

Data sheet

Differential pressure relief controller AFPA / VFG 2 (VFG 21)

Description



AFPA VFG2 (VFG 21) is a self-acting differential pressure relief controller primarily for use in district heating systems. The controller opens on rising differential pressure.

The controller has a control valve (flange connection), an actuator with control diaphragm and a spring for differential pressure setting.

Main data:

- DN 15 - 250
- PN 16, 25, 40
- Max. temperature 200 °C
- By-pass mounting

Ordering

Example:
Differential pressure controller
AFPA / VFG 2, DN 65, PN 25,
 t_{max} 150 °C, differential pressure
0.5 - 2.5 bar

- 1x VFG 2 DN 65 valve
Code no: **065B2407**
- 1x AFPA actuator
Code no: **003G1020**

Option:
- 2x AF impulse tubes
Code no: **003G1391**

Parts will be delivered separately.

Valves VFG 2 (metallic sealing cone)

Picture	DN (mm)	k_{vs} (m ³ /h)	t_{max} (°C)		Code No.		
					PN 16	PN 25	PN 40
	15	4.0	150	200*	065B2388	065B2401	065B2411
	20	6.3			065B2389	065B2402	065B2412
	25	8.0			065B2390	065B2403	065B2413
	32	16			065B2391	065B2404	065B2414
	40	20			065B2392	065B2405	065B2415
	50	32			065B2393	065B2406	065B2416
	65	50			065B2394	065B2407	065B2417
	80	80			065B2395	065B2408	065B2418
	100	125			065B2396	065B2409	065B2419
	125	160			065B2397	065B2410	065B2420
	150	280	140	-	065B2398	-	065B2421
	200	320			065B2399	-	065B2422
	250	400			065B2400	-	065B2423
	150	280	-	200*	on request		
	200	320			on request		
	250	400			on request		

* temperatures up to 200 °C only with seal pot (see accessories), mounted in the impulse tube before and behind the controller

Ordering (continuous)
Valves VFG 21 (soft sealing cone)

Picture	DN (mm)	k_{vs} (m ³ /h)	$t_{max.}$ (°C)	Code No.	
				PN 16	PN 25
	15	4.0	150	065B2502	065B2515
	20	6.3		065B2503	065B2516
	25	8.0		065B2504	065B2517
	32	16		065B2505	065B2518
	40	20		065B2506	065B2519
	50	32		065B2507	065B2520
	65	50		065B2508	065B2521
	80	80		065B2509	065B2522
	100	125		065B2510	065B2523
	125	160		065B2511	065B2524
	150	280	140	065B2512	-
	200	320		065B2513	-
	250	400		065B2514	-

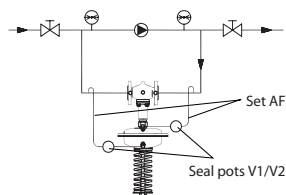
Example:
Differential pressure controller
AFPA / VFG 2, DN 65, PN 25,
 $t_{max.}$ 200 °C, differential pressure
0.15 - 1.2 bar

- 1x VFG 2 DN 65 valve
Code no: **065B2407**
- 1x AFPA actuator
Code no: **003G1021**
- 2x V1 seal pot
Code no: **003G1392**
- 2x AF impulse tubes
Code no: **003G1391**

AFPA Actuators

Picture	Diff. pressure (bar)	for DN	Code No.
	1 - 5	15 - 125	003G1019
	0.5 - 2.5		003G1020
	0.15 - 1.2	15 - 250	003G1021
	0.1 - 0.6		003G1022
	0.05 - 0.3 (630 cm ²)		003G1023

Parts will be delivered separately.


Accessories for temperature up to 200°C

Picture	Type	Description	Ordering no.	Code No.
	Seal pot V1 (capacity 1 l)	With threaded fittings for tube Ø 10	2 x	003G1392
	Seal pot V2 (capacity 3 l)	With threaded fittings for tube Ø 10 (for actuator size 630 cm ²)	2 x	003G1403
	Impulse tube AF	- Copper tube Ø 10 x 1 x 1500 mm - 1 x threaded fitting G ¼ ISO 228 - 2 x socket	2 x	003G1391

Technical data

Nominal diameter (DN)	15	20	25	32	40	50	65	80	100	125	150	200	250
k_{vs} value (m ³ /h)	4	6.3	8	16	20	32	50	80	125	160	280	320	400
z value	0.6	0.6	0.6	0.55	0.55	0.5	0.5	0.45	0.4	0.35	0.3	0.2	0.2
Dif. pressure $\Delta p_{max.}$ PN 16 (bar)	16	16	16	16	16	16	16	16	15	15	12	10	10
Dif. pressure $\Delta p_{max.}$ PN 25, 40	20	20	20	20	20	20	20	20	15	15	12	10	10
Nominal pressure	PN 16, 25 or 40, flanges to DIN 2501												
Max. temperature	VFG 2	Metallic sealing cone										140 °C (200 °C *)	
	VFG 21	Soft sealing cone 150 °C										140 °C *	
Flow medium	Water for heating, district heating and cooling systems, min. 5 °C												
Pressure balance	Stainless steel bellows, mat. No.1.4571										Rolling diaphragm		
Valve body material	PN 16	Grey cast iron EN-GJL-250 (GG-25)											
	PN 25	Ductile iron EN-GJS-400 (GGG-40.3)											
	PN 25 / PN 40	Cast steel GP240GH (GS-C 25)											
Cone material	Stainless steel, mat. No. 1.4404												
Seal material	EPDM only version VFG 21												

* with seal pots (2) and body extension
z value: noise coefficient as per VDMA 24 422

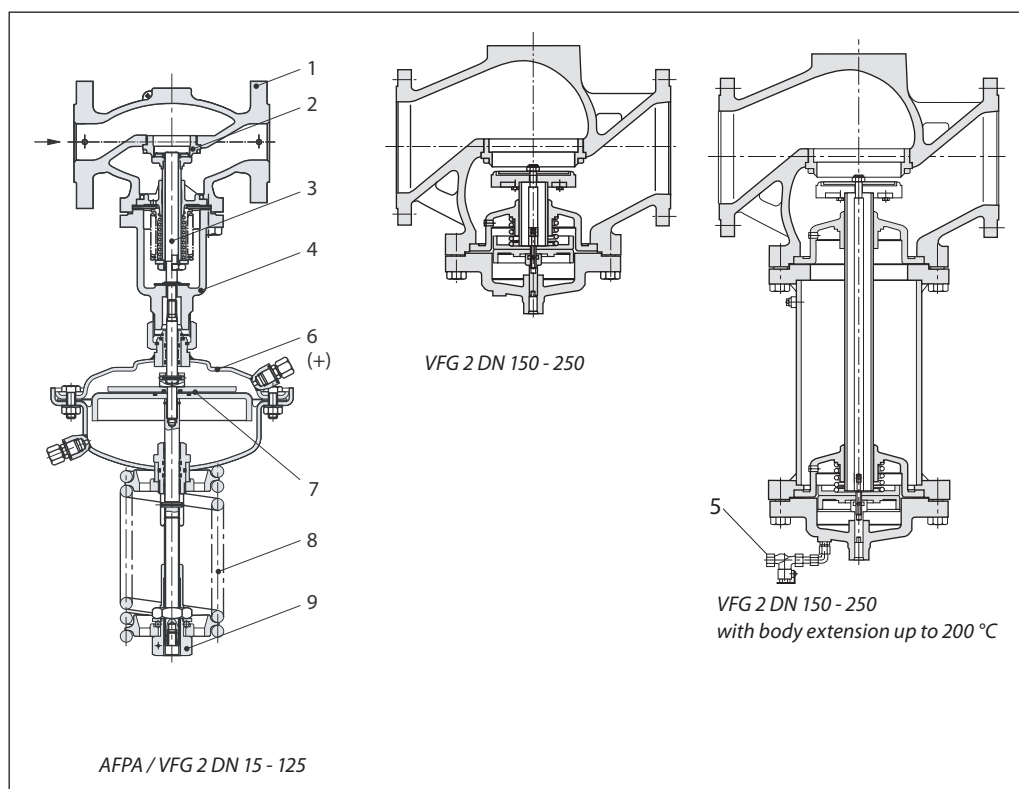
Technical data (continuous)

Pressure actuators AFPA

Actuator size	(cm ²)	80	250	630
Setpoint ranges with silver spring colour	(bar)	1 - 5	0.15 - 1.2	-
Setpoint ranges with yellow spring colour	(bar)	0.5 - 2.5	0.1 - 0.6	0.05 - 0.3
Max. operating pressure	(bar)	25	25	16
Actuator casing		Steel, mat. No.1.0338, zinc plated and yellow chromate		
Rolling diaphragm		EPDM with inforced with fibre		
Connection for impulse tubes		For copper tube Ø10 × 1 mm		
Seal pot		Steel, lacquered, capacity 1l (V1), 3l (V2), mounted in impulse tubes above 150 °C, (140 °C - DN 200 + 250)		

Design and function

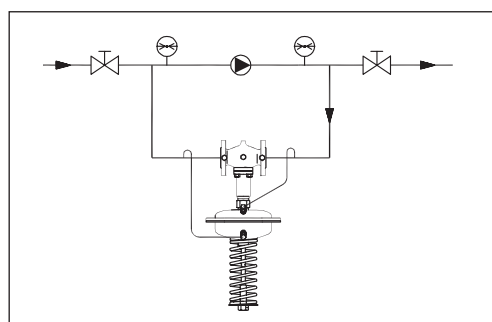
1. Valve body
2. Valve seat
3. Trim
4. Bonnet
5. Filling valve
6. Actuator casing
7. Rolling diaphragm
8. Setpoint spring
9. Setpoint adjustment



Total differential pressure of the controller is transferred to the diaphragm chamber via the impulse tubes. When the differential pressure increases over the set differential relief pressure,

the valve opens until a balance between differential pressure on the diaphragm, and the spring force is reached. The differential pressure can be adjusted via the setpoint adjustment.

Application principle

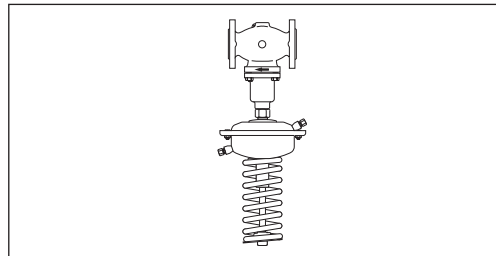
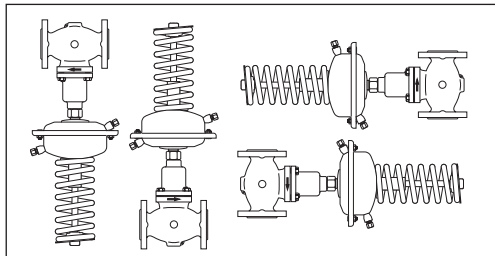


Controlling of differential pressure for a pump in by-pass.

Installation position

Controls DN 15 - 80 with flow medium temperature up to 120 °C can be installed in any position.

In case of controls DN 100 - 250 and if temperature exceeds 120 °C (all nominal diameter), they have to be installed in horizontal pipes only, with a pressure actuator oriented downwards.



Setting

Differential control is set by adjusting the setting spring.

Dimensions

VFG DN 15 - 125 VFG DN 150 - 250 VFG DN 150 - 250 with body extension up to 200 °C

VFG 2 valve

DN	15	20	25	32	40	50	65	80	100	125	150	200	250			
L	130	150	160	180	200	230	290	310	350	400	480	600	730			
B	212	212	238	238	240	240	275	275	380	380	326	354	404			
Weight (valve)	PN16	6.2	6.8	8.9	11.5	14.5	17.2	28.6	31.9	60.4	67.0	117.5	193	337		
	PN25	6.2	7.0	9.4	11.5	14.2	17.3	29.3	31.8	59.5	65.5	-	-	-		
	PN40	6.6	7.6	10.3	12.4	16.1	18.2	32.1	34.5	69.6	79.5	146	263	346.6		
B1	mm											-	630	855	1205	
Weight (valve with body ext.)	PN16	kg											-	152.5	273	515.5
	PN40	kg											-	150.5	328.5	475.5

VFG 21 valve

DN	15	20	25	32	40	50	65	80	100	125	150	200	250	
Weight (valve)	PN16	5.8	6.7	9.4	11.3	14.5	17.4	30.0	32.2	61.6	64.5	116.5	201.5	315.5
	PN25	6.5	7.6	9.3	11.7	13.7	17.6	29.3	32.6	62.6	72.5	-	-	-

Seal pot V1

Seal pot V2

Actuator AFPA

Actuator size (cm ²)	80	250	630
Ø A (mm)	172	263	380
H (mm)	430	470	520
Weight (kg)	7.5	13	28

Comb. piece KF2, KF3

