

Data sheet

RA-C valves for cooling and heating circuits

Products



RA-C 15 cooling valve

RA-C 20 cooling valve

Together with Danfoss selfacting and electronic controls, RA-C valves make up a perfect combination for control of cooling and heating circuits.

The RA-C valve has 4 presettings, thus the correct quantity of water is ensured for each cooling circuit.

The RA-C valve is a normally open valve. In an application with self-acting sensors type FEK or FED it is ensured that the cooling valve opens when the room temperature is rising above the set temperature.

The valve has two external threads thus fittings for various pipe types may be mounted.

Moreover, Danfoss can also offer a comprehensive range of fittings (see back page).

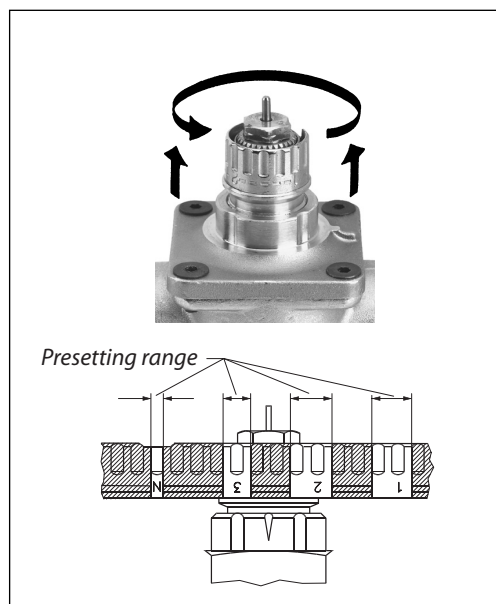
Ordering and specifications

Valve	Connections	Presettings: kv-value ¹⁾ , m ³ /h				k _{v5}	Max. working pressure	Max. differential pressure ²⁾	Test pressure	Water temperature	Code no.
		1	2	3	N						
RA-C 15	2 x G 3/4 A	0.30	0.55	0.75	0.90	1.20	10 bar	0,6 bar	16 bar	10 - 120 °C	013G3094
RA-C 20	2 x G 1 A	0.80	1.10	1.70	2.60	3.30					013G3096

¹⁾ The k_v-values show the flow (Q) in m³/h at a differential pressure (Δp) of 1 bar through the valve. At presetting N the k_v-value is shown at X_p = 3 K. The X_p-value decreases at lower presettings thus the k_v-value at presetting 1 is shown at X_p = 1 K.

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.

Presetting



With the valve body type RA-C the calculated setting can be set easily and exactly without using special tools:

- remove the protective cap or sensor element,
- raise the setting ring,
- turn the scale on the setting ring until the required scale value faces the reference mark,
- release the setting ring.

The presetting can be set at the values: 1 - 2 - 3 and N. At setting N, the valve is completely open.

A setting in the shaded areas should be avoided. When the sensor element is mounted, the presetting is hidden, and is thus protected against alteration.

Pressure and noise conditions

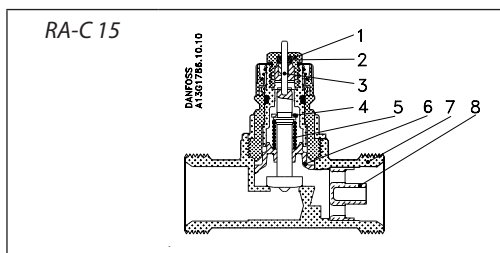
Special demands are made on the various components of the system. This is due to water temperature conditions, the chosen pipe types and pipe dimensions of both chilled ceilings and fancoils/induction units and the structure of the cooling circuits.

flow are often used compared to normal heating systems. This may lead to noise nuisance.

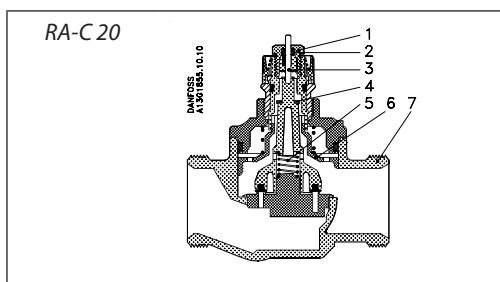
The RA-C valve has especially been designed to correspond to these demands, no matter whether selfacting or electronic controls are used.

In chilled ceilings and fancoils/induction-units relatively large differential pressure and water

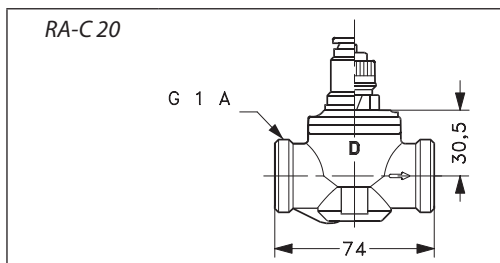
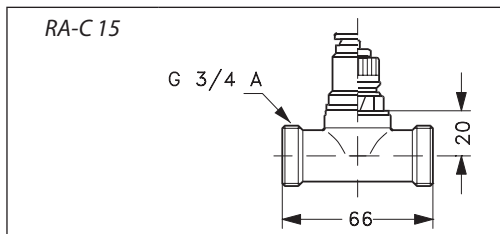
Design



- 1. Gland seal
- 2. O-ring
- 3. Pressure pin
- 4. Seal
- 5. Regulation spring
- 6. Presetting bush
- 7. Valve body
- 8. k_v -nozzle



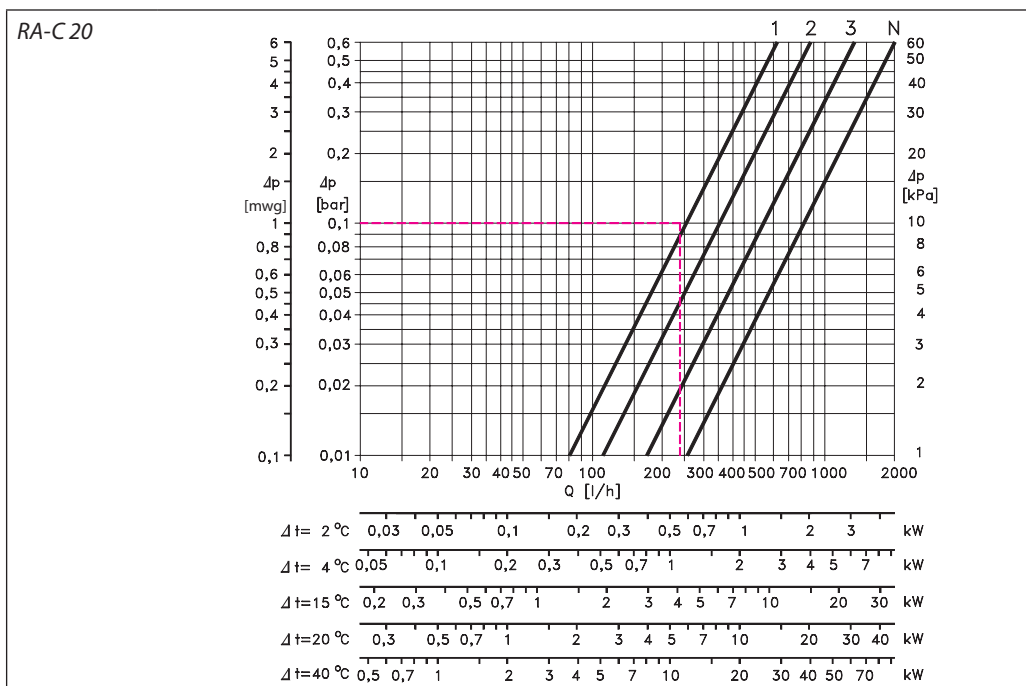
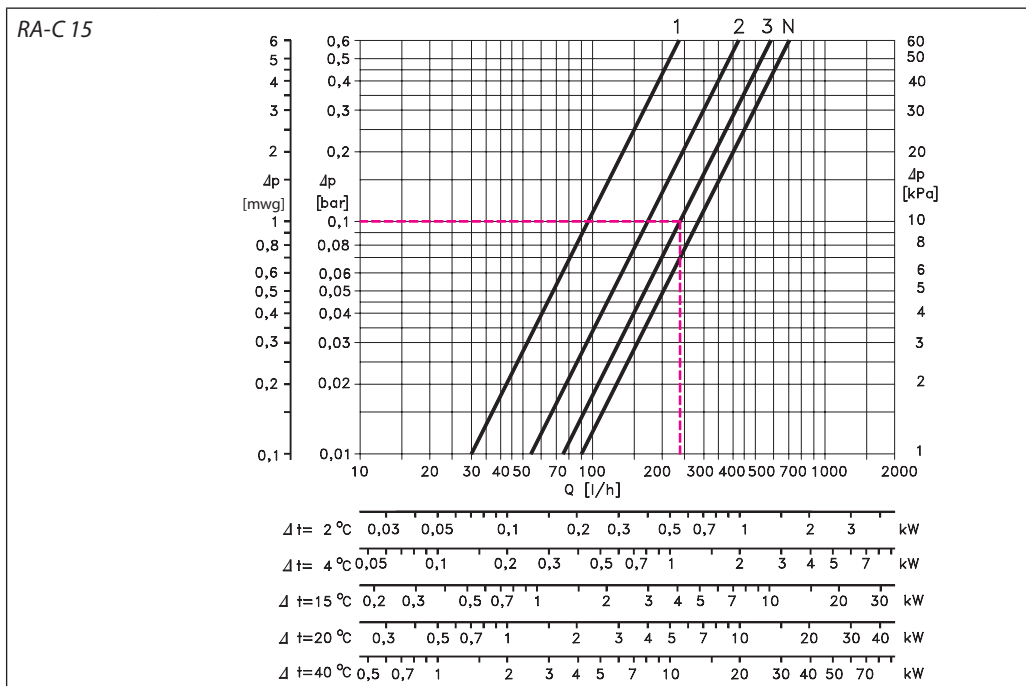
Dimensions



Materials in contact with water

Valve body and other metal parts	Corrosion resistant brass
Spindle	Corrosion resistant brass
Throttle nozzle	PPS
O-ring	EPDM
Valve cone	NBR
Gland seal pressure pin	Chrome steel
k_v -nozzle	PP

Capacities



Sizing example, chilled ceiling:

Cooling demand:	$\Phi = 0.55 \text{ kW}$
System temperature rise:	$\Delta t = 2^\circ\text{C}$
Differential pressure:	$\Delta p = 0.1 \text{ bar}$
Calculated water quantity:	$Q = \frac{550}{2 \times 1.16} = 237 \text{ l/h}$

The setting is found in the capacity diagramme: RA-C 15: Presetting value 3
RA-C 20: Presetting value 1

Capacities with P-band between 1 and 3 K

**Accessories:
Compression fittings**

For PEX plastic tubing Connection	Tube dimension	Max. working pressure	Test pressure	Max. flow temperature	Code no.
G 3/4", internal thread	12 x 2 mm	6 bar	10 bar	95 °C	013G4152
	13 x 2 mm	6 bar	10 bar	95 °C	013G4153
	14 x 2 mm	6 bar	10 bar	95 °C	013G4154
	15 x 2.5 mm	6 bar	10 bar	95 °C	013G4155
	16 x 1.5 mm	6 bar	10 bar	95 °C	013G4157
	16 x 2 mm	6 bar	10 bar	95 °C	013G4156
	16 x 2.2 mm	6 bar	10 bar	95 °C	013G4163
	17 x 2 mm	6 bar	10 bar	95 °C	013G4162
	18 x 2 mm	6 bar	10 bar	95 °C	013G4158
	18 x 2.5 mm	6 bar	10 bar	95 °C	013G4159
	20 x 2 mm	6 bar	10 bar	95 °C	013G4160
20 x 2.5 mm	6 bar	10 bar	95 °C	013G4161	

For Alupex tubing Connection	Tube dimension	Max. working pressure	Test pressure	Max. flow temperature	Code no.
G 3/4", internal thread	12 x 2 mm	6 bar	10 bar	95 °C	013G4182
	14 x 2 mm	6 bar	10 bar	95 °C	013G4184
	15 x 2.5 mm	6 bar	10 bar	95 °C	013G4185
	16 x 2 mm	6 bar	10 bar	95 °C	013G4186
	16 x 2.25 mm	6 bar	10 bar	95 °C	013G4187
	18 x 2 mm	6 bar	10 bar	95 °C	013G4188
	20 x 2 mm	6 bar	10 bar	95 °C	013G4190
	20 x 2.5 mm	6 bar	10 bar	95 °C	013G4191

For steel and copper tubing Connection	Tube dimension	Max. working pressure	Test pressure	Max. flow temperature	Code no.
G 3/4", internal thread	10 mm	10 bar	16 bar	120 °C	013G4120
	12 mm	10 bar	16 bar	120 °C	013G4122
	14 mm	10 bar	16 bar	120 °C	013G4124
	15 mm	10 bar	16 bar	120 °C	013G4125
	16 mm	10 bar	16 bar	120 °C	013G4126
	18 mm	10 bar	16 bar	120 °C	013G4128
G 1"	18 mm	10 bar	16 bar	120 °C	013U0134
	22 mm	10 bar	16 bar	120 °C	013U0135

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