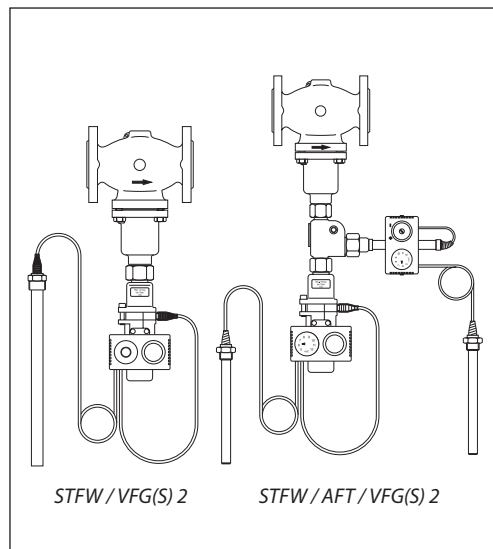


Data sheet

Temp. controller with safety temperature monitor

STFW/VFG(S) 2, STFW/AFT/VFG(S) 2

Description



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 EN 14597-2015
- 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

Main data valve and thermostat

- DN 15-125
- PN 16, 25, 40
- Flow: Circulation water
- Temperature: 5 ... 350 °C
- Connections: Flange
- Thermostat setting range:
10 ... 75 °C / 30 ... 95 °C / 40 ... 110 °C

Ordering

Example 1:
Safety temperature monitor
STFW/VFG 2; DN 25; PN 25; limit
range 10 ... 75 °C:

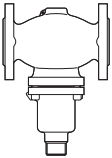
- 1x STFW thermostat
Code no: **065-4408**
- 1x VFG 2 DN 25 valve
Code no: **065B2403**

Example 2:
Temperature controller with safety
temperature monitor
STFW/AFT/VFG 2; DN 25;
PN 25; limit range 10 ... 75 °C.

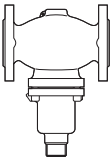
- 1x STFW thermostat
Code no: **065-4408**
- 1x AFT 06 thermostat
Code no: **065-4135**
- 1x VFG 2 DN 25 valve
Code no: **065B2403**
- 1x KF2 comb. piece
Code no: **003G1398**

Parts will be delivered separately.

VFG 2 (Cone: metal/metal sealing)

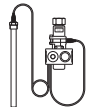
Picture	DN (mm)	k_{vs} (m ³ /h)	T _{max.} (°C)	Code No.		
				PN 16	PN 25	PN 40
	15	4.0	200	065B2388	065B2401	065B2411
	20	6.3		065B2389	065B2402	065B2412
	25	8.0		065B2390	065B2403	065B2413
	32	16		065B2391	065B2404	065B2414
	40	20		065B2392	065B2405	065B2415
	50	32		065B2393	065B2406	065B2416
	65	50		065B2394	065B2407	065B2417
	80	80		065B2395	065B2408	065B2418
	100	125		065B2396	065B2409	065B2419
	125	160		065B2397	065B2410	065B2420

VFGS 2 (for steam)

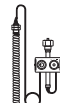
Picture	DN (mm)	k_{vs} (m ³ /h)	T _{max.} (°C)	Code No.		
				PN 16	PN 25	PN 40
	15	4.0	350 ¹⁾	065B2430	065B2443	065B2453
	20	6.3		065B2431	065B2444	065B2454
	25	8.0		065B2432	065B2445	065B2455
	32	16		065B2433	065B2446	065B2456
	40	20		065B2434	065B2447	065B2457
	50	32		065B2435	065B2448	065B2458
	65	50		065B2436	065B2449	065B2459
	80	80		065B2437	065B2450	065B2460
	100	125		065B2438	065B2451	065B2461
	125	160		065B2439	065B2452	065B2462

Ordering (continuous)

Safety thermostat STFW

Picture	Limit range (°C)	Temperature sensor with bronze immersion pocket, length, connect.	Code No.
	10 ... 75	Sensor with immersion pocket bronze, 120 sec	065-4408
	30 ... 95		065-4409
	40 ... 110		065-4410

Thermostat AFT

Picture	Type	Setpoint ¹⁾ (°C)	Sensor/time constant ²⁾	Mounting	Code No.
	AFT 06	-20 ... 50	Sensor with immersion pocket, bronze - 120 sec	Setpoint adjuster at the actuator	065-4390
		20 ... 90			065-4391
		40 ... 110			065-4392
		60 ... 130			065-4393
		110 ... 180			065-4394
	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

¹⁾ Thermostats are proportional controllers, thus certain deviation from set point can be expected and varies up to +/- 10 %, depend on valve DN.

²⁾ acc. to EN 14597

Accessories

Picture	Type	Note		Code No.
	Immersion pocket	For thermostat AFT 06	stainless steel mat. No. 1.4571	003G1412
			bronze	003G1399
	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 VFGS2 (noise reduction)	DN 15, 20		065B2775
		DN 25, 32		065B2776
		DN 40, 50		065B2777
		DN 65, 80		065B2778
		DN 100, 125		065B2779

Remark:

Above operating pressure of 14 bar use of valve stem extension ZF4, ZF6 or combination piece KF2 is necessary.

Technical data

Valves VFG 2, VFGS 2

Nominal diameter	DN	15	20	25	32	40	50	65	80	100	125
k _{VS} value	m³/h	4	6.3	8	16	20	32	50	80	125	160
k _{VS} value ¹⁾		2.5	4.0	6.3	10	16	25	40	63	100	125
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. ²⁾ (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 EN1092-2									
Flow medium	VFG 2	Water for heating, district heating and cooling systems									
	VFGS 2	Steam									
Material											
Pressure balance		Stainless steel bellows, mat. No.1.4571									
Valve body	PN 16	Grey cast iron EN-GJL-250 (GG-25)									
	PN 25	Ductile iron EN-GJS-400 (GGG-40.3)									
	PN 25/40	Cast steel GP240GH (GS-C 25)									
Cone	VFG 2	Stainless steel, mat. No. 1.4404									
	VFGS 2	Stainless steel, mat. No. 1.4021									
Seat		Stainless steel, mat. No. 1.4021									

¹⁾ Valves with flow divider for noise reduction (see accessories)

²⁾ Above operating pressure of 14 bar use of valve stem extension ZF4, ZF6 or combination piece KF2 is necessary.

Thermostat STFW

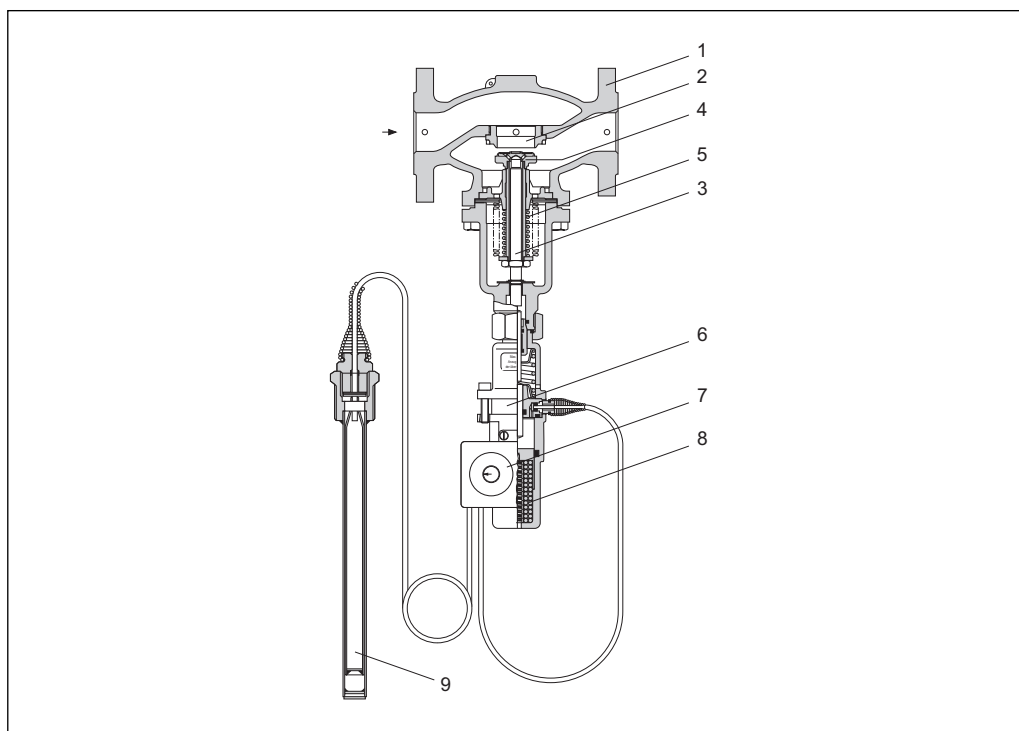
Limit range Xs	°C	10 ... 75, 30 ... 95, 40 ... 110
Time constant T acc. to EN 14597	s	max. 120
Gain KR	mm/°C	0.6
Max. adm. temp. at sensor	°C	100 °C above maximum setpoint
Nominal pressure sensor	PN	40
Capillary tube length	m	5
Temperature sensor		Ø24 × 386
Immersion pocket		Ø25 × 401 mm
Approx. weight	kg	3.5
Materials		
Temperature sensor		Copper / brass
Immersion pocket		Bronze, nickel-plated
		Stainless steel mat. No. 1.4571

Thermostats AFT

Type		AFT 06	AFT 17
Setting range X _s	°C	−20 ... 50, 20 ... 90, 40 ... 110, 60 ... 130, 110 ... 180	−20 ... 50, 20 ... 90, 40 ... 110, 60 ... 130
Time constant T	s	120 (with immersion pocket)	20 (without immersion pocket)
Gain K _s	mm/°C	0.8	
Max. temperature at sensor		100 °C above the adjusted set-point	
Max. amb. temperature	°C	0 ... 70	
Nominal pressure sensor	PN	40	
Nominal pressure immersion pocket			
Capillary tube length	m	5	
Temperature sensor		Smooth sensor Ø24 × 386	Spiral sensor Ø30 × 500
Immersion pocket		Ø25 × 401 mm	No immersion pocket
Weight	kg	3.0	3.5
Materials			
Sensor medium		Silicon oil	
Sensor		Brass, bronze	Cu spiral, nickel-plated
Immersion pocket		Bronze, nickel-plated	No immersion pocket
		Stainless steel Mat. No. 1.4571	

Construction

1. Valve VFG(S) 2
2. Valve seat
3. Trim
4. Cone
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 rises 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:

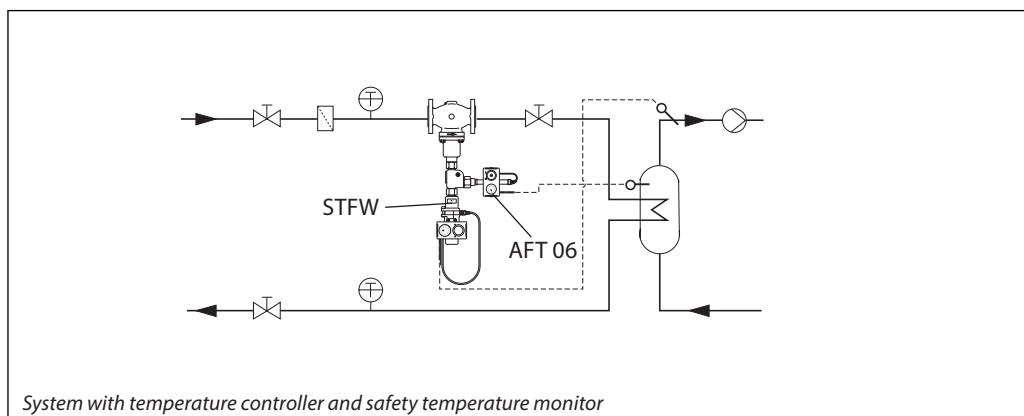
Nom. diameter	DN 15-25	DN 32-65	DN 80-125
Mesh size strainer	0.5 mm	0.8 mm	1.25 mm

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.

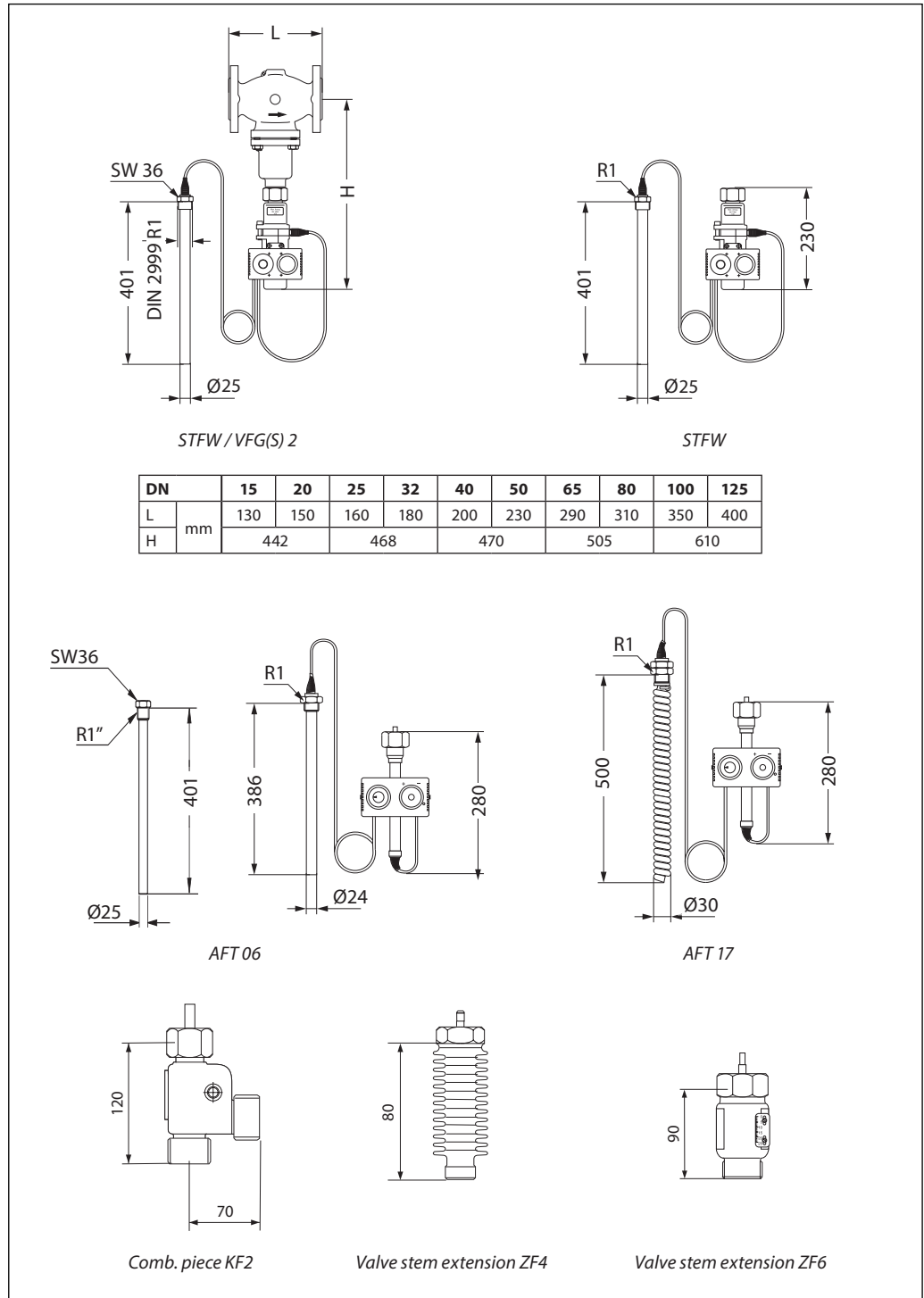
Application example



Data sheet

STFW/VFG(S), STFW/AFT/VFG(S)

Dimensions



Danfoss A/S

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