AQ / AQH

Pressure Independent Thermostatic Valves DN 10...25

AQ

Thermostatic valves, in conjunction with suitable radiator thermostats, control the room temperature by changing the flow of heating water into the radiator.

The pressure independent control (Q-Tech) ensures automatic, hydronic balancing at the radiator in central heating systems with closed circuits.

The valves are installed in the supply pipe. Q-Tech valves are ideal for retrofitting and refurbishment of existing heating systems, as complex calculations of preset values are not necessary. The volume flow is kept constant even if the differential pressure in the system fluctuates. The flow range can be variably adjusted between 10 and 170 l/h (AQ) and 35 and 420 l/h (AQH). A corresponding presetting key is included for this purpose.

The body is made of brass and the surface is nickel-plated. The spindle is made of stainless steel.

AQ thermostatic valves are Keymark certified. The certification applies when used with Keymark certified Oventrop radiator thermostats.

AQ thermostatic valves are available in angle, straight, reversed angle and double angle left or right version.

AQH thermostatic valves have a particularly high flow rate and are available in angle, straight and reversed angle version.

Functions

- Room temperature control (in conjunction with a radiator thermostat)
- Automatic, hydronic balancing on the radiator
- Radiator shutoff

Features

+ Direct, infinitely adjustable presetting in litres per hour
+ Pressure independent control, ideal for retrofitting and refurbishment and with unknown pipe network
+ Low-noise operation, even with high differential pressures

Product Details

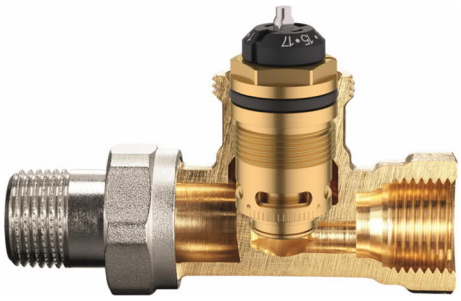
Technical Data

Nominal sizes	DN 10...25
AQ variants	• Angle version DN 10...25 with internal thread and radiator tailpipe • Angle version DN 15 alternatively with self-sealing radiator tailpipe • Straight version DN 10...25 with internal thread and radiator tailpipe • Straight version DN 15 alternatively with self-sealing radiator tailpipe • Double angle version DN 10...15, left- or right-hand side connection, with internal thread and radiator tailpipe • Reversed angle version DN 10...20 with internal thread and radiator tailpipe
AQH variants	• Angle version DN 15 with internal thread and radiator tailpipe • Straight version DN 15 with internal thread and radiator tailpipe • Reversed angle version DN 15 with internal thread and radiator tailpipe
Operating temperature	2...110 °C
Operating pressure	max. 10 bar / PN 10
Differential pressure, **Δ**P max.	150 kPa (1.5 bar)
Differential pressure, **Δ**P min.	AQ 10...130 l/h: 10 kPa >130...170 l/h: 15 kPa AQH 35...170 l/h: 15 kPa >170...300 l/h: 20 kPa >300...420 l/h: 25 kPa Even below the differential pressure ΔP min., a normal thermostatic valve function is given, there is only a reduced flow compared to the nominal value.
Medium	Heating and cooling water according to VDI 2035 or ÖNORM 5195, water-glycol mixtures with max. 50% glycol content
Flow range	AQ: 10...170 l/h presettable AQH: 35...420 l/h presettable
Protection cap colour	Light grey
Thermostat connection	Connection: M 30 x 1.5 Stroke: 1.8 mm Closing dimensions: 11.8 mm Closing force: 90...150 N

Construction

AQ and AQH thermostatic valves consist of:

- an AQ or AQH valve insert with pressure independent control function which can be replaced or removed with the Demo-Bloc special tool even under system pressure, for example to clean or replace the screen insert.
- a screen insert at the inlet
- an OV standard valve body with internal thread and radiator tailpipe with external thread according to EN 10226-1. Suitable for all Oventrop standard valve inserts manufactured since 1999
- a light grey protection cap for protection and setting during the construction phase



Functions

Room temperature control

In conjunction with a radiator thermostat, e.g. an Oventrop Uni LH, the room temperature is controlled by limiting the flow of heating water into the radiator. All Oventrop radiator thermostats with threaded connection M 30 x 1.5 can be used with AQ and AQH thermostatic valves.

Flow regulation with Q-Tech

AQ and AQH thermostatic valves are equipped with Q-Tech. This technology ensures that the flow through the radiator remains constant even with fluctuating differential pressures.

The flow through the radiator must be throttled by means of the AQ or AQH valves in the supply pipe to ensure hydronic balancing at the radiator. The set values are determined by a room-by-room heating load calculation, which can be carried out e.g. with the free OVplan design software.

Each radiator in the heating circuit is set with the AQ or AQH thermostatic valves. The setting range is 10 to 170 l/h (litres per hour) for AQ valves and 35 to 420 l/h for the AQH valves.

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- The scale on the AQ valves is given in l/h x 10. For example, if a flow rate of 90 litres per hour is required, position 9 is set on the valve.
- The scale on the AQH valves is given in l/h x 100. For example, if a flow rate of 200 litres per hour is required, position 2 is set on the valve.

During setting, the circulation pump does not have to be in operation. Radiator thermostats may already be installed, and the stroke position of the radiator thermostats is irrelevant. To make or change the setting on the valve, an already installed radiator thermostat may have to be dismantled to access the setting scale. The setting is made with a presetting key that is enclosed with each valve at the factory.

DIFFERENTIAL PRESSURE

A minimum differential pressure is required for automatic flow control of the AQ and AQH valves. This is:

Version	Flow rate	Minimum ΔP
AQ	10…130 l/h	10 kPa
	>130…170 l/h	15 kPa

Version	Flow rate	Minimum ΔP
AQH	35…170 l/h	15 kPa
	>170…300 l/h	20 kPa
	>300…420 l/h	25 kPa

The available differential pressure can be measured with a differential pressure gauge, e.g. the OV-DMC 3, and by means of the special tool Demo-Bloc (item no. 1188051) and the differential pressure measuring spindle (item no. 1188093). This makes it possible to determine whether sufficient differential pressure is available for the automatic flow control of the valve.

The differential pressure measurement also allows the optimisation of the pump setting. For this purpose, the delivery head of the pump is reduced until just the required minimum differential pressure is present at the hydraulically most unfavourable valves.

The maximum control differential pressure is 150 kPa (1.5 bar). For low-noise operation in conjunction with a noise-sensitive system installation, e.g. radiators, the maximum differential pressure across the valve should not exceed 60 kPa (600 mbar).

VALVE AUTHORITY

The differential pressure is kept constant over the presetting and control cross-section of the valve by the diaphragm-controlled flow control unit integrated in the valve inserts of the AQ and AQH valves. As a result, the valve authority of the AQ and AQH

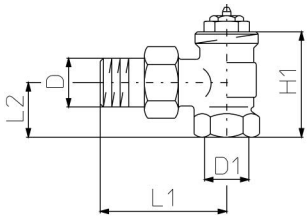
thermostatic valves is 100% (a=1). Even in partial load operation with modulating control, in combination with thermostats for room temperature control, the valve authority of the thermostatic valve within the effective valve stroke is 100% (a=1).

Shutoff

Before mounting the radiator thermostat, the pipe can be shut off briefly with the help of the supplied protection cap. The sole, permanent and unattended shutoff of the valve against atmosphere is not permissible. In this case, provide an additional shutoff cap/plug at the pipe connection.

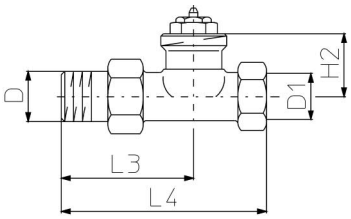
Dimensions

Angle version



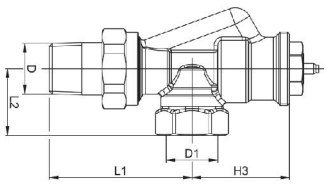
DN	D	D1	H1 [mm]	L1 [mm]	L2 [mm]
10	R ⅜	Rp ⅜	47.5	52	22
15	R ½	Rp ½	53	58	27
20	R ¾	Rp ¾	53	66	29
25	R 1	Rp 1	61	75	34

Straight version



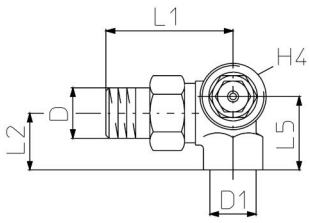
DN	D	D1	H2 [mm]	L3 [mm]	L4 [mm]
10	R ⅜	Rp ⅜	31	52	85
15	R ½	Rp ½	31	58	95
20	R ¾	Rp ¾	29	63	106
25	R 1	Rp 1	30	80	125

Reversed angle



DN	D	D1	H3 [mm]	L1 [mm]	L2 [mm]
10	R ⅜	Rp ⅜	41.5	52	22
15	R ½	Rp ½	40	58	27
20	R ¾	Rp ¾	37	66	29

Double angle version



DN	D	D1	H4 [mm]	L1 [mm]	L2 [mm]	L5 [mm]
10	R ⅜	Rp ⅜	31	52	22	27
15	R ½	Rp ½	30	58	27	34

Item Numbers

AQ thermostatic valves





Nominal size	Angle	Straight	Reversed angle	Double angle left	Double angle right
DN **10**	1182063	1182163	1182263	1182360	1182361
DN **15**	1182064	1182164	1182264	1182362	1182363
DN **20**	1182066	1182166	1182266		
DN **25**	1182068	1182168			

With self-sealing radiator tailpipe


DN **15**	1182084	1182184

AQH thermostatic valves with high flow rate



Nominal size	Angle	Straight	Reversed angle
DN **15**	1182094	1182194	1182294

Accessories

Compression fittings for copper pipe

		Size	Suitable for	Item no.
	Ofix CEP for copper pipe according to DIN EN **1057** Pressure screw nickel-plated, metal to metal sealing, 1-fold	G ⅜ x 10 mm	DN 10	1027151
		G ⅜ x 12 mm	DN 10	1027152
		G ½ x 10 mm	DN 15	1028152
		G ½ x 12 mm	DN 15	1028153
		G ½ x 14 mm	DN 15	1028154
		G ½ x 15 mm	DN 15	1028155
		G ½ x 16 mm	DN 15	1028156
		G ¾ x 18 mm	DN 20	1027157
		G ¾ x 22 mm	DN 20	1027158
	Ofix CEP as above, but 2-fold	G ½ x 15 mm	DN 15	1016853

Demo-Bloc

		Suitable for	Item no.
	Special tool for changing valve inserts under system pressure. Threaded connection M 30 x 1.5. Including coupling set for AQ and AQH thermostatic valves	All variants and nominal sizes	1188051
	Differential pressure measuring spindle for Demo-Bloc Allows differential pressure measurement across thermostatic valves in conjunction with the Demo-Bloc and a differential pressure gauge	All variants and nominal sizes	1188093

Replacement valve inserts

Also suitable for all Oventrop thermostatic valve bodies since 1999

		Suitable for	Item no.
	For AQ thermostatic valves	All variants and nominal sizes	1187064
	For AQH thermostatic valves	All variants and nominal sizes	1187094

Replacement screen insert

		Suitable for	Item no.
	Suitable for all AQ und AQH thermostatic valve inserts. During operation, the valve insert can be removed with the Demo-Bloc item no. 1188051 and the screen insert can be replaced	All variants and nominal sizes	1187090

Replacement presetting key

	Suitable for	Item no.
	All variants and nominal sizes	1651182

EN-01201-11830-DB-V2335 – August 2023

Oventrop GmbH & Co. KG • Paul-Oventrop-Straße 1 • 59939 Olsberg • Germany
T +49 2962 820 • mail@oventrop.de • www.oventrop.de