

DOUBLE CIRCULATION UNIT

MIXING FUNCTION, SERIES DxA100



DAA111



DDA111

PRODUCT DESCRIPTION

Double circulation unit series DxA100 is a compact unit for two separated heating circuits. Two circulation units; either two mix groups, or one mix group in combination with a direct group preassembled with a manifold, equipped with two shut-off valves with thermometers in flow and return line, check valves and high efficiency circulation pumps are covered by a thermal insulation shell.

The manifold is designed with a thermal separation between flow and return line and with integrated hydraulic separation, and the bypass function is easily controlled with an adjustment screw. Wall brackets are integrated into the insulation shell.

The direct group is suitable for distribution of high temperature water pumped directly from a boiler out to a heating circuit such as radiator heating. The mix group is perfect to mix hot water from a boiler with cold water from the return line to a desired heating circuit temperature controlled by an external controller and an integrated actuator, and can for example be used in underfloor heating applications.

The new approach for circulation units gives a wide range of possibilities to set up a system; from two direct groups up to two mix groups since the groups can be adjusted or upgraded after installation by simple adding or dismounting components.

VERSIONS

Two different versions of series DxA100 are available:

- DAA111 is a combination of two mix groups each equipped with a 3-point 230VAC 120s actuator.
- DDA111 is a combination of a direct group and a mix group equipped with a 3-point 230VAC 120s actuator.

SERVICE AND MAINTENANCE

The double circulation unit does not require any specific maintenance under normal conditions.

KEY BENEFITS

- Compact, all in one design
- Easy to install
- Manifold with option of hydraulic separation easily set with a screw
- Check valve integrated into ball valves return line
- High flow rate
- Possible to upgrade with upgrade kit
- Quick-fit actuator

RELATED ACCESSORIES

Art. No.
66100300 _____ Upgrade kit DVA111
set with a second mix circuit for
transformation from DDA111 to DAA111

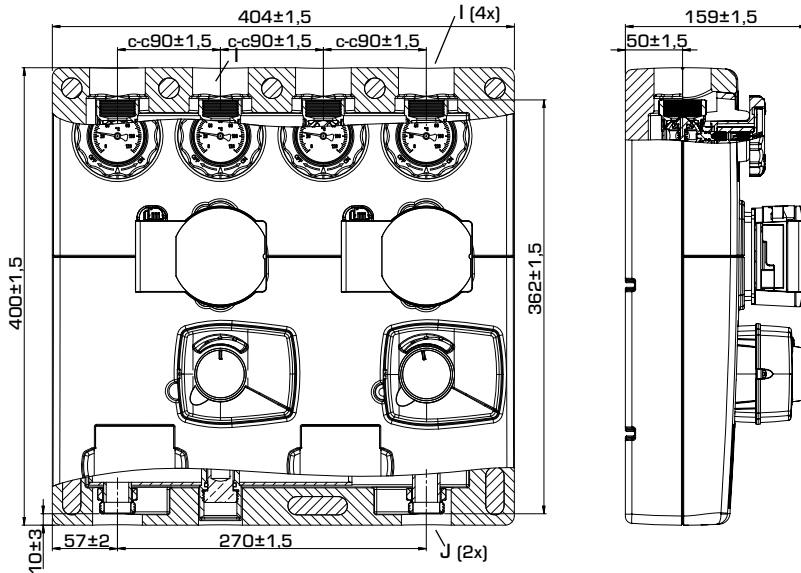


ESBE SYSTEM UNITS

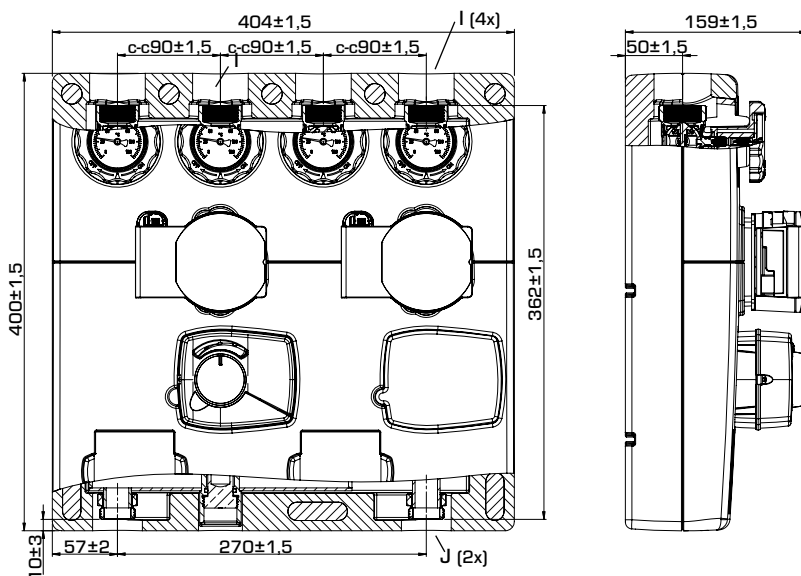
DOUBLE CIRCULATION UNIT

MIXING FUNCTION, SERIES DxA100

PRODUCT ASSORTMENT



DAA111



DDA111

SERIES DxA100

Art. No.	Reference	DN	Pump	Connections		Weight [kg]	Note
				I	J		
61310200	DAA111	20	Wilo PARA 15/8-75/SC	G 1"	G 1"	10,7	Two mixing circuits
61310100	DDA111					10,0	One mixing circuit + one direct circuit

DOUBLE CIRCULATION UNIT

MIXING FUNCTION, SERIES Dx100

TECHNICAL DATA

The Circulation unit, in general:

Pressure class: _____ PN 6
 Media temperature: _____ max. +110°C
 _____ min. 0°C
 Ambient temperature: _____ max. +50°C
 _____ min. 0°C
 Working pressure: _____ 0,6 MPa (6 bar)
 Connections, _____ Internal thread (G), ISO 228/1
 _____ External thread (G), ISO 228/1
 Insulation: _____ EPP λ 0,041 W/mK
 Media: _____ Heating water (in accordance with VDI2035)
 _____ Water / Glycol mixtures, max. 50%.
 (above 20% admixture, the pump data must be checked)

Material, in contact with water:

Components of: _____ Brass, Cast iron, Steel
 Sealing material of: _____ PTFE, Aramid fibre, EPDM

EEl (Energy Efficiency Index),

Wilo circulation pump: _____ <0,21

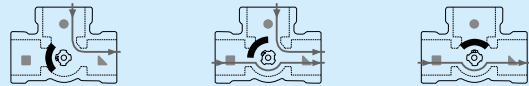
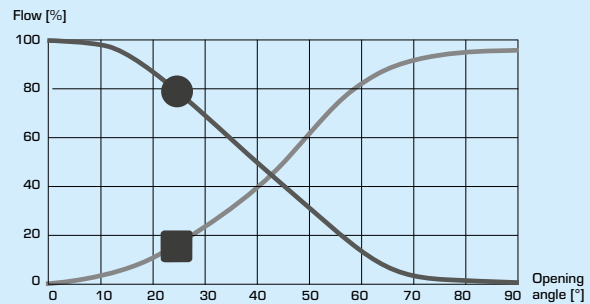
Conformities and certificates:

 LVD 2014/35/EU  ErP 2009/125/EU
 EMC 2014/30/EU  ErP 2015
 RoHS 2011/65/EU  EnEV 2014
 PED 2014/68/EU, article 4.3

The integrated mixing valve:

Valve reference: _____ VRG430
 Pressure class: _____ PN 10
 Kvs: _____ 8
 Max. differential pressure drop: _____ 100 kPa (1 bar)
 Close off pressure: _____ 200 kPa (2 bar)
 Leakrate in % of flow*: _____ < 0,05%
 * Differential pressure 100kPa (1 bar)

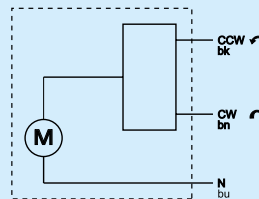
VALVE CHARACTERISTICS



The integrated actuator:

Actuator reference: _____ ARA661
 Control signal: _____ 3-point
 Power supply: _____ 230 ± 10% V AC, 50 Hz
 Power consumption: _____ 5 VA
 Running time 90°: _____ 120s
 Enclosure rating: _____ IP41
 Protection class: _____ II

ACTUATOR WIRING*

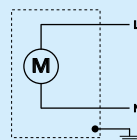


* The actuator should be preceded by a multi-pole contact breaker in the fixed installation.

The integrated circulation pump:

Pump reference: _____ Wilo PARA 15-130/8-75/SC
 Pressure class: _____ PN 10
 Power supply: _____ 230 ± 10% V AC, 50/60 Hz
 Power consumption: _____ 10-75 W
 Enclosure rating: _____ IP X4D
 Insulation class: _____ F
 EEI (Energy Efficiency Index): _____ <0,21 -part 3

PUMP WIRING*



* The circulation pump should be preceded by a multi-pole contact breaker in the fixed installation.

DOUBLE CIRCULATION UNIT

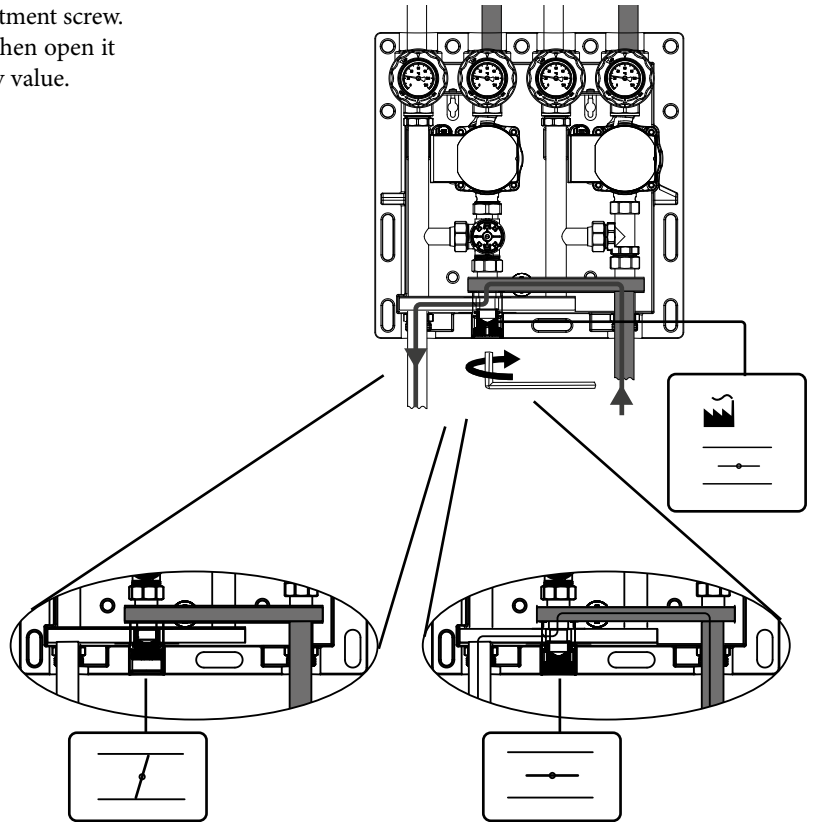
MIXING FUNCTION, SERIES DxA100

SETTING OF HYDRAULIC SEPARATION

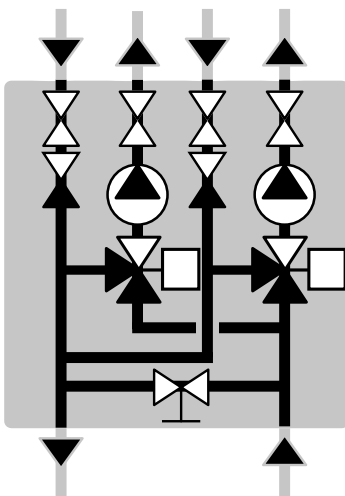
Kv values for bypass can be set using separate adjustment screw.

Turn the screw clockwise to its stop position, then open it a number of turns in order to achieve a specific Kv value.

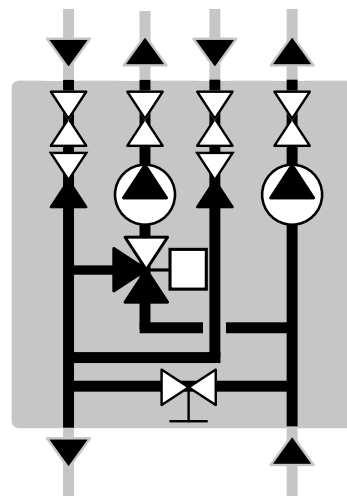
Number of turns	Kvs [m ³ /h]	By-pass set
0	0	
1	2,9	
2	4,2	
3	5,0	
4	5,3	
5	5,5	
6	5,6	



FLOW DISTRIBUTION



DAA111



DDA111

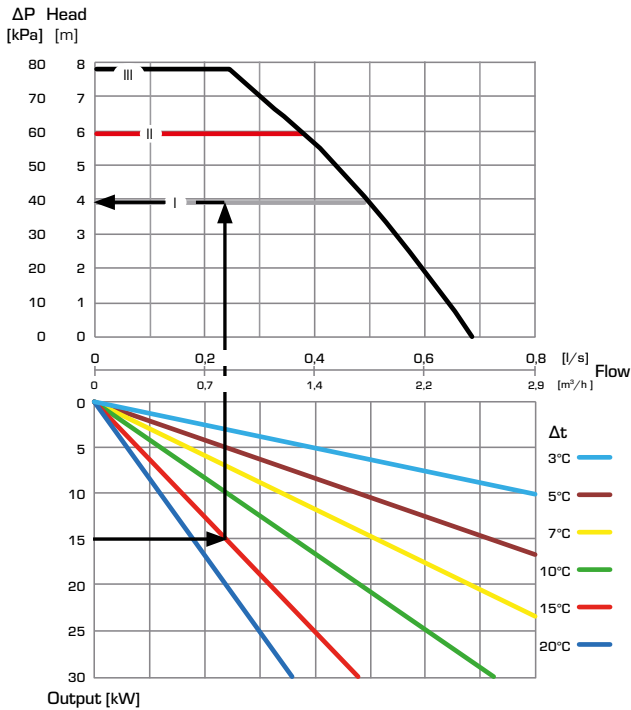
DOUBLE CIRCULATION UNIT

MIXING FUNCTION, SERIES DxA100

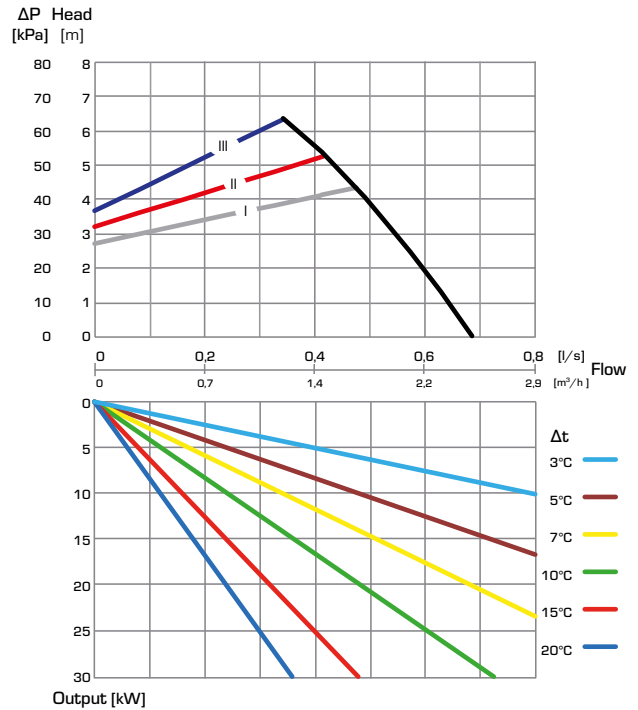
DIMENSIONING, PUMP CAPACITY DIAGRAM

Example: Start with the heating demand of heating circuit (e.g. 15 kW) and move horizontally to the right in the diagram to the $\Delta t = 15^\circ\text{C}$ (temperature difference between flow and return of the heating circuit). Next go up and find working point and read the available pressure of the pump on the left - $\Delta p = 39 \text{ kPa}$.

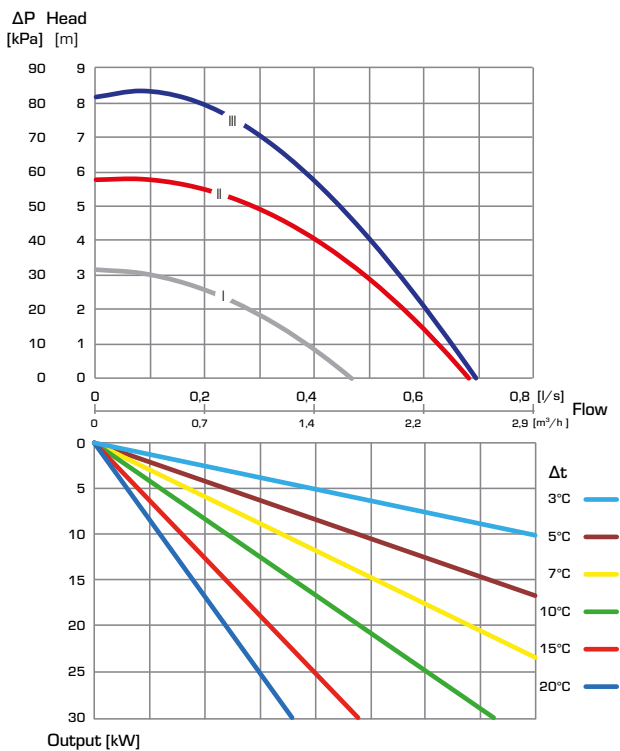
SERIES DAA100 – constant pressure, 8m



SERIES DAA100 – variable pressure, 8m



SERIES DAA100 – constant speed, 8m



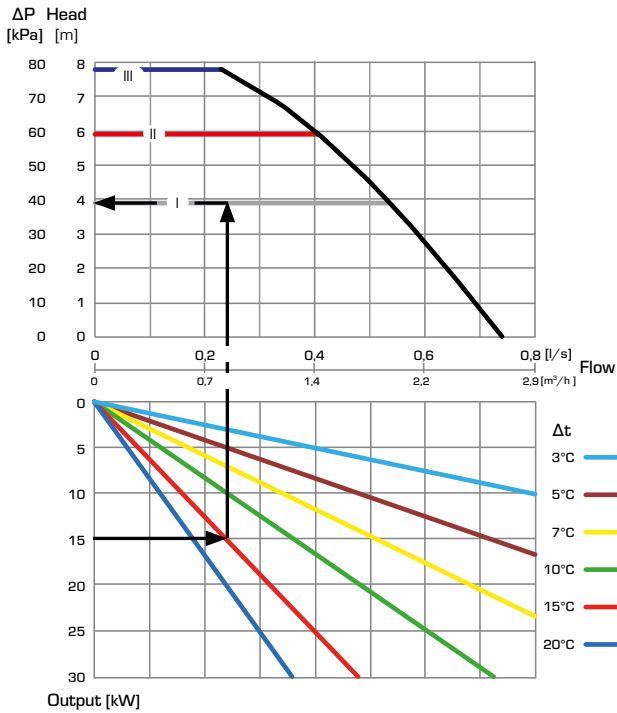
DOUBLE CIRCULATION UNIT

MIXING FUNCTION, SERIES DxA100

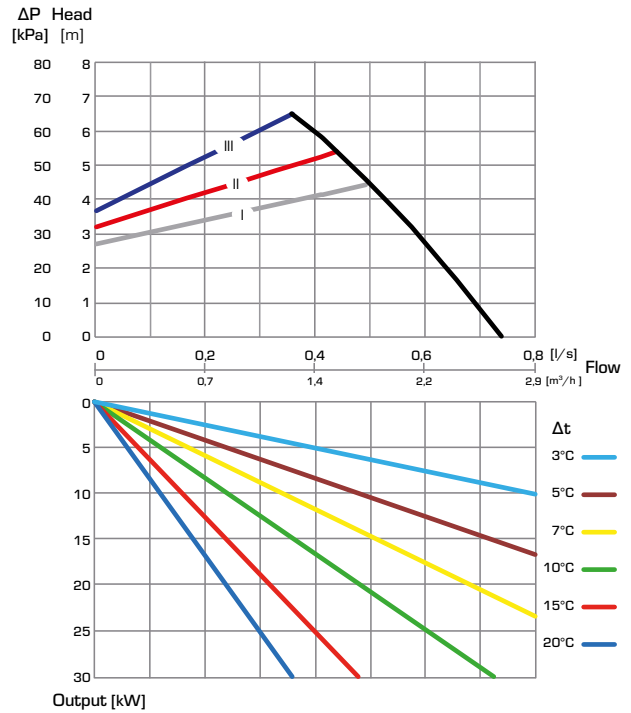
DIMENSIONING, PUMP CAPACITY DIAGRAM

Example: Start with the heating demand of heating circuit (e.g. 15 kW) and move horizontally to the right in the diagram to the $\Delta t = 15^\circ\text{C}$ (temperature difference between flow and return of the heating circuit). Next go up and find working point and read the available pressure of the pump on the left - $\Delta p = 39 \text{ kPa}$.

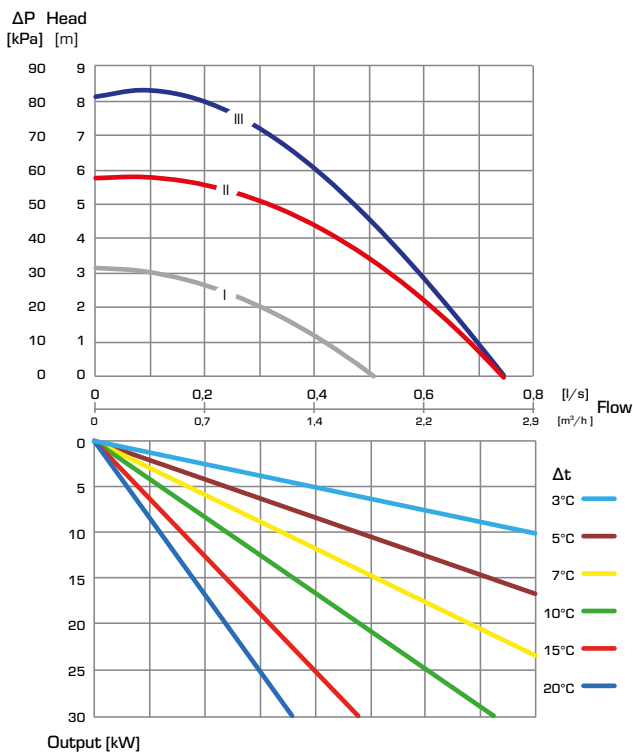
SERIES DDA100 – constant pressure, 8m



SERIES DDA100 – variable pressure, 8m



SERIES DDA100 – constant speed, 8m

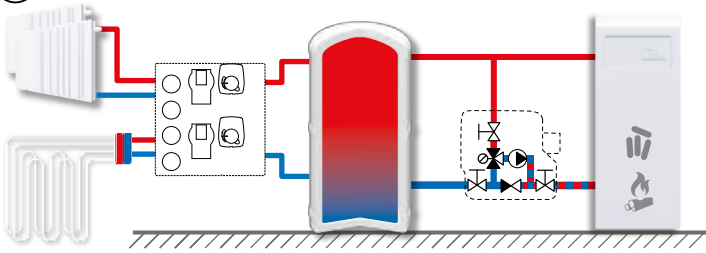


DOUBLE CIRCULATION UNIT

MIXING FUNCTION, SERIES DxA100

INSTALLATION EXAMPLES

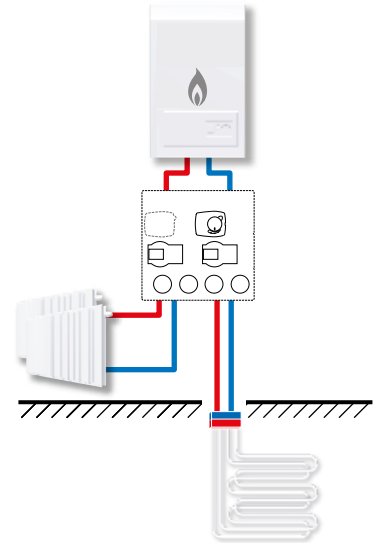
①



Solid fuel boiler and storage tank

Double circulation unit with two mixing heat distribution circuits for underfloor heating and radiators system
By-pass closed – hydraulic separation is disabled

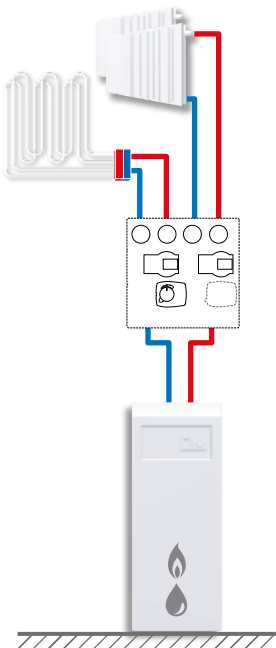
③



Wall hanging gas boiler with a circulation pump

Double circulation unit with mixing and direct heat distribution for underfloor heating and radiators system
By-pass open – hydraulic separation is enabled

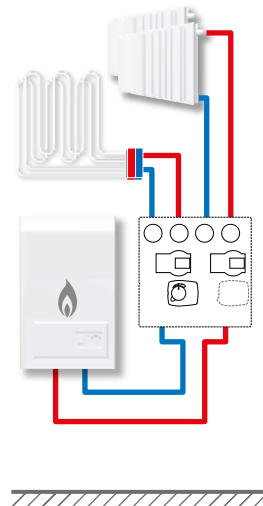
②



Floor standing oil / gas boiler with or without a circulation pump

Double circulation unit with mixing and direct heat distribution for underfloor heating and radiators system
By-pass open – hydraulic separation is enabled, or *by-pass closed* – hydraulic separation is disabled

④



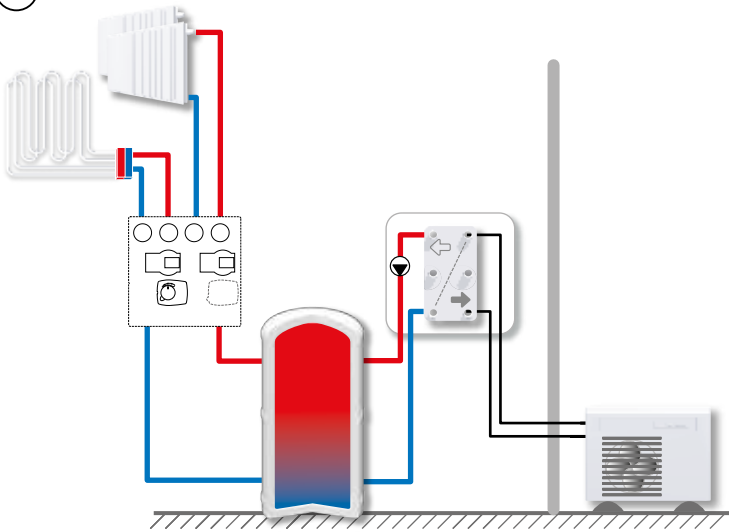
Wall hanging gas boiler with a circulation pump

Double circulation unit with mixing and direct heat distribution for underfloor heating and radiators system
By-pass open – hydraulic separation is enabled

DOUBLE CIRCULATION UNIT

MIXING FUNCTION, SERIES DxA100

5

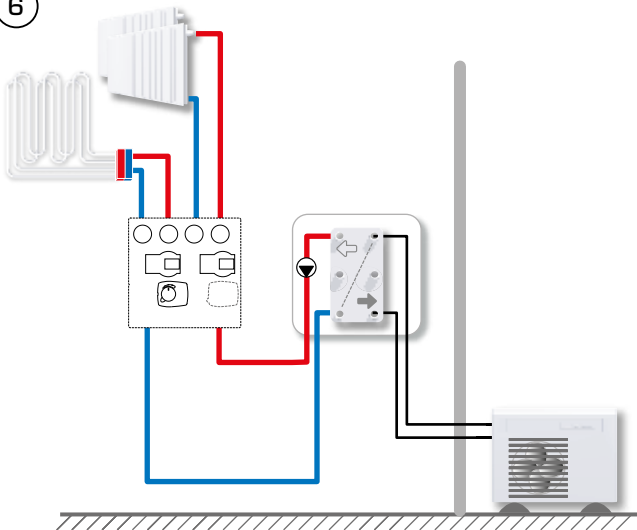


Heating pump and storage tank

Double circulation unit with mixing and direct heat distribution
for underfloor heating and radiators system

By-pass closed – hydraulic separation is disabled

6



Heating pump with a circulation pump

Double circulation unit with mixing and direct heat distribution
for underfloor heating and radiators system

By-pass open – hydraulic separation is enabled