System version 2

Mono operation with de-coupled modulating storage unit

System definition

- Type AW: 111
- Type BW and WW
  - single stage: 11
  - two stage: 61

Primary circuit of the heat pump
If the actual temperature measured by upper temperature sensor ② of heating water buffer storage unit ③ is lower than that set at the CD 60 control unit, heat pump ①, the primary pump, the intermediate circuit pump and secondary pump ④ start to operate.

Secondary circuit of the heat pump
Heat pump ① supplies heat to the heating circuit.
The CD 60 control unit integrated into heat pump ① controls the heating water flow temperature and therefore the heating circuit.
Secondary pump ④ channels the heating water via three-way changeover valve ⑤, either to DHW cylinder ⑥ or to heating water buffer storage unit ③ or into the heating circuit. Heating circuit pump ⑦ channels the required water volume into the heating circuit.
The flow rate within the heating circuit is regulated by opening and closing the thermostatic radiator valves or the valves of the underfloor heating distributor. Also, it can vary from that of heat pump circuit (secondary pump ④) through sizing heating circuit pump ⑦. Install a heating water buffer storage unit ③ parallel to the heating circuit, in order to compensate for the differences between these water volumes. Heat that is not required by the heating circuit is stored in parallel in heating water buffer storage unit ③. In addition, this provides a balanced heat pump operation (longer operating times).
Heat pump ① is switched off again, when the actual temperature measured by temperature sensor ⑧ of heating water buffer storage unit ③ has reached the temperature set at the CD 60 control unit. The heating circuit will then be supplied by heating water buffer storage unit ③. Only when the temperature at upper temperature sensor ② of heating water buffer storage unit ③ falls below the set value will heat pump ① be switched on again. The heating circuit will be supplied with heat by heating water buffer storage unit ③ in case the electricity supplier shuts down the heat pump.

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System version 2 (cont.)

Domestic hot water heating with the heat pump

In the "as delivered condition", DHW heating by means of heat pump ① has priority over the heating circuit and is preferred during cheap tariff times, i.e. during the night.

Heating demand is communicated via DHW cylinder temperature sensor ⑨ and the CD 60 control unit, which regulates three-way changeover valve ⑤.

The heat pump raises the flow temperature to the value required for DHW heating.

The DHW can be further heated by an electric supplementary heating system ⑩ (e.g. immersion heater element EHO).

The CD 60 control unit switches the heating water flow to the heating circuit using three-way changeover valve ⑤, if the actual value measured at DHW temperature sensor ⑨ is higher than that set at the CD 60 control unit.

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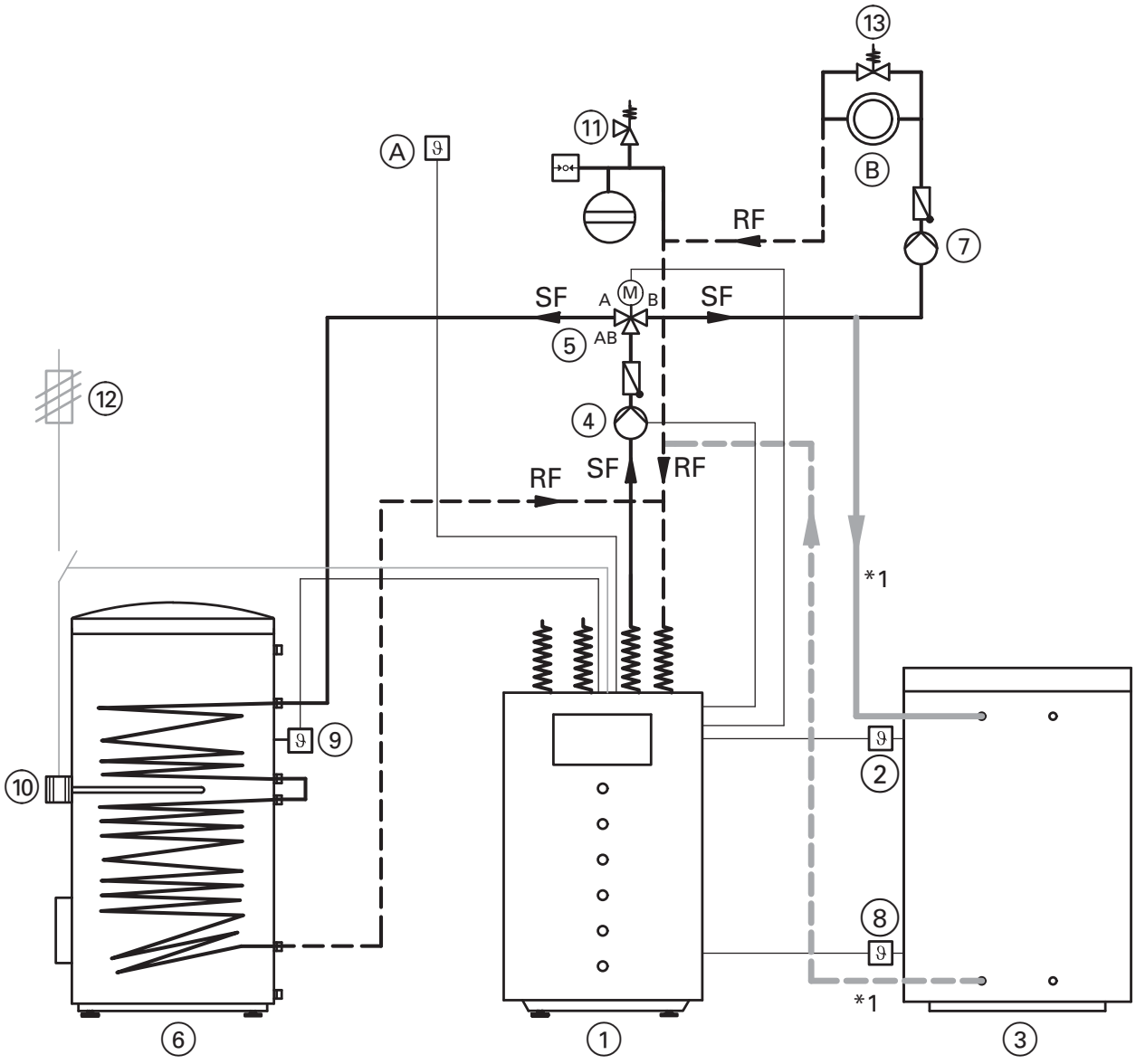
System version 2 (cont.)



Ⓐ Outside temperature sensor
Ⓑ Underfloor heating circuit

VL Flow
RL Return

[1]At least one size up (DN) from the remaining pipework.

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System version 2 (cont.)

Required equipment

Item	Description	Number	Part no.
①	Heat pump Vitocal 300, type AW, BW and WW	1	see type plate
②	Temperature sensor to establish the temperature within the heating water buffer storage unit (top)	1	7159 671
③	Heating water buffer storage unit Vitocell 050, type SVP (600 or 900 litres capacity)	1	see type plate
④	Secondary pump ■ Wilo RS 25-70R ■ Grundfos UPS 25-60	1	 7338 850 7338 851
⑤	Three-way changeover valve Central heating/DHW heating ■ up to 18.5 kW rated output ■ from 18.5 kW rated output	1	 7814 924 7165 482
⑥	Domestic hot water cylinder ■ Vitocell-B 100, type CVB (300 or 500 litres capacity) ■ Vitocell-B 300, type EVB (350 or 500 litres capacity)	1	see type plate
⑦	Heating circuit pump ■ Wilo RS 25-70R ■ Grundfos UPS 25-60	1	 7338 850 7338 851
⑧	Temperature sensor to establish the temperature within the heating water buffer storage unit (bottom)	1	7159 671
⑨	Cylinder temperature sensor for measuring the DHW temperature	1	7159 671
⑩	Electrical supplementary heating system ■ Immersion heater element EHO*1 ■ Direct domestic hot water heater (for pre-heated water up to 50 °C)	1	 7265 198 on site
⑪	Safety equipment block (equipped)	1	7143 779
⑫	Contactor relay for activating the immersion heater element	1	7814 681
⑬	Overflow valve	1	on site

*1 *Only in conjunction with Vitocell-B 100.*

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