

Data sheet

QTL – Thermostatic actuator 45-60 2m capillary tube with AB-QM valves DN 10-20

Description



QTL is self-acting thermostatic actuator primarily for use for temperature control of small hot water cylinders.

Main features:

- Thermostat
- Setting range: 45-60
- 2 meter capillary tube length
- Valve AB-QM, DN 10-20
- PN16
- Max media temp: 120 °C
- Max differential pressure: 6 bar (600 kPa)
- Housing material: DZR brass
- Connection: External thread ISO228/1

For further information: Please look into ABQM data sheet.


QTL 2 m capillary tube are based on QT thermostat 0,6 m capillary tube.

Disposal

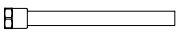




- Small compact thermostat
- Fast and reliable thermostat / valve connection
- Automatic flow limitation to match energy demand
- Easy valve selection and commissioning
- Easy to adjust the required max flow

Ordering

QTL thermostatic actuator

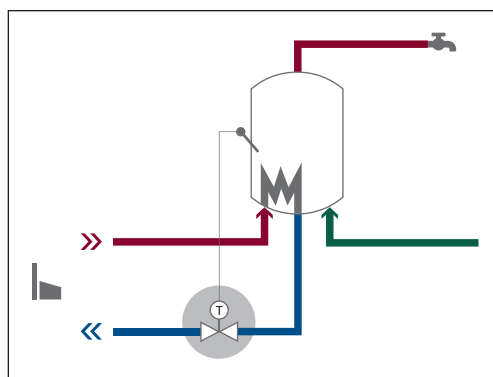
Picture	Setting range	Valve AB-QM	Code No.
	45-60°C	DN10-DN20	003L3534

Accessories

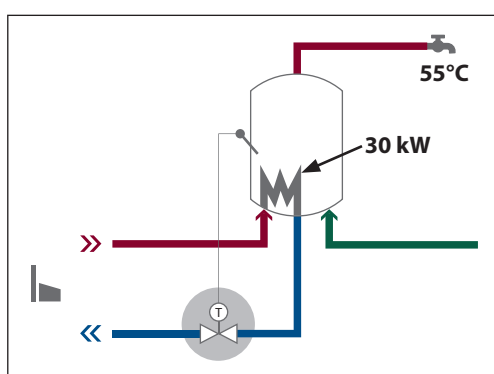
Picture	Type	Connection	Code No.
	Immersion pocket Cu	Rp 1/2 x M14 - ø12 x 100 mm	003Z0391
	Housing for sensor stuffing box	G 1/2"	013U8102
	Sensor stuffing box / pocket kit	M14x1	013U0292
	Union connection (1 pcs)	DN10 Rp 3/8	003Z0231
		DN15 Rp 1/2	003Z0232
		DN20 Rp 3/4	003Z0233
	Tailpiece connection – welding (1 pcs)	DN15	003Z0226
		DN20	003Z0227

Application

Thermostatic temperature controllers for single-family houses and flats are used to control the flow temperature in storage domestic hot water and heating systems. With their fast opening and closing, they protect the heating coil from scaling and ensure a long lifetime for the equipment installed in the system.



Sizing example



Required flow Q m3/h

$$Q = 0,86 \times P / \Delta T$$

$$= 0,86 \times 30 / 40$$

$$= 0,645 \text{ m3/h}$$

Selected valve:

ABQM DN20 Qnom = 0,9 m3/h

Nominal diameter		DN	10 LF	10	15 LF	15	20
Flow range	Q _{nom} (100 %)	l/h	150	275	275	450	900
	Q _{high}		180	330	330	540	1,080

Thermostat setting

DHW temp = 55 °C
Valve presetting = 72%

Thermostat setting: 5

Thermostat setting

DHW temp	55°C
Valve presetting	72%
Thermostat setting	5 ¹⁾

¹⁾ The setting temperature according to table on page 3 is indicative.

Given data

DHW temp	55°C
Heating coil capacity	30 kW
Temp diff flow - return	40°K
Available Δp valve	2 bar
Valve DN	??
Valve presetting setting	??
Thermostat setting	??

Technical Data

General data		
Setting range		45 ... 60
P-band ¹⁾	°C	5
Max adm temperature at sensor		90
Capillary tube length	m	2.2
Material		
Housing		DZR Brass (CuZn36Pb2As - CW 602N)
Cone and diaphragm support		MPPE (Noryl)
Main spindle		(CW 614N) Zn39Pb3
Temperature sensor		Copper, mat. No. 2.0090
Adapter	DN 10-20	CuZn39Pb3 (CW 614N), coated with Cu Zn8B
Nut		

¹⁾ with AB-QM DN 10-20, at 50 % flow setting

Technical Data (continuous) AB-QM (thread version)

Nominal diameter		DN	10 LF	10	15 LF	15	20
Flow range	Q _{nom} (100 %) ¹⁾	l/h	150	275	275	450	900
	Q _{high} ⁴⁾		180	330	330	540	1,080
Setting range ²⁾		%	20-120				
Diff. pressure ^{3), 4)}	Δp _{min} ⁶⁾	kPa	16-400/600 ⁶⁾				
	Δp _{max} ⁶⁾		18-400/600 ⁶⁾				
Pressure stage		PN	16				
Control range			1:1000				
Control valve's characteristic			Linear (could be converted by actuator to equal percentage)				
Leakage rate with recommended actuators			No visible leakage				
For shut off function			Acc. to ISO 5208 class A - no visible leakage				
Flow medium			Water and water mixture for closed heating and cooling systems according to plant type I for DIN EN 14868. When used in plant Type II for DIN EN 14868 appropriate protective measures are taken. The requirements of VDI 2035, part 1 + 2 are observed.				
Medium temperature		°C	-10 ... +120				
Storage and transport temp.			-40 ... 70				
Stroke		mm	2.25				
Connection	ext. thread (ISO 228/1)		G ½ A		G ¾ A		G 1 A
	actuator		M30 x 1.5				
Materials in the water							
Valve bodies			DZR Brass (CuZn36Pb2As - CW 602N)				
Membranes and O-rings			EPDM				
Springs			W.Nr. 1.4568, W.Nr. 1.4310				
Cone (Pc)			W.Nr. 1.4305				
Seat (Pc)			EPDM				
Cone (Cv)			CuZn40Pb3 - CW 614N				
Seat (Cv)			DZR Brass (CuZn36Pb2As - CW 602N)				
Screw			Stainless Steel (A2)				
Flat gasket			NBR				
Sealing agent (only for valves with test plugs)			Dimethacrylate Ester				
Materials out of the water							
Plastic parts			PA				
Insert parts and outer screws			CuZn39Pb3 - CW 614N; W.Nr. 1.4310; W.Nr. 1.4401				

¹⁾ Factory setting of the valve is done at nominal setting range.
²⁾ Regardless of the setting, the valve can modulate below 1 % of set flow.
³⁾ Δp = (P1-P3) min~max
⁴⁾ When set above 100 %, minimum starting pressure needed is higher, see figures in the ().
⁵⁾ When set above 100 %, it can be used as a flow limiter only.
⁶⁾ In case AB-QM is used above 400 kPa differential pressure contact Danfoss design center to assure proper design.

According suitability and usage especially in not oxygen tight systems please mind the instructions given by the coolant producer.

Pc - pressure controller part
 Cv - Control valve part

Settings

AB-QM DN 10-20 (45-60 °C)

Temperature setting	QT Sensor setting (turns)							
	0	1	2	3	4	5	6	
AB-QM (flow setting)	20%	48,0	50,5	53,0	55,5	58,0	60,5	63,0
	30%	47,0	49,5	52,0	54,5	57,0	59,5	62,0
	40%	46,0	48,5	51,0	53,5	56,0	58,5	61,0
	50%	45,0	47,5	50,0	52,5	55,0	57,5	60,0
	60%	44,0	46,5	49,0	51,5	54,0	56,5	59,0
	70%	43,0	45,5	48,0	50,5	53,0	55,5	58,0
	80%	42,0	44,5	47,0	49,5	52,0	54,5	57,0
	90%	41,0	43,5	46,0	48,5	51,0	53,5	56,0
100%	40,0	42,5	45,0	47,5	50,0	52,5	55,0	

QTL temperature setting depends on AB-QM flow setting. Please note that the attached table is indicative and will vary depending on the application. It is to be used as a guidance only. For exact temperature verification temperature needs to be measured at reference point and the sensor setting adjusted accordingly.

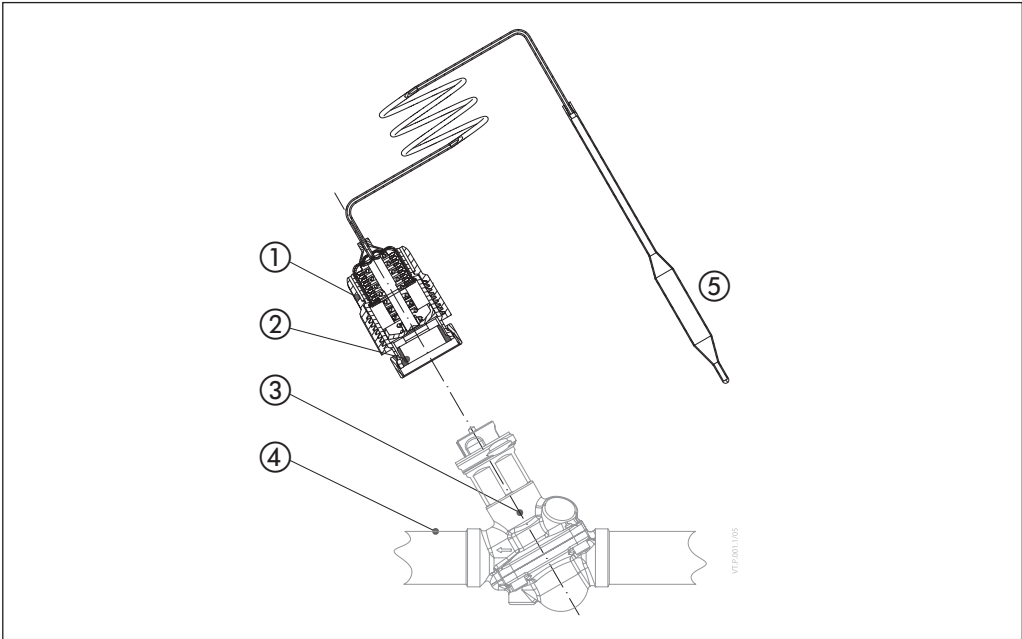
It is necessary to set the AB-QM according to required setting before the thermostat is mounted. It is recommended to set AB-QM between 30 and 70 % flow setting. QTL thermostat is set to the desired setting by hand. When minimum or maximum setting is required, QTL setting knob is to be moved slightly in opposite direction to ensure optimal performance of the thermostat.

Data sheet

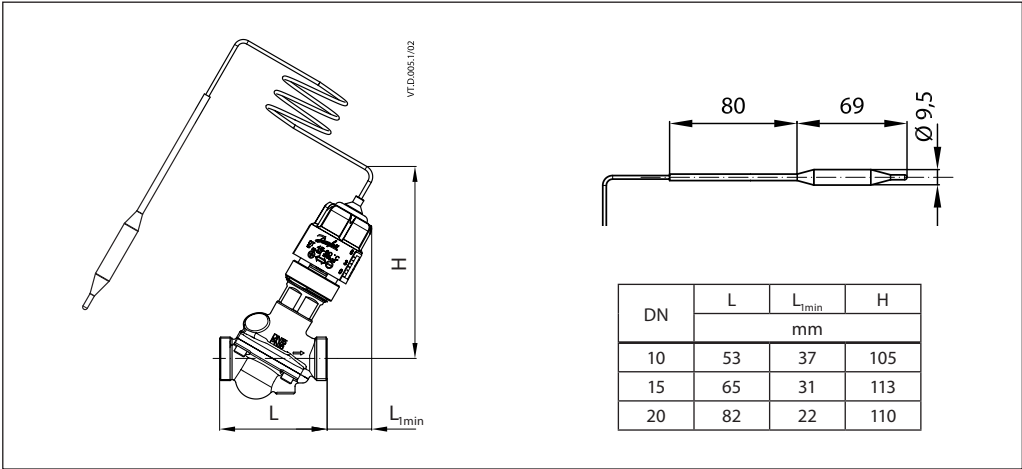
Thermostatic actuator QTL

Design

- 1. Setting knob
- 2. Adapter
- 3. AB-QM valve
- 4. Hot-water pipe
- 5. Temperature sensor



Dimensions



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