

Mixing and circulation group

R004

ICMA[®]

ST.R004.05.26.EN (NC1718)

Description

The mixing and circulation groups are used to adjust distribution and temperature of the heat carrying fluid in multi-storey and/or multi-zone systems.

They are ideal for underfloor heating systems and/or high temperature heating systems. The groups R001 can be installed on a special "inlet-outlet" distribution manifold (art. 785), after the hydraulic separator.

The groups are supplied with insulation shells and fastening brackets.

Group advantages:

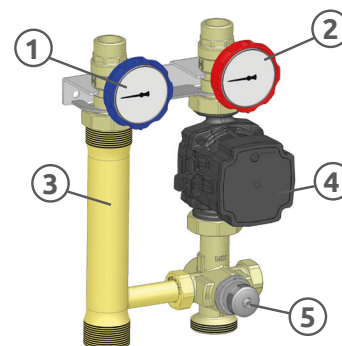
- Right/Left adaptability.
- Manual/automatic servomotor functioning.
- Compatible with every 125mm axis manifold (With shell type 93).



Components List

Mixing group with fixed point regulation unit complete with:

1. Ball valve G3/4" or G 1"M with blue hand-wheel for connection to the return pipes, thermometer 0-120°C and incorporated check valve.
2. Ball valve G3/4" or G 1"M with red hand-wheel and thermometer 0-120°C for connection to the return pipes.
3. Steel pipe with ends threaded G1"1/2M.
4. Energy class "A" electronic circulator with variable speed, G1½" threaded connections and a centre-to-centre distance of 130 mm
5. Fixed point thermostatic mixing valve in the 20-50 °C version for underfloor heating or 30-70 °C for radiator heating.



Technical features

TECHNICAL DATA:

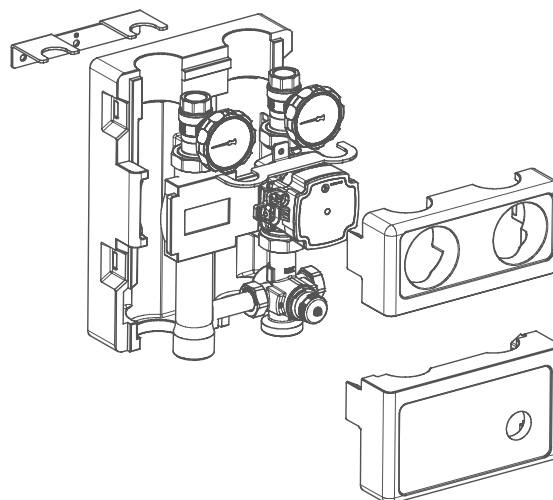
Fluids used:	Water and glycol based solutions
Max. percentage of glycol:	30%
Maximum operating pressure:	10 bar
Working range:	5 °C ÷ 95 °C
Thermometers scale:	0÷120 °C
Circulators:	See specifications on page 3

MATERIALS:

Bodies:	Brass CW617N - EN 12165
Caps and unions:	Brass CW617N - EN 12165
Stub:	Tropicalized steel
Thermometer:	Steel/Aluminium
Locking brackets:	Galvanized steel
Flat gaskets:	EPDM Perox
Sealing gaskets:	PTFE
Sealing components:	EPDM Perox
Insulation shell:	EPP
Density Ver. 93:	40 kg/m3
Density Ver. 94:	60 kg/m3
Conducibility of shell λ (ΔT) Ver. 93:	0,036 W/(m·k) at 10°C
Conducibility of shell λ (ΔT) Ver. 94:	0,039 W/(m·k) at 10°C

CONNECTIONS:

Upper connections:	G 3/4" F - 1"M
Lower connections:	G 1"1/2 M

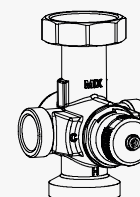


THERMOSTATIC MIXING VALVE:

Application fluid:	Water and glycol solutions
Maximum percentage of glycol:	50%
Maximum working pressure:	10 bar
Operating temperature:	20-50°C o 30-70°C

Code. 93786AE052050
Operating temperature: 20°-50°C

Code 93786AE053070
Operating temperature: 30°-70°C



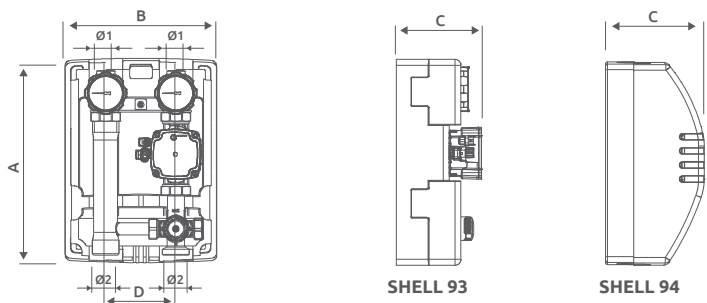
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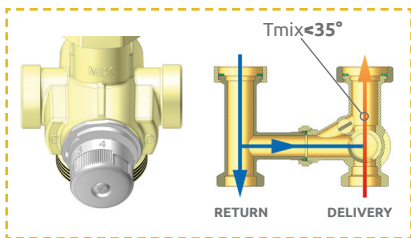
Dimensions



ART.	A		B		C		D	Ø 1		Ø 2
	93	94	93	94	93	94		93	94	
R004	350	360	248	270	200	180	125	3/4" F	G 1" M	G 1 1/2 M

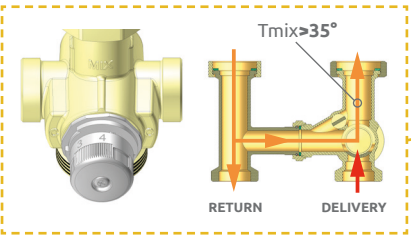
Functioning

The Fixed point mixing and circulation group art. R004, in combination with the thermostat RT, switches on the pump directly, starting the system only when the room temperature is lower than the set temperature. The mixer valve with integrated sensor adjusts the works continuously to maintain the set temperature of the heat-transfer fluid stable. (A right-configuration R004 is shown as example below).



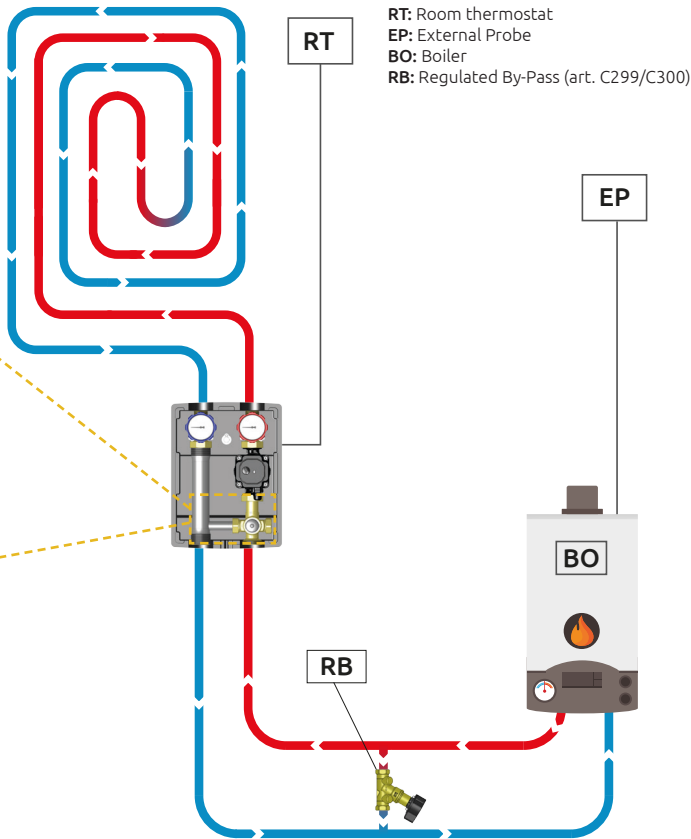
REGULATION POSITION:

In case of thermostatic mixer set on 4*, and $T_{mix} < 35^\circ$, the 3 way valve let the heat-carrying fluid coming from the boiler in and mixes it with the underfloor heating system return fluid.



FULLY CLOSED POSITION:

In case of thermostatic mixer set on 4*, and $T_{mix} > 35^\circ$, the 3 way valve excludes the heat-carrying fluid coming from the boiler completely, to let the underfloor heating return fluid recirculate.



RT: Room thermostat
EP: External Probe
BO: Boiler
RB: Regulated By-Pass (art. C299/C300)

The thermostatic mixing valve is available in two versions:

- 20-50 °C for underfloor heating systems;
- 30-70 °C high temperature heating systems.



RANGE 20°- 50°	Position	1	2	3	4*	5	6	7
	°C	20°C	25°C	30°C	35°C	40°C	45°C	50°C



RANGE 30°- 70°	Position	1	2	3	4	5	6	7
	°C	30°C	35°C	40°C	50°C	55°C	60°C	70°C

Group customization

Shells



Version 93



Version 94

Circulation pumps



Art. P330 - Circulator with fixed ΔP , variable ΔP and 3 constant speed:

TECHNICAL SPECIFICATIONS:

Brand:	Wilo
Model:	PARA RS 25/7 130
Centre to centre distance:	130 mm
Connections:	G 1"1/2 M
Electrical power supply:	230V – 50/60Hz
Operating temperature:	Ambient. temp. 50°C = 2 ÷ 105°C Ambient. temp. 55°C = 2 ÷ 90°C Ambient. temp. 60°C = 2 ÷ 77°C Ambient. temp. 65°C = 2 ÷ 60°C
Max operating pressure:	10 bar
Minimum pressure on the intake side:	0,5 bar
Max. percentage of glycol:	50%
Protection level:	IPx4D
Energy Class (EEL):	≤0.21



Art. P327 - Circulator with ΔP constant and ΔP variable:

TECHNICAL SPECIFICATIONS:

Brand:	Wilo
Model:	PARA RS 25/8 130
Centre to centre distance:	130 mm
Connections:	G 1"1/2 M
Electrical power supply:	230V – 50/60Hz
Operating temperature:	Ambient. temp. 50°C = 2 ÷ 105°C Ambient. temp. 55°C = 2 ÷ 90°C Ambient. temp. 60°C = 2 ÷ 77°C Ambient. temp. 65°C = 2 ÷ 66°C
Max operating pressure:	10 bar
Minimum pressure on the intake side:	0,5 bar
Max. percentage of glycol:	50%
Protection level:	IPx4D
Energy class (EEL):	≤0.21



Art. P329 - Circulator with nr. 2 proportional-pressure curves, nr. 2 constant-pressure curves, min-max mode – Fixed speed

TECHNICAL SPECIFICATIONS:

Brand:	Taco
Model:	ES2 25-70/130
Centre to centre distance:	130 mm
Connections:	G 1"1/2 M
Electrical power supply:	230V – 50/60Hz
Operating temperature:	Ambient. temp. 30°C = 30 ÷ 95°C Ambient. temp. 35°C = 35 ÷ 90°C Ambient. temp.
Max operating pressure:	6 bar
Minimum pressure on the intake side:	50°C = 0,3 bar 95°C = 1,0 bar
Max. percentage of glycol:	30%
Protection level:	IP44
Energy Class (EEI):	≤0.21



Art. P331 - Wet-rotor circulator driven by a permanent magnet motor. Features a self-adaptive mode, enabled by default

TECHNICAL SPECIFICATIONS:

Brand:	Shinoo
Model:	GPA 25/70 III
Centre to centre distance:	130 mm
Connections:	G 1"1/2 M
Electrical power supply:	230V – 50/60Hz
Operating temperature:	Ambient. temp. . 30°C = 30 ÷ 110°C Ambient. temp. . 50°C = 50 ÷ 110°C Ambient. temp. . 70°C = 70 ÷ 110°C
Max operating pressure:	10 bar
Minimum pressure on the intake side:	75°C = 0,05 bar 95°C = 0,5 bar 110°C = 1,08 bar
Max. percentage of glycol:	50%
Protection level:	IP44
Energy Class (EEI):	≤0.2

Accessories



Art. 785

Collettore in ottone a doppia camera adatto per i gruppi di rilancio art. R001-R002-R003-R004, completi di guscio di isolamento in PPE nero. I collettori art. 785 possono essere utilizzati in modo singolo oppure collegati in serie (compreso di viti e guarnizioni).



Art. 789

G 1" F X G 1" 1/2 F plane seat union with nut and gasket. It reduces from G 1" 1/2 F to G 1" F.



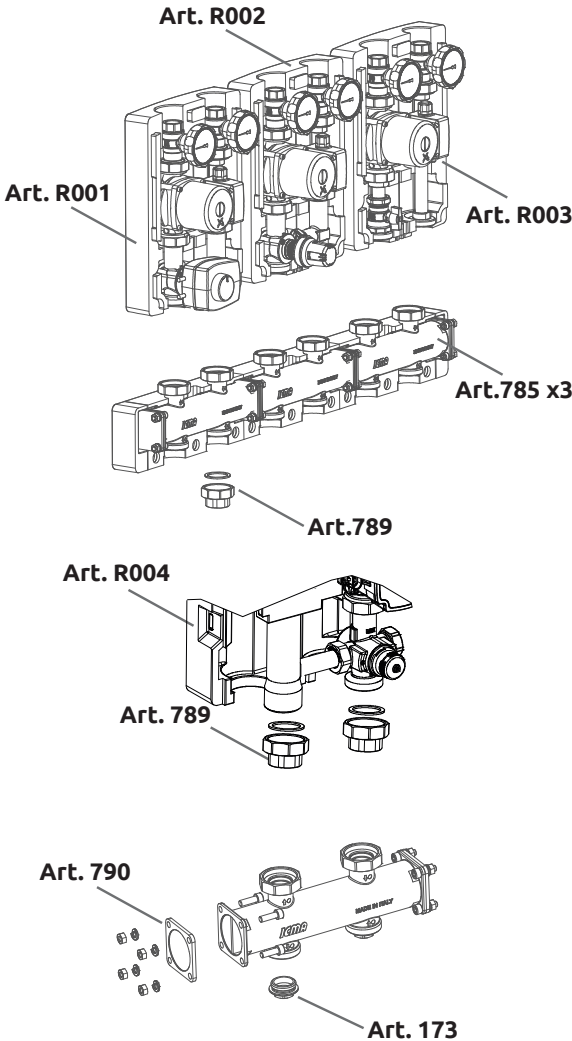
Art. 790

Head cap for manifold art. 785.



Art. 173

End cap with O-ring to close 1" exits of manifold art. 785.



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/ Shell Composition, Version 93



/ Shell Composition, Version 94



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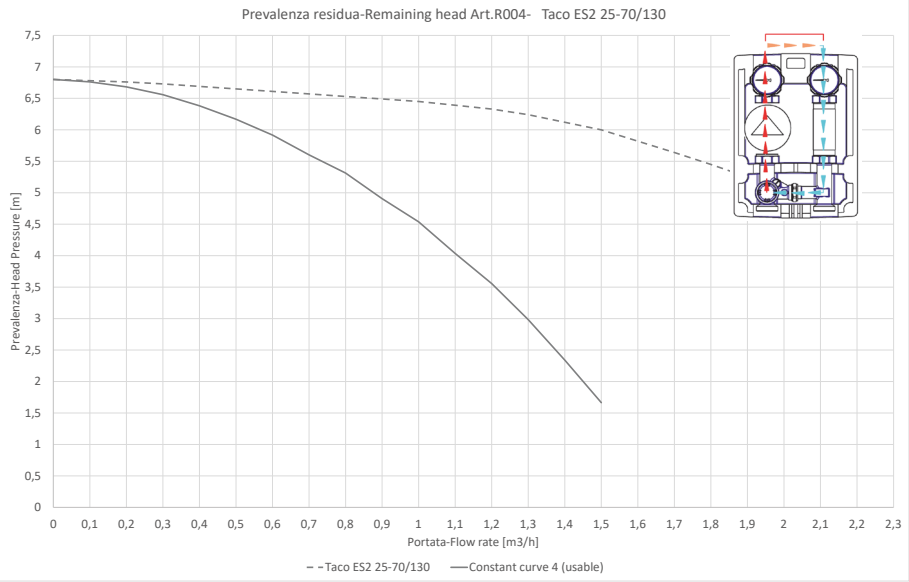
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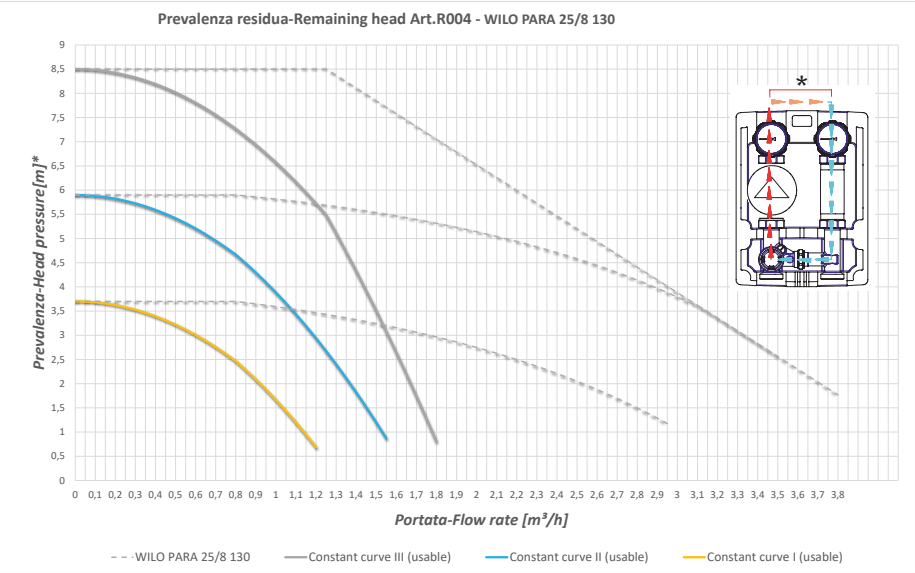
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Hydraulic Specifications

Art. **P329**



Art. **P327**



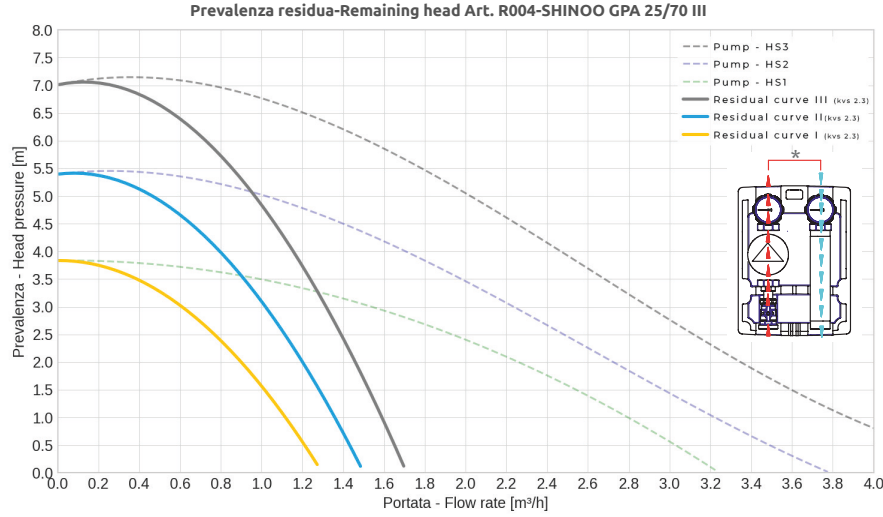
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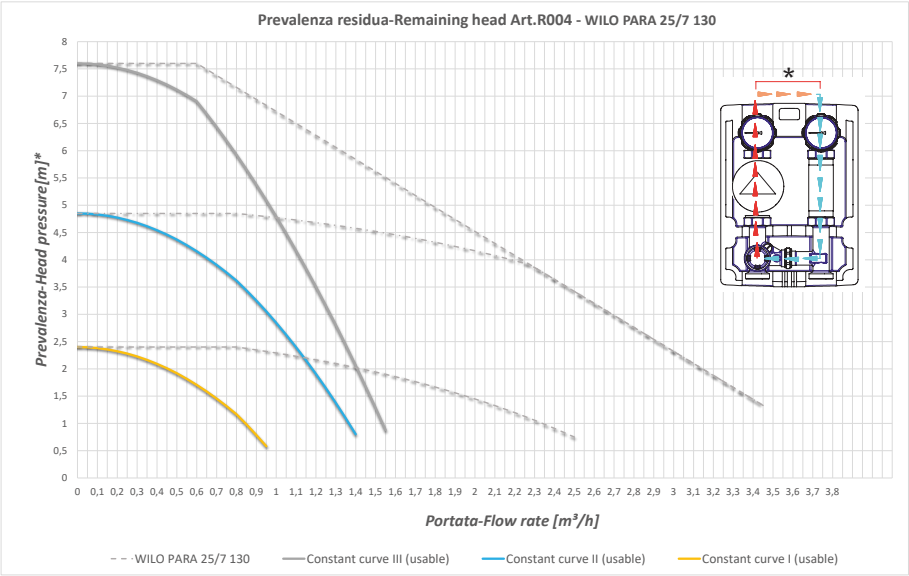


ST.R004.05.26.EN (NC1718)

Art. **P331**

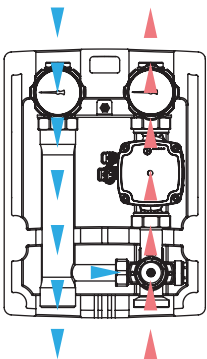
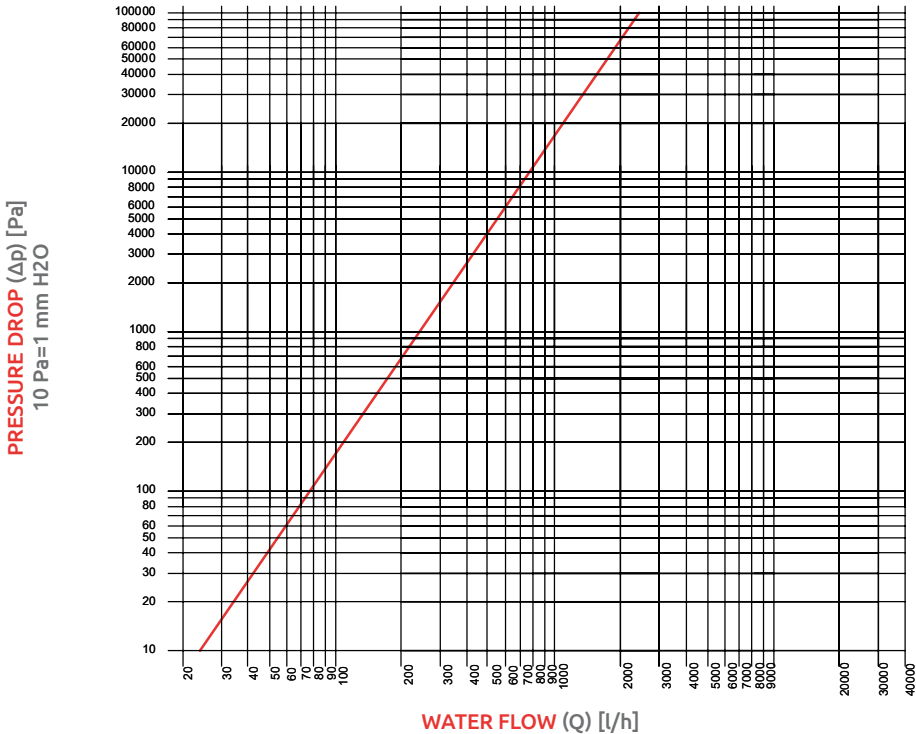


Art. **P330**



Hydraulic Specifications

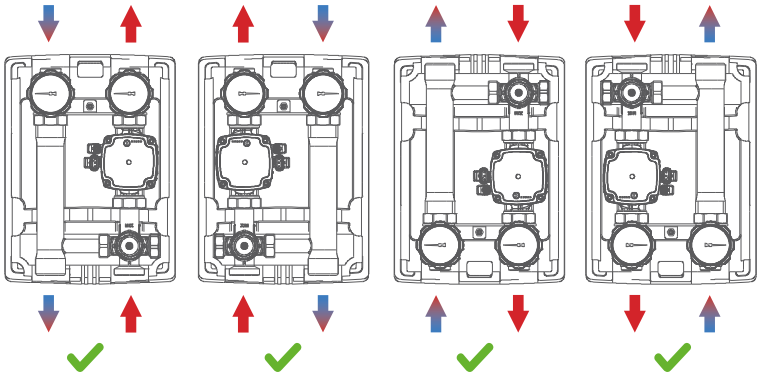
Circulation Unit Art. R004
PRESSURE DROP DIAGRAM



Kv m ³ /h Straight way	2.3
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Positioning

Group orientation



Right-Left Switching

