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Combined with valves covered by EN215

R456

Thermostatic head with liquid sensor

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R456 - Thermostatic head with liquid sensor

Use

In modern society research concerning comfort in the home becomes a factor of prime importance. In order to obtain comfort in an home, numerous problems could occur, i.e. temperature control in different rooms according to their use. It is important that the client can decide the optimal temperatures of the rooms where he works or lives, in order to obtain more energy savings. In order to obtain these results, temperature setting systems are require to exploit the system potential, i.e. through the free energy contributions. During the day thermal charges in the different rooms of a home could occur changing in accordance with different factors such as a sudden variation of the outside temperature, internal free energy contributions due to the presence of people, electric equipment, sun radiation coming from windows. In such situations an automatic setting device, i.e. a thermostatic head installed on the radiator avoids the over temperature effect. This occurs because the radiator of that room is excluded from the system, and consequently the room is not heated, while in the other rooms of the home energy are served.

Features

Operation is easy: room temperature change arouses a consequent volume variation of the liquid contained in the sensor of the thermostatic head. This volume variation allows the transfer of an internal mechanism with a consequent closure or opening of the valve and thus with a modulation of the water flow coming into the heating body. When in a room the required temperature has been reached, the head closes the valve progressively, leaving the minimum amount of water to pass and maintaining a constant room temperature, with a consequent energy saving. Giacomini **R456** thermostatic heads have temperature settings with very high precision obtaining different room temperatures according to individual requirements: 20° dining-room, 16° in bedroom, 19° in kitchen, 24° in bathroom. The law of the 9 January 1991, n° 10 carried out with the a departmental order n.°412 of the 26th of August 1993, in the article 7 paragraph 7 requires the use of devices for automatic setting of the temperature in the different rooms. Among the various methods, heads with thermostatic operation are surely the most reliable, economic and simple to be installed and used.

Technical data

Maximum water temperature 110°C
Maximum system pressure 1 MPa (10 Bar)
Maximum differential pressure across the valve
3/8" e 1/2" : 0,14 MPa (1,4 Bar)
3/4" : 0,07 MPa (0,7 Bar)
Minimum head calibration 8°C in position *
Maximum head calibration 32°C in fully open position

Valve measure	Nominal flow qmN (Kg/h)	Seat authority a
3/8" DN10	160	0,839
1/2" DN15	160	0,839
3/4" DN20	290	0,882

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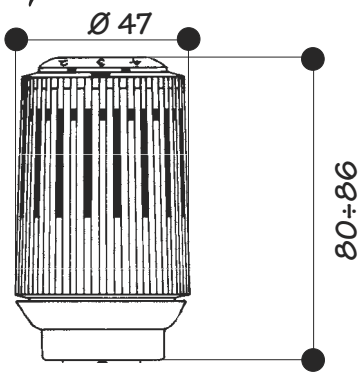
Dimensions



Installation

Open the head by turning anti-clockwise to the fully open position.

Attach the thermostatic head to the valve. Ensure that the half moon recesses on the base of the head align with the protruding lugs on the body.

Fully close the head by turning the handle clockwise to position *

The head is now fitted and the valve can be reopened to the required number setting.

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Head regulation

In order to obtain the right setting position of the R456, please refer to the following table combining the numeration reported on the handle to the corresponding room temperatures carried out in a thermostatic room with a heating body in optimal functioning conditions. When the radiator is installed in positions where water stagnation or cold draught are present, the calibration temperature does not correspond to the middle room temperature because the sensor of the head is influenced by localised activity, and thus it makes the valve close before or it does not close it at all. In those cases it is necessary to proceed with successive resets of the handle position using a mercury thermometer to be positioned in the middle of the room. E.g.: if the head is in 3 position and the room temperature is under the foreseen 20°C with the setting system, this is due to a premature closing of the valve caused by localised activity. In this case it is necessary to lightly rotate the handle to the intermediate position between the numbers 3 and 4. Vice versa when the head is in the 3 position and the temperature is up to the foreseen 20°C, the sensor is effected by a cold draught and consequently the valve remains open. In this case the handle must be rotated to the intermediate position between number 2 and 3. If the room where the thermostatic head is installed is not used, it is possible to obtain maximum energy savings by rotating the handle in the position *, corresponding to the anti-freeze protection temperature 8°C. During summer time it is recommended to position the handle in the max. opening position. ☼

POSITION	*	1	2	3	4	5	☼
REGULATED TEMPERATURE °C	8	10	15	20	25	30	32

Lock and limit facility

After having rotated the handle to the desired position remove the numbered cover using a small screwdriver or similar implement as a lever. Do not change the position of the head for any reason, to avoid loss of calibration of the thermostatic head.

Locking or limiting the head requires the toothed metal ring to be removed.

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Locking the head

With the head in the desired position remove the toothed ring and reassemble it with the external projection fitted into the recess in the moulding, adjacent to the arrow embossed on the moulding. The handle is now locked.
At the end of the operation, re-attach the numbered cover in the initial position.

Limiting the opening of the thermostatic head

The operation of the **R456** thermostatic head can be restricted in either opening or closing. Frequently the maximum opening restriction is used to avoid exceeding the optimum comfort temperature in a room and the associated energy costs.
To limit the opening of the head, turn the handle to the desired maximum setting. Remove the numbered cover and remove the metal toothed ring. Reassemble the ring so that the external projection is positioned to the left of the recess in the moulding, adjacent to the embossed arrow. Reassemble the numbered cover in the initial position.
With the ring in this position, the thermostatic head may be closed to reduce the temperature setting but it can not be adjusted to higher temperatures.
In order to limit the closing of the head (when it is necessary to set a minimum temperature) rotate the head to the desired minimum setting. Remove the numbered cover and remove the metal toothed ring. Reassemble the ring so that the external projection is positioned to the right of the recess in the moulding, adjacent to the embossed arrow. Reassemble the numbered cover in the initial position.
With the ring in this position, the thermostatic head may be opened to higher temperature settings but it can not be adjusted below the selected minimum.

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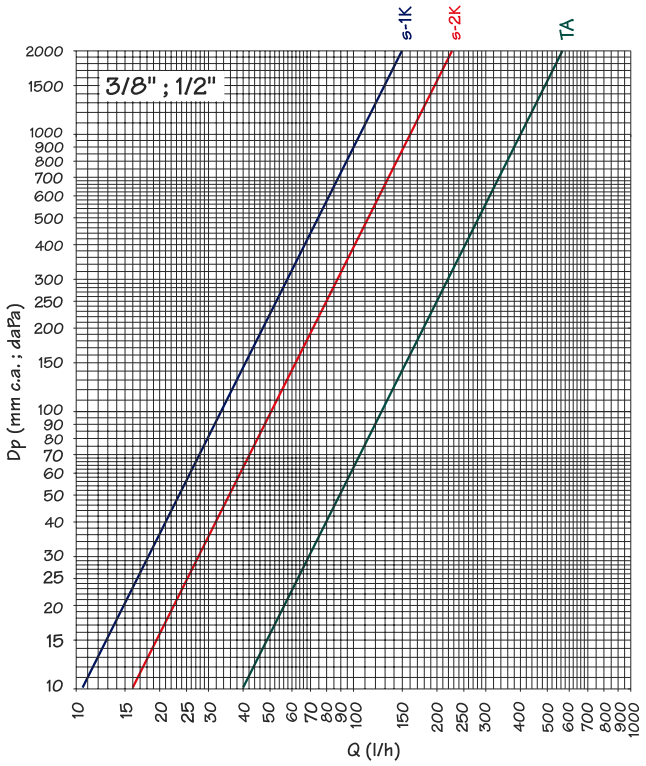
Packaging

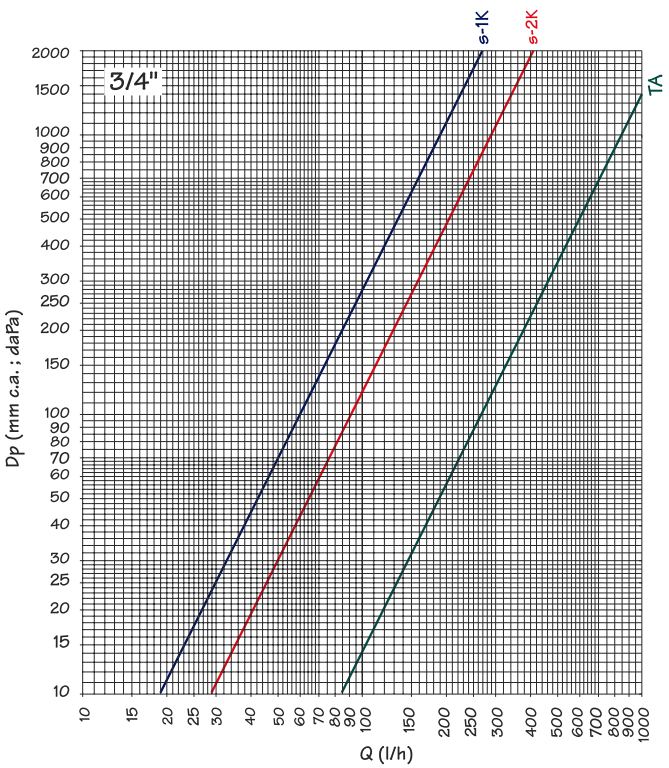
The R456 thermostatic head is available on a card in blister pack. Bar code and the reference between the numeration and the setting temperatures and the installation instructions are inside the packaging. All packaging is made of 100% recycled materials.

Loss of pressure Diagrams

The loss of pressure diagrams have been obtained with the thermostatic head in position 3 with the difference between the ambient room temperature and that required by the valve equal to 1K and 2K (curves s-1K and s-2K) and also with the thermostatic head in the fully open position (curve T.A.), corresponding to the maximum opening of the valve. The diagrams can be used for both straight and angle valves since, for the purposes of thermal calculations, the pressure losses are approximately equal.



	Kv
s-1K	0,332
s-2K	0,506
TA	1,26



	Kv
s-1K	0,601
s-2K	0,917
TA	2,67