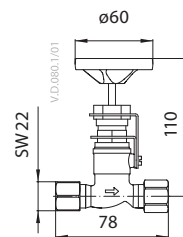
Seal pot V1



Seal pot V2



Compression fitting



Shut off valve

ENGLISH
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.

Disposal instructions


This product should be dismantled and its components sorted, if possible, in various groups before recycling or disposal. Always follow the local disposal regulations.

Definition of Application

The controller is used for differential pressure control in bypass lines 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 ①

*) adapter 003G1780, accessory sold separately,

**) Impulse tube AF, accessory sold separately

Assembly
Admissible Installation Positions ②

- 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 ③
Bypass installation


The valve is closed without pressure and is opening on rising differential pressure ①.

Valve Installation ④

1. Install strainer ① before the controller.
2. Rinse system prior to installing the valve.
3. Observe flow direction ② on valve body.



Flanges ③ in the pipeline must be in parallel position and sealing surfaces must be clean and without any damage.

4. Install valve.
5. Tighten screws crosswise in 3 steps up to the max. torque.

Actuator Installation ⑤


The actuator stem must be screwed into the valve stem. Spring on the pressure actuator is factory adjusted (stressed). For proper installation spring has to be released (unstressed) first.

1. Remove the spindle protection cup and release the valve spindle by removing the nut, washer and cardboard tube.
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 the union nut by pulling out the blocking spring.
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 turn.
6. Observe the position of impulse tubes connection to the valve and align the actuator accordingly.
7. Hold the actuator in the position and tight the union nut to the valve with 100- 120 Nm torque.

Impulse Tube mounting ⑥

- Which impulse tubes to use?
The impulse tube set AF (2x) ⑥① can be used: Order No.: **003G1391** or use the following pipes:

Steel / Stainless steel	Ø 10x1	ISO 1127 D3/T3
Copper	Ø 10x1	Cu-DHP R200 EN12449

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

Connection to the valve ⑦

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

- or -

Connection to the Pipeline ⑧①

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

1. Cut pipe in rectangular sections ③ and deburr.
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 stop.
5. Tighten union nut ⑦ Torque 40 Nm.



When installing seal pots ⑧⑧, please observe the Installation Instructions for the seal pots.

Insulation ⑨

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

Dismounting ⑩


Danger
Danger of injury by hot water

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 turns. During turning, control the actuator weight all the time to prevent unexpected fall of detached actuator.
4. Carefully remove the actuator from the valve.

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

Leak and Pressure Test ⑪


Observe max. permitted pressure, see below.

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 1/4 ISO 228.

Max. pressure [bar] with connected impulse tube:

AFPA 2 cm ²	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 ⑫


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

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 system.
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 ⑬

1. Set-point range see rating plate ①
2. Start-up of system, see section ⑫.
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 rising.
6. Adjustment of the differential pressure over 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 sealed.
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 ⑭

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



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