oventrop

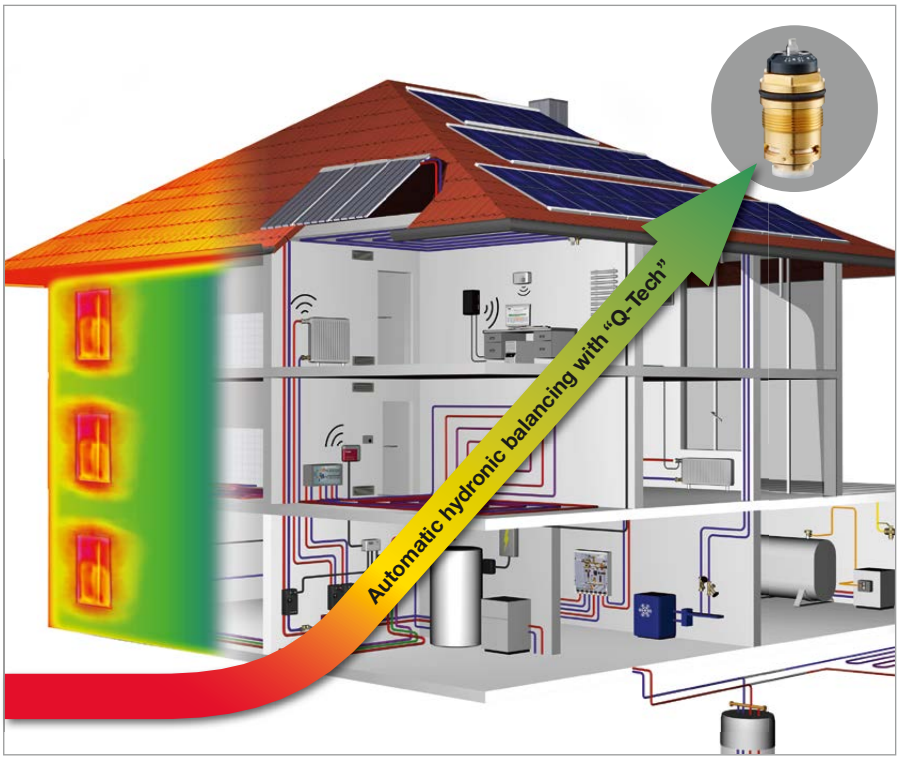
Innovation + Quality

Valves, controls + systems

Automatic hydronic balancing with “Q-Tech”

Product range

for an improved energy efficiency ...



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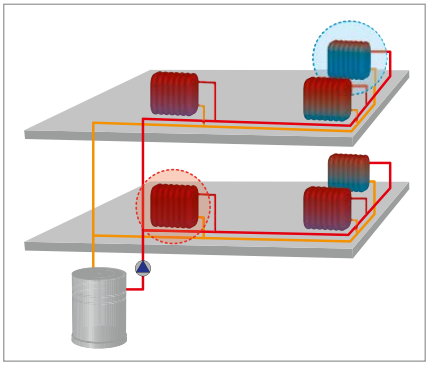

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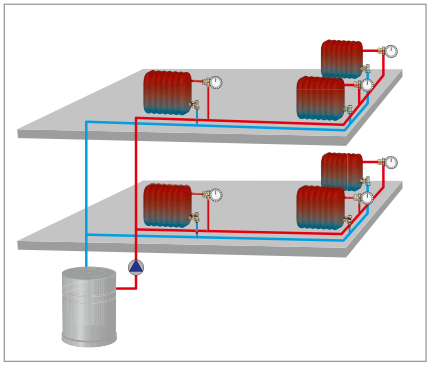

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Automatic / manual hydronic balancing

Standard heating systems are equipped with thermostatic valves which are preset on the basis of a pipework calculation requiring knowledge of the installed pipework and the radiator volume flows (manual hydronic balancing).

The layout of the pipework is often unknown and this makes a calculation almost impossible, however, Oventrop developed the thermostatic valves with "Q-Tech" for an automatic control and hydronic balancing (automatic hydronic balancing).

The valves with "Q-Tech" can also be used for the hydronic balancing of new heating systems in which the layout of the pipework is known.

Advantages of automatic hydronic balancing

- automatic adaptation to different operating conditions
- reduced calculation and planning effort
- time- and cost-saving installation
- fewer balancing valves required
- hydronic balancing is maintained even if terminal units/sections of the system are activated or inactivated
- balanced sections of the system are not hydraulically influenced by installation extensions
- system can be put into operating section by section during the construction period
- efficient operation of high-efficiency pumps in any operating status
- optimum calorific value of condensing boilers

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Introduction

Hydronic balancing is paramount for the energy efficient operation and comfort of heating and cooling systems. The design basics, such as flow and return temperature, volume flow and differential pressure are maintained during operation. An efficient operation of the high-efficiency pump is ensured. Low return temperatures guarantee an efficient operation of the condensing boiler. The heat or cooling output arrives where it is needed. There is no over- or undersupply. Wrong settings, such as increase of the flow temperature, excessive volume flows and resulting excessive return temperatures, undersupply of hydraulically underprivileged terminal units, but also oversizing or wrong circulation pump settings are avoided this way.

Hydronic balancing means the optimum water distribution within the system which is, for instance, achieved by supplying the required volume flow to the radiator via presettable thermostatic valves.

This is confirmed by many studies, such as the Optimus study. Up to 21% of energy can be saved by carrying out the hydronic balancing described therein. The benefit/cost ratio of this low investment measure is excellent. Amortisation times of three to four years can be achieved.

Advantages of hydronic balancing

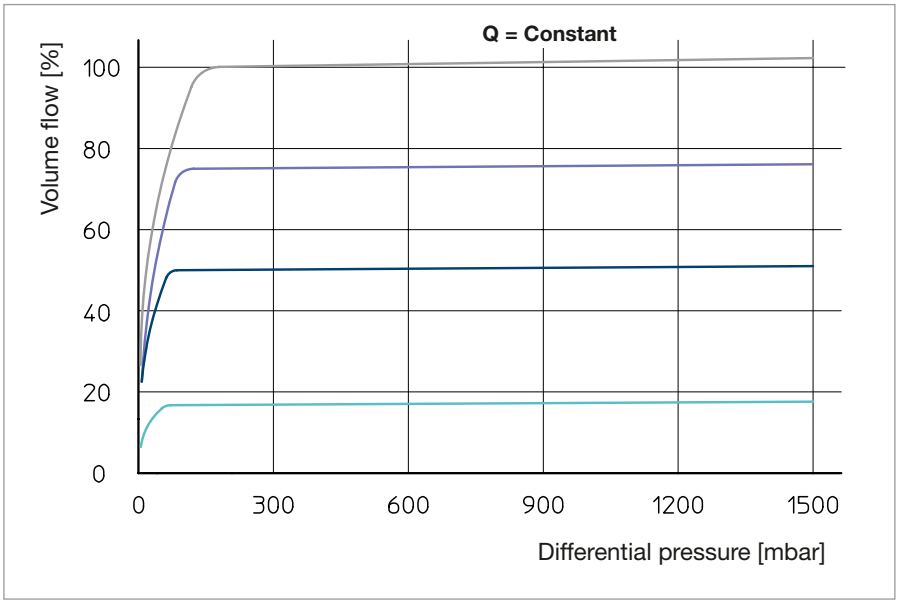
- energy savings due to an optimum energy distribution
- increased comfort due to a volume flow distribution according to requirements
- silent operation

1 System house with "Q-Tech"

2 Heating system without hydronic balancing

3 Heating system with hydronic balancing

1



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The new Oventrop “Q-Tech” for an automatic flow control in heating and cooling systems allows the adaptation of the volume flows according to the requirements of the respective terminal unit (e.g. radiator).

The required volume flow through the terminal unit is determined by the heat load calculation and the chosen temperature difference. The volume flow is set directly at the valve with “Q-Tech” and is automatically limited to the set value (illustr. 2). This way, hydronic balancing of the system is carried out easily with the help of the valves with “Q-Tech”.

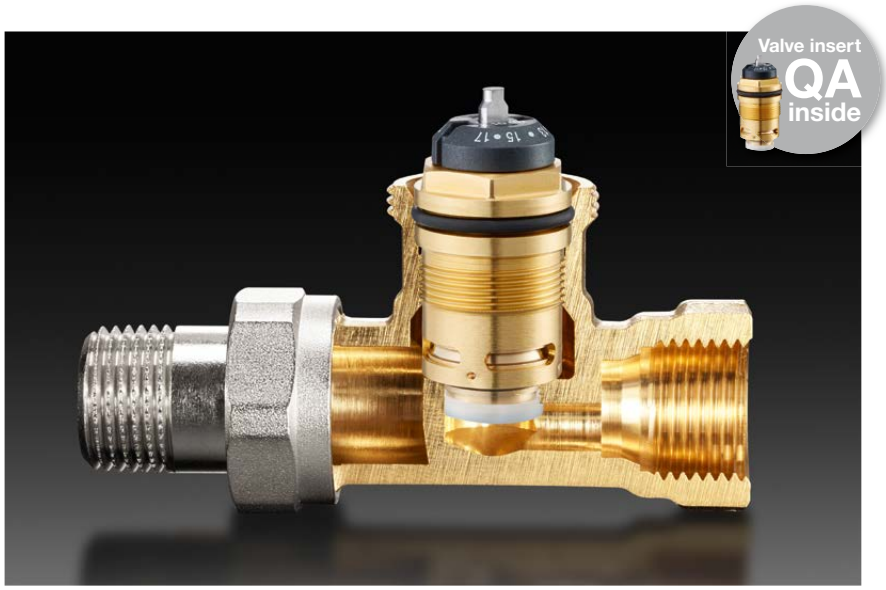
Advantages of “Q-Tech”

- even where high differential pressure variations occur, for instance if terminal units or sections of the system are activated or inactivated, the volume flow is kept at a constant level within the regulation tolerances
- no special body design required, the valve insert “QA” fits all standard Oventrop thermostatic valve bodies manufactured since 1999 (M 30 x 1.5)
- valve insert replaceable by using the special tool “Demo-Bloc” without draining the system
- ideal for upgrading and refurbishment
- wide adjustable flow range (10-170 l/h)
- wide differential pressure control range (max. 1.5 bar)
- silent in operation even with high differential pressures
- the set volume flows are kept at a constant level
- differential pressure independent mode of operation to a large extent
- constant, high valve authority (a=1)
- infinitely adjustable presetting
- fine graduated setting scale in l/h
- set values visible from outside (without table)
- easy setting by use of a presetting key which prevents tampering to a large extent
- valve insert with replaceable strainer

Valve insert	Item no.
“QA”	1187065

1 Simplified illustration of the valve insert with “Q-Tech” and presetting key using the example of the “Series AQ”

2 Flow chart with exemplary values



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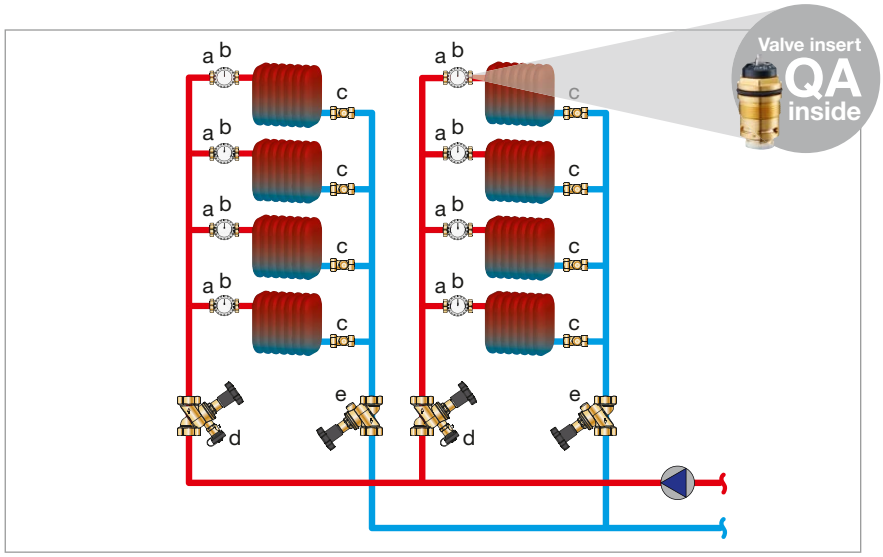

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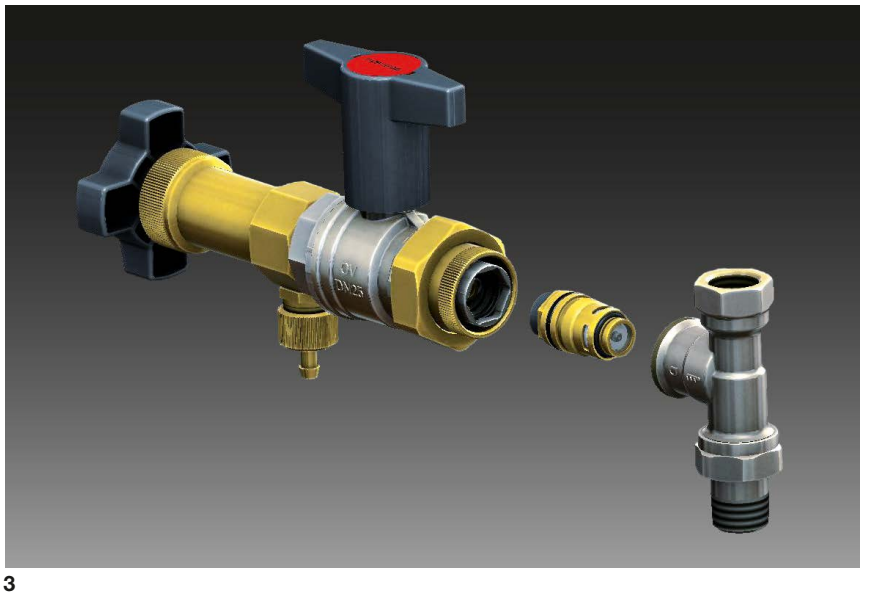


3

The new thermostatic valves of the “Series AQ” limit the volume flow to a preset value. A complex calculation of the presetting values is no longer necessary. Only the required volume flows must be known. Control of the volume flow is carried out by the valve once the correct volume flow of the terminal unit has been set. This way, hydronic balancing of the system is carried out easy.

The new valve of the “Series AQ” combines a thermostatic valve and a diaphragm controlled flow regulator. The nominal value is set by use of a presetting key and turning the handwheel.

The functions of the thermostatic valve and the flow controller are integrated in a compact valve insert which can be replaced by using the special tool “Demo-Bloc” without draining the system.

Many Oventrop products are equipped with the valve insert “QA”.

Valves “Series AQ”	Item no.
Angle pattern valve	
DN 10	1183063
DN 15	1183064
DN 20	1183066
Straight pattern valve	
DN 10	1183163
DN 15	1183164
DN 20	1183166
Reversed angle pattern valve	
DN 10	1183263
DN 15	1183264
DN 20	1183266
Double angle pattern valve	
DN 10 Right	1183361
DN 15 Right	1183363
DN 10 Left	1183360
DN 15 Left	1183362

1 Cross section of a straight pattern valve “Series AQ”

2 Drawing of a heating system with “Series AQ”

a Thermostatic valve “Series AQ”
b Thermostat “Uni LH”
c Radiator lockshield valve “Combi 2/3/4”
d Bronze oblique pattern globe valve PN 25 with draining facility
e Bronze oblique pattern globe valve PN 25 without draining facility

3 “Demo-Bloc” for the conversion of thermostatic valves to “Series AQ” (without draining the system)

1

2

3

1 “Series EQ”

The design of the exclusive radiator valves of the “Series EQ” combines exclusive form and high functional efficiency especially in combination with modern radiators and towel radiators. The integrated valve insert “QA” allows automatic hydronic balancing.

Valves “Series EQ”	Item no.
Angle pattern valve DN 15	
chrome plated	1163552
white powder coated (RAL 9016)	1163562
Straight pattern valve DN 15	
chrome plated	1163652
white powder coated (RAL 9016)	1163662

2 “Multiblock TQ”

The connection fitting “Multiblock TQ” is a practical combination of a thermostatic radiator valve and a connection fitting for use on radiators with supply and return pipe connection.

The fitting is made of nickel plated brass. The distance between pipe centres is 50 mm. The stylish design covers create a smart optical integration with modern radiators and towel radiators.

The integrated valve insert “QA” allows automatic hydronic balancing.

“Multiblock TQ” Two pipe fittings	Item no.
Straight pattern	1184073
Angle pattern	1184074

3 “Unibox TQ / Q plus”

“Unibox TQ”

Installation set for individual room temperature control with thermostatic valve (room temperature control) in surface heating systems, consisting of:
Wall box unit with presettable valve insert “QA”.

“Unibox Q plus”

Installation set for individual room temperature control with thermostatic valve and for temperature limitation of heating surfaces with return temperature limiter, consisting of:
Wall box unit with presettable valve insert “QA” and RTLH valve for return temperature limitation.

Surface heating	Item no.
“Unibox TQ”	1022686
“Unibox Q plus”	1022684

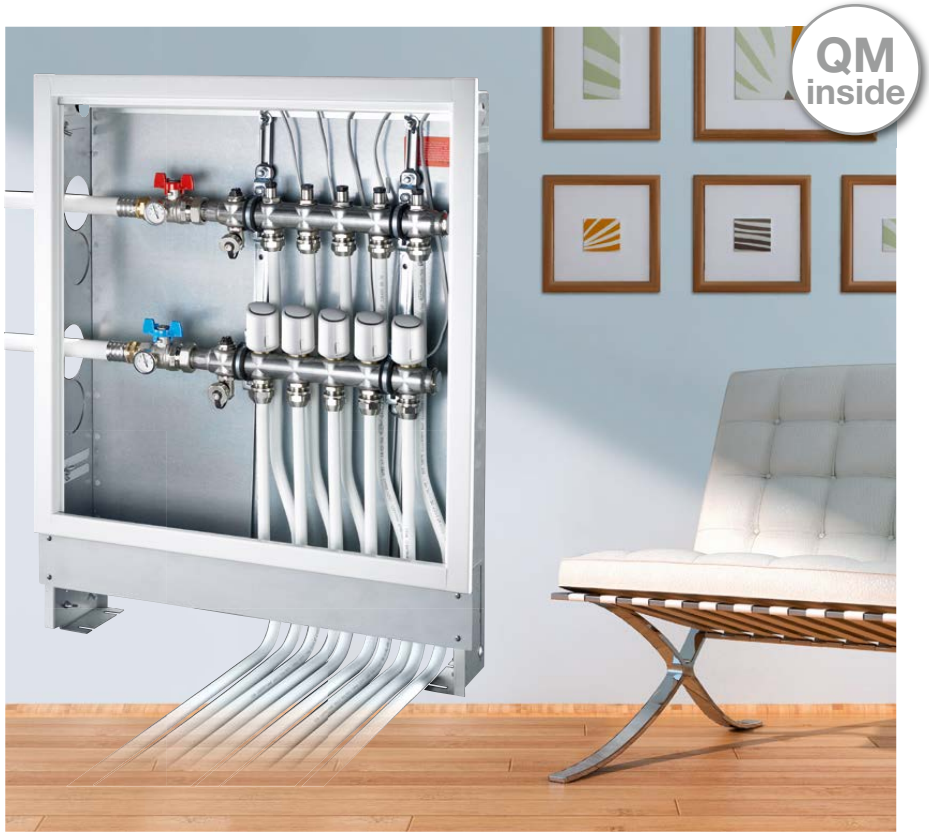
1

Special applications, such as radiators with integrated distributor or distributors/ collectors for surface heating systems call for special valve inserts with particular geometries. Here, Oventrop also offers solutions with integrated “Q-Tech” for automatic hydronic balancing.

1 Valve inserts “GHQ”

The valve inserts “GHQ” for radiators with integrated distributor with “Q-Tech” allow automatic hydronic balancing. The valve inserts are infinitely adjustable and are installed in the distributors or radiators (e.g. of panel radiators).

Valve inserts “GHQ”	Item no.
with front connection	1019080
with internal O-ring	1019083
for seat diameter 16 H 11	1019082



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2 “Multidis SFQ”

The new generation of stainless steel distributors/collectors for surface heating systems features integrated valve inserts with “Q-Tech”. Hydronic balancing of surface heating systems can be carried out easily with the help of these valve inserts. The pre-assembled distributors/collectors are equipped with fill and drain ball valves as well as vent and blind plugs.

“Multidis SFQ”	Item no.
for 2 circuits	1404752
up to	...
12 circuits	1404762

Further information can be found on our homepage:
www.oventrop.de

Subject to technical modification without notice.

Private persons may purchase our products from their qualified installer.

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