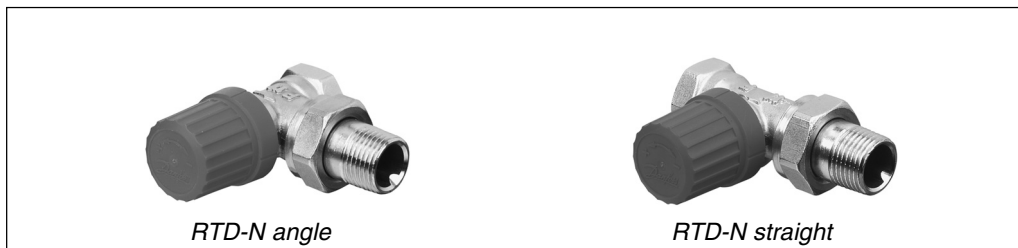




Application



The nickel-plated valve bodies RTD-N are used in two-pipe central or individual water-based heating systems with pump.

RTD-N is fitted with built-in presetting of max. water flow within the following setting ranges:  
 Rp 1/2" connection:  $k_v = 0.04 - 0.53 \text{ m}^3/\text{h}$   
 Rp 3/4"-1" connection:  $k_v = 0.09 - 0.71 \text{ m}^3/\text{h}$

All thermostatic sensors in the RTC/RTD-series can be combined with all RTD-N valves. A union nut attachment ensures a simple, firm connection between sensor and valve body.

Dimensions according to CEN Euronorm HD

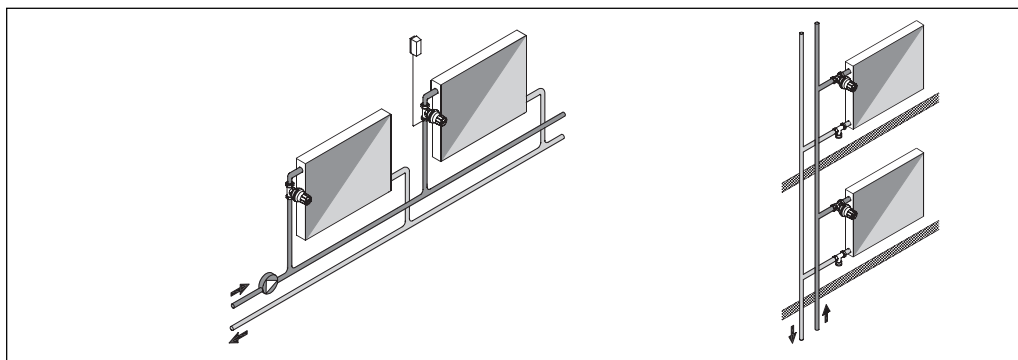
1215-2 series F. Besides the standard length, RTD-N is also available with an extended length tailpiece. This version is primarily for replacement of hand valves.

The technical data for RTD-N valve bodies in combination with RTC/RTD sensors meet Euronorm EN 215-1.

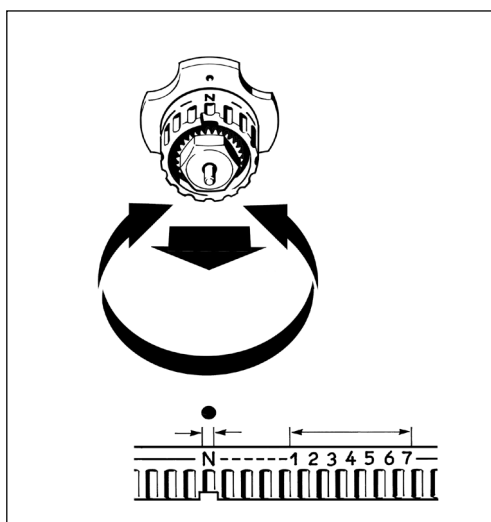
For easy identification the protective cap is red. The valves are nickel plated.

In order to avoid deposition and corrosion the composition of the hot water must be in accordance with the VDI 2035 guideline (Verein Deutscher Ingenieure).

System



Presetting



The calculated setting value can be set easily and accurately without using special tools:

- remove the protective cap or sensor.
- raise the setting ring.
- turn the scale on the setting ring until the desired value faces the reference mark (•) orientated towards the valve outlet.
- release the setting ring. Factory setting = N.

The presetting can be chosen from values between 1 and 7 with intervals of 0.5. At setting N the valve is completely open.

When the sensor is mounted, the presetting is hidden and thus protected against unauthorized alteration.

Ordering and specifications

RTD-N Valves, standard version (short)

Type	Code no.	Version	ISO 7-1 Connection		Presetting									Max. pressure		Test-pressure	Max. water-temp.	
					k <sub>v</sub> -value <sup>1)</sup>									k <sub>vs</sub>	Working-pressure			Diff- <sup>2)</sup> pressure
					in R <sub>p</sub>	out R	1	2	3	4	5	6	7					
RTD-N 15 <sup>3) 4)</sup>	<b>013L3763</b> <b>013L3764</b>	angle straight	1/2	1/2	0.04	0.08	0.12	0.18	0.25	0.32	0.38	0.53	0.90	10	0.6	16	120	
RTD-N 20	<b>013L3765</b> <b>013L3766</b>	angle straight	3/4	3/4	0.09	0.14	0.18	0.25	0.31	0.40	0.51	0.71	1.40					
RTD-N 25	<b>013L3767</b> <b>013L3768</b>	angle straight	1	1	0.09	0.14	0.18	0.25	0.31	0.40	0.51	0.71	1.40					

- 1) The k<sub>v</sub>-value indicates the water flow (Q) in m<sup>3</sup>/h at a given lift and a pressure drop (Δp) across the valve at 1 bar.  $k_v = Q / \sqrt{\Delta p}$ . At setting "N" the k<sub>v</sub>-value is stated according to EN 215, at Xp = 2K. At lower presetting values Xp is reduced to setting 1, Xp = 0.5. At presettings between "1" and "N", Xp is between 0.5 and 2 K. Xp = 2 K means that the valve is closed at 2 °C higher room temperature. The k<sub>vs</sub>-value states the flow Q at a maximum lift, i.e. at fully open valve.
- 2) The max. differential pressure specified is the maximum pressure at which the valves give satisfactory regulation. As with any device which imposes a pressure drop on the system, noise may occur under certain flow/pressure conditions. A differential pressure between 0.1 and 0.3 bar across the valves is recommended. The differential pressure can be reduced using Danfoss differential pressure regulators.
- 3) Inlet thread connection prepared for compression fittings, see accessories.
- 4) Fitting of plastic tube, see accessories.

Capacity

Sizing example

Heat demand: Φ = 1500 kcal/h ~ 1.74 kW  
 System temperature drop: Δt = 20 °C  
 Differential pressure: Δp = 0.10 bar = 10 kPa  
 Calculated water quantity:  
 $Q = 1500/20 = 75$  litres/hour

The settings are found in the capacity diagrammes on the next pages:  
 RTD-N 15: Presetting value 5  
 RTD-N 20/25: Presetting value 4  
 If the sizing point found is between two settings, the highest setting is chosen.

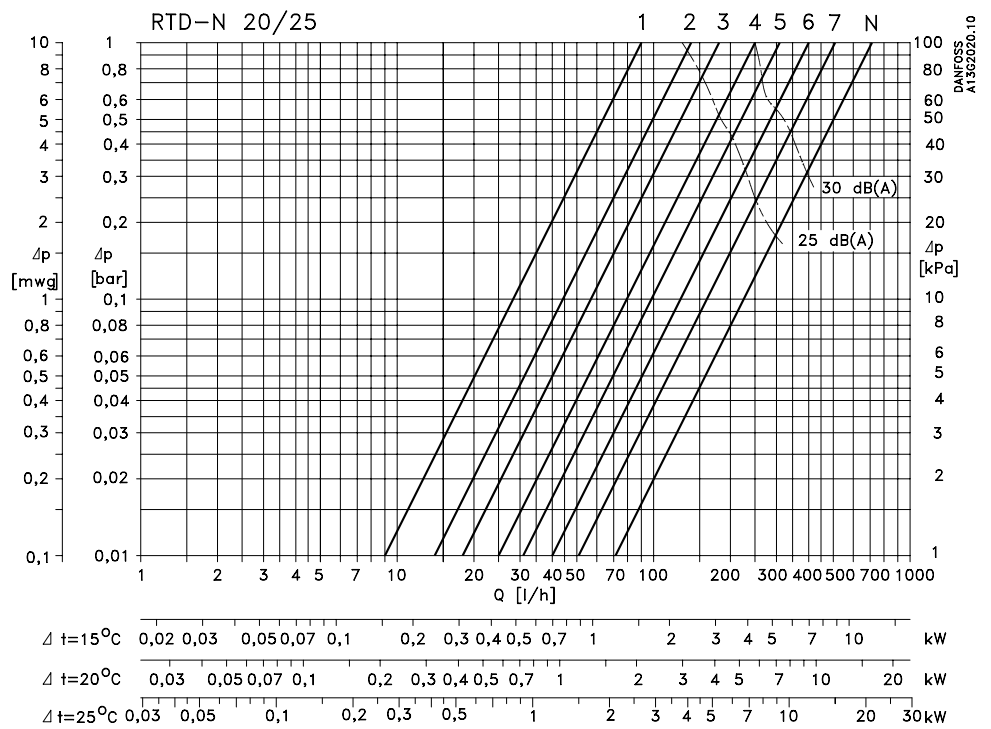
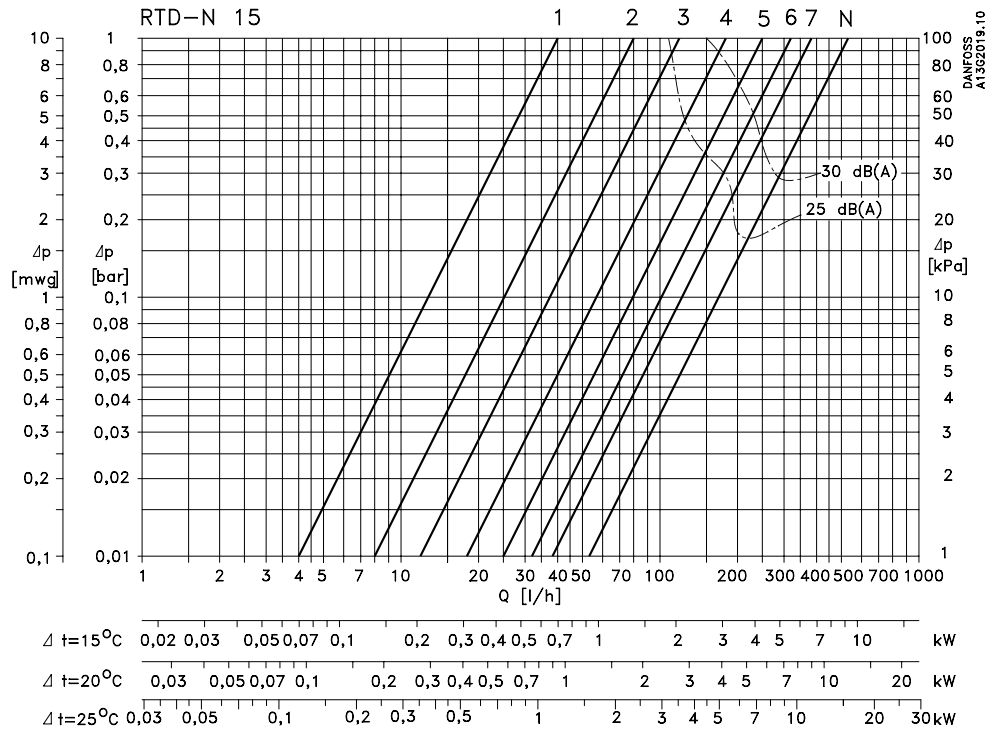
Alternatively, the settings can be found directly in the table "Ordering and specifications"

$$k_v = \frac{Q}{\sqrt{\Delta p}} = \frac{0.075}{\sqrt{0.1}} = 0.23 \text{ m}^3/\text{h}$$

Measuring conditions for noise curves

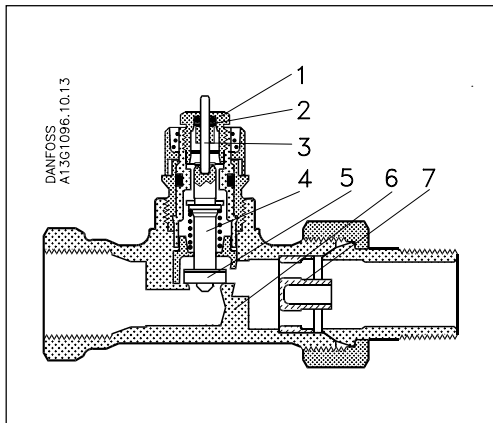
Test chamber:  
 ISO 3743 (L:5.3 x W:4.9 x H:2.6 m)  
 Reverberation time: 1 second  
 Basic sound level: L<sub>p</sub> 13-15 dB(A)  
 Radiator: DIN 4722, Type 500/160  
 Microphone position: 1.2 m from valve  
 Noise level:  
 Stated as sound pressure level L<sub>p</sub> dB(A)

Capacity diagrammes



Capacities with P-band between 0.5 K and 2 K.

Design

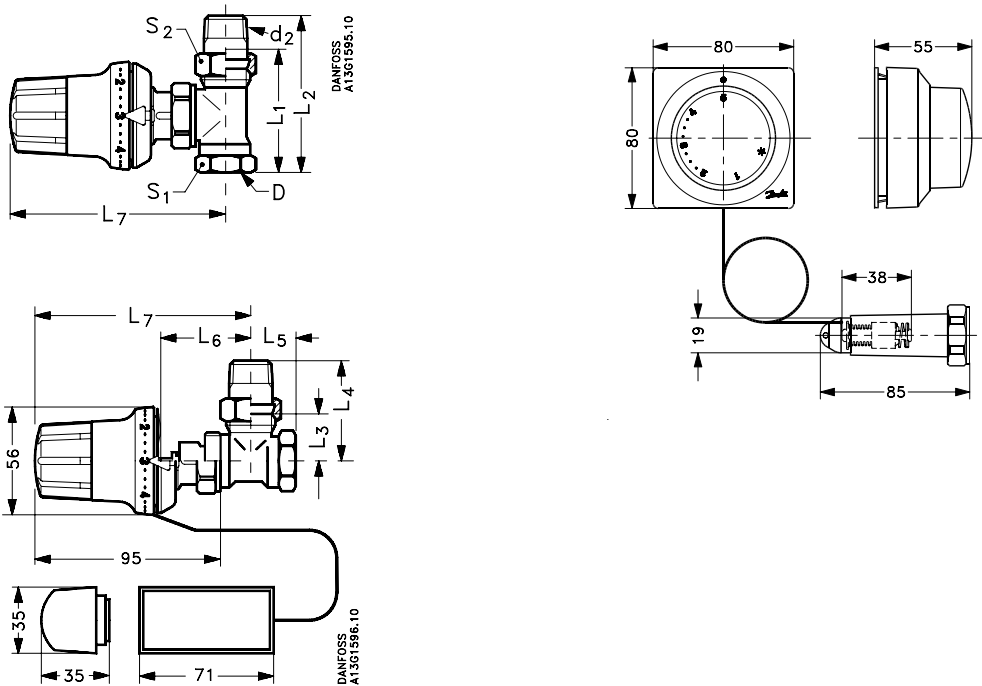


Materials in contact with water

Valve body and other metal parts	Ms 58 nickel-plated brass
Spindle	Corrosion-resistant brass
Throttle nozzle	PPS
O-ring	EPDM
Valve cone	NBR
Pressure pin in gland seal	Chrome steel
Nozzle	PP

1. Gland seal
2. O-ring seal
3. Pressure pin
4. Spindle
5. Valve cone
6. Valve body
7. Throttle nozzle

Dimensions



RTC & RTD-N standard version. Dimensions according to CEN, HD 1215-2

Type	Code no.	Connection		Dimensions									
		D	d <sub>2</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	L <sub>4</sub>	L <sub>5</sub>	L <sub>6</sub>	L <sub>7</sub>	S <sub>1</sub>	S <sub>2</sub>	
RTD-N 15	013L3763/3764	R <sub>p</sub> 1/2	R 1/2	55	82	26	53	23	47	100	27	30	
RTD-N 20	013L3765/3766	R <sub>p</sub> 3/4	R 3/4	65	98	30	63	26	52	105	32	37	
RTD-N 25	013L3767/3768	R <sub>p</sub> 1	R 1	90	125	40	75	34	52	105	41	46	