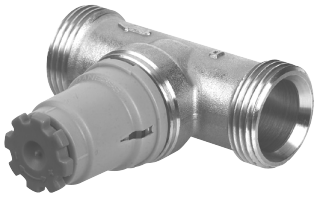
Data sheet

RA-C valves
for cooling and heating circuits

Products



RA-C 15

RA-C 20

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 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 RA-C valve has 4 presettings, thus the correct quantity of water is ensured for each cooling circuit.
The valve has two external threads thus fittings for various pipe types may be mounted.

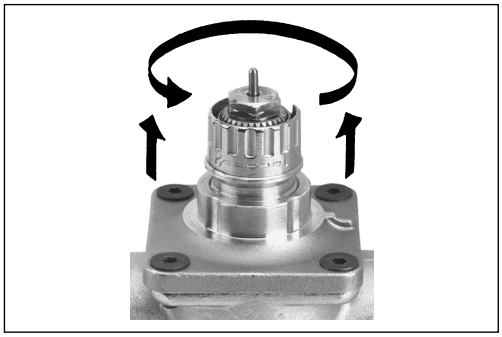
Moreover, Danfoss can also offer a comprehensive range of fittings (see back page).

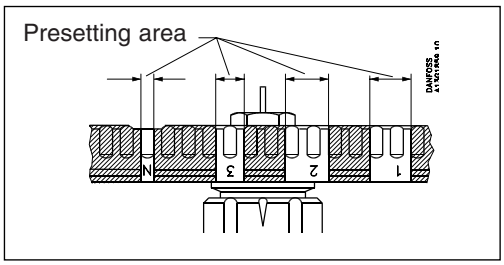
Specifications

Valve	Code no.	Connections	Presettings: k_v-value [1], m^3/h				k_{vs}	Max. working pressure	Max. diff. [2] pressure	Test-pressure	Water temperature
			1	2	3	N					
RA-C 15	**013G3094**	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
RA-C 20	**013G3096**	2 x G 1 A	0.80	1.10	1.70	2.60	3.30				

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

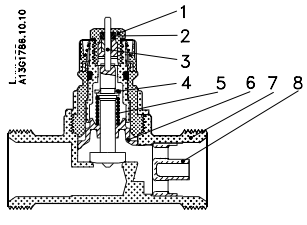
Special demands are made on the various components of the system.
This is due to water temperature conditions, the chosen pipe types and pipe dimensions of both chilled ceilings and fancoils/induction units and the structure of the cooling circuits.

In chilled ceilings and fancoils/induction-units relatively large differential pressure and water flow are often used compared to normal heating systems. This may lead to noise nuisance.

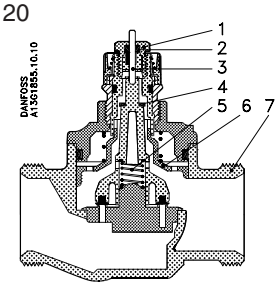
The RA-C valve has especially been designed to correspond to these demands, no matter whether selfacting or electronic controls are used.

Design

RA-C 15



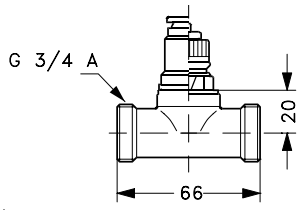
RA-C 20



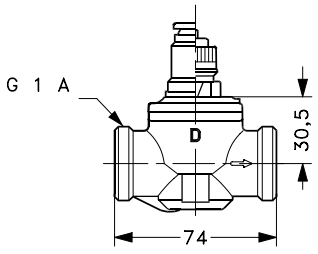
1. Gland seal
2. O-ring
3. Pressure pin
4. Seal
5. Regulation spring
6. Presetting bush
7. Valve body
8. k_V-nozzle

Dimensions

RA-C 15



RA-C 20

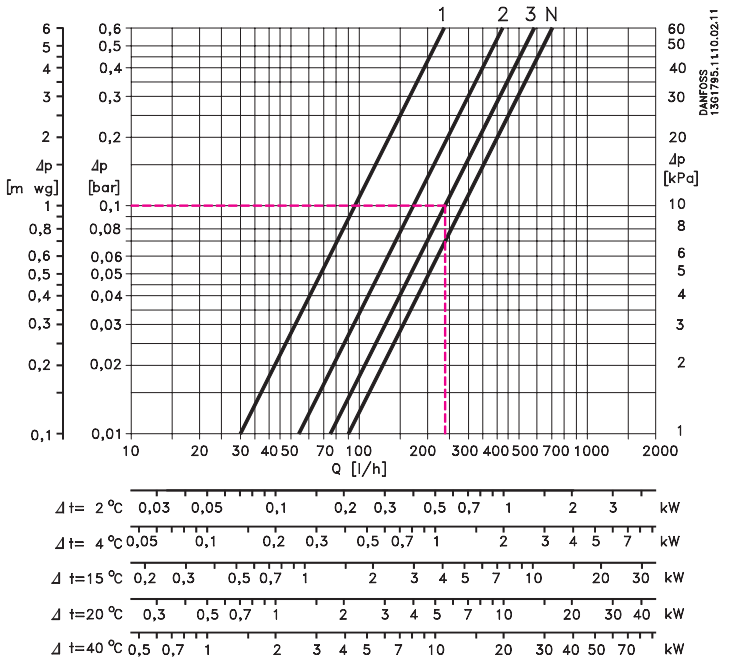


Materials in contact with water

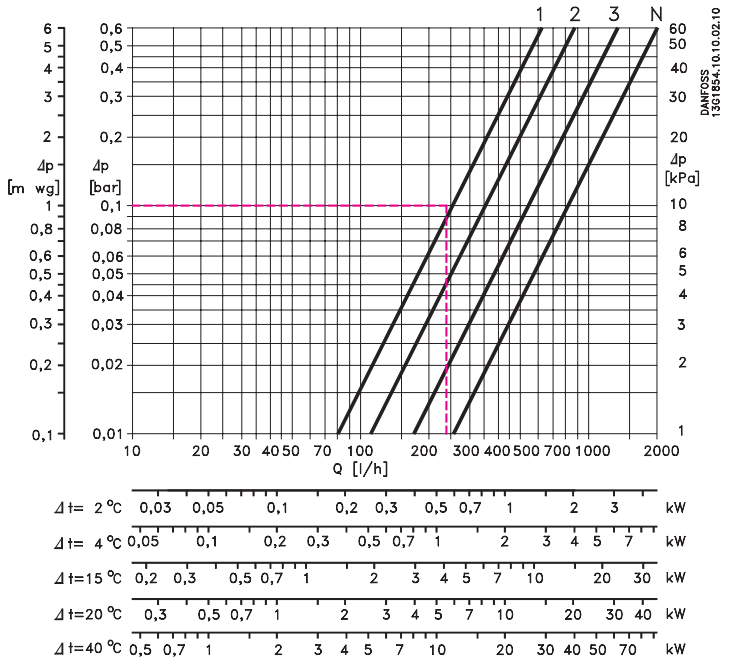
Valve body and other metal parts	Corrosion-resistant brass
Spindle	Corrosion-resistant brass
Throttle nozzle	PPS
O-ring	EPDM
Valve cone	NBR
Pressure pin in gland seal	Chrome steel
Nozzle	PP

Capacities

RA-C 15



RA-C 20



Sizing example, chilled ceiling:
Cooling demand: ..... Φ = 0.55 kW
System temperature rise: ..... Δt = 2 °C
Differential pressure: ..... Δp = 0.1 bar

Calculated water quantity: $Q = \frac{550}{2 \times 1.16} =$ 237 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: Fittings

For PEX plastic tubing Connection	Tube dimension	**Code no.**	Max. working pressure	Test pressure	Max. flow temperature
G 3/4, internal thread	12x2 mm	**013G4152**	6 bar	10 bar	95° C
	13x2 mm	**013G4153**			
	14x2 mm	**013G4154**			
	15x2.5 mm	**013G4155**			
	16x1.5 mm	**013G4157**			
	16x2 mm	**013G4156**			
	16x2.2 mm	**013G4163**			
	17x2 mm	**013G4162**			
	18x2 mm	**013G4158**			
	18x2.5 mm	**013G4159**			
	20x2 mm	**013G4160**			
	20x2.5 mm	**013G4161**			
For Alupex tubing Connection	Tube dimension	**Code no.**	Max. working pressure	Test pressure	Max. flow temperature
G 3/4, internal thread	12x2 mm	**013G4182**	6 bar	10 bar	95° C
	14x2 mm	**013G4184**			
	15x2.5 mm	**013G4185**			
	16x2 mm	**013G4186**			
	16x2.25 mm	**013G4187**			
	18x2 mm	**013G4188**			
	20x2 mm	**013G4190**			
	20x2.5 mm	**013G4191**			
For steel and copper tubing Connection	Tube dimension	**Code no.**	Max. working pressure	Test pressure	Max. flow temperature
G 3/4, internal thread	10 mm	**013G4120**	10 bar	16 bar	120 °C
	12 mm	**013G4122**			
	14 mm	**013G4124**			
	15 mm	**013G4125**			
	16 mm	**013G4126**			
	18 mm	**013G4128**			
G 1	18 mm	**013U0134**			
	22 mm	**013U0135**			