ESBE SYSTEM UNITS

CIRCULATION UNIT
BIVALENT FUNCTION, SERIES GBA200

GBA211

PRODUCT DESCRIPTION

The ESBE circulation units Series GBA200 are designed for applications, where precision of mixing and flow temperature and efficient energy use are required. The mixing groups is used for the temperature control, mixing function, in the heating systems where more than one flow temperature is available. An example of such application can be accumulation tank. A combination of accumulation tank and GBA200 provides stratification of the temperature (as a load group) or use the stratification of the temperature in the accumulation tank to supply to the heating receiver right temperature. In this way the GBA200 helps to maximize the energy efficiency.

The series GBA200 is equipped with a pump, a rotary bivalent mixing valve and an actuator. The temperature control, mixing function, is performed based on an external signal from external controller. The mixed temperature is in this case a result of the controller parameters setting. For example, if the external controller is a weather compensated controller, the mixed temperature will be calculated based on the controller's heating curve settings. The groups are used in the systems with controllers, and it depends on controller type and functions, which level of comfort will be delivered.

Products are equipped with two shut-off valves with colour coded thermometers, one check valve placed on the return from the heating circuit and a high-class insulation shell. All circulation units are equipped with rotary bivalent mixing valves and actuator series ARA600.

When designing the circulation unit product line ESBE focused on performance, design, user friendly usage and environment. This applies to everything from manufacturing, materials to packaging.

VERSIONS

Series GBA200

The ESBE Series GBA200 is a circulation unit equipped with a pump and rotating bivalent mixing valve. The product is available in one size, DN25 and comes with Wilo pump. The pumps can be set to constant speed, variable or constant pressure. The actuator type is 3-point 230V AC series ARA661 with ESBE QuickFIT interface between actuator and valve. This feature allows for assembly or disassembly of the actuator from the valve without any tools. The compact design of the unit has been thought through and focus put on components such as pump resulted in high performance of the pump group.

SERVICE AND MAINTENANCE

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

KEY BENEFITS

- Highly efficient circulation pumps, EEI <0,20
- High class insulation of hydraulic parts
- Bivalent rotary mixing valve
- Quick-FIT interface between actuator and valve
- Compact design
- Tested and ready to use
- Designed to last and perform
- High-end product finish

RELATED ACCESSORIES

See separate data sheet for further detailed information.

ESBE Manifold

Manifold for 1, 2, or 3 circulation units. With integrated separator function.

Art. No.

66001100 _____ GMA411- for 1 unit
66001600 _____ GMA521 - for 2 units
66001700 _____ GMA531 - for 3 units

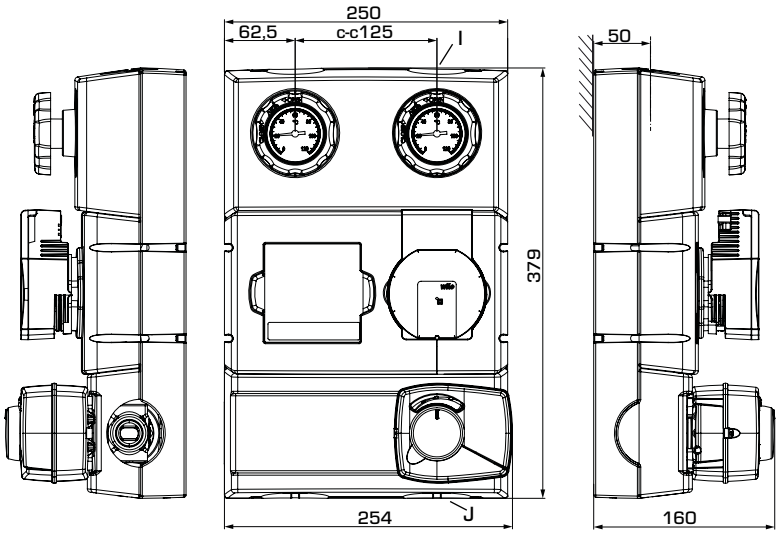
Manifold for 2, 3, 4 or 5 circulation units. Without integrated separator function.

Art. No.

66001200 _____ GMA421- for 2 units
66001300 _____ GMA431 - for 3 units
66001400 _____ GMA441 - for 4 units
66001500 _____ GMA451 - for 5 units

CIRCULATION UNIT
BIVALENT FUNCTION, SERIES GBA200

PRODUCT ASSORTMENT



GBA211

SERIES GBA200

Art. No.	Reference	DN	Pump	Connections		Weight [kg]	Replaces	Note
				I	J			
61061100	GBA211	25	Wilo PARA 25-130/6	G 1"	G 1½"	5,8	61060100	

CIRCULATION UNIT
BIVALENT FUNCTION, SERIES GBA200

TECHNICAL DATA Visit esbe.eu for further detailed information.

The Circulation unit, in general

Pressure class: PN 10
Media temperature: max. +100°C
min. +5°C
Ambient temperature: max. +55°C
min. 0°C
Working pressure: 1,0 MPa (10 bar)
Connections, Internal thread (G), ISO 228/1
External thread (G), ISO 228/1
Insulation: EPP λ 0,036 W/mK
Media: Heating water (in accordance with VDI2035)
Water / Glycol mixtures, max. 50%.
water / glycol mixtures are affecting the pump performance. In case of Applications where water / glycol mixtures are used, pump performance should be considered.

Material, in contact with water

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

EEI (Energy Efficiency Index), circulation pump: <0,20

Conformities and certificates

LVD 2014/35/EU
EMC 2014/30/EU
RoHS3 2015/863/EU
ErP 2009/125/EU

SI 2016 No. 1101
SI 2016 No. 1091
SI 2012 No. 3032
SI 2010 No. 2617

PED 2014/68/EU, article 4.3 / SI 2016 No. 1105 (UK)

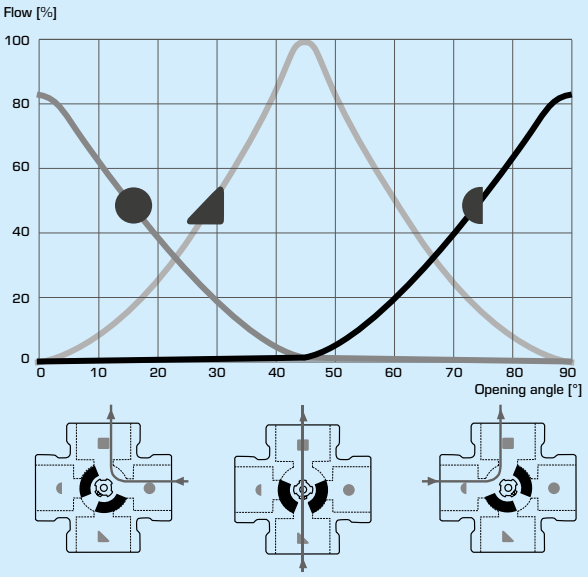
EnEV

The integrated bivalent mixing valve

Valve type: VRB142
Max. differential pressure drop: 100 kPa (1 bar)
Close off pressure: 200 kPa (2 bar)
Rangeability Kv^{max}/Kv^{min}, A-AB: 100
Leakrate in % of flow*: < 0,5%

* Differential pressure 100kPa (1 bar)

VALVE CHARACTERISTICS



The integrated actuator

Actuator type: 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

WIRING

Please see the Installation Instruction

The integrated circulation pump

Pump type, DN25: Wilo PARA 25-130/6-43/SC
Power supply: 230 ± 10% V AC, 50/60 Hz
Power consumption: 3-43 W
Enclosure rating: IP X4D
Insulation class: F
EEI (Energy Efficiency Index): <0,20

WIRING

Please see the Installation Instruction

CIRCULATION UNIT
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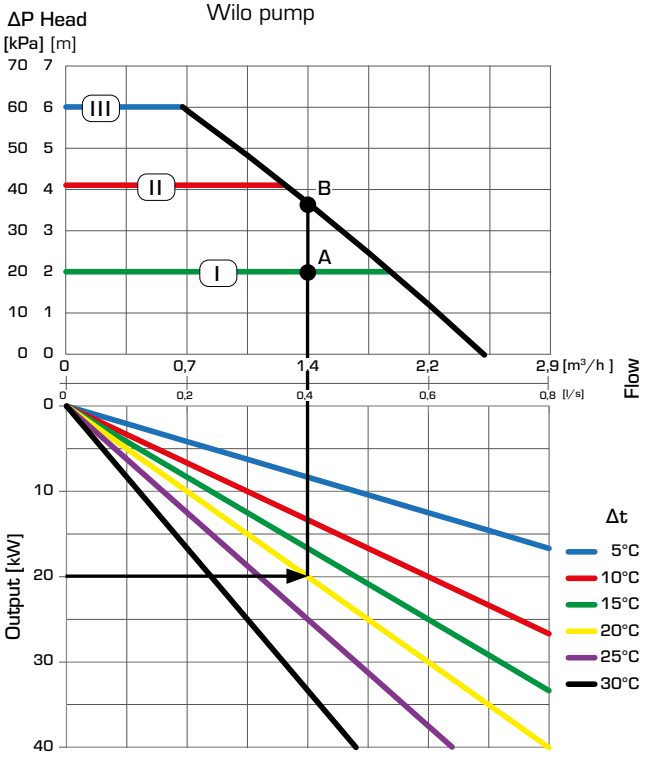
DIMENSIONING, PUMP CAPACITY DIAGRAM

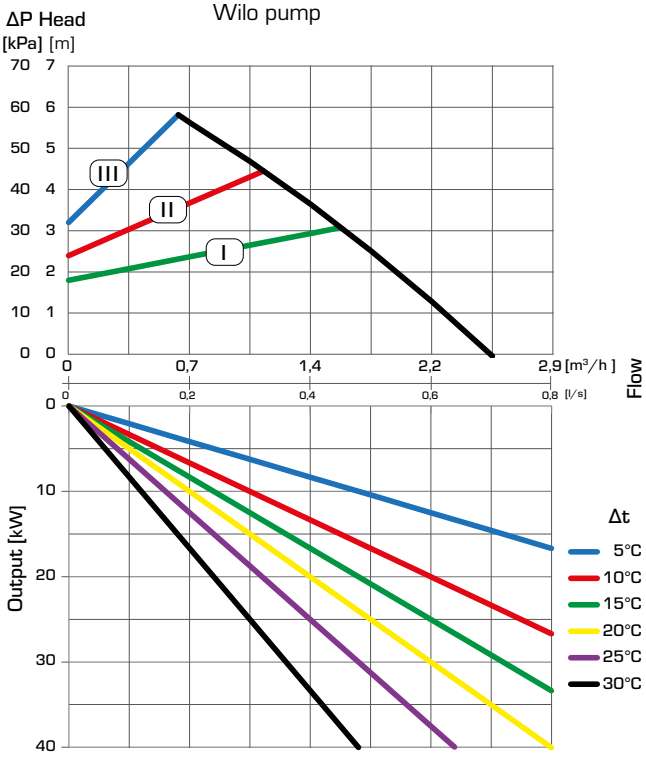
Example: Start with the heat demand of the heating circuit (e.g. 20 kW) and move horizontally to the right in the diagram to the Δt = 20°C (temperature difference between flow and return of the heating circuit). Next go up and find the possible duty points.

Setting I gives duty point A with a residual head of 20 kPa. Setting II and III gives duty point B with a residual head of 36 kPa.

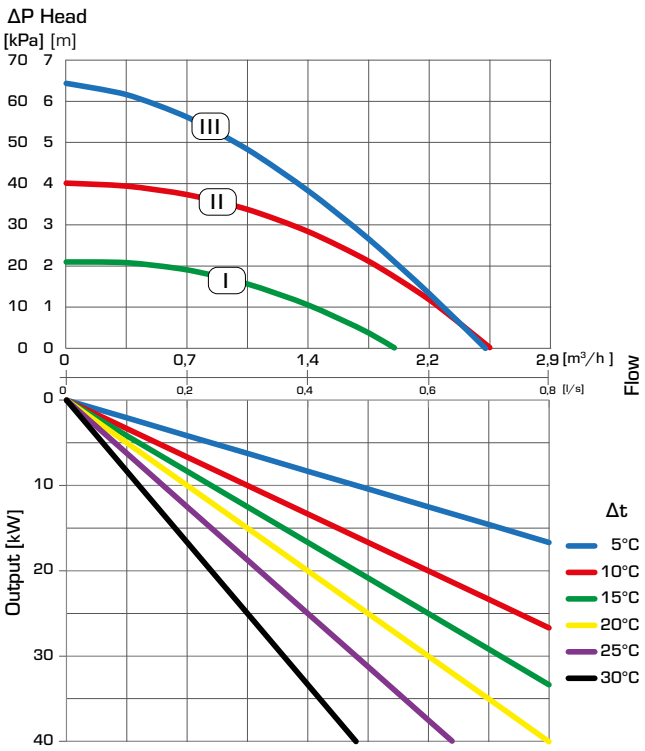
SERIES GBA211 – Constant differential pressure, Wilo pump



SERIES GBA211 – Variable differential pressure, Wilo pump



SERIES GBA211 – Constant speed, Wilo pump



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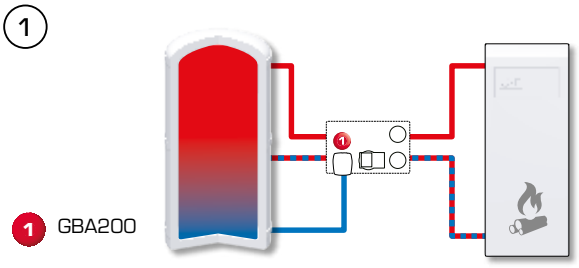
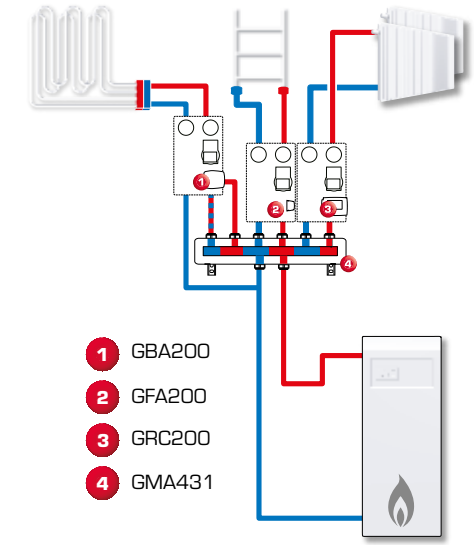
INSTALLATION EXAMPLES

1



The circulation unit Series GBA200 with accumulator tank and solid fuel boiler as a load group.
The GBA200 secures the correct return temperature to the boiler and keeps the correct stratification in the accumulation tank. The benefit of using a GBA200 is the quick return temperature increase over the dew point which secures the boiler against condensation and tarring. It provides the correct stratification of the temperature in the accumulation tank, no water mixing, which decrease the energy needed to keep the correct temperature in the tank.

2



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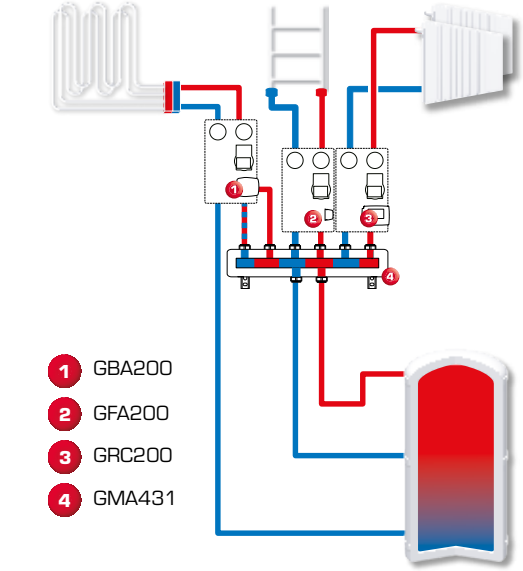

The Circulation unit Series GBA200 with boiler or accumulation tank as a heat distribution unit.
In both cases the GBA200 maximize and optimize the energy usage. The GBA200 is using the return water from the other heating receivers to supply the low temperature heating receiver, as given examples of underfloor heating. Benefit of this solution is to maximize the usage of the energy in the system, and decrease the temperature of the return water in order to maximize the condensing effect when using a condensing boiler. In systems with accumulator tank, stratification of collected water is maintained.

The shown applications are only examples of product use!
Before using the product in any application, the regional and national regulations need to be checked.