

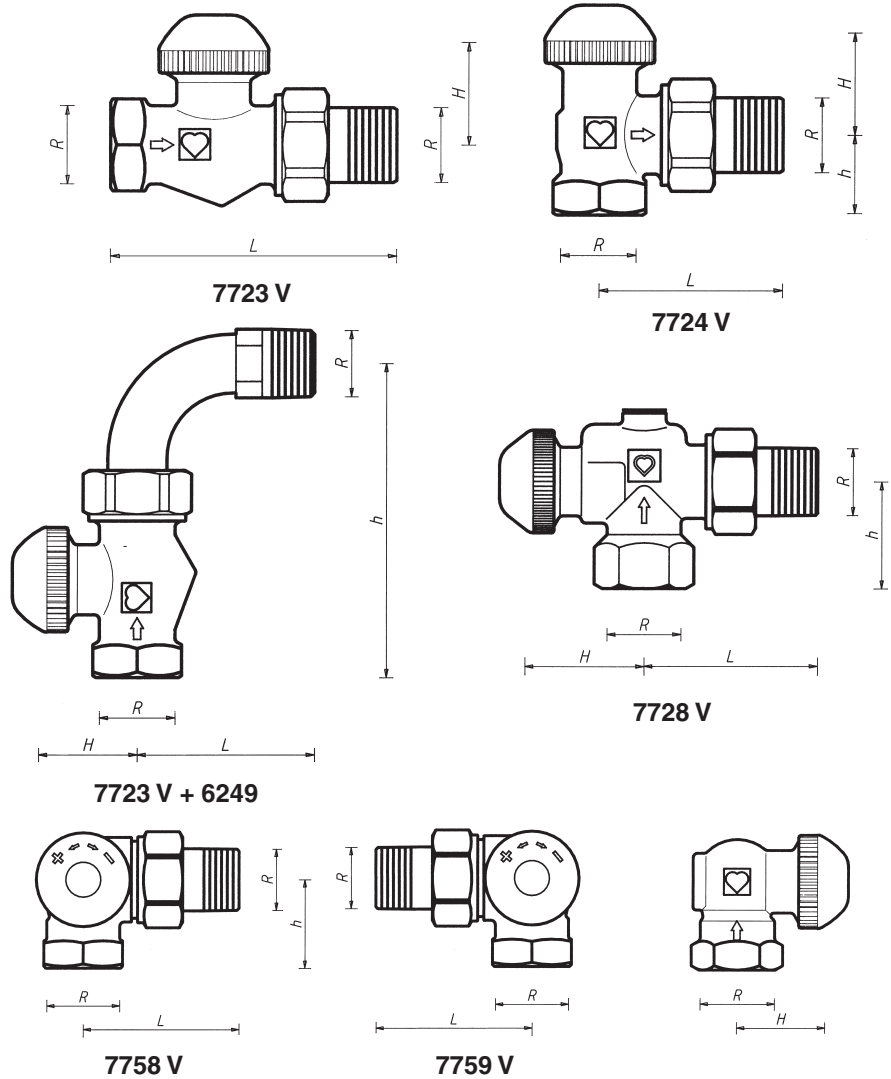
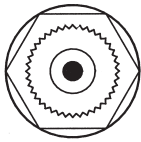
# HERZ-TS-90-V

## Thermostatic valves with continuous, concealed pre-setting

Data sheet for TS-90-V, Issue 0422

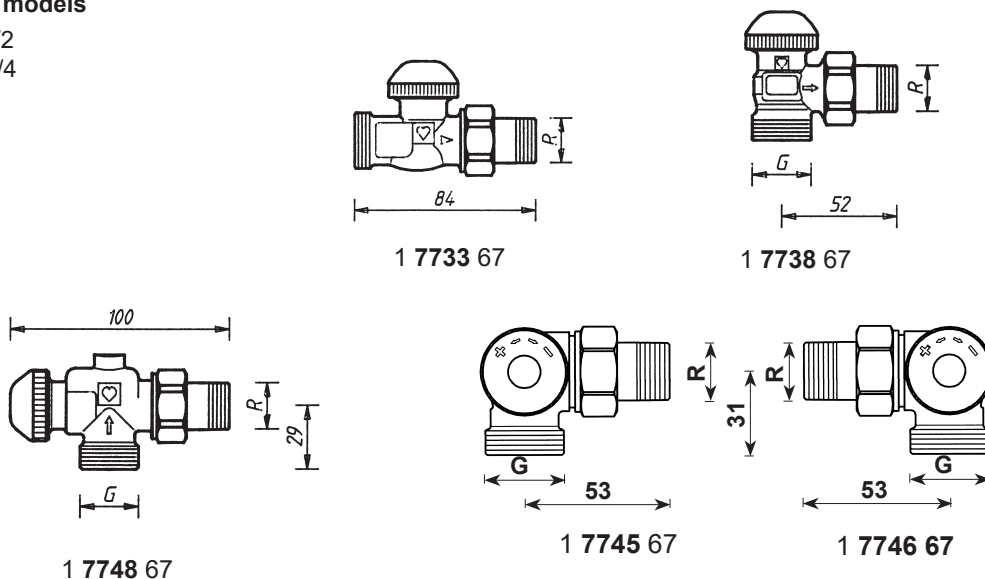
**☑ Dimensions in mm**

HERZ-TS-90-V  
Thermostatic upper part



**☑ Special models**

R = R 1/2  
G = G 3/4



**☑ Dimensions in mm for Standard Series EN 215 T2, HD 1215**

Art. No.	Designation	DN	R	Ø	L	H	h	Order No.
7723 V	Dimensional Series“F”, Straight Valve	10	3/8	12	75	27	-	1 7723 65
		15	1/2	15	83	27	-	1 7723 67
		20	3/4	18	98	27	-	1 7723 69
7724 V	Dimensional Series“F”, Angle Valve	10	3/8	12	49	27	20	1 7724 65
		15	1/2	15	54	23	23	1 7724 67
		20	3/4	18	63	23	26	1 7724 69
7723 V + 6249	EN 215 F Straight valve with elbow	10	3/8	12	40	27	84	Valve and elbow must be ordered separately
		15	1/2	15	54	27	94	
7728 V	Reverse angle model	10	3/8	12	49	35	27	1 7728 65
		15	1/2	15	55	35	29	1 7728 67
7758 V	AB	15	1/2	15	53	26	31	1 7758 67
7759 V	CD	15	1/2	15	53	26	31	1 7759 67
7723 VD + 6249	EN 215 D Straight valve with elbow	10	3/8	12	40	27	94	Valve and elbow must be ordered separately
		15	1/2	15	54	27	107	
		20	3/4	18	60	37	122	

**☑ Models**

All models are nickel plated and supplied with a black screw cap. Universal models with special socket for threaded pipe connection and compression union:

HERZ-TS-90-V	7723 V	3/8 – 3/4	Dimensional Series“F”, Straight Valve
	7724 V	3/8 – 3/4	Dimensional Series“F”, Angle Valve
	7723 V	3/8 – 1/2	Dimensional Series“F”, Straight Model with elbow
	7728 V	3/8 – 1/2	Reverse angle model
HERZ-3-D-V	7758 V	1/2	3-axis valve „AB“, radiator to the left of the intake valve
	7759 V	1/2	3-axis valve „CD“, radiator to the right
	7723 VD	3/8 – 3/4	Dimensional Series“D”, Straight Model with elbow

**☑ Kv value standard flow tolerance**

Pre-setting	kv	Flow tolerance [±%]
1	0,03	
2	0,05	
3	0,09	
4	0,15	
5	0,20	
6	0,25	
7	0,32	
8	0,40	
9	0,55	
max. (kvs)	1,10	

**☑ HERZ-TS-90 Special Valve Models**

HERZ-TS-90-V Special Valve Models, dimension 1/2"

1 7733 67	Straight model, radiator connection with cone seal, pipe connection male thread G 3/4
1 7738 67	Angle model, radiator connection with cone seal, pipe connection male thread G 3/4
1 7748 67	Angle model, special version, radiator connection with cone seal, pipe connection male thread G 3/4
1 7745 67	3-axis valve “AB”, valve left of radiator, radiator connection with cone, pipe connection male thread G 3/4
1 7746 67	3-axis valve “CD”, valve right of radiator, radiator connection with cone, pipe connection male thread G 3/4

### ☑ Other models

<b>HERZ-TS-90</b>	Valves without pre-setting function
<b>HERZ-TS-90-E</b>	Valves with reduced resistance for one-pipe systems
<b>HERZ-TS-E</b>	Valves with maximum flow for one-pipe systems
<b>HERZ-TS-98-V</b>	Valves with continuous, concealed pre-setting
<b>HERZ-TS-90-kv</b>	Valves with fixed kv-values for district heating systems
<b>HERZ-TS-99-FV</b>	Thermostatic valves with ultra-fine 6 position pre-setting and readout

Separate data sheets are available for these models.

### ☑ Operating Data

Max. operating temperature 120 °C  
 Max. operating pressure 10 bar  
 Heating water purity according to Austrian standard ÖNORM H 5195 and/or VDI-guideline 2035.  
 When using HERZ compression unions for copper and steel pipes, observe the permissible temperatures and pressures as specified in EN 1254-2:1998 Table 5. A maximum operating temperature of 95 °C and maximum operating pressure of 10 bar applies for plastic pipe connections, if permitted by the pipe manufacturer.

### ☑ Field of Application

Water heating systems in which hydraulic balancing via return valves is not possible or not desired.

### ☑ Radiator Connection

Iron pipe connection **6210**, with cone seal, installed. It is recommended that the HERZ assembly key **6680** is used.

### ☑ Further Connecting Options

Order numbers can be found in the HERZ Product Range

To be used instead of the radiator connection and on the male thread G 3/4:

<b>6210</b>	1/2	Iron pipe connection, lengths 26 and 35 mm.
<b>6211</b>	3/8	Radiator connection, 1/2 x 3/8.
<b>6213</b>	3/8	Radiator connection, 3/8 x 1/2.
<b>6218</b>	3/8-3/4	Long threaded bush, without nut, can be shortened to even out installation dimension differences. Lengths 3/8 x 40; 1/2 x 76, and 3/4 x 70 mm.
<b>6218</b>	1/2	Threaded bush, without nut. Lengths 39, 42, 48, 36 and 76 mm.
<b>6235</b>	5/8-3/4	Solder connection, for pipe external diameters 12, 15 and 18 mm.
<b>6249</b>	3/8-3/4	Iron pipe connection elbow, without nut, conical seal.
<b>6274</b>	G 3/4	Compression adapter for chrome-plated metal pipes and stainless steel pipes, for external pipe diameters 8, 10, 12, 14, 15, 16 mm.
<b>6275</b>		Plastic pipe connection nipple of brass, nickel-plated, for direct distributor connection, conically-sealing. Female, male thread.
<b>6276</b>	G 3/4	Compression adapters with soft seal, olive, solid rubber seal (EPDM) to pipe, union nut G 3/4, suitable for copper pipes. For external pipe diameters 12, 14, 15, 16 and 18 mm.
<b>6098</b>	G 3/4	Compression adapter for PE-X-, PB and plastic composite pipes.

To be used at the socket side of the valve:

<b>6219</b>	1/2	Reduction socket, brass version, for connecting pipe/valve, female thread (pipe) x male thread (valve), 1 x 1/2, 1 1/4 x 1/2, 1 x 3/4, 1 1/4 x 3/4.
<b>6066</b>	M 22x1,5	Plastic pipe connections for PE-X, PB and aluminium composite pipes, to be used with adapter 1 <b>6272</b> 01 (G 1/2 x M 22 x 1,5).
<b>6098</b>	G 3/4	Compression adapter for PE-X-, PB and plastic composite pipes, to be used with adapter 1 <b>6266</b> 01 (G 1/2 x G 3/4).

For pipe dimensions of plastic pipe connections refer to the HERZ catalogue.

### ☑ Pipe Connecting, Universal Models

The universal models are equipped with special sockets offering the option of connecting either a threaded pipe or calibrated soft-steel or copper pipe, the latter two by means of a compression union. The compression union must be ordered separately. When using R = 1/2" valves for external pipe diameters of 10, 12, 14, 16 and 18 mm use adapter Art. No. **6272** between valve and the compression union.

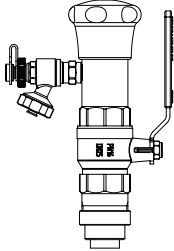
Pipe Ø mm		12	10	12	14	15	16	18
Valve	R =	3/8	1/2					
Adapter	Ord. No.	-	1 <b>6272</b> 01	1 <b>6272</b> 01	1 <b>6272</b> 01	-	1 <b>6272</b> 01	1 <b>6272</b> 11
Comp. Union	Ord. No.	1 <b>6292</b> 00	1 <b>6284</b> 00	1 <b>6284</b> 01	1 <b>6284</b> 03	1 <b>6292</b> 01	1 <b>6284</b> 05	1 <b>6289</b> 01

We suggest using support sleeves for the installation of soft steel or copper pipes with compression union. For perfect compression union installation, it is imperative to lubricate the thread of the locking nut as well as the olive with oil. We refer to our instructions for installation.

**☑ Presetting Function**

Presetting is performed by means of a flow restrictor downstream of the valve seat enclosing the seat. This flow restrictor is continuously adjustable from outside. It does not obstruct the working lift of the valve spindle. Presetting can be performed manually by means of the orange presetting button, by setting the pointer on the presetting button to the figure on the scale of the upper part obtained by calculation or from the HERZ standard diagram. For convenient presetting, the HERZ-TS-98 setting key (1 6809 67) is available, which engages with the teeth of the presetting button.

**☑ Compatible with HERZ-TS-90. Changing the upper part of a thermostatic valve**

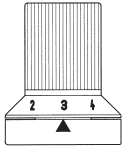


HERZ-TS-90 valves are available in four series with different upper parts:

- HERZ-TS-90 - standard version;
- HERZ-TS-90-kv - thermostatic valves with fixed kv-values;
- HERZ-TS-90-V - thermostatic valves with continuous presetting;
- HERZ-TS-98-V - thermostatic valves with continuous presetting and readout.

If it turns out, while the heating system is in operation that another upper part is to be preferred for individual control of volume flows through the radiator, the HERZ Changefix Tool makes replacing of the upper part easy, even while the heating system is on. The seat seal can be cleaned in the same way. This is an easy way of removing defects in radiator thermostatic valves, caused, e.g., by foreign substances such as dirt, welding or soldering residues. When working with the HERZ Changefix Tool follow the instructions enclosed with this device.

**☑ Setting Process. HERZ-TS-90-V presetting key 1 6809 67 (blue)**



1. Remove HERZ thermostatic head, hand wheel or screw cap.
2. Unscrew the cover screw. Use the insert stored in the handle of the presetting key to engage with the valve and slacken the cover screw by turning to the left (anticlockwise).
3. Screw the presetting key onto the valve and make sure that the teeth engage.
4. Turn the handle of the key clockwise up to the stop. This is the starting point for setting.
5. Turn graduated disk in such a way that the indicator nose corresponds to the "0"-mark of the handle.
6. Hold graduated disk and turn the handle anticlockwise until the desired setting step corresponds to the indicator nose.
7. Unscrew presetting key from the valve without changing the step set.
8. Tighten cover screw by hand
9. Install HERZ thermostatic head or hand wheel.

The value set is secured and inaccessible to unauthorised persons

**☑ HERZ-TS Handwheel**



In the exceptional case that the HERZ thermostatic valve lower part is not equipped with a HERZ thermostatic head, the HERZ-TS handwheel is used to replace the screw cap. During installation, follow the instructions enclosed with the handwheel.

**☑ Spindle seal  
HERZ-TS-90-V Valve upper part**



The spindle seal is a special sealing ring which keeps maintenance requirements at a minimum and ensures ease of valve operation over a long period of time. If the spindle seal is worn, the valve upper part is replaced which means simultaneous replacement of the seat seal which may also be damaged.

The presetting step is to be re-set after changing the upper part.

1. Remove the HERZ thermostatic head or the HERZ-TS handwheel.
2. Unscrew and remove the old upper part and replace it with a new one.
3. Replace HERZ thermostatic head or HERZ-TS handwheel.

The upper part can be changed by means of the HERZ changing tool while the heating system is under pressure. Follow the instructions for the HERZ changing tool.

Order Number for HERZ-TS-98-V Valve upper part: 1 6367 98

### ☑ HERZ Thermostatic Valve Nominal Lift



The screw cap serves for operation during the installation phase (pipe flushing). The thermostatic valve is formed by removing the screw cap and screwing in the HERZ thermostatic head without draining the heating system.

Setting the nominal lift with the screw cap:

On the knurled part of the circumference of the screw cap there are two setting marks (webs in) alignment with the “+” and “-” marks.

1. Close the valve by turning the screw cap clockwise.
2. Mark the position corresponding to the setting mark „+“.
3. Turn the screw cap anti-clockwise until the setting mark “-” is at the position marked under item 2.

### ☑ Installation

The lower part of the thermostatic valve is incorporated into the radiator intake with the flow in the Installation direction of the arrow (arrow on the valve body). If possible, the HERZ thermostatic head should be in a horizontal position in order to permit optimum room temperature control and minimise interference.

### ☑ Important for installation

Under no circumstances should the HERZ thermostatic head be exposed to direct sunlight or to the Important for Installation effects of equipment emitting relevant quantities of heat, e.g. TV sets. If the radiator is covered by curtains this will lead to the formation of a heat accumulation zone in which the thermostat cannot sense the room temperature and consequently is not in a position to properly control it. In such cases, use the HERZ thermostat with remote sensor or the HERZ thermostat with remote adjustment.

For detailed information on the HERZ thermostats consult the individual standard sheets.

### ☑ Summer setting

After the end of the heating period open the valve completely by turning it in an anti-clockwise direction to prevent dirt deposits at the valve seat.

### ☑ Accessoires, handwheels

1 6680 00	HERZ assembly key for connections
1 6807 90	HERZ-TS-90 assembly key
1 6808 67	HERZ-TS-90-V pre-setting key (red), for valves with hexagon head O-ring screw.
1 6809 67	HERZ-TS-90-V pre-setting key (blue), for valves with knurled cover screw.
1 7780 00	HERZ Changefix Tool for HERZ thermostatic inserts.

### ☑ Spare parts

1 6367 97	HERZ-TS-90-V Upper thermostatic insert
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### ☑ Disposal

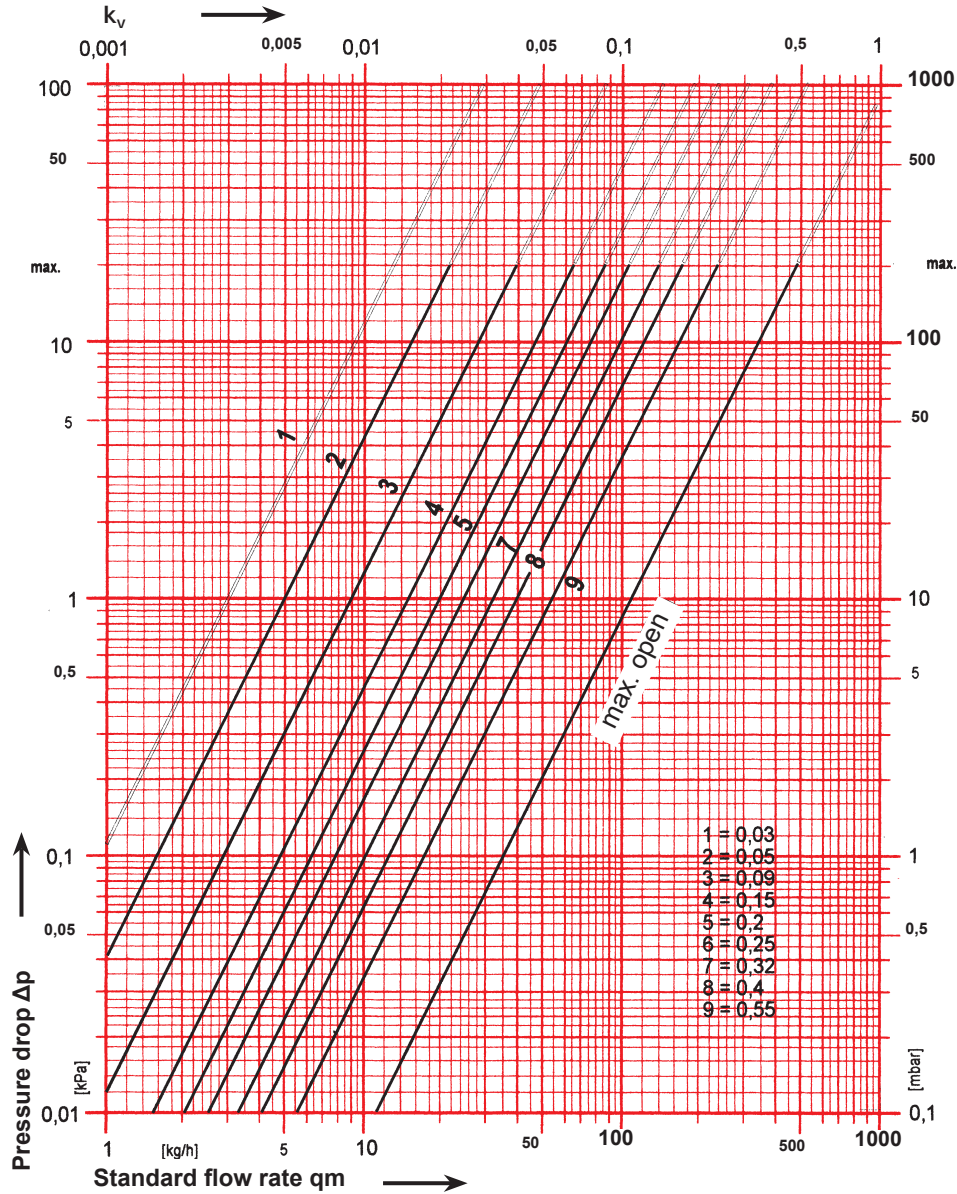
Local and currently applicable legislation must be observed for disposal.

### ☑ Material

Pursuant to Article 33 of the REACH Regulation (EC No. 1907/2006), we are obliged to point out that the material lead is listed on the SVHC list and that all brass components manufactured in our products exceed 0.1 % (w / w) lead (CAS: 7439-92-1 / EINECS: 231-100-4). Since lead is a component part of an alloy, actual exposure is not possible and therefore no additional information on safe use is necessary.

<b>HERZ Standard Diagram</b>	<b>HERZ-TS-90-V</b>
Art. No. 77XX V	Dim. DN 10 R = 3/8 • DN 15 R = 1/2 • DN 20 R = 3/4

Valve dimensioning [ $\Delta p$ ] shall be performed in accordance with the "VDMA-Instruction Sheet for Planning and Hydraulic Balancing of Heating System with Thermostatic Radiator Valves". VDMA = Association of German Constructors.



The curves "1-9" apply to the nominal lift (2 K) of the valve cone.

p - deviation [K] Presetting	kv-value							
	0,5	1	1,5	2	2,5	3	3,5	4
1	0,03	0,03	0,03	0,03	0,03	0,03	0,03	0,03
2	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,05
3	0,08	0,09	0,09	0,09	0,09	0,09	0,09	0,09
4	0,12	0,15	0,15	0,15	0,15	0,15	0,15	0,15
5	0,14	0,19	0,20	0,20	0,20	0,20	0,20	0,20
6	0,14	0,23	0,24	0,25	0,25	0,25	0,25	0,25
7	0,15	0,28	0,31	0,32	0,32	0,32	0,32	0,32
8	0,16	0,31	0,38	0,40	0,41	0,42	0,42	0,42
9	0,17	0,32	0,45	0,55	0,63	0,67	0,69	0,71