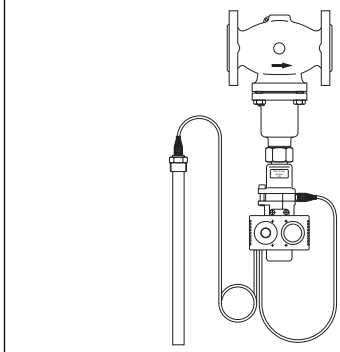
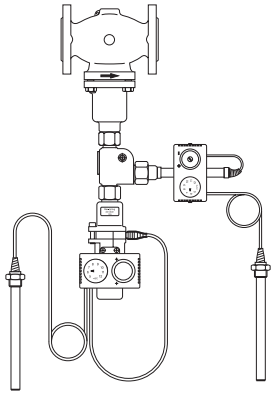
Data sheet

STFW / VFG(S) 2, STFW / AFT / VFG(S) 2 Temperature controller with safety temperature monitor

Description / Application



STFW / VFG(S) 2



STFW / AFT / VFG(S) 2

The controllers STFW / VFG(S) 2 and STFW / AFT / VFG 2 are used for temperature control and temperature monitoring of drinking water and heating systems.

- Type-tested acc. to DIN 3440
- District heating systems acc. to DIN 4747
- Heating systems acc. to DIN 4751 and DIN 4752
- Water heating systems for drinking and industrial waters acc. to DIN 4753

Nominal diameter	*DN 15 - 125*
Nominal pressure	*PN 16, 25, 40*
Flow medium	*Circulation water*
Medium temperature:	*5 - 350 °C*
Type of connection	*Flange*

Ordering

Example 1:
Safety temperature monitor **STFW / VFG 2**, DN 25, PN 25, limit range 10 - 75 °C:

- 1x STFW thermostat
  Code no: **065-4408**
- 1x VFG 2 DN 25 valve
  Code no: **065B2403**

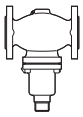
Example 2:
Temperature controller with safety temperature monitor **STFW / AFT / VFG 2**, DN 25, PN 25, limit range 10 - 75 °C, setpoint range 20 - 90 °C:

- 1x STFW thermostat
  Code no: **065-4408**
- 1x AFT 06 thermostat
  Code no: **065-4135**
- 1x VFG 2 DN 25 valve
  Code no: **065B2403**
- 1x KF2 comb. piece
  Code no: **003G1398**

Parts will be delivered separatly.

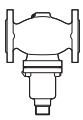
Note:
* only with extension piece ZF4 (see accessories) and only PN 25, 40; PN 16 $t_{max.}$ = 300 °C

VFG 2 (Cone: metal / metal sealing)



DN mm	k_{vs} m³/h	$t_{max.}$ °C	Code No. PN 16	PN 25	PN 40
15	4.0	200	**065B2388**	**065B2401**	**065B2411**
20	6.3	200	**065B2389**	**065B2402**	**065B2412**
25	8.0	200	**065B2390**	**065B2403**	**065B2413**
32	16	200	**065B2391**	**065B2404**	**065B2414**
40	20	200	**065B2392**	**065B2405**	**065B2415**
50	32	200	**065B2393**	**065B2406**	**065B2416**
65	50	200	**065B2394**	**065B2407**	**065B2417**
80	80	200	**065B2395**	**065B2408**	**065B2418**
100	125	200	**065B2396**	**065B2409**	**065B2419**
125	160	200	**065B2397**	**065B2410**	**065B2420**

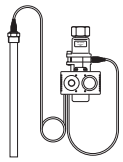
VFGS 2 (for steam)



DN mm	k_{vs} m³/h	$t_{max.}$ °C	Code No. PN 16	PN 25	PN 40
15	4.0	350*	**065B2430**	**065B2443**	**065B2453**
20	6.3	350*	**065B2431**	**065B2444**	**065B2454**
25	8.0	350*	**065B2432**	**065B2445**	**065B2455**
32	16	350*	**065B2433**	**065B2446**	**065B2456**
40	20	350*	**065B2434**	**065B2447**	**065B2457**
50	32	350*	**065B2435**	**065B2448**	**065B2458**
65	50	350*	**065B2436**	**065B2449**	**065B2459**
80	80	350*	**065B2437**	**065B2450**	**065B2460**
100	125	350*	**065B2438**	**065B2451**	**065B2461**
125	160	350*	**065B2439**	**065B2452**	**065B2462**

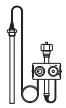
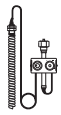
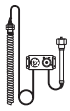
Ordering *(continuous)*

Safety thermostat STFW

	Limit range °C	Temperature sensor with bronze immersion pocket, length, connect.	Code No.
	10 ÷ 75	386 mm, R 1 [1)]	**065-4408**
	30 ÷ 95		**065-4409**
	40 ÷ 110		**065-4410**

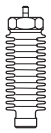
[1)] conic male thread DIN 2999

Thermostat AFT

	Type	Setpoint °C	Sensor / time constant *	Mounting	Code No.
	AFT 06	-20 ÷ 50	Sensor with immersion pocket bronze/ 120 s with immersion pocket	Setpoint adjuster at the actuator	**065-4390**
		20 ÷ 90			**065-4391**
		40 ÷ 110			**065-4392**
		60 ÷ 130			**065-4393**
		110 ÷ 180			**065-4394**
	AFT 26	-20 ÷ 50		Setpoint adjuster separate	**065-4396**
		20 ÷ 90			**065-4397**
		40 ÷ 110			**065-4398**
		60 ÷ 130			**065-4399**
	AFT 17	-20 ÷ 50	Spiral sensor/ 20 s without immersion pocket	Setpoint adjuster at the actuator	**065-4400**
		20 ÷ 90			**065-4401**
		40 ÷ 110			**065-4402**
		60 ÷ 130			**065-4403**
	AFT 27	-20 ÷ 50		Setpoint adjuster separate	**065-4404**
		20 ÷ 90			**065-4405**
		40 ÷ 110			**065-4406**
		60 ÷ 130			**065-4407**

[*)] acc. to DIN 3440

Accessories

	Type	Note	Code No.
	Immersion pocket	For thermostat AFT 06, AFT 26 (Stainless steel mat. No. 1.4571)	**003G1400**
	Comb. piece KF2	For temperatures up to 200 °C	**003G1398**
	Valve stem extension ZF4	For temperatures 200 to 350 °C	**003G1394**
	Valve stem extension ZF6	For temperatures up to 200 °C with position indicator	**003G1393**
	Flowdivider for VFGS 2 (noise reduction)	Flowdivider DN 15, 20 Flowdivider DN 25, 32 Flowdivider DN 40, 50 Flowdivider DN 65, 80 Flowdivider DN 100, 125	**065B2775** **065B2776** **065B2777** **065B2778** **065B2779**

Remark:
Above pressure 14 bar and in combination with thermostats use ZF6 extension piece.

Technical data

Valves VFG 2, VFGS 2

Nominal diameter	(DN)	15	20	25	32	40	50	65	80	100	125
k_{vs} value	(m^3/h)	4	6.3	8	16	20	32	50	80	125	160
z value acc. to VDMA 24 422		0.6	0.6	0.6	0.55	0.55	0.5	0.5	0.45	0.4	0.35
Δp max.* (bar)	PN 16	16	16	16	16	16	16	16	16	15	15
	PN 25, 40	20	20	20	20	20	20	20	20	15	15
Nominal pressure		PN 16, 25 or 40, flanges to DIN 2501									
Flow medium	VFG 2	Water for heating, district heating and cooling systems									
	VFGS 2	Steam									
Pressure balance		Stainless steel bellows, mat. No.1.4571									
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	VFG 2	Stainless steel, mat. No. 1.4404									
	VFGS 2	Stainless steel, mat. No. 1.4021									
Seat material		Stainless steel, mat. No. 1.4021									

* above 14 bar use of extension piece ZF4, ZF6 or combination piece KF2 is necessary.

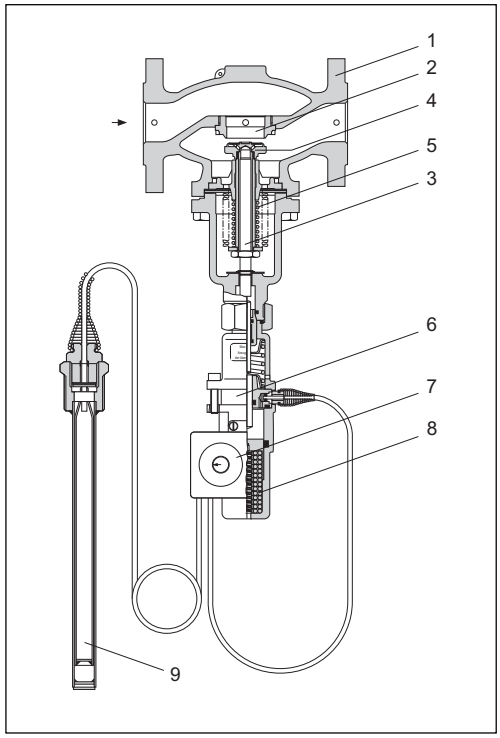
Thermostat STFW

Limit range X_s	(°C)	10 ÷ 75, 30 ÷ 95, 45 ÷ 95
Time constant T acc. to DIN 3440	(s)	max. 120
Gain K_R	(mm/ °C	0.6
Max. adm. temp. at sensor	(°C)	100 °C above maximum setpoint
Nominal pressure sensor	(PN)	40
Connection pipe length	(m)	5
Temperature sensor material		Copper / brass
Immersion pocket material		Bronze, nickel-plated
		Stainless steel mat. No. 1.4571
Approx. weight	(kg)	3.5

Thermostats AFT

Type		AFT 06	AFT 26	AFT 17	AFT 27
Setpoint range X_s	(°C)	-20 ÷ 50, 20 ÷ 90, 40 ÷ 110, 60 ÷ 130, 60 ÷ 130			
Time constant T [1)]	(s)	120 (with immersion pocket)		20	
Gain K_s	(mm/ °C)	0.8			
Max. adm. temp. at sensor		100 °C above the adjusted setpoint			
Perm. ambient temperature at the thermostat	(°C)	0 - 70			
Nominal pressure: sensor, immersion pocket	(PN)	40			
Connection pipe length	(m)	5			
Temperature sensor		Smooth sensor Ø24 x 380		Spiral sensor Ø30 x 500	
Sensor medium		Silicon oil			
Sensor material		Brass, bronze		Cu spiral, nickel-plated	
Immersion pocket material		Bronze, nickel-plated		No immersion pocket	
		Stainless steel Mat. No. 1.4571			
Weight	(kg)	3.0	3.5	3.5	3.8

Construction



1 Valve VFG(S) 2
2 Valve plug
3 Valve seat
4 Trim
5 Bellow
6 Thermostat
7 Setpoint adjuster
8 Safety spring
9 Temperature sensor

Mode of Operation

The controllers are proportional controllers and the valves are pressure-balanced.

Safety Temperature Monitor (STW)

Function STW

When reaching the set limit temperature at the temperature sensor (9), the safety temperature monitor interrupts energy supply by closing the valve (1). As soon as the temperature at the temperature sensor drops, the valve is opening automatically. The limit temperature is adjusted at the setpoint adjuster (7) with temperature scale. The setpoint adjuster can be sealed.

Extended Safety STW

If there is a leakage in the area of the temperature sensor, the connection pipe, or the thermostat, the valve is closed by a pressure spring in the safety thermostat.

Physical Function Principle STW

The safety thermostat operates in accordance with the liquid expansion principle. The temperature sensor, the connection pipe, and the working element are filled with liquid. As the temperature at the temperature sensor rises, the liquid expands, the working stem of the thermostat is pressed out and the valve VFG(S) 2 is closed.

Temperature Controller (TR)

Function TR

The temperature of a medium is controlled by the temperature controller (TR) in accordance with the adjusted setpoint. The setpoint is adjusted by turning the setpoint adjuster. The setpoint adjuster may be sealed.

Physical Function Principle

The thermostat operates in accordance with the liquid expansion principle. Temperature sensor, impulse tubes and thermostats are filled with liquid. As soon as the temperature at the temperature sensor risers the liquid expands. The stem of the thermostat is extended and the valve VFG(S) 2 is closed.

Mounting

A strainer must be installed in front of the controller:

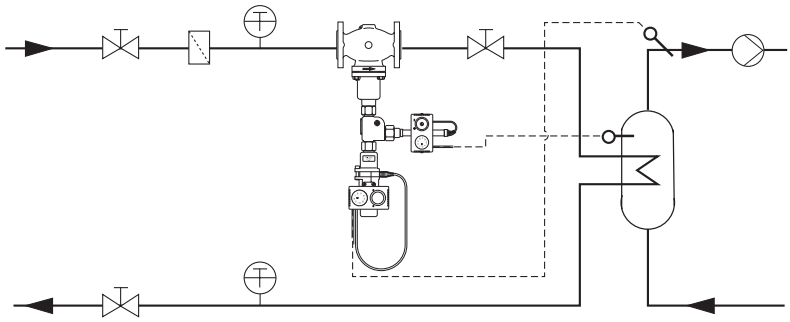
Nom. diameter	DN 15 - 25	DN 32 - 65	DN 80 - 125
Mesh size strainer	0.5 mm	0.8 mm	1.25

The controller may be installed in any position.

The sensor must be immersed into the medium by its full length. Select the location of installation in such a way that the highest temperature of the medium is measured directly and without any delay.

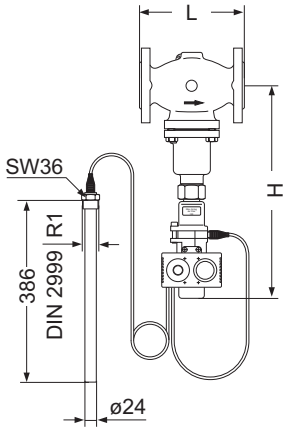
The setpoint adjusters of the thermostats STFW, AFT may be sealed. For temperatures higher than 120 °C, the safety temperature monitor must be secured with a seal.

Application example

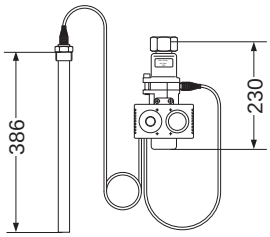


System with temperature controller and safety temperature monitor

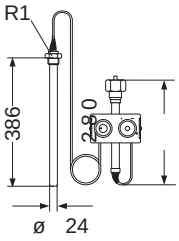
Dimensions



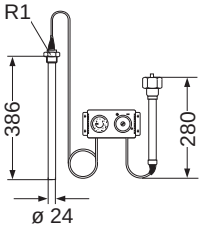
STFW / VFG(S) 2



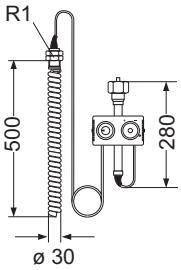
STFW



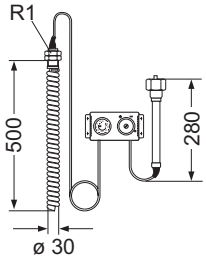
AFT 06



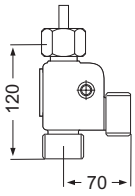
AFT 26



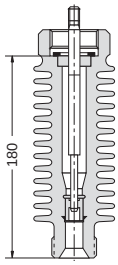
AFT 17



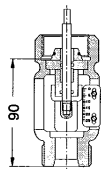
AFT 27



Comb. piece
KF2



Valve stem extension
ZF4



Valve stem extension
ZF 6

DN		15	20	25	32	40	50	65	80	100	125
L	(mm)	130	150	160	180	200	230	290	310	350	400
H	(mm)	442	442	468	468	470	470	505	505	610	610

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