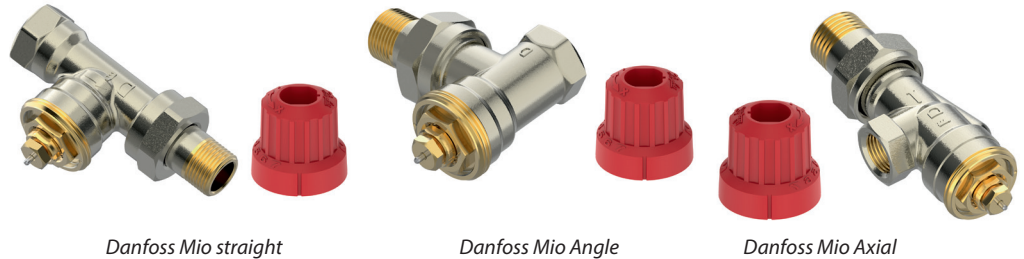


## Data Sheet

# Danfoss Mio radiator valves with presetting

### Application



Danfoss Mio straight

Danfoss Mio Angle

Danfoss Mio Axial

All Danfoss Mio valve bodies can be used together with all types of thermostatic elements in the Danfoss React™ & Danfoss Redia® M30 series and with TWA-K thermal actuators.

Danfoss Mio valves are used in two-pipe heating systems and comes in series D.

Danfoss Mio valves are fitted with a  $k_v$  limiting device for pre-setting of max. water flow and are available with the setting ranges: in the table below.

Each valve body is supplied with a protective cap, which can be used for manual regulation during the construction phase.

This cap must not be used as a manual shut off device. A special manual shut off device is available as an accessory.

The complete gland seal assembly can be replaced without draining down the system.

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). It is recommended that formulations containing mineral oil are avoided.

### Ordering and Technical

Type	Design	Connections		Pre-setting										Code no		
		Inlet Rp	Outlet R	Xp	$k_v$ -max. <sup>1)</sup> (m <sup>3</sup> /h at $\Delta p = 1$ bar)										$k_{vs}$	
					1	2	3	4	5	6	7	N	N			
Danfoss Mio DN10	Angle	3/8	3/8	Xp=1	0.04	0.09	0.13	0.18	0.20	0.21	0.22	0.24	0.65	<b>013L6831</b>		
	Straight			Xp=2	0.04	0.09	0.15	0.23	0.27	0.32	0.35	0.43		<b>013L6832</b>		
	Axial														<b>013L6851</b>	
Danfoss Mio DN15	Angle	1/2	1/2	Xp=1	0.04	0.09	0.13	0.18	0.22	0.25	0.27	0.27	0.90	<b>013L6833</b>		
	Straight			Xp=2	0.04	0.09	0.16	0.24	0.31	0.37	0.42	0.53		<b>013L6834</b>		
	Axial														<b>013L6853</b>	
Danfoss Mio DN20	Angle	3/4	3/4	Xp=1	0.10	0.16	0.20	0.25	0.29	0.33	0.37	0.37	1.40	<b>013L6835</b>		
	Straight			Xp=2	0.10	0.16	0.24	0.32	0.39	0.46	0.56	0.71		<b>013L6836</b>		

<sup>1)</sup> The  $k_v$ -value indicates the water flow (Q) in m<sup>3</sup>/h at a pressure drop ( $\Delta p$ ) across the valve of 1 bar;  $k_v = Q : \sqrt{\Delta p}$ . The  $k_{vs}$ -value states the flow Q at a maximum lift, i.e. at fully open valve at setting N.

### Accessories

Accessories	Code no.
Gland seal	<b>013G0290</b>

### Quality



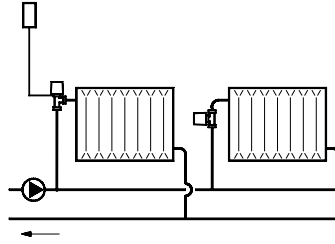
Danfoss Mio valves are certified according to the European standard EN 215.

Danfoss radiator thermostats are manufactured in factories, assessed and certified by BVC (Bureau Veritas Certification) against ISO 9001 and ISO 14001.

# Datasheet

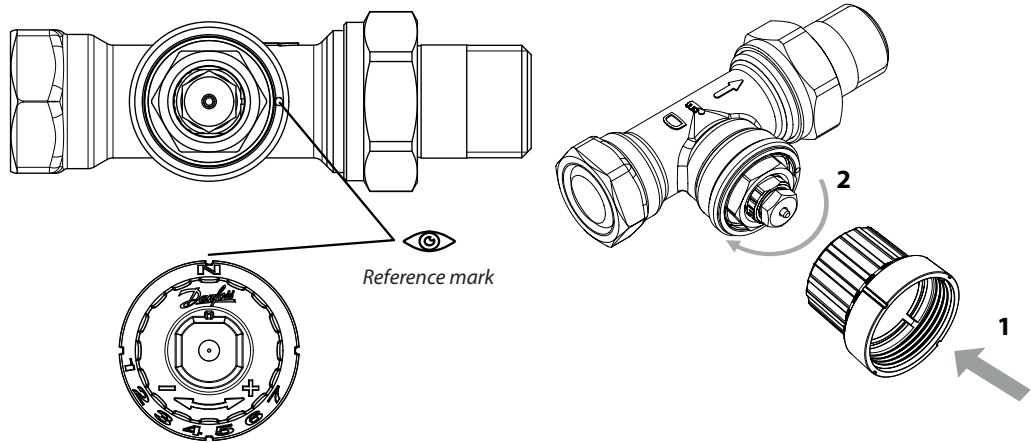
## Danfoss Mio radiator valves with presetting

### Principles

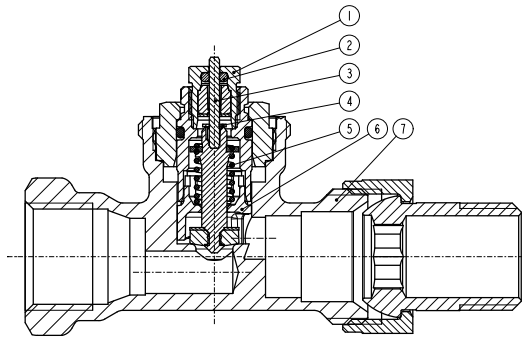


### Presetting

The pre-settings/kv-values of Danfoss Mio can be set on the valve's head in 7 steps + N (fully open) by using the protective cap, which can be turned through 180°.



### Operating principle



- 1. Gland seal
- 2. O-Ring
- 3. Pressure pin
- 4. Seal
- 5. Regulation spring
- 6. Setting dial
- 7. Valve body

The radiator thermostats consist of the thermostatic elements and the valve body Danfoss Mio. The element and the valve body are ordered separately.

The gland seal of the valve can be changed in operation, i.e. with water and pressure on the system.

Valve body	Brass
Setting dial	PPS
O-ring	EPDM
Valve cone	NBR
Pressure pin and valve spring	Chrome steel

Max. ambient temperature	60 °C
Max. medium temperature	120 °C
Max. working pressure	10 bar
Max. differential pressure	0.6 bar
Test pressure	16 bar

*The valve bodies are nickle-plated on the outside.*

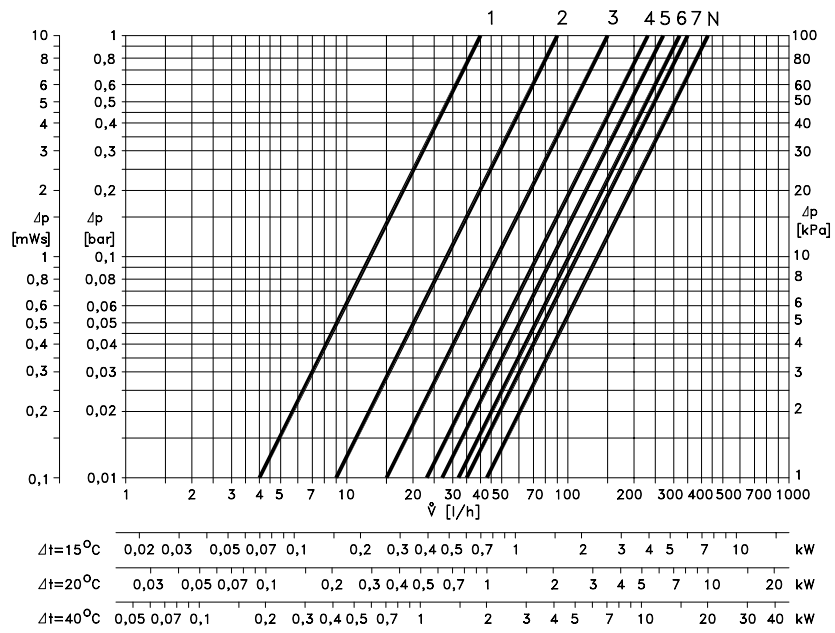
*Working pressure = static + differential pressure. The maximum differential pressure specified is the maximum pressure at which the valves give satisfactory regulation. As with any device which imposes a pressure drop in the system, noise may occur under certain flow/pressure conditions. To ensure quiet operation, maximum pressure drop should not exceed 30 kPa for Danfoss Mio. The differential pressure can be reduced by the use of the Danfoss differential pressure regulators types AB-PM, ASV-P or ASV-PV.*

# Datasheet

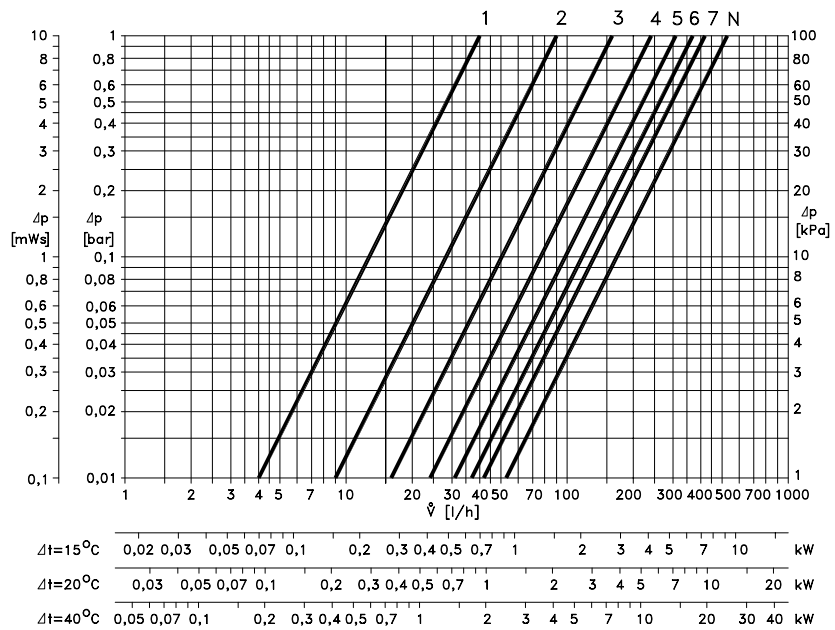
# Danfoss Mio radiator valves with presetting

## Capacities

### Danfoss Mio 10, R<sub>p</sub> 3/8 connection



### Danfoss Mio 15, R<sub>p</sub> 1/2 connection

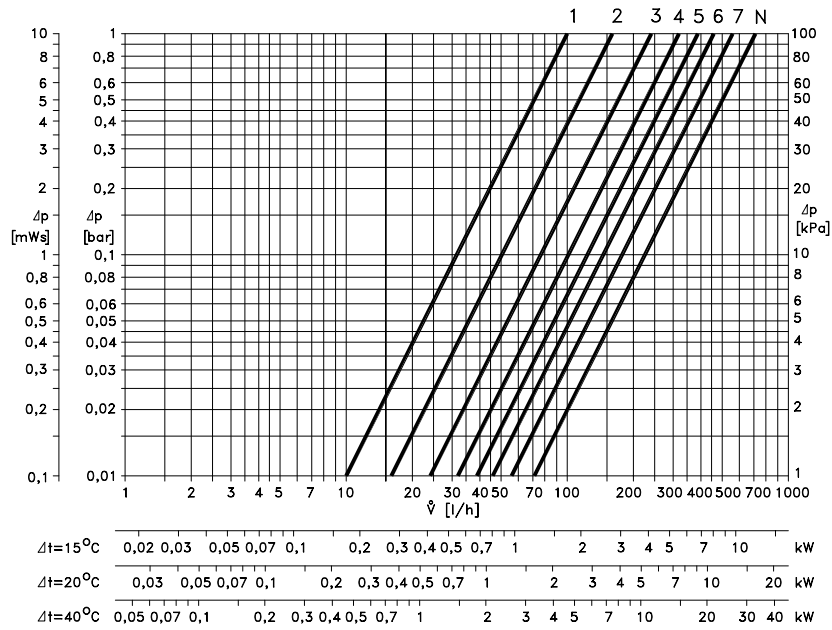


# Datasheet

## Danfoss Mio radiator valves with presetting

### Capacities

#### Danfoss Mio 20, R<sub>p</sub> 3/4 connection



#### Sizing example:

Required heat:	0.7 kW
Cooling across radiator:	20° C
Flow through radiator:	$Q = \frac{0.7}{20 \times 1.16} = 0.03 \text{ m}^3/\text{h} = 30.17 \text{ l/h}$
Pressure drop across valve:	$\Delta p = 10 \text{ kPa}$
Valve setting:	Danfoss Mio 10      2
	Danfoss Mio 15      2
	Danfoss Mio 20      1

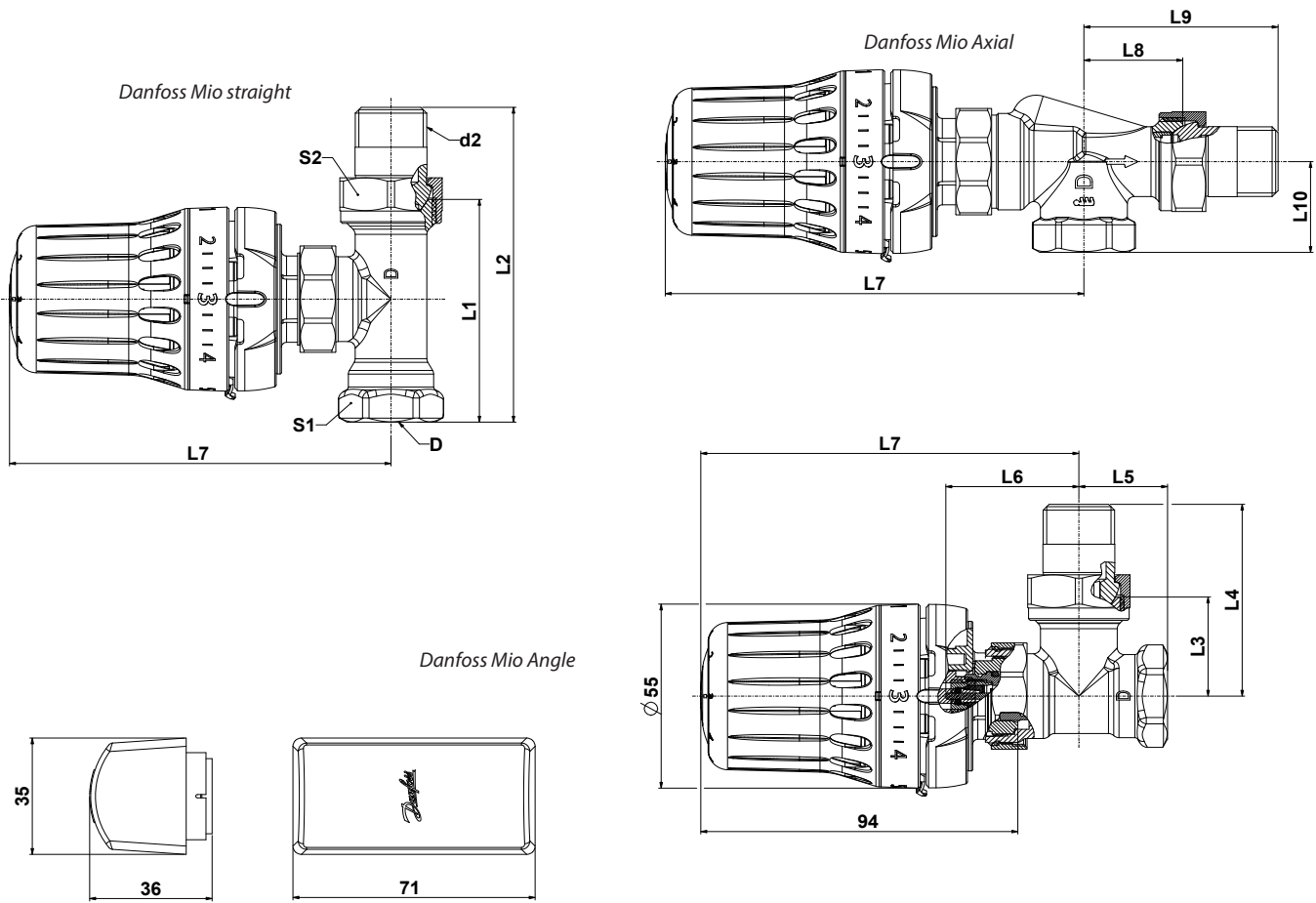
Alternatively the setting can be read directly in the table "Data and Ordering".

$$k_v = \frac{Q \text{ (m}^3/\text{h)}}{\sqrt{\Delta p \text{ (bar)}}$$

# Datasheet

## Danfoss Mio radiator valves with presetting

### Dimensions



Type	Connection			L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	Arc. flats	
	DN	D	d2											S1	S2
Danfoss Mio 10	10	G3/8	R3/8	60	85	27	52	22	39	121	-	-	-	22	27
Danfoss Mio 10 Axial	10	G3/8	R3/8	-	-	-	-	-	-	130	26	51	22	22	27
Danfoss Mio 15	15	G1/2	R1/2	67	95	30	58	26	39	121	-	-	-	27	30
Danfoss Mio 15 Axial	15	G1/2	R1/2	-	-	-	-	-	-	130	29	57	27	27	30
Danfoss Mio 20	20	G3/4	R3/4	74	106	34	66	29	39	121	-	-	-	32	37

### Danfoss A/S

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