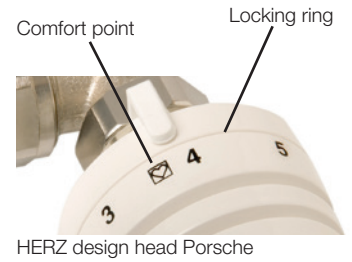


# Thermostatic valves



## COMFORT

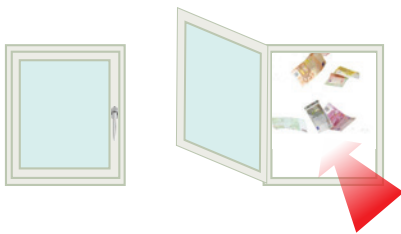
Providing cosy warmth in all premises is an issue that lies close to our hearts. HERZ thermostatic valves provide room temperature control directly at the individual radiators. The liquid sensor integrated into the HERZ thermostat head reacts to every change in the temperature of the immediate surroundings. The interaction with the HERZ thermostatic valve functions automatically. The valve is opened or closed in accordance with the heat demand. This ensures that the room temperature constantly represents the comfort value set. The comfort point on the HERZ thermostat head identifies the optimum balanced setting for comfortable warmth. Individual changes in room temperature can be carried out with ease by turning the hand wheel.



## ENERGY SAVING

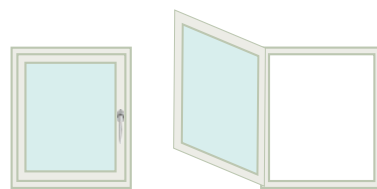
HERZ thermostatic valves look after the environment and the budget for heating costs. One can throw money out of the window or one can reduce the energy consumption of the heating system thanks to the precise Herz regulation. HERZ thermostatic valves regulate the room temperature, depending on the environmental temperature whilst taking external thermal influences into account, without requiring any additional external energy. The highly sensitive HERZ hydrosensor reacts to the smallest change in temperature, long before you can perceive it yourself. Precise regulation reduces the energy consumption of every hot water heating system.

### Manual regulation



Regulation of the room temperature by opening the windows costs energy and money

### Regulation thermostat heads

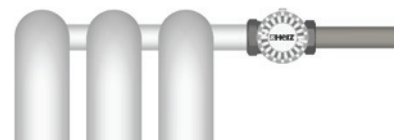


Room ventilation 5 - 10 min, in this time turning the thermostat head to 0 or \* saves energy



Manual regulation, if the setting is left unchanged the room temperature drops

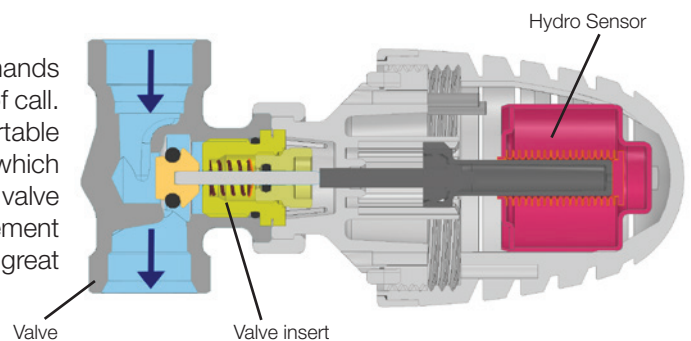
15 % saving\*  
⇒



Automatic regulation, room temperature remains the same, operates mechanically thus no electrical energy consumption.

## FUNCTION

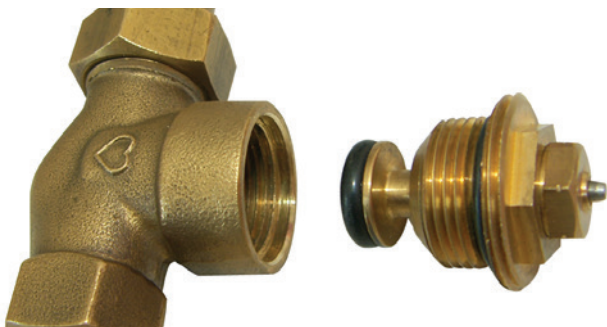
When dealing with thermostatic valves that fulfil the greatest demands on technology, convenience and aesthetics, Herz is the first port of call. Nowadays, we spend most of our time in closed rooms. A comfortable room climate is therefore an inherent part of our quality of life, to which the thermostatic valves from Herz contribute. They comprise a valve and a thermostat, work independently without having any requirement for external energy and offer individual temperature selection for great comfort within the four walls.



\* Possible savings in consumption after installation of thermostats is dependent on the location and the usage as a matter of principle. However, values of ca. 15% are recognised as realistic and are accepted by specialists. In a long-term survey from 1994 to 2000, in a total of 3,974 homes, HERZ fittings achieved a mean saving of 27%, whereby a hydraulic comparison was also carried out (reduction and correction of the quantities of water required).

## APPLICATION AREAS

The areas of application for the HERZ thermostatic valves are universal. In residential areas, in the working area, in public buildings, or in short - in the smallest and largest premises, a cosy atmosphere can be provided all over with thermostatic valves from Herz. HERZ thermostatic valves can be employed independent of the raw materials used (threaded pipes, copper, mild steel or composite) - even for the regulation of underfloor heating with plastic pipes. The great variety of Herz valves with various different construction forms and nominal diameters ensures a practical range of fittings. HERZ thermostatic valves are always the right choice - both with planning a new system and with the conversion and retrofitting of thermostatic valves to an existing system.



HERZ regulating valves from older generations can be retrofitted with the upper parts of the thermostat.

## WIDE RANGE OF APPLICATIONS

Herz thermostats are available to suit all Herz valves. The various different models of thermostats are suitable for every installation situation and enable an optimised detection of the room temperature. HERZ thermostatic valves are universally applicable - for the fully automatic and precise regulation of room temperatures between 6 and 30°C for any size of room.



### HERZCULES 9860

The perfect solution for installation in public areas. This thermostat head is theft-proof, resistant to vandalism and is also protected from unauthorised actuation.

## DESIGN

The HERZ thermostat head is also the right choice when an attractive appearance is required. The design of the hand wheel

has been distinguished by the Institute of Design. It is very gratifying, when functional technology, the highest levels of quality and attractive appearance can be unified. Alongside the perfect technology, Herz thermostats delight anew every day with their timeless, beautiful form and are expressions of a sophisticated design style. With Herz thermostats the attractive appearance and reliable function combine to deliver comfort and cosiness.

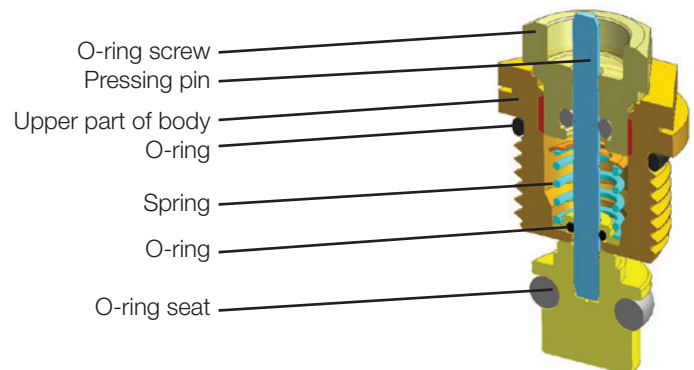


Design 9230

HERZ developed a sophisticated thermostat head design in a joint project together with Porsche Design GmbH.

## INNOVATION

The HERZ thermostatic valves, newly designed in the HERZ development department set the standard. The HERZ development department is constantly working on product improvements and innovations. All of the products from HERZ are distinguished by forward-looking technology and highest quality. The current innovation is proof that the upper part of the HERZ thermostatic valves sets new standards.

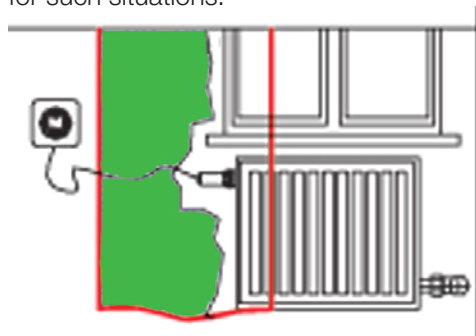


With its 7.5 cm long and 4.5 cm diameter, the **MINI 9200** is incomparably small and yet is equipped with a highly sensitive liquid sensor.

Thermostat head **MINI DE LUXE** with highly sensitive liquid sensor: Quality - perfect aesthetics

## MODEL RANGES

If all construction situations were the same, then only one version of the HERZ thermostatic valve would be required. However, how you plan your heating system should remain your individual choice! It is important that the HERZ thermostatic elements are able to measure the room temperature correctly and without external influences. If the thermostat head is covered by heavy curtains or radiator covers, for example, it cannot sense the room temperature. The HERZ **UNI** thermostat heads with remote sensors or remote operation are designed for such situations.

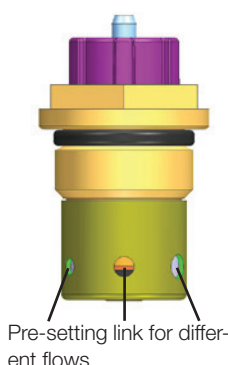


HERZ thermostat with remote adjustment for installation in flush-mounted wall boxes. Thermostat with liquid sensor (hydro-sensor), capillary tube and target value range 6–28 °C, limitation and disabling of the target value range possible, frost safeguard at ca. 6 °C.



**HERZ UNI** - suitable for installation in flush-mounted wall boxes.

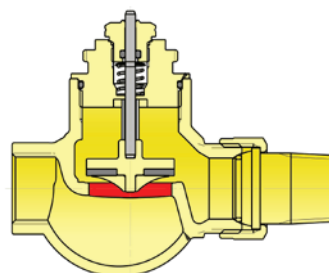
HERZ thermostatic valves comply with all requirements and are also available with and without pre-setting. The pre-setting is determined in accordance with the most varied heating loads during the system dimensioning phase and is set at the valves during installation and commissioning. Flow ranges from "the smallest drops" through to "torrents" are possible with HERZ thermostatic valves. The maximum permissible differential pressure with Herz thermostatic valves, which can be operated with Herz thermostat heads with liquid sensors, is up to 0.6 bar, depending on the dimensions and factory approval. However, in accordance with a directive from the VDMA 2.1.4, a maximum differential pressure of 20 kPa is recommended in order to prevent annoying noise (>30dB) in living areas.



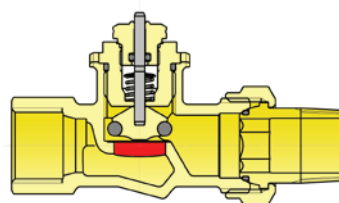
Pre-setting link for different flows

## Design

Two-way and three-way valves  
DN 10, DN 15, DN 20 and DN 25



For single-pipe and gravitational heating systems, Herz **TS-E** thermostatic valves with particularly low resistance.



HERZ universal thermostatic valve **TS-90**

## Model ranges

**HERZ TS-90, TS-90-KV, TS-90-V, TS-90-E, TS-98-V, TS-99-FV, TS-E**

## Technical values:

Medium temperature	2°C - 120°C
Nominal pressure	PN10
Recommended differential pressure	10 - 20 kPa
Max. permissible differential pressure per model	30 - 60 kPa
Min. required differential pressure	5 kPa

## Dimensioning:

Proportional range 0.5 – 3K, recommended 1K  
Valve authority  $f = 0.3 - 0.7$ , recommended  $f=0.5$   
Heating water quality per H5195 or VDI 2035

Seating seal	EPDM
Valve body	Brass, nickel-plated
Valve pin	Stainless steel
Valve spring	Stainless steel

HERZ thermostat head	HERZ thermostatic valves							
	TS-90	TS-90-KV	TS-90-E	TS-E	TS-90-V	TS-98-V	TS-99-FV	TS (1972-1978)
CLASSIC, <b>7230</b>	✓	-	✓	✓	✓	✓	✓	-
STANDARD, <b>7260</b>	✓	✓	✓	✓	✓	✓	✓	-
DESIGN, <b>9230</b>	✓	✓	✓	✓	✓	✓	✓	-
MINI, <b>9200</b>	✓	✓	✓	✓	✓	✓	✓	-
HERZCULES, <b>9860</b>	✓	✓	✓	✓	✓	✓	✓	-
STANDARD single-pipe, <b>7262</b>	-	-	✓	✓	-	-	-	-
STANDARD retro-fitting, <b>7235</b>	-	-	-	-	-	-	-	✓

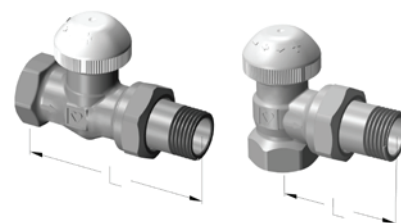
✓ ...recommendation



## SIZE RANGES

NF and DIN for right-angle and straight models, special angled models and 3D three-axis models

	L		L		L	
	DN 10		DN 15		DN 20	
	Series D	Series NF	Series D	Series NF	Series D	Series NF
7723	85	75	95	83	706	98
7724	52	49	58	54	66	63



## PIPE CONNECTION

Female thread connection Rp 3/8", 1/2" universal sleeve, 3/4" and 1"  
male thread connection G 3/4 with EUROKONUS

## THERMOSTAT CONNECTION

M28x1.5, HERZ closing dimensions and stroke unchanged since 1972

## QUALITY

With thermostatic valves from Herz, you can be sure of the best Austrian quality. All HERZ products undergo precision testing. Quality assurance activities in all areas are a normal part of daily business for HERZ. The HERZ quality assurance system represents the applicable requirements from European standards. In addition, a quality management system is applied from development through to sales, attested through the ISO-9001 certificate. HERZ thermostatic valves are also subjected to the certification program of European standard EN 215. They fully and completely represent the requirements and testing criteria of EN 215, which also has the status of a national standard. This testing is repeated periodically thus guaranteeing permanent standards compliance. HERZ thermostatic valves are tested and registered per EN 215. For customers, this quality can be seen in the Herz 5-year guarantee - but primarily can be seen in the fault-free operation, in the robust nature and the long service life of the thermostatic valves.

## IDENTIFICATION



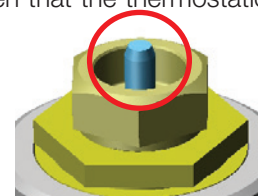
Classification criteria are the water temperature influence, hysteresis and closing time, as well as the differential pressure influence. With classification in efficiency class A, HERZ can verify the contribution of the modern thermostatic radiator valve to energy saving and resource preserving operation in a heating system. We take our consumers' interests into account with this.



The Keymark logo is verification of the products' compliance with European standards. The consumers can be sure that all products bearing the KEYMARK logo comply with the uniform European quality standards.

## MAINTENANCE

If the valve pin in the upper part of the thermostatic valve becomes stuck then the cause is most often that the thermostatic head has been permanently closed (position 0 or \*) outside the heating period, over the summer and so the valve disc in the upper part of the valve (valve insert) is pressed against the valve seat. Dirt and chalk in the system operating medium can lead to deposits on the valve pin. At the start of the heating period, when the thermostat is to be opened again, the valve pin can remain stuck in position due to the deposits. For this reason, the water quality must be compliant with the applicable standards per Austrian standard H5195 or VDI guideline 2035. The upper part of the thermostatic valve can be replaced whilst under pressure with the **HERZ-CHANGEFIX** replacement device. Naturally, the valve installation dimensions remain unchanged. Retrofitting into an old system is no problem! The connection sizes for the HERZ thermostat heads are likewise unchanged. All HERZ thermostat heads can be combined with all HERZ-TS valves – a perfect system!



Cut-out for gripping and pulling the valve pin.

## HERZ GUARANTEE

The HERZ 5-year guarantee is an expression of the high level of quality awareness at HERZ. The results of the high quality standard are a particularly long service life, faultless operation, robust nature and forward-looking technology. We are delighted to provide the HERZ 5-year guarantee for all products - for our satisfaction, for your assurance. Last, but not least, with Herz you have a personal point of contact and so you can be absolutely confident.



### Lower part of thermostatic valve, straight version

Brass, nickel-plated The 90° connection bend is available separately as an accessory under article designation 6249. For copper and mild steel pipes, the HERZ compression set, article designation 6292, is recommended.



7723, 7623, 7523

### Lower part of thermostatic valve, angled version.

Brass, nickel-plated For copper and mild steel pipes, the HERZ compression set, article designation 6292, is recommended.



7724, 7624, 7524

### Lower part of thermostatic valve, reverse-angled version

Brass, nickel-plated For copper and mild steel pipes, the HERZ compression set, article designation 6292, is recommended. Special version 7728AC with bleeding and larger valve seat in conjunction with connecting elements HERZ 1000 and HERZ 2000.



7728, 7628, 7528

### Lower part of thermostatic valve, three-dimensional angled version (3D)

Brass, nickel-plated Model AB for connection to radiator, left. With valve body DN 15 (1/2"), the HERZ compression set, article designation 6292, is recommended for copper and mild steel pipes.



7758, 7658

### Lower part of thermostatic valve, three-dimensional angled version (3D)

Brass, nickel-plated Model CD for connection to radiator, right. With valve body DN 15 (1/2"), the HERZ compression set, article designation 6292, is recommended for copper and mild steel pipes.



7759, 7659

### HERZ CALIS TS three-way-valve

Thermostatic valve, nickel-plated brass. Distribution valve for single-pipe systems, male thread connection, flat-sealing. Thermostatic head recommended for use with external sensor HERZ 9330 or HERZ UNI.



7761

### HERZ CALIS TS 3D and CALIS TS-E 3D three-way valve

Thermostatic valve, nickel-plated brass. Distribution valve for single-pipe systems, (TS-E, specially for gravity installations) male thread connection, flat-sealing. Thermostatic head 7262 specially recommended for use in single-pipe systems.



7761, 7745, 7746

Short designation	Model	Dimensions	DN 15 (1/2")
7723	TS-90-V, TS-90, TS-90-E, TS-E and TS-90-KV	3/8", 1/2", 3/4" and 1"	TS-90-V, TS-90, TS-90-KV, TS-98-V and TS-99-FV are interchangeable. However, the valve seat differs between TS-90 and TS98-V or TS-90-V, with dimensions 10 (3/8") and 20 (3/4").
7623	TS-98-V	3/8", 1/2", 3/4"	
7523	TS-99-FV	3/8", 1/2"	
7724	TS-90-V, TS-90, TS-90-E, TS-E and TS-90-KV	3/8", 1/2", 3/4" and 1"	
7624	TS-98-V	3/8", 1/2", 3/4"	
7524	TS-99-FV	3/8", 1/2"	
7728	TS-90-V, TS-90, TS-90-E, TS-E and TS-90-KV	3/8", 1/2", 3/4" and 1"	
7628	TS-98-V	3/8", 1/2", 3/4"	
7528	TS-99-FV	3/8", 1/2"	

Short designation	Model	Dimensions	DN 15 (1/2")
7758 AB	TS-90-V, TS-90, TS-90-E, and TS-90-KV	3/8", 1/2"	TS-90-V, TS-90, TS-90-KV, TS-98-V and TS-99-FV are interchangeable. However, the valve seat differs between TS-90 and TS98-V or TS-90-V, with dimension 10 (3/8").
7658 AB	TS-98-V	1/2"	
7759 CD	TS-90-V, TS-90, TS-90-E, and TS-90-KV	3/8", 1/2"	
7659 CD	TS-98-V	1/2"	
7761	CALIS TS	1/2", 3/4"	-
7745 AB	CALIS TS-3D	1/2", 3/4"	-
7746 CD	CALIS TS-E-3D	1/2", 3/4"	-

## Noises with thermostatic valves are normally related to the system's differential pressure present at the valve.

There are various different causes for noises or whistling at valves. These noises can be due to contaminated valve seats, due to chippings or due to deposits on the valve seats or the upper part of the valves.

However, most often the cause is the differential pressure being too high at the valve or the system having a differential pressure that is too high. Differential pressures greater than 20kPa at the thermostatic valve can lead to noise being generated. This high differential pressure arises through the water flow being too high, most often due to several thermostatic valves being closed after having reached the preset room temperature.

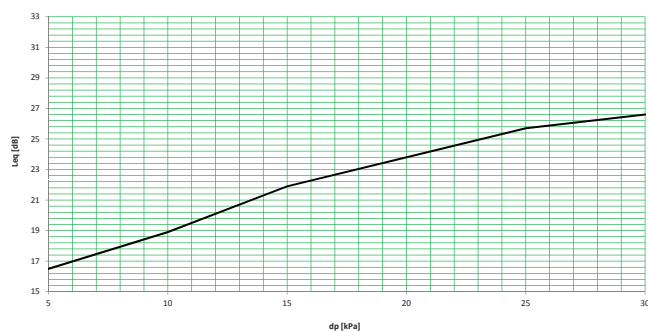
The following measures can be used to rectify this situation:

- With pumps that have multiple power settings, a lower power setting can be selected.
- With systems with a total water flow up to 1,500 l/h, an excess pressure valve can be fitted in a bypass between the supply and the return in order to reduce the differential pressure.
- With larger systems, a differential pressure regulator can be installed in the return line.

This differential pressure regulator is set to the desired system differential pressure and thus regulates the quantity of water flowing.

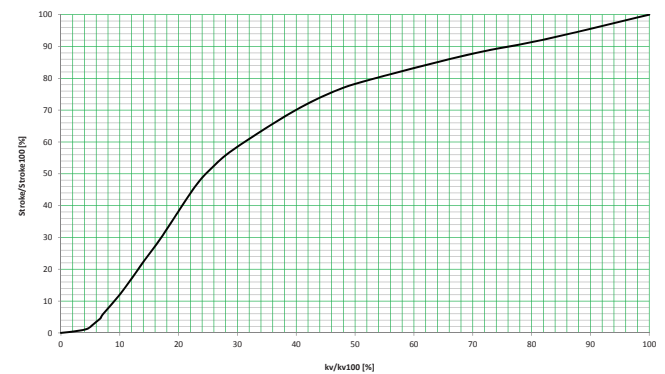
Note that with systems with thermostatic valves, the water flow rates must be correctly regulated during commissioning in order to ensure the proper supply of all heat sources.

In all cases, a specialist should be called upon for guidance.

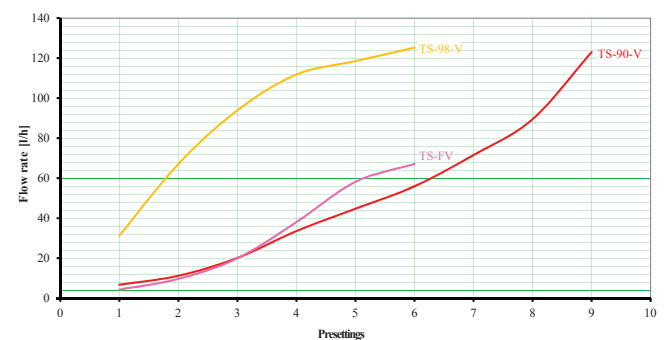


Noises with thermostatic valves are normally dependent on the differential system pressure present at the valve.

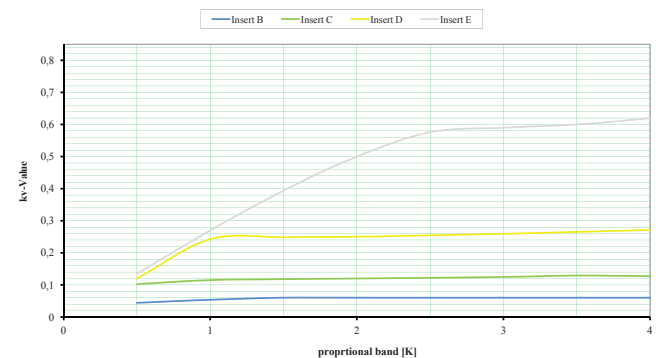
## Characteristic curve - TS series



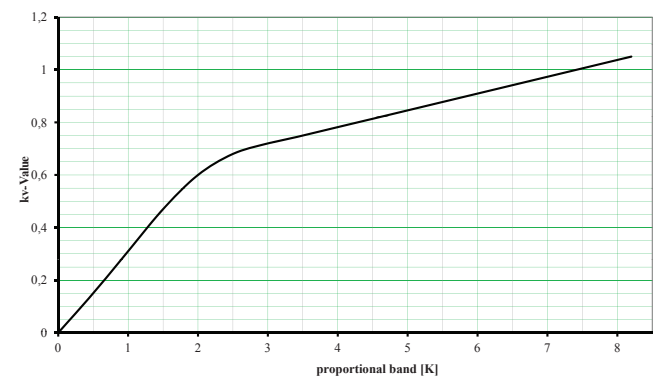
The characteristic curve for the valve shows the relationship between flow and stroke. The characteristic curve shown is typical for small-stroke thermostatic valves.



Thermostatic valves with pre-setting - even with nominal, maximum, identical flow, the stages for each pre-setting differ significantly in order to cater for various different application requirements.



Thermostatic valves with differing, large cone shapes are particularly well suited to systems with small flow rates as no tolerances need be taken into account with small pre-setting values.



The proportional range is the regulated target value temperature deviation (K) if a thermostatic valve is operated with a thermostatic head. The proportional band is yielded, depending on the differential system pressure present at the valve A proportional range of 0.5 K to 2 K is recommended for the design of the thermostatic valve.

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