Data sheet

X-tra™ Collection for designer radiators and bathroom towel rails

Application

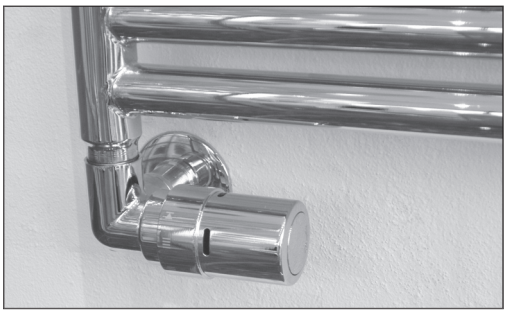
The new X-tra Collection is a TRV specially designed for towel rails and designer radiators. Its new and innovative self-sealing ½" valve to radiator connection makes for a seemless, elegant and easy installation.

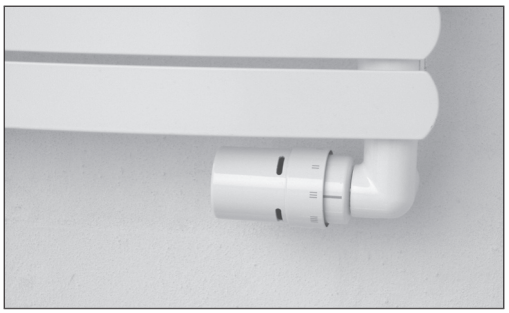
The towel rails valve set includes a matching lockshield valve with drain-off function. The valves and sensors are available in white, chrome, Inox and gold versions matching the most common rail radiators.
The valve set provides the perfect finishing touch for towel rails. The aesthetically pleasing and compact design allows the sensor to be mounted underneath the towel rail, parallel with the wall, avoiding the risk of accidentally knocking the sensor.

Small to medium-sized convectors with valves matching in colour or in contrast colours, is also an interesting application for this series of valves.

Two sensor types using different regulating concepts are available:
- Type RAX, which is a room temperature sensor.
- Type RTX - a return temperature limiter, meaning that it senses and regulates the return flow in the radiator rather than the air temperature. Used on a towel rail, and set 5 -10 degrees above room temperature, the RTX sensor will keep the radiator warm - ensuring dry towels.

The visual appearance of the two sensors are identical except for the scale numbers. RAX has I-II-III-IV-V and RTX has numbers 1-2-3-4-5.





Data sheet **X-tra™ Collection for designer radiators**

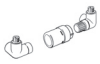
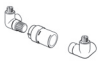
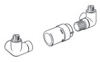
Ordering, Valves

Type	Description	Chrome	RAL 9010	RAL 9016	Inox	Gold
	RA-URX, right side mounted valve for return flow.	**013G4030**	**013G4040**	**013G4050**	**013G4060**	-
	RA-URX, left side mounted valve for return flow.	**013G4031**	**013G4041**	**013G4051**	**013G4061**	-
	RLV-X, right side mounted lock-shield valve.	**013G4032**	**013G4042**	**013G4052**	**013G4062**	-
	RLV-X, left side mounted lockshield valve.	**013G4033**	**013G4043**	**013G4053**	**013G4063**	-

Ordering, Sensors

Type	Description	Chrome	RAL 9010	RAL 9016	Inox	Gold
	RAX, thermostatic sensor element	**013G6170**	**013G6071**	**013G6070**	**013G6171**	**013G6172**
	RTX, return temperature limiter	**013G6190**	**013G6091**	**013G6090**	**013G6191**	**013G**

Ordering, Set Packs

Type	Description	Chrome	RAL 9010	RAL 9016	Inox	Gold
	Set with right-mounted RAX sensor Includes thermostat, valve and lockshield valve.	**013G4003**	**013G4005**	**013G4007**	**013G4009**	**013G4001**
	Set with left-mounted RAX sensor. Includes thermostat, valve and lockshield valve.	**013G4004**	**013G4006**	**013G4008**	**013G4010**	**013G4002**
	Set with right-mounted RTX sensor Includes thermostat, valve and lockshield valve.	**013G4132**	**013G4134**	**013G4136**	**013G4138**	**013G4030**
	Set with left-mounted RTX sensor. Includes thermostat, valve and lockshield valve.	**013G4133**	**013G4135**	**013G4137**	**013G4139**	**013G4031**

Technical data

Type	Design	Connection		k_v -values [m3/h] with RAX sensor at setting[1]								
		Radiator	System	1	2	3	4	5	6	7	N	N (k_{vs})
RA-URX	Left mounted angle valve Right mounted angle valve	R ½	R ½	0.03	0.06	0.13	0.17	0.23	0.27	0.29	0.34	0.44

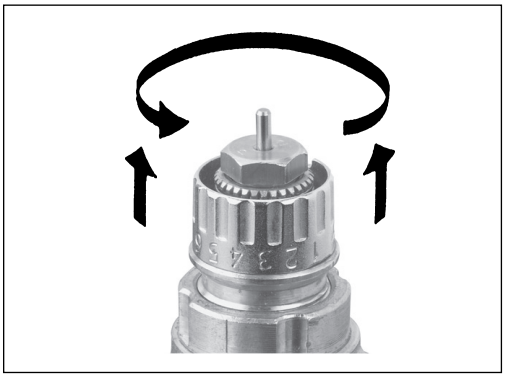
Type	Design	Connection		k_v -values [m3/h] at number of turns						
		Radiator	System	0.25	0.50	0.75	1	1.5	2	k_{vs}
RLV-X	Left mounted lockshield valve Right mounted lockshield valve	R ½	R ½	0.18	0.36	0.47	0.52	0.58	0.58	0.60

Max. working pressure: 10 bar, Max. differential pressure[2]: 0,6 bar, Test pressure 16 bar, Max. flow temperature: 120 °C

[1] *The k_v-value indicates the water flow (Q) in m^3/h at a pressure drop (Δp) across the valve of 1 bar; kv = Q: $\sqrt{\Delta p}$.*
At setting N the k_v-value is stated according to EN 215, at X_p = 2K i.e. the valve is closed at 2 °C higher room temperature.
At lower settings the X_p value is reduced to 0.5K of the setting value 1.
The k_{vs}-value states the flow Q at a maximum lift, i.e. at fully open valve at setting N.

[2] *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.
The differential pressure can be reduced by the use of the Danfoss differential pressure regulators.

Pre-setting

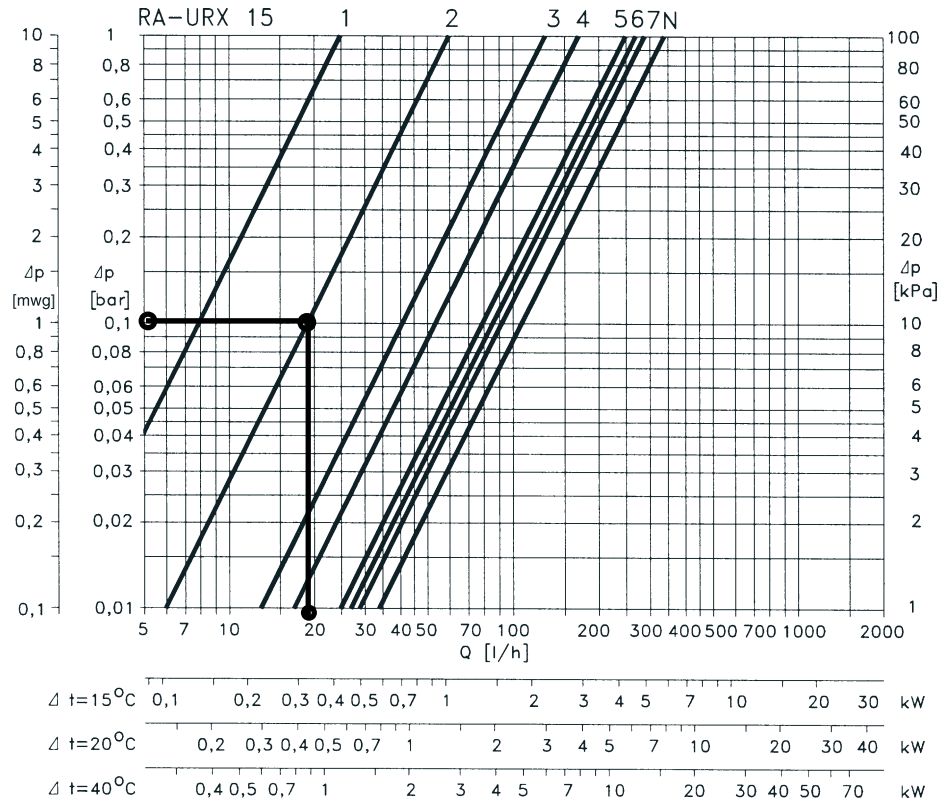


Danfoss pre-settable valve bodies incorporate easy setting adjustment rings with clearly engraved setting markers scaled from 1 - 7 and N. Setting values can be set quickly and precisely, without the need for tools, as follows:

- Remove protective cap or sensor element
- Lift setting ring
- Turn anti-clockwise to the desired engraved setting value
- Allow setting ring to spring back into position

The preset level can be selected in 0.5 increments between 1 and 7 (see chart on page 3 for flow rates). At setting N the valve is fully open (flushing option).

Capacities



Capacity with RA-URX, RLV-X and RAX sensor at a P-band between 0.5 K and 2 K.

Sizing example

Required heat: 0.65 kW
Cooling across radiator: 30 °C.
Flow through radiator:

$$Q = \frac{0.65}{30 \times 1.16} = 0.18\ m^3/h = 0.005\ l/s.$$

Pressure drop across valve: Δp = 1 mwg.
Valve setting: "2"

Alternatively the setting can be read directly in the table "Ordering and technical data":

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

Valve presetting when using RTX sensor

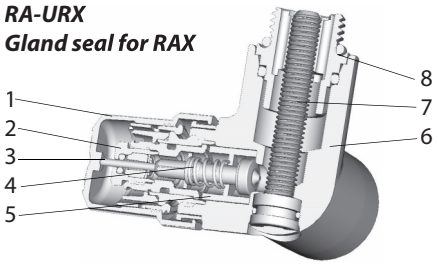
Due to the function of the RTX sensor its influence on the hydraulic balance of the heating system is very limited. Consequently it is seldom required to adjust the kv-setting of the valve from the factory setting "N".

The table shows the reduced flow in m^3/h when applying different kv-settings:

Valve presetting	2 K	5 K
1	0.03	0.03
2	0.07	0.07
3	0.12	0.13
4	0.16	0.18
5	0.19	0.24
6	0.21	0.27
7	0.22	0.29
N	0.23	0.33

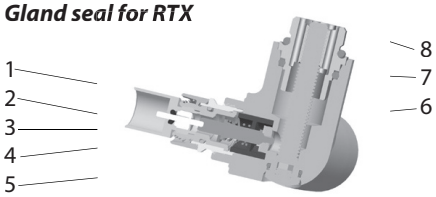
Construction

RA-URX
Gland seal for RAX



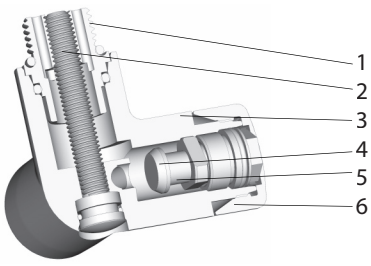
1. Protective cap
2. Gland seal
3. Pressure pin
4. Return spring
5. Setting cylinder
6. Valve body
7. Allen screw
8. Self-sealing gland

RA-URX
Gland seal for RTX



1. Protective cap
2. Gland seal
3. Pressure pin
4. Return spring
5. Setting cylinder
6. Valve body
7. Allen screw
8. Self-sealing gland

RLV-X



1. Self-sealing gland
2. Allen screw
3. Valve body
4. Shut-off facility
5. Cylindric guide
6. Cover cap

The valve assembly features valve body and a self-sealing gland pre-mounted with 2 O-rings - one for sealing against the radiator and one for sealing in the valve housing.

The Allen-screw features an O-ring seal to ensure a tight seal against the valve body.

In situations where radiator in- and outlets are not suitable for O-ring seal, conventional sealing material is used.

Materials in contact with water

Setting cylinder	PPS
Spindle	Ms, resistant against dezincification
O-rings	EPDM
Valve cone	NBR
Pressure pin	Chrome-plated steel
Valve body	Ms 58

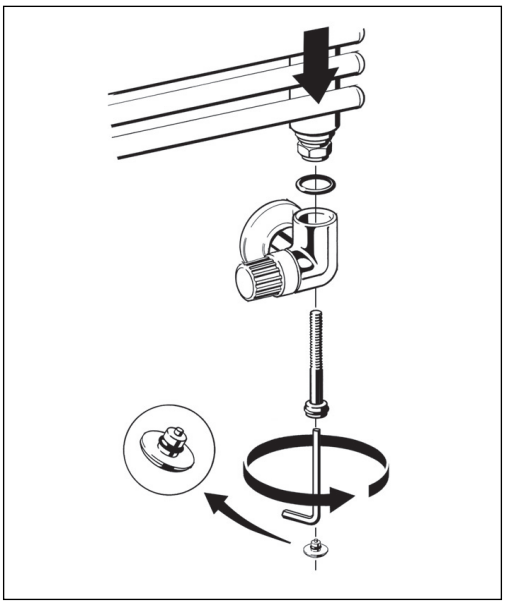
Fittings, spare parts and accessories

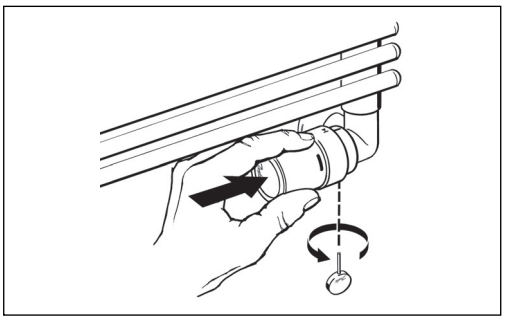
Compression fittings	Code no.	Compression fittings	Code no.
Steel/copper, 8 mm	**013G4108**	ALUPEX, 12 x 2 mm	**013G4172**
Steel/copper, 10 mm	**013G4110**	ALUPEX, 14 x 2 mm	**013G4174**
Steel/copper, 12 mm	**013G4112**	ALUPEX, 16 x 2 mm	**013G4176**
Steel/copper, 14 mm	**013G4114**	PEX, 12 x 1.1 mm	**013G4143**
Steel/copper, 15 mm	**013G4115**	PEX, 12 x 2 mm	**013G4142**
Steel/copper, 16 mm	**013G4116**	PEX, 14 x 2 mm	**013G4144**
		PEX, 15 x 2.5 mm	**013G4147**
		PEX, 16 x 2 mm	**013G4146**

Spare parts	Code no.
Gland seal for RA-URX valve with RAX sensor	**013G0290**

Accessories	Code no.
Drain and fill tap	**003L0152**

Installation





The self-sealing gland is mounting in radiator inlet and outlet using a 17 mm hexagonal key.

Valve and lockshield valve has matching design. The yellow valve cap can temporarily be used to open and shut the valve. The lockshield valve features shut-off and draining facility.

All O-rings are of the EPDM-type which means no mineral oils or grease are to be used.

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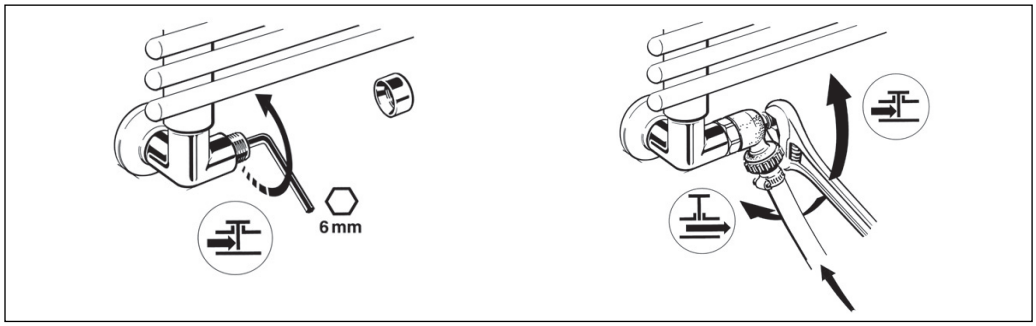
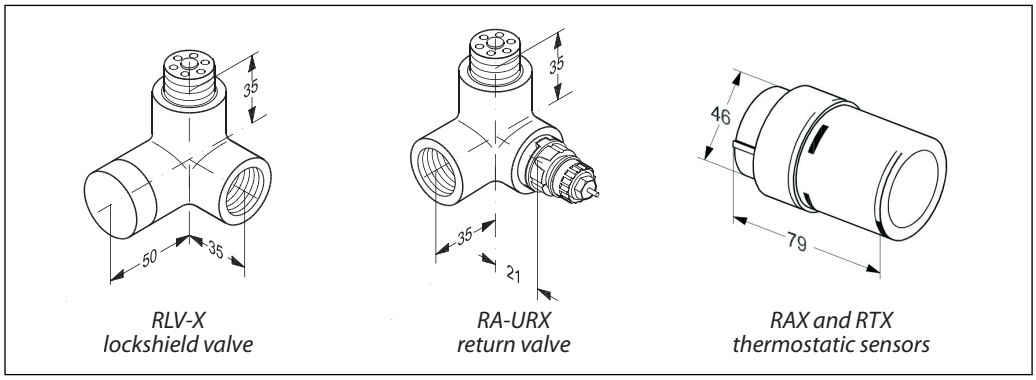
Shut-off, filling and draining



Dimensions



RLV-X lockshield valve

RA-URX return valve

RAX and RTX thermostatic sensors