oventrop

Valves, controls + systems

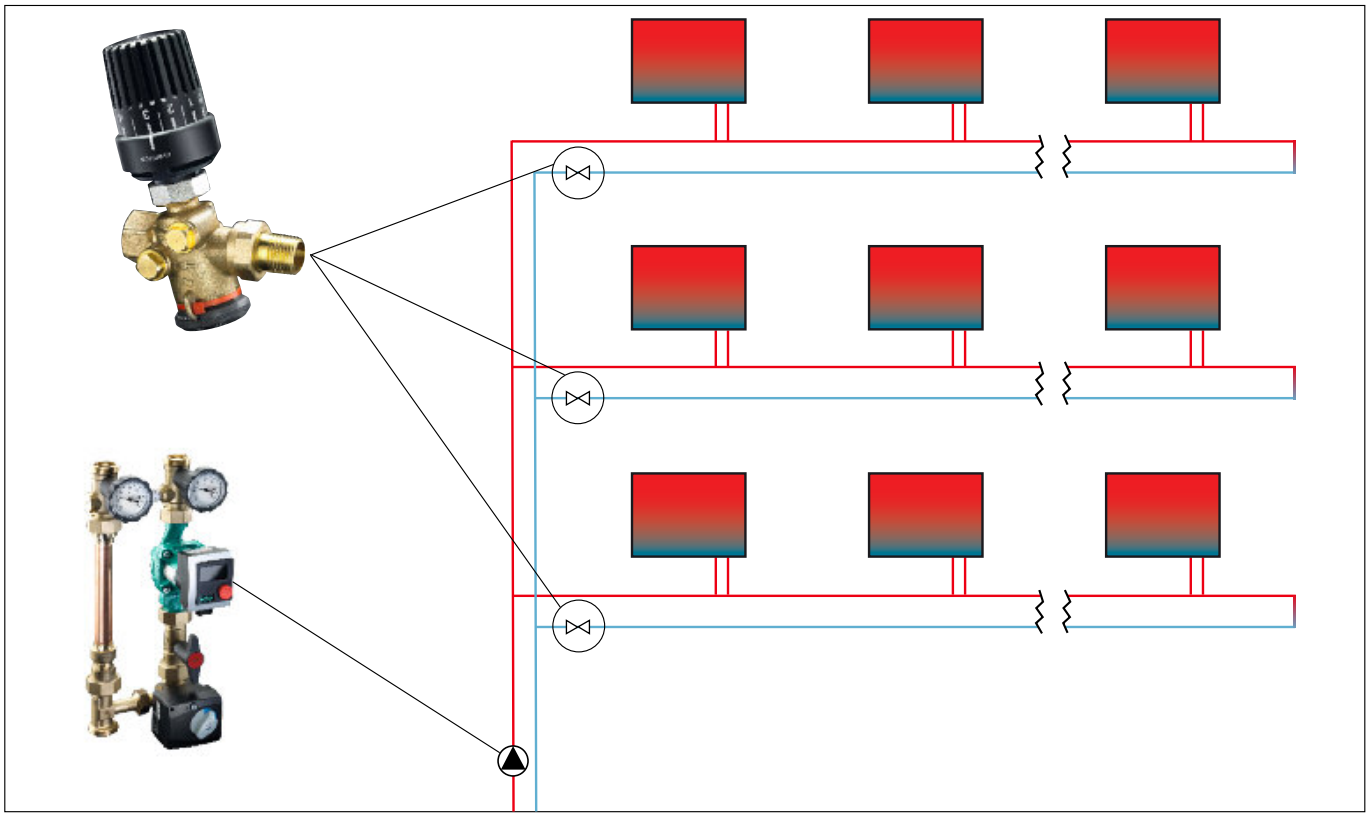
Innovation + Quality

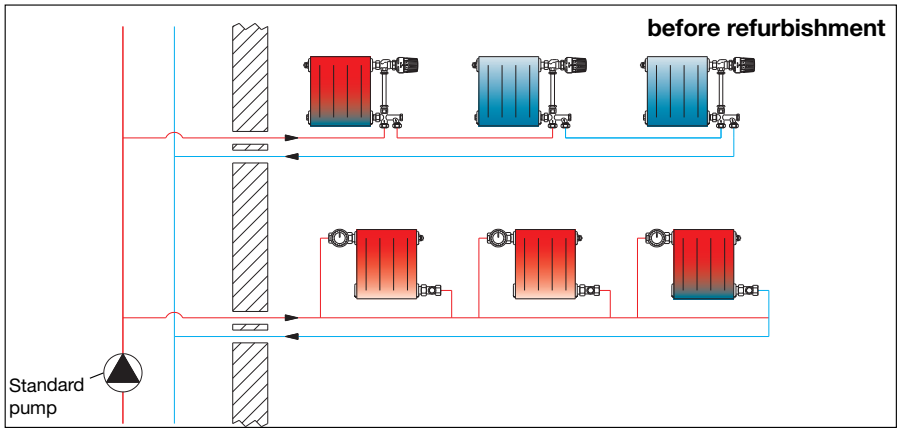
for an improved energy efficiency ...

“Unofix”

Refurbishment set for one pipe heating systems with good benefit/cost ratio

Product range





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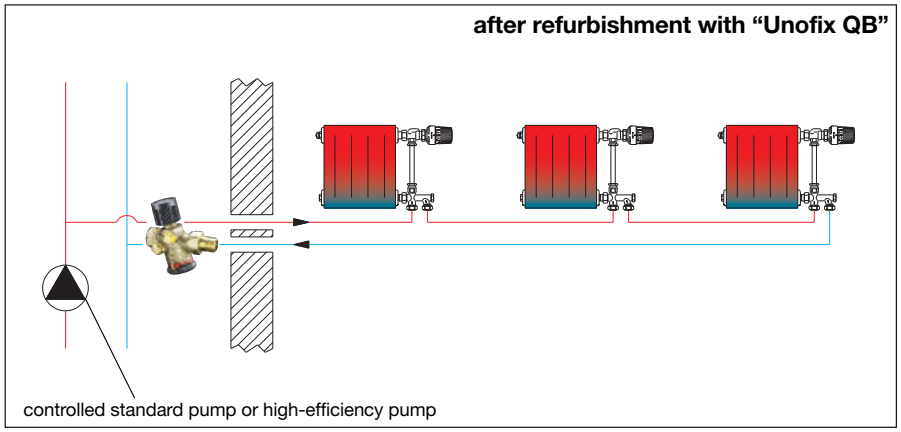

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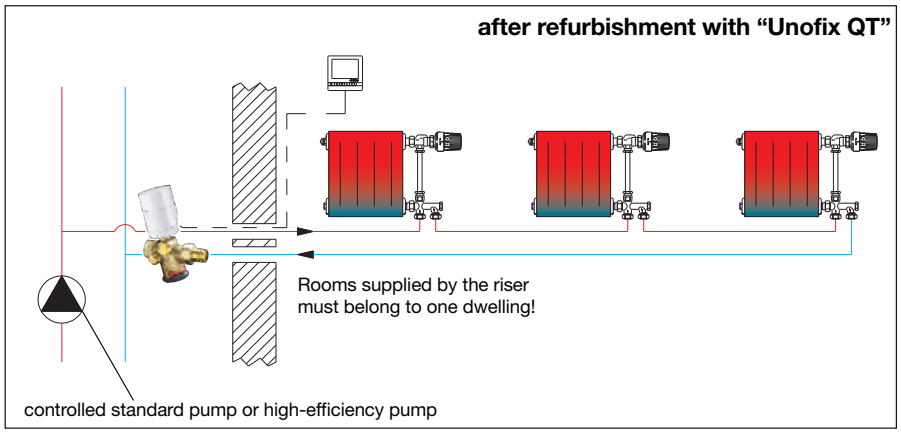

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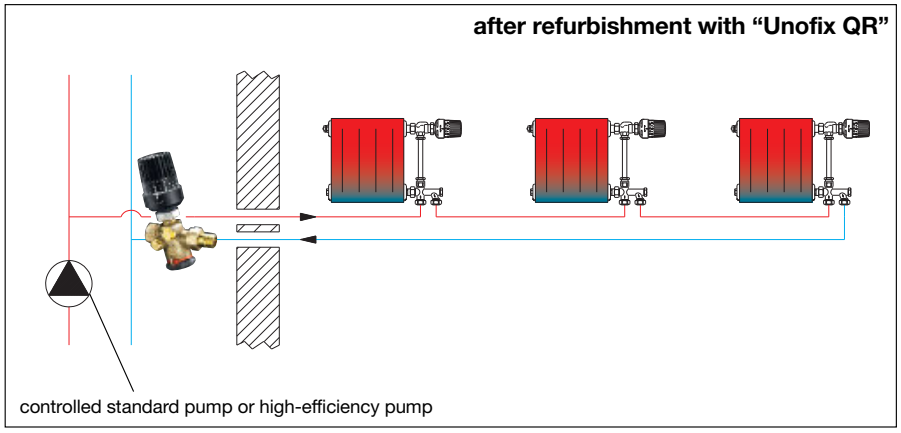

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General information regarding the refurbishment of one pipe heating systems

The refurbishment of one pipe heating systems will lead to lower energy costs and higher energy efficiency.
The benefit/cost ratio should be reasonable.

Existing one pipe heating systems (examples in illustration 1) which have not yet been renovated feature an almost constant volume flow. During low demand periods, for instance when individual radiators have been adjusted downward, return temperature increases. For this reason, energy efficient heating systems requiring as low a return temperature as possible, e.g. gross calorific boilers or district heating transmission stations, cannot be operated efficiently in such old systems. The Oventrop refurbishment system "Unofix" can take a few simple steps which will result in noticeable energy savings and will increase the benefits of comfort for the user. This applies to horizontal and vertical one pipe heating systems.

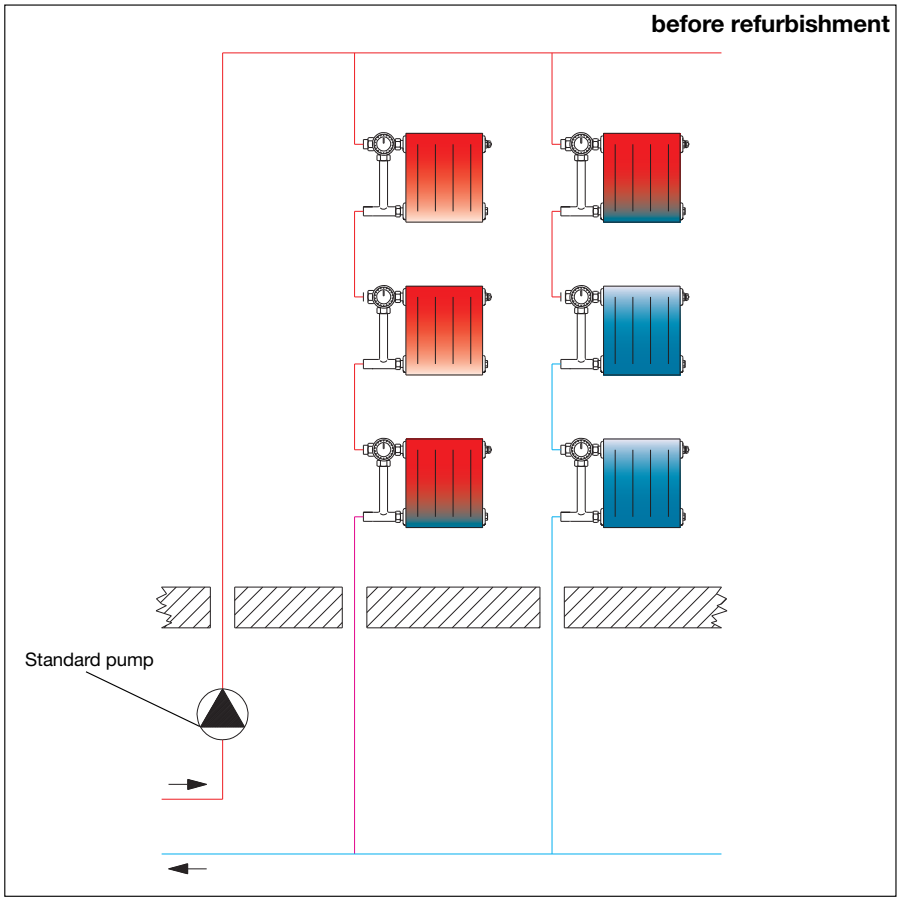
Refurbishment of one pipe heating systems with horizontal heating circuits

The radiators are connected via a circuit pipe. The radiators are integrated into the circuit pipe via special valves (e.g. valves installed in risers or valves with insertion tube) or are installed "astride" (illustr. 1). A partial flow of e.g. 30% related to the total volume flow in the circuit pipe (100%) is assigned to each radiator. Different construction stages of the "Unofix" system allow energetic improvements of such circuit pipes.

"Unofix QB" is a basic model which limits the volume flow in each circuit pipe to a maximum value via the regulating valve "Cocon QTZ" (illustr. 2). The one pipe risers do no longer influence each other and undersupply is avoided.

"Unofix QT" features the same characteristics as "Unofix QB" but energy can additionally be saved by a reduction of the volume flow in the circuit pipe if the temperature in connected rooms is set back, for instance at night. Such intervals can be programmed via the time switch of a room thermostat passing on control commands to an actuator mounted on a regulating valve "Cocon QTZ" (illustr. 3). Temperature control of a reference room can also be carried out via the room thermostat. The nominal value set at the thermostat is the upper limit for all rooms of the dwelling. When this value has been reached, the return temperature of the circuit pipe is reduced.

"Unofix QR" features the same characteristics as the "Unofix QB". Energy is saved by limiting the return temperature during low demand periods. Limitation of the return temperature is carried out via the thermostat "Uni RTLH" which is mounted on the regulating valve "Cocon QTZ". The limitation also entails a reduction of the volume flow. This way, overheating is avoided and room temperature control is improved. To ensure a quick reactivation of room temperature control after setback operation, a minimum volume flow is maintained with the help of a distance piece which is installed between the thermostat and the "Cocon "QTZ" (illustr. 4).



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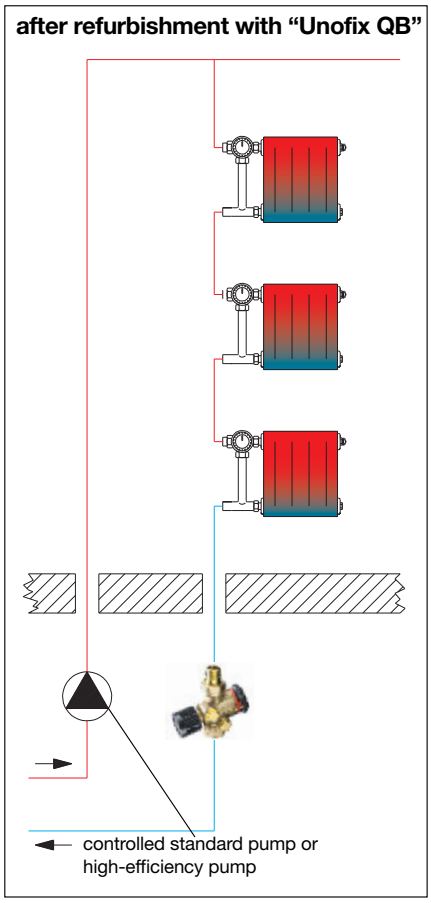

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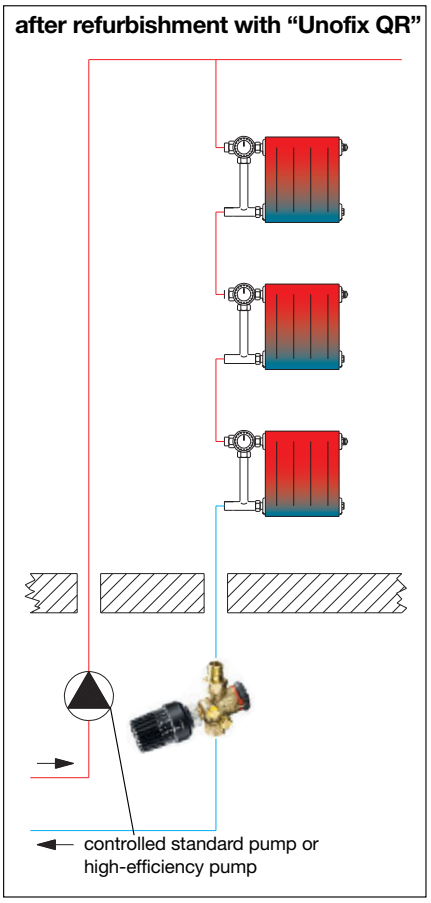

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Refurbishment of one pipe heating systems with vertical heating circuits

Proceeding from an upper distribution, the one pipe risers are installed vertically downwards. The radiators of dwellings lying one beneath the other, are integrated into the risers via valves with a bypass (illustr. 5). The radiator volume flow for instance amounts to 30%. The volume flow in the vertical circuit is often too high. High pump outputs and return temperatures do not allow an energy efficient operation.
The Oventrop refurbishment system **"Unofix"** offers solutions for energy savings.

For one pipe systems with vertical heating circuits, installation of the basic model **"Unofix QB"** is a quick and cheap measure which can be taken. The volume flow in each vertical one pipe riser is automatically limited to a presettable maximum value. Overheating or undersupply during heat transmission to the radiators is avoided and comfort is increased by an improved room temperature control (illustr. 6).

Even more energy can be saved by reducing the return temperature at the end of each riser with the help of the refurbishment set **"Unofix QR"** (illustr. 7).

Processing steps for refurbishment with the "Unofix" system

- Determination of the heat load of the one pipe circuits
- Determination of the volume flow for each one pipe circuit
- Installation and setting of the "Unofix" system
- Determination of the total volume flow and the pump head of the circulation pump
- Installation of a high-efficiency pump if required (e.g. with Oventrop product assembly "Regumat"). The electricity demand is reduced this way.

Advantages of the refurbishment system "Unofix"

- Only one refurbishment set "Unofix" per one pipe circuit required
- Time- and cost-saving installation
- No modifications at the radiator
- Hydronic balance between the one pipe circuits - for horizontal and vertical heating circuits
- Setting of low return temperatures. Ideal for district heating and gross calorific technology
- The installation of high-efficiency pumps is recommended due to the reduction of the volume flow
- Refurbishment without auxiliary energy (except for "Unofix QT")

Note
The replacement of radiator valves requires special measures.

Further information can be found in the technical data sheets and the catalogue "Products".

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The construction stages of the “Unofix” system consist of different components. Depending on the application, the individual components must be selected (illustr. 5).

1 “Unofix QB” consisting of:
- Valve “Cocon QTZ”, item no. 114 5. ..
- Cover plate made of plastic, item no. 114 60 91

2 „Unofix QT“ consisting of:
- Valve “Cocon QTZ”, item no. 114 5. ..
- Electrothermal actuator (2 point), item no. 101 29 1..
- Room thermostat, item no. 115 25 6..

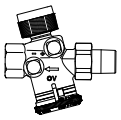
3 “Unofix QR” consisting of:
- Valve “Cocon QTZ”, item no. 114 5. ..
- Distance piece, item no. 114 90 90
- Thermostat “Uni RTLH” 10-60°C, item no. 114 90 67

4 Heating circuit group “Regumat”
with high-efficiency pump, see catalogue “Products”, chapter 6.

5 Extract from the catalogue “Products”
“Unofix” system components

Note
Oventrop offers different “Cocon QTZ” valves with different flow ranges. The design of the flow range and size has to be carried out dependent on the installation, see catalogue “Products”, chapter 3 and technical data sheets.

“Cocon QTZ”

	Size	Flow range	Item no.	
	DN 15	30 - 210 l/h	**114 55 04**	Oventrop valves “Cocon QTZ” control the room temperature with the help of actuators. Further models and connection systems, see catalogue “Products”.
	DN 15	90 - 450 l/h	**114 56 04**	
	DN 15	150 - 1050 l/h	**114 57 04**	
	DN 20	150 - 1050 l/h	**114 55 06**	
	DN 20	180 - 1300 l/h	**114 56 06**	
	DN 25	300 - 2000 l/h	**114 56 08**	
	DN 32	600 - 3600 l/h	**114 56 10**	
	Plastic cover plate		**114 60 91**	Cover plate for the protection of the control unit at full lift position.
	Electrothermal actuator (two-point)			Further models, see catalogue “Products”.
	closed with current “off”, 230 V		**101 29 15**	
	closed with current “off”, 24 V		**101 29 16**	
	Flush-mounted room thermostat digital			Further models, see catalogue “Products”.
	230 V		**115 25 61**	
	24 V		**115 25 62**	
	Distance piece		**114 90 90**	Distance piece for return temperature optimisation of one pipe heating systems.
	Thermostat “Uni RTLH”			For return temperature limitation to 10-60°C.
	anthracite model		**114 90 67**	

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Further information can be found in the catalogue “Products” and on the internet, product ranges 3 and 6.

Subject to technical modification without notice.

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