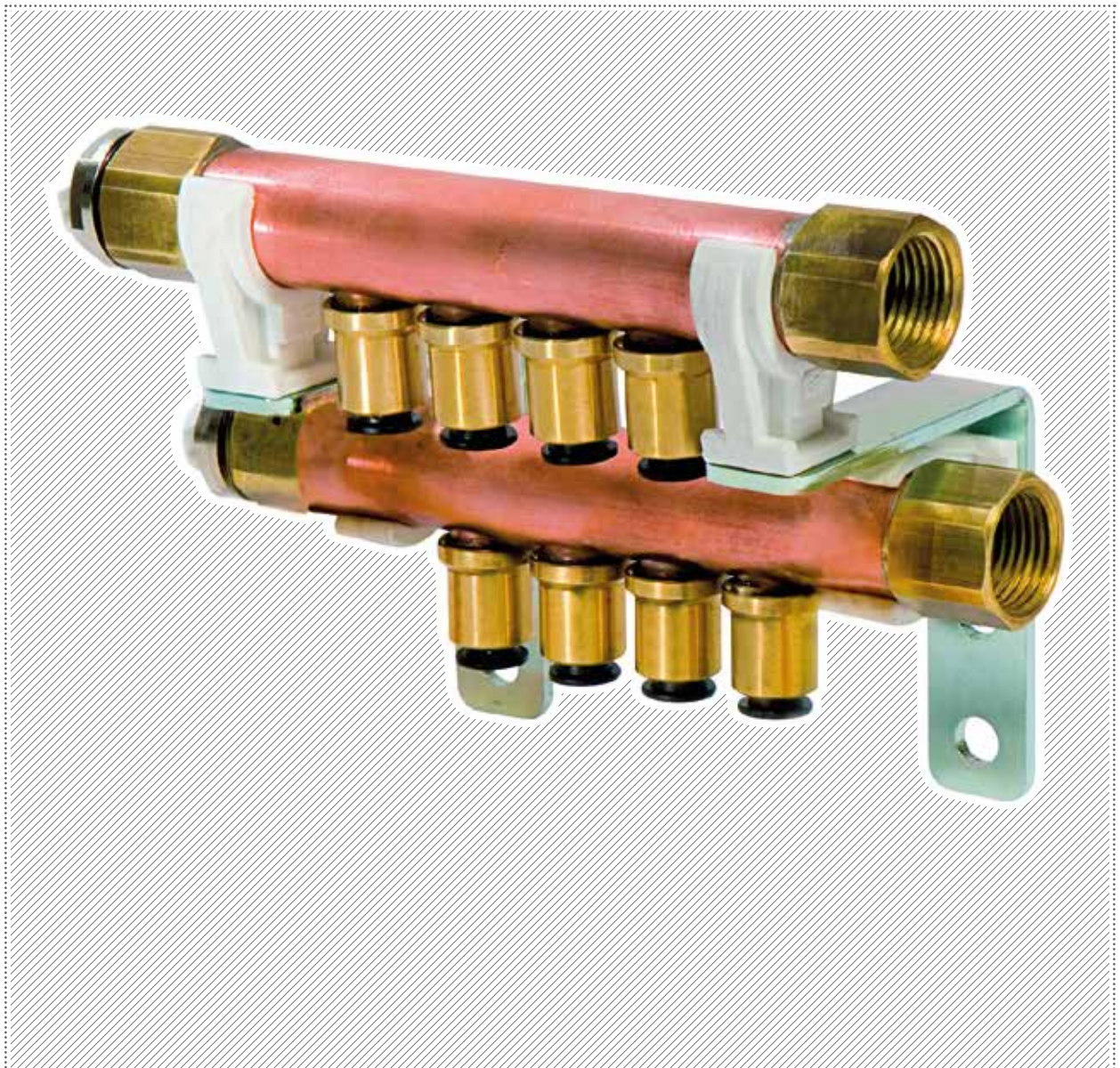


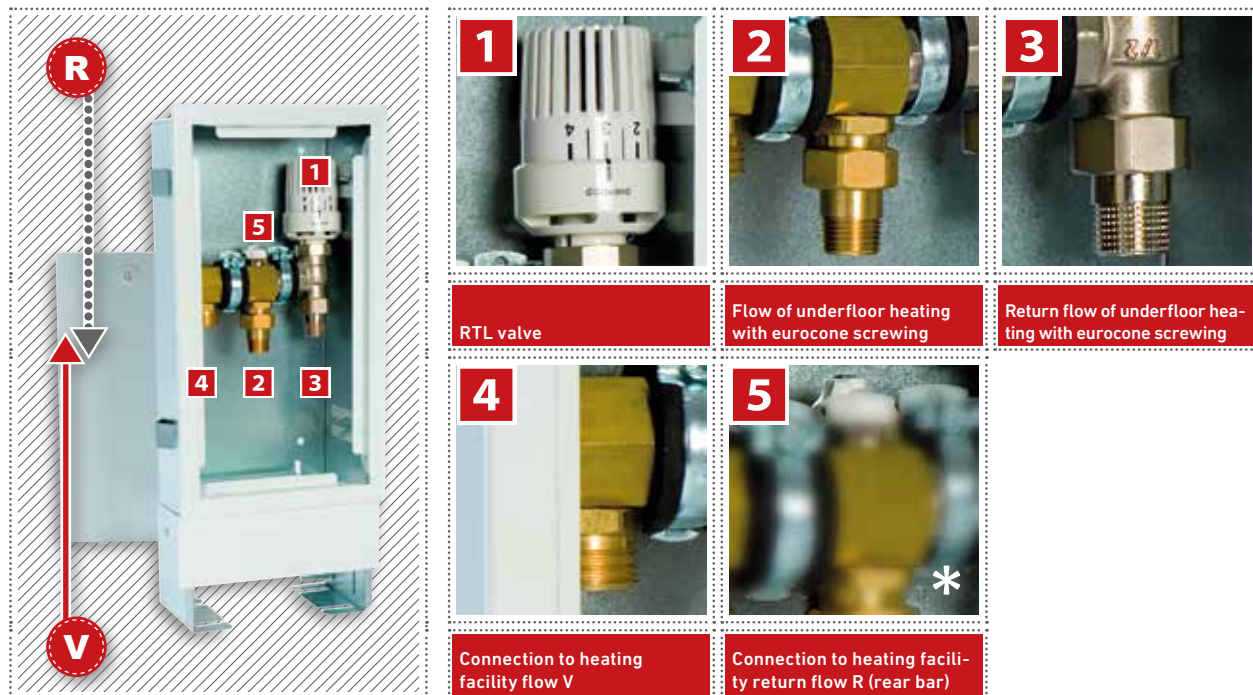
CONNECTION OPTIONS FOR MANIFOLDS & CONTROL UNITS



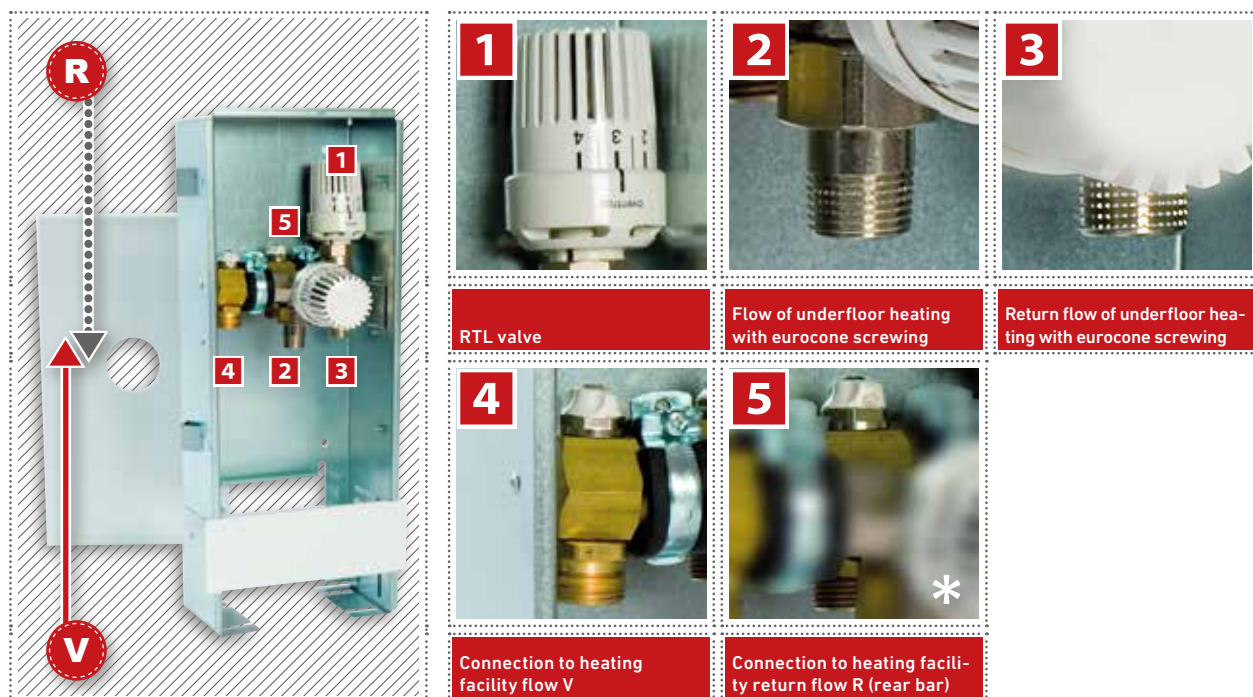
INSTALLATION INSTRUCTIONS FOR CONTROL BOXES

Pay attention to the total pressure loss when connecting UV4-10 to the control boxes for heating areas > 16 m²!

CONNECTION OPTION 1 AT THE EXAMPLE OF CONTROL BOX» RB1 RTL W

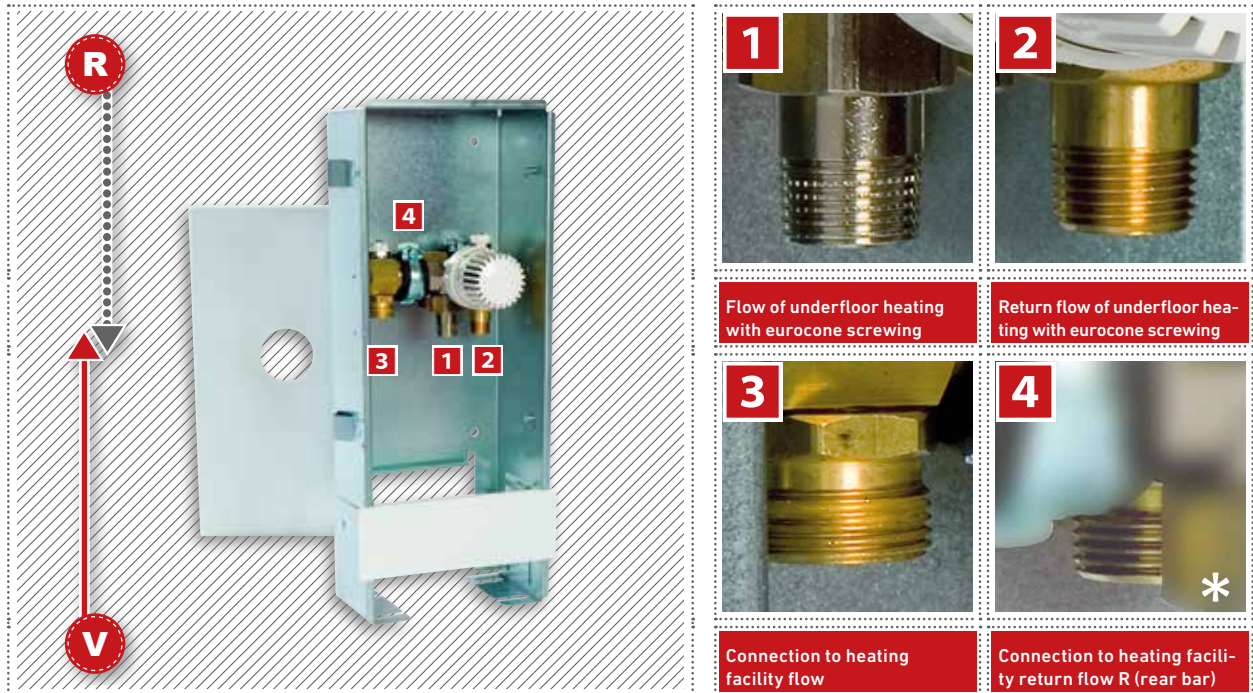


CONNECTION OPTION 2 AT THE EXAMPLE OF CONTROL BOX» RB2 TH RTL OW

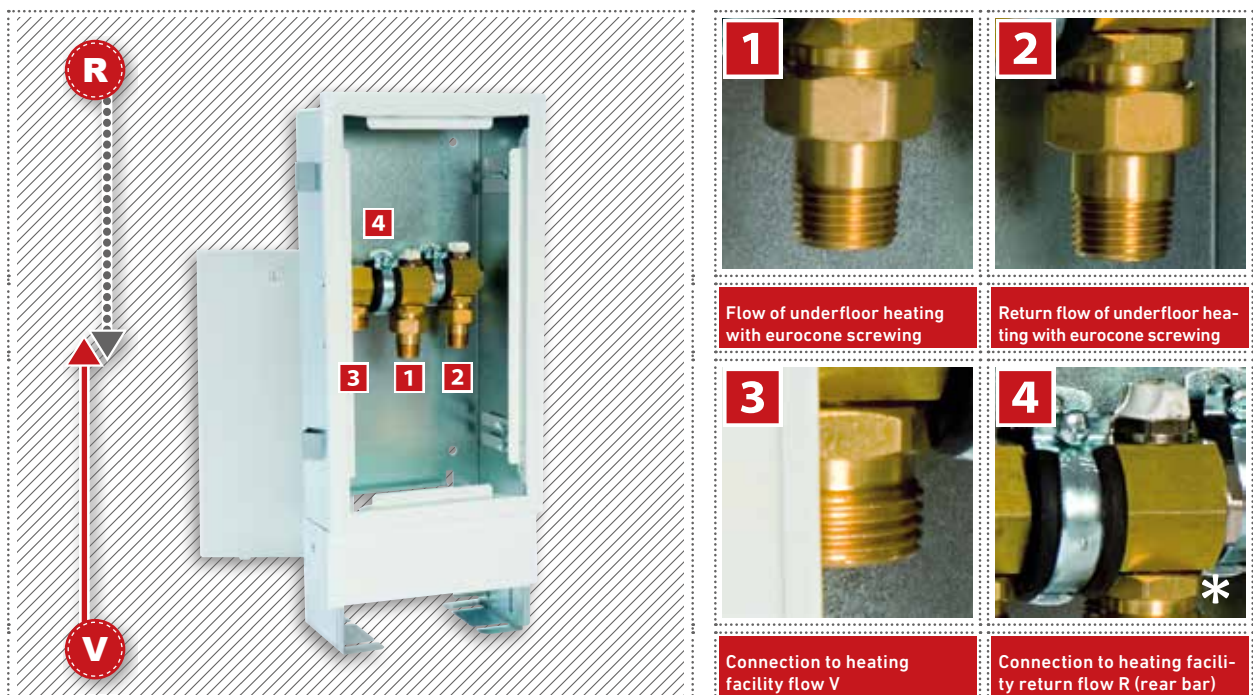


* THE LAST PICTURE OF EACH SEQUENCE SHOWS THE CONNECTION AT THE REAR BRASS BAR OF THE CONTROL BOX.

CONNECTION OPTION 3 AT THE EXAMPLE OF CONTROL BOX» RB3 TH OW

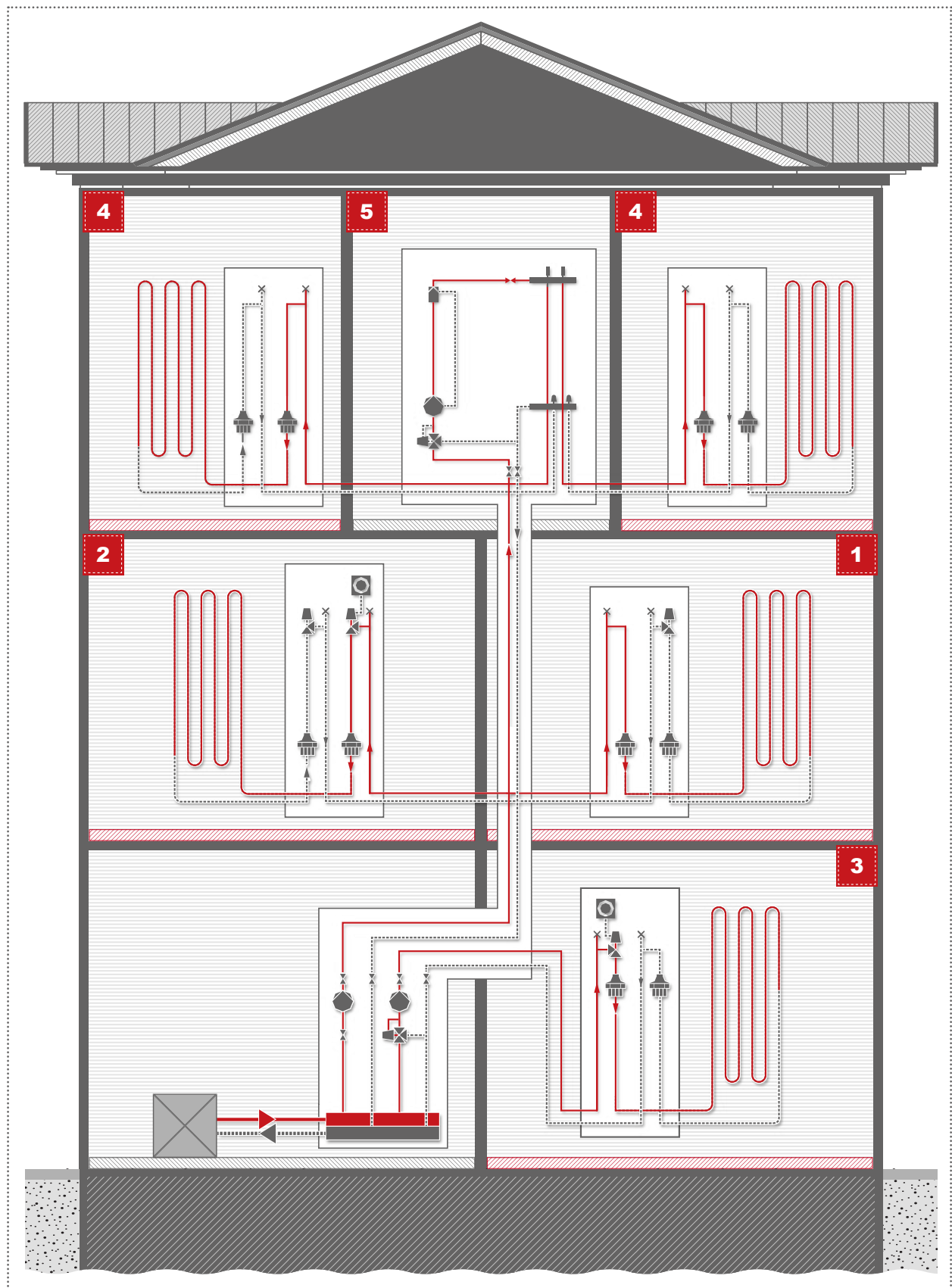


CONNECTION OPTION 4 AT THE EXAMPLE OF CONTROL BOX» RB4 W



* THE LAST PICTURE OF EACH SEQUENCE SHOWS THE CONNECTION AT THE REAR BRASS BAR OF THE CONTROL BOX.

CONNECTION OPTIONS FOR CONTROL BOXES



1**CONNECTION OPTION 1**

For limiting of the return temperature via RTL (return temperature limiter) valve for areas of up to 16 m²*;
set temperature range» return temperature 20 - 50 °C.

THIS OPTION CONTAINS»

- » built-in box (w 170 x h 450 - 515 x d 100 - 150 mm)
- » cover white resp. ready to decorate and tile,
- » RTL-valve "Uni RTLH" with thermostat
- » ventilation valve,
- » 2x connections G ¾" eurocone x ½" male thread for sub-manifolds

2**CONNECTION OPTION 2**

For single room control via thermostatic valve and limiting of the return temperature via RTL (return temperature limiter) valve for areas of up to 16 m²*; set temperature range» room temperature 7 - 28 °C; return temperature 20 - 50 °C.

THIS OPTION CONTAINS»

- » built-in box (w 170 x h 450 - 515 x d 100 - 150 mm)
- » cover white resp. ready to decorate and tile,
- » RTL valve "Uni RTLH" with thermostat; thermostatic valve "Uni LH" with thermostat resp. selectively with remote control or prepared for actuator (M30 x 1,5)
- » ventilation valve, 2x connections G ¾" eurocone x ½" male thread for sub-manifolds

3**CONNECTION OPTION 3**

For single room control via thermostat valve without limiting of the return temperature for use within premixed heating circuit for areas of up to 16 m²*; set temperature range» room temperature 7 - 28 °C.

THIS OPTION CONTAINS»

- » built-in box (w 170 x h 450 - 515 x d 100 - 150 mm)
- » cover white resp. ready to decorate and tile,
- » thermostatic valve "Uni LH" with thermostat resp. selectively with remote control or prepared for actuator (M30 x 1,5); 2x ventilation valves, 2x connections G ¾" eurocone x ½" male thread for sub-manifolds

4**CONNECTION OPTION 4**

As sub-distribution without thermostatic valve without limiting of the return temperature for use within premixed heating circuit for areas of up to 16 m²*.

THIS OPTION CONTAINS»

- » built-in box (w 170 x h 450 - 515 x d 100 - 150 mm)
- » cover white resp. ready to decorate and tile,
- » 2x ventilation valves,
- » 2x connections G ¾" eurocone x ½" male thread for effidur sub-manifolds

* Pay attention to the total pressure loss when connecting UV4-10 to the control boxes for heating areas > 16 m²!

PRACTICE EXAMPLES FOR DISTRIBUTION

PROXIMATE DISTRIBUTION OF HEATING CIRCUITS PER ROOM



Control box option 2 with sub-manifold 2-port.



Manifold unit 6-port at control unit.



Zonal sub-distribution through the ceiling.

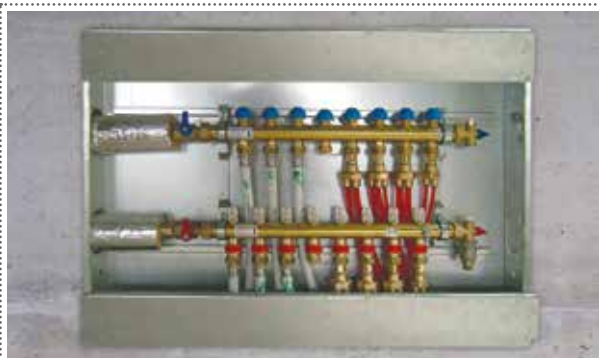


Manifold unit 6-port.

The hydraulic balancing of the single ports of a sub-manifold and manifold unit (UV / VBG) is not intended therefore these heating circuits need to be nearly equal in length.

MAIN DISTRIBUTION WITH FLOW VOLUME REGULATING VALVES

If required actuators and sub-manifolds for a zonal distribution of the heating circuits.


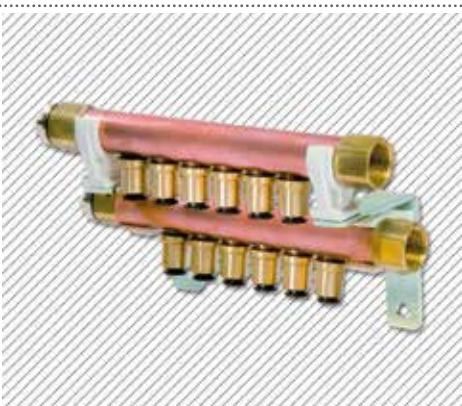


Floor-wise distribution with customary multi-port manifold (left picture) and effidur pre-distributor HKV-VA (right picture) equipped with sub-manifolds.

SUB-MANIFOLDS

STANDARD Ø 8 mm		SPECIAL Ø 10 mm
	PLUG CONNECTOR STA AG-8 Ø 8 mm - 1/2" male thread for a maximum of 4 m ²	
	PLUG CONNECTOR STA IG-8 Ø 8 mm - 1/2" female thread for a maximum of 4 m ²	PLUG CONNECTOR STA IG-10 Ø 10 mm - 1/2" female thread for a maximum of 8 m ²
	SUB-MANIFOLD 2-PORT 2x Ø 8 mm - 1/2" female thread for a maximum of 8 m ²	SUB-MANIFOLD 2-PORT 2x Ø 10 mm - 1/2" female thread for a maximum of 16 m ²
	SUB-MANIFOLD 4-PORT UV 4-8 4x Ø 8 mm - 1/2" female thread for a maximum of 16 m ²	SUB-MANIFOLD 4-PORT UV 4-10 4x Ø 10 mm - 1/2" female thread for a maximum of 24 m ² Pay attention to the total pressure loss for heating areas > 16 m ² !

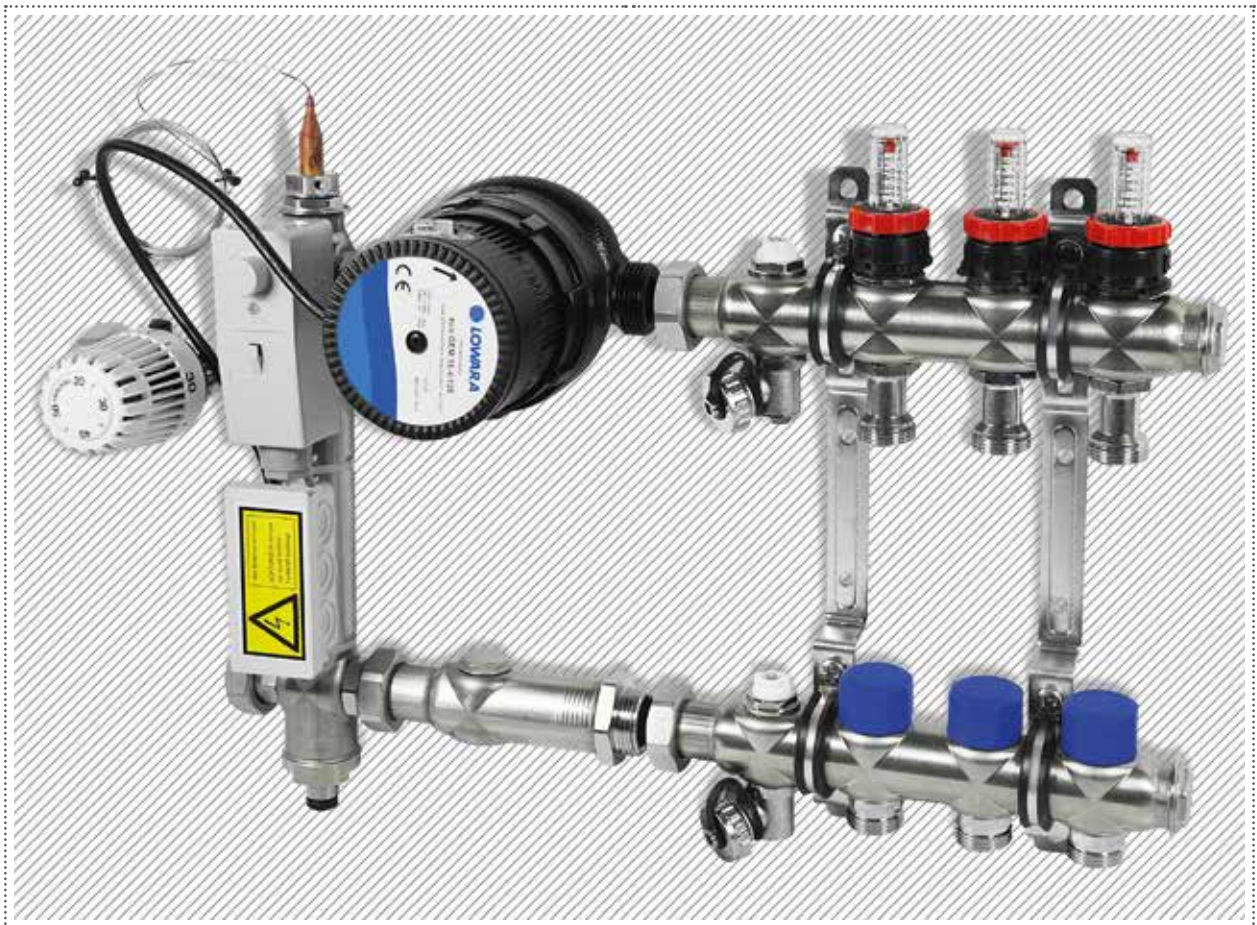
MANIFOLD UNITS & SCREW CONNECTIONS

STANDARD Ø 8 mm		SPECIAL Ø 10 mm
	MANIFOLD UNIT 4-PORT VBG 4 2 x manifold bar à 4 x Ø 8 mm - 1/2" female thread – 1 ventilation valve for max. 16 m ²	
	MANIFOLD UNIT 6-PORT VBG 6 2x manifold bar à 6 x Ø 8 mm - 1/2" female thread - 1 ventilation valve for max. 24 m ²	

SCREW CONNECTION

	SCREW CONNECTION AV For the connection of plug connectors and sub-manifolds to main manifold, valves and similar. Consisting of union nut G 3/4" euro cone with o-ring sealing and sleeve R 1/2"
	SCREW CONNECTION SELF-SEALING AVS Screw connection 3/4" for the connection of sub-manifolds resp. Plug connectors to conventional manifolds, valves with sleeve R 1/2" self-sealing through PTFE- threaded sealing ring. Consisting of G 3/4" euro cone with o-ring sealing and sleeve R 1/2"

CONTROL UNIT & PRE-DISTRIBUTION

**TECHNICAL SPECIFICATIONS RGHKV-VA**

Installation height» 360 mm
Installation length» 290 mm
Installation position» horizontal
Installation depth» approx. 140 mm (Lowara)
 approx. 160 mm (Grundfos)
No. of heating loop ports» 1 - 10
Operation parameters» max. 6 bar; primary max. 110 °C, max. differential pressure 700 mbar; secondary max. 50 °C
Primary connection» 1" union nut, flat sealing
Secondary connection» 1" male thread, flat sealing
Pump (electronically controlled)» Lowara Basic 15-4 / upon demand: Grundfos Alpha2 (L) 15-40

- » Fixed value controller with immersion feeler, flow settable from 20 °C - 50 °C, without auxiliary power;
- » STB (excessive temperature protection) preset to 60 °C as pipe sensor (not changeable from the outside);
- » Bypass with integrated regulating valve (simplifies the adjustment);
- » Temperature display 20 °C - 80 °C. Electrical pre-wiring of STB with pump.

TECHNICAL SPECIFICATIONS HKV-VA

Operating parameter» max. + 80 °C / max. 6 bar.
The manifold is to be run with heating water according to VDI 2035.
Flow» integrated flow indicators 0 - 5 l/min
Return flow» integrated thermostatic valve inserts Port distance» 50 mm
Primary side» 2 ball valves 3/4" female thread x 1" male thread, flat sealing.
Secondary side» 3/4" male thread with cone, suited for effidur AV / AVS. The screw connection AV / AVS is used for direct connection of the sub-manifolds (STA / UV 2 / UV 4).

Article No.	No. of ports	Overall length (without ball valve)
HKV2-VA	2	245 mm
HKV3-VA	3	295 mm
HKV4-VA	4	345 mm
HKV5-VA	5	395 mm
HKV6-VA	6	445 mm
HKV7-VA	7	495 mm
HKV8-VA	8	545 mm
HKV9-VA	9	595 mm
HKV10-VA	10	645 mm

PRE-DISTRIBUTOR HKV-VA

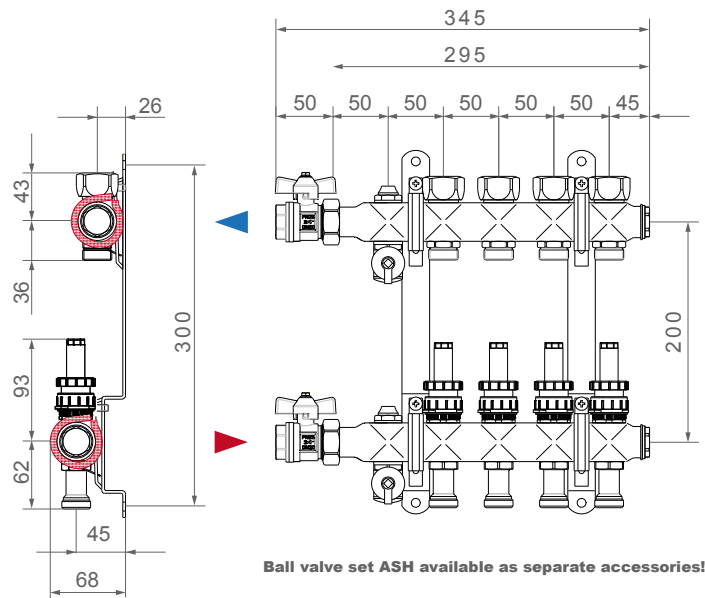
MATERIALS

Fittings»
Press-brass Ms 58, nickel-plated

Manifold bars»
stainless steel 1.4301

O-rings»
EPDM cross-linked by peroxide

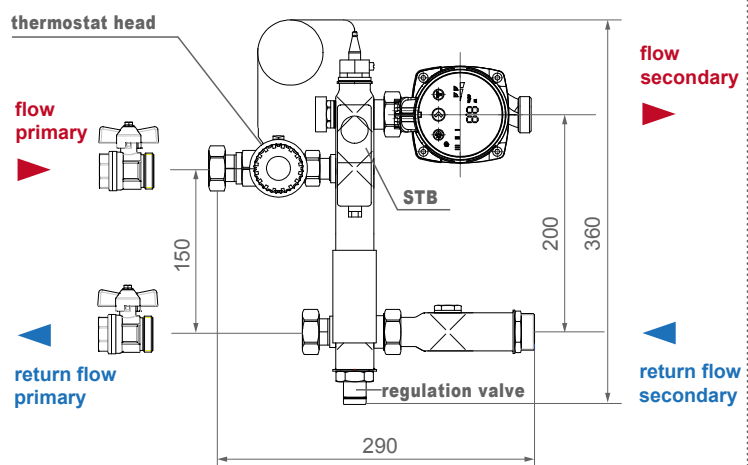
Flat seals»
WS 3825



CONTROL UNIT RGHKV-VA

Control unit for connection to pre-distributor. Sufficient for e.g. the heating of up to 120 m² of living space (even more when low heat demand). The flow temperature control enables a trouble-free connection of the underfloor heating to the heating facility.

The actuator at the primary flow controls the required flow temperature of the underfloor heating. Excessive flow temperatures are avoided though the built-in safety temperature limiter (STB). Electronically controlled pump adapts to the currently required heat demand.



ADJUSTMENT OF CONTROL UNIT AND PRE-DISTRIBUTOR

Close the primary valves (for the connection to the existing heating facility. The adjustment is to be implemented with operating circulation pump. Completely open all valves of the underfloor heating circuit (incl. regulating valves at the return flow of the pump unit), whereby prior to this the respective safety rings at the flow indicators need to be removed as well as the respective locking caps need to be turned upwards.

For adjustment the pump is to be set for constant strain. The level is to be chosen in a way that the heating circuit with the highest flow rate is sufficiently fed. The heating circuit with the highest calculated flow rate is to be set exactly by turning the regulating valve of the pump unit (eventually mark water volume per port at the distributor).

The meter-reading is carried out at the gauge-glass of the flow indicator. The scale shows values from 0 - 5 l/min (resp. 0 - 3 l/min). The adjusting procedure of the remaining heating circuits must now be executed at the respective regulating valves. Subsequently control all values and if necessary execute a vernier adjustment. After finishing the adjustment the locking caps need to be turned downwards and the according safety rings need to be fit (if required subsequently seal with leads).

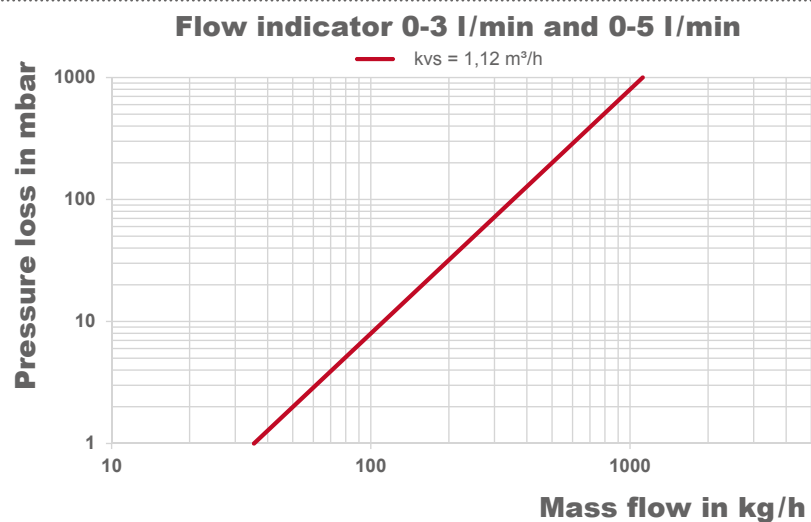
The flow indicators are completely lockable without changing the pre-settings. Now the operating mode of the circulating pump can be switched to variable strain, thereafter the actuators can be fit and the primary valves can be opened again. Afterwards the design temperature of underfloor heating is to be set at the thermostat head.

PRESSURE LOSS CALCULATION FOR THE PRE-DISTRIBUTOR

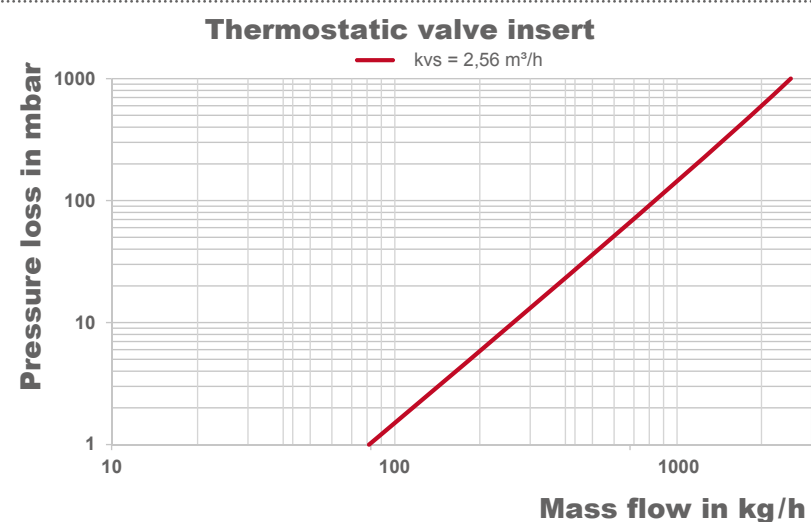
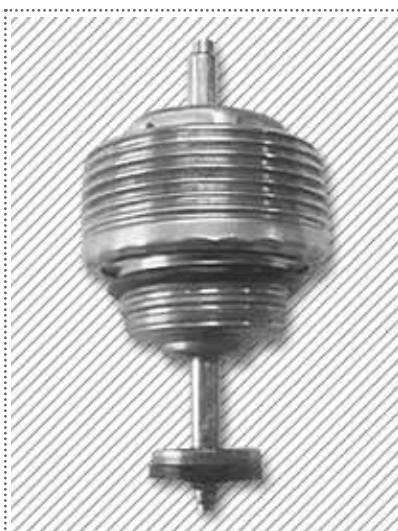
The pressure losses to be considered for the effidur pre-distributors HKV-VA are significantly determined by the regulating valves at the flow and the valve inserts at the return flow. The individual values per distributor port can be seen at the subsequent chart depending on the mass flow.

The calculating basis for the emerging pressure losses at the effidur sub-manifolds and effidur heating pipe can be found at the corresponding chapter of the technical manual.

PRESSURE LOSS OF REGULATING VALVE (FLOW)

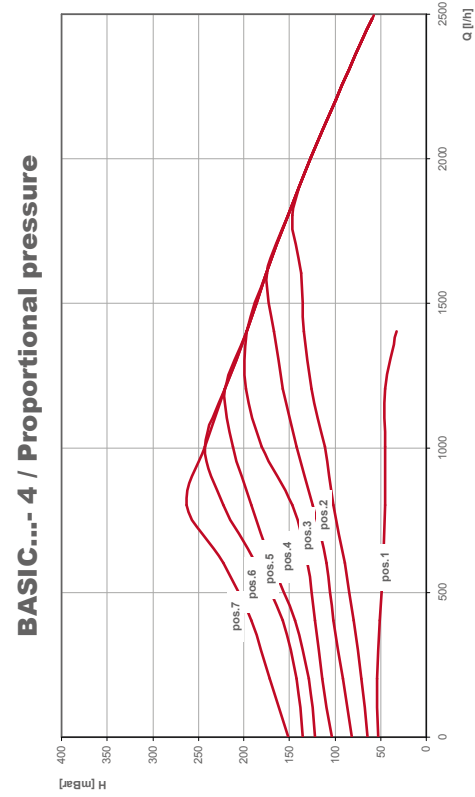
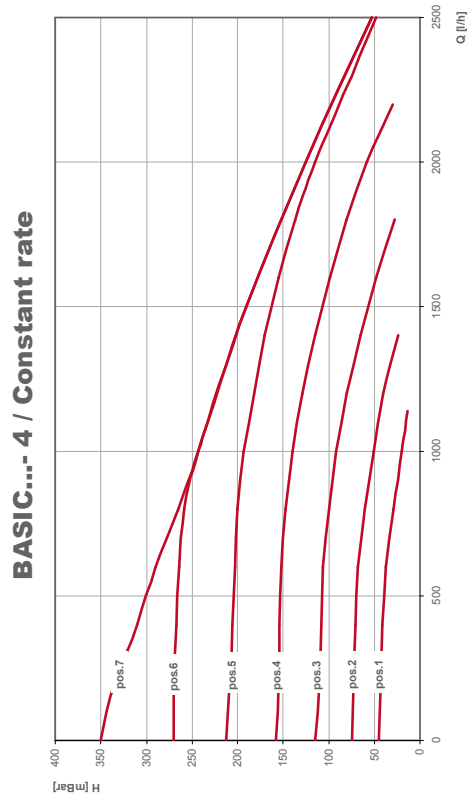


PRESSURE LOSS OF VALVE INSERT (RETURN FLOW)



BASIC PUMP DATA / PRESSURE LOSS OF THERMOSTATIC VALVE

PUMP» LOWARA ECOCIRC BASIC 15-4



PUMP» GRUNDFOS ALPHA 2 (L) 15-40

THERMOSTATIC VALVE

