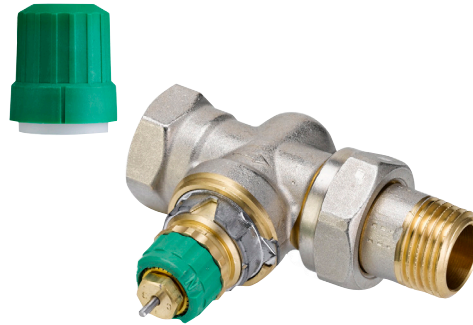


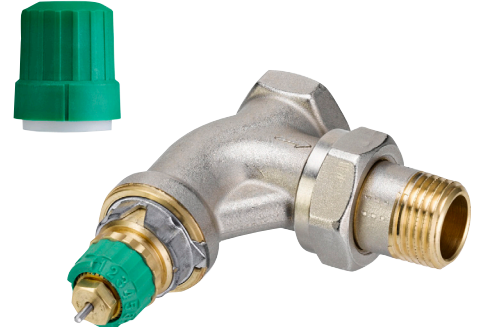
## Data Sheet

# Dynamic Valve™ Type RA-DV Pressure Independent Radiator Valve

### Application



*RA-DV straight version*



*RA-DV angle version*



*RA-DV angle Right & Left*



*RA-DV UK (Axial)*

RA-DV is a series of pressure independent radiator valves, designed for use in 2-pipe heating systems together with all types of thermostatic sensors with Danfoss RA coupling.

RA-DV dynamic valves are fitted with a flow limiting device for presetting of the maximum water flow. The valves are available with maximum water flow of 10 - 135 l/h.

RA-DV has a built-in pressure regulator, which keeps the differential pressure at a constant level of 0.1 bar, thus maintaining the set flow.

RA-DV is supplied with a protective cap, which can be used for manual regulation during the construction phase.

The protective cap must not be used as manual shut off device. A special manual shut off device (code no. 013G5002) should be used.

To be able to distinguish between other valve bodies of the Danfoss RA series the RA-DV protective cap and presetting ring are green.

RA-DV valve bodies are manufactured from brass with a nickel plating.

The gland seal pressure pin is chromium steel and works in a lifetime lubricated O-ring. The complete gland seal assembly can be replaced without draining down the system.

Should water treatment be used it is essential that the manufacturer's dosing instructions are strictly observed. Formulations containing mineral oil should be avoided.

In order to avoid deposition and corrosion the composition of the hot water must be in accordance with the VDI 2035.

### Quality



RA-DV Dynamic Valves™ with sensors RAW, RAE and RAS-C are certified according to the European standard EN 215.

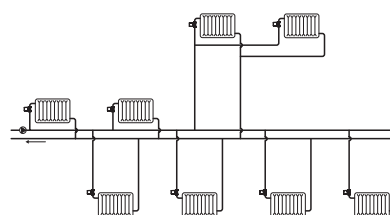
All Danfoss radiator thermostats are manufactured in factories, assessed and certified by BVC (Bureau Veritas Certification) against ISO 9001 and ISO 14001.

## Data Sheet

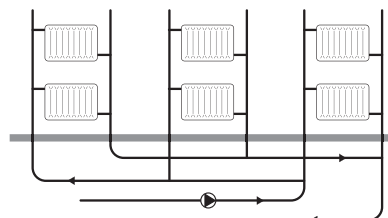
## Dynamic Valve™ Type RA-DV - Pressure Independent Radiator Valve

### Principles

Application example 1



Application example 2



### Ordering

Valve Type	Size	Connection		Design	Code no.
		Inlet	Outlet		
RA-DV	DN10	Rp 3/8	R 3/8	Angle	013G772100
RA-DV	DN10	Rp 3/8	R 3/8	Straight	013G772200
RA-DV	DN10	Rp 3/8	R 3/8	UK (Axial)	013G770900
RA-DV	DN15	Rp 1/2	R 1/2	Angle	013G772300
RA-DV	DN15	Rp 1/2	R 1/2	Straight	013G772400
RA-DV	DN15	Rp 1/2	Rp 1/2	UK (Axial)	013G771000
RA-DV	DN20	Rp 3/4	Rp 3/4	Angle	013G772500
RA-DV	DN20	Rp 3/4	Rp 3/4	Straight	013G772600
<b>Accessories</b>					<b>Code no.</b>
Gland seal, 10 pcs.					013G0290
Δp tool for pump optimization					013G7861
Valve insert with Regulator 5 pieces					013G7831
PFM100 measuring instrument					003L8260

## Data Sheet

## Dynamic Valve™ Type RA-DV - Pressure Independent Radiator Valve

Compression fittings*	Tube dimension	For valve type	Code no.
For PEX plastic tubing, 10 pcs.	12 x 1.1 mm	RA-DV 15	<b>013G4143</b>
	12 x 2 mm	RA-DV 15	<b>013G4142</b>
	14 x 2 mm	RA-DV 15	<b>013G4144</b>
	15 x 2.5 mm	RA-DV 15	<b>013G4147</b>
	16 x 2 mm	RA-DV 15	<b>013G4146</b>
For Alupex tubing, 10 pcs.	12 x 2 mm	RA-DV 15	<b>013G4172</b>
	14 x 2 mm	RA-DV 15	<b>013G4174</b>
	16 x 2 mm	RA-DV 15	<b>013G4176</b>
For steel and copper tubing, 10 pcs.	10 mm	RA-DV 10	<b>013G4100</b>
	12 mm	RA-DV 10	<b>013G4102</b>
	10 mm	RA-DV 15	<b>013G4110</b>
	12 mm	RA-DV 15	<b>013G4112</b>
	14 mm	RA-DV 15	<b>013G4114</b>
	15 mm	RA-DV 15	<b>013G4115</b>

\* For more information on Danfoss compression fittings, please refer to the compression fittings data sheet.

## Technical Data

Max. working pressure <sup>1)</sup>	10 bar							
Max. differential pressure	0.6 bar							
Min. differential pressure	0.1 bar							
Test pressure	16 bar							
Max. working temperature	95° C							
Min. working temperature	2° C							
Presetting	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>N</b>
• Max <sup>3)</sup>	10 l/h	15 l/h	20 l/h	35 l/h	50 l/h	80 l/h	100 l/h	135 l/h
• with with Danfoss Aveo®, Aero® <sup>2)</sup>	9 l/h	14 l/h	18 l/h	30 l/h	45 l/h	70 l/h	90 l/h	130 l/h
• with with Danfoss React™, Redia®, Regus® <sup>2)</sup>	8 l/h	12 l/h	16 l/h	25 l/h	40 l/h	65 l/h	85 l/h	110 l/h

<sup>1)</sup> Working pressure = static + differential pressure. The maximum differential pressure specified is the maximum pressure at which the valves give satisfactory regulation.

<sup>2)</sup> At setting N the value is stated according to EN 215, at XP = 2K i.e. the valve is closed at 2° C higher room temperature. At lower settings the XP value is reduced to 0.5K of the setting value 1. All values are max. flow at 0.1 bar.

<sup>3)</sup> The value states the max. flow at maximum lift, i.e. at fully open valve at 0.1 bar.

## Presetting

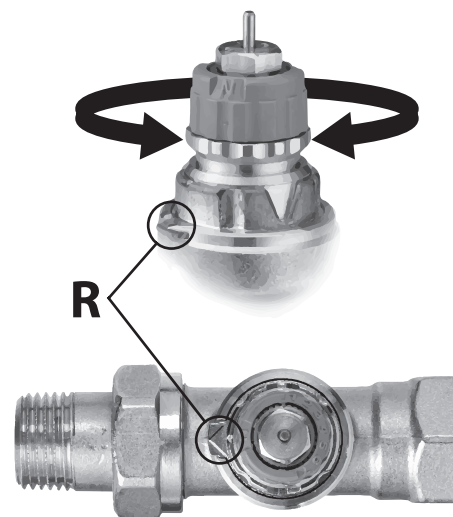
The presetting values of RA-DV valves can be adjusted easily and accurately without the use of tools (default setting = N).

Presetting can be selected in steps from 1 to 7:

- Remove protective cap / thermostatic sensor.
- Find reference mark (R).
- Turn setting ring until the acquired presetting aligns with the reference mark.

At setting N the valve is fully open. This setting can be used as a flushing position, if the system has to be flushed out because of dirt problems.

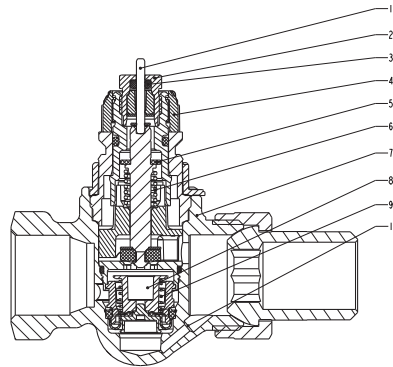
When the thermostatic sensor has been installed, the presetting is protected against unintended regulation.



## Data Sheet

## Dynamic Valve™ Type RA-DV - Pressure Independent Radiator Valve

### Design



1. Pressure pin
2. Gland seal
3. O-ring
4. Setting dial
5. Seal
6. Regulation spring
7. Valve body
8. Regulator
9. Spring
10. Impulse connection

The thermostatic radiator valve consist of a sensor and the valve body RA-DV. Sensor and valve body are ordered separately.

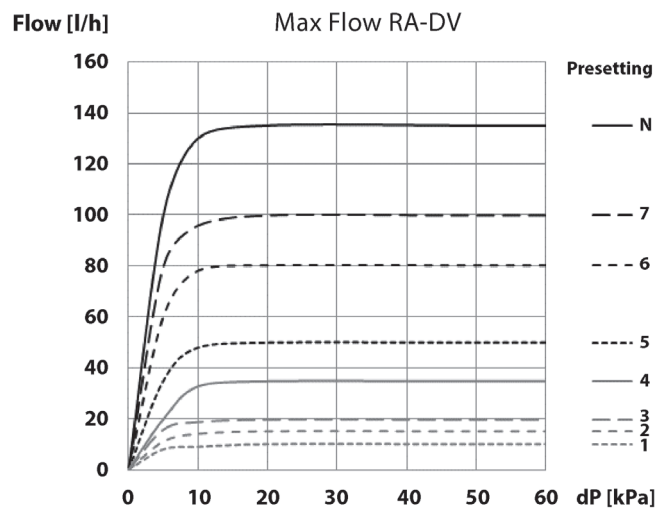
The gland seal of the valve can be changed in operation, i.e. with water and pressure on the system. Counter hold with star spanner number 17 and loosen the gland seal with spanner number 10.

### Materials in contact with water

Valve body and other metal parts	Brass
Valve body surface	Nickle plated
Flow-limiter	PPS
O-ring	EPDM
Valve cone	NBR
Pressure pin and spring	Chrome steel
Regulator	Brass/PPS/EPDM

### Capacities

#### RA-DV max. flow



#### Sizing example

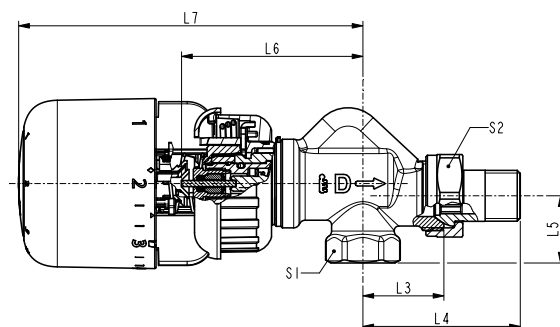
Required heat	700 W
Cooling across radiator	20 °C
Flow through radiator	$Q = \frac{700}{20 \times 1.16} = 30 \text{ l/h}$
Min. pressure for constant flow	0.1 bar
Valve setting*	4

\*Alternatively the setting can be read directly in the table "Technical Data".

## Data Sheet

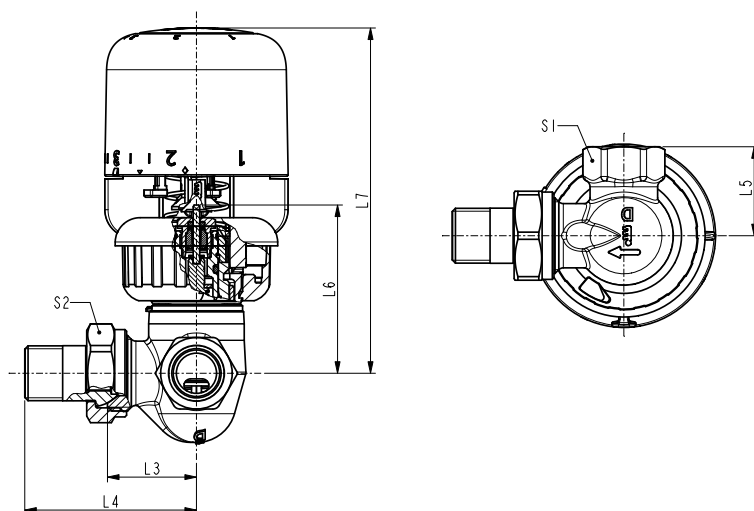
## Dynamic Valve™ Type RA-DV - Pressure Independent Radiator Valve

## Dimensions



RA-DV UK Axial / Danfoss Aero®

Type	Code no.	ISO 7-1			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>	Arc. flats	
		DN	D	d <sub>2</sub>								S <sub>1</sub>	S <sub>2</sub>
RA-DV 10 UK	013G770900	10	R <sub>p</sub> 3/8	R 3/8	-	-	26	51	22	61	114	22	27
RA-DV 15 UK	013G771000	15	R <sub>p</sub> 1/2	R 1/2	-	-	29	58	27	61	114	27	30



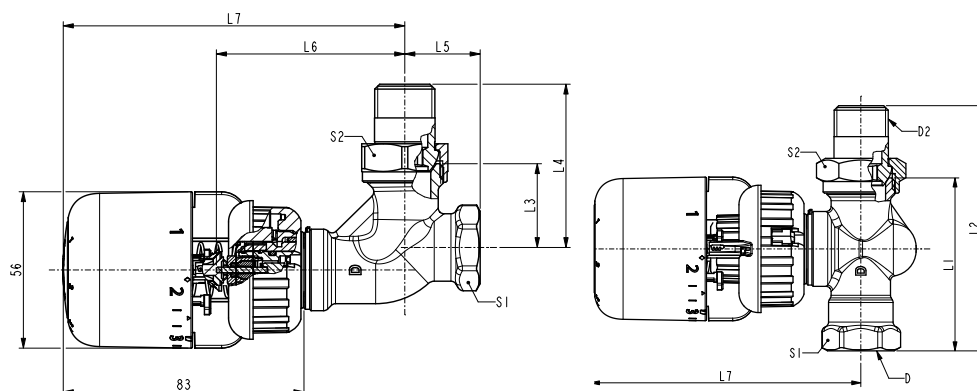
RA-DV right /left valve + Danfoss Aero®

Type	Code no.	ISO 7-1			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>	Arc. flats	
		DN	D	d <sub>2</sub>								S <sub>1</sub>	S <sub>2</sub>
RA-DV 10 right	013G771700	10	R <sub>p</sub> 3/8	R 3/8	-	-	27	52	27	52	105	22	27
RA-DV 10 left	013G771800	10	R <sub>p</sub> 3/8	R 3/8	-	-	27	52	27	52	105	22	27
RA-DV 15 right	013G771900	15	R <sub>p</sub> 1/2	R 1/2	-	-	30	58	33	52	105	27	30
RA-DV 15 left	013G772000	15	R <sub>p</sub> 1/2	R 1/2	-	-	30	58	33	52	105	27	30

## Data Sheet

## Dynamic Valve™ Type RA-DV - Pressure Independent Radiator Valve

### Dimensions



RA-DV DN20 Straight & Angle valve / Danfoss Aero®

Type	Code no.	ISO 7-1			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>	Arc. flats	
		DN	D	d <sub>2</sub>								S <sub>1</sub>	S <sub>2</sub>
RA-DV 10 angle	013G772100	10	R <sub>p</sub> 3/8	R 3/8	-	-	26	51	22	64	116	22	27
RA-DV 10 straight	013G772200	10	R <sub>p</sub> 3/8	R 3/8	58	84	-	-	-	-	104	22	27
RA-DV 15 angle	013G772300	15	R <sub>p</sub> 1/2	R 1/2	-	-	29	57	26	66	119	27	30
RA-DV 15 straight	013G772400	15	R <sub>p</sub> 1/2	R 1/2	65	94	-	-	-	-	104	27	30
RA-DV 20 angle	013G772500	20	R <sub>p</sub> 3/4	R 3/4	-	-	34	67	29	66	119	32	37
RA-DV 20 straight	013G772600	20	R <sub>p</sub> 3/4	R 3/4	74	107	-	-	-	-	105	32	37

*Note! If Danfoss React™, Redia®, Regus® sensors are used instead of sensors from the Danfoss Aero® series the L7 measurement is extended with 12 mm.*

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