

# CIRCULATION UNIT

## MIXING FUNCTION, SERIES GRA100



GRA111, GRA131

GRA112, GRA132

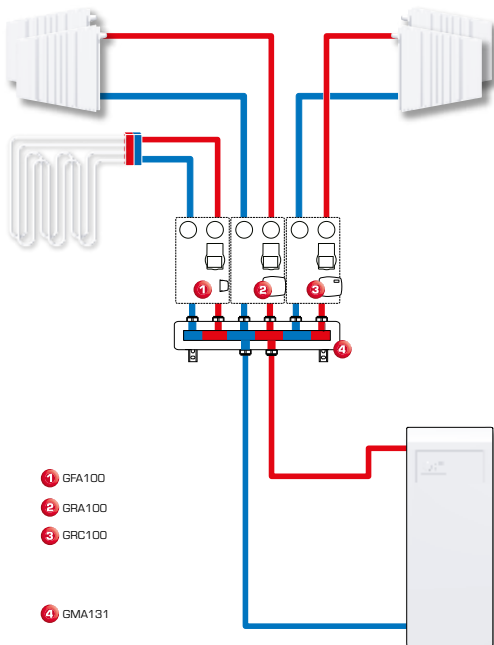
### PRODUCT DESCRIPTION

The ESBE series GRA100 is a circulation mixing unit which is intended for heating circulations where the outstanding flow and temperature control are required. Equipped with two shut-off valves with thermometers, check valve, high class insulation shell and high efficiency circulation pump. The GRA100 is delivered with the 3-way rotary progressive mixing valve and actuator. The Circulation Mixing Unit ensures best regulation performances independent from flow rate and low oversizing risk thanks to progressive valve characteristic, as well as the working possibility with most controllers available on the market.

### SERVICE AND MAINTENANCE

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

### INSTALLATION EXAMPLES



### KEY BENEFITS

- Outstanding flow control thanks to the progressive characteristic of the valve
- Ready to use with most controllers available on the market
- High class insulation shell
- One size fits all – auto adapt + progressive characteristic

### 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.

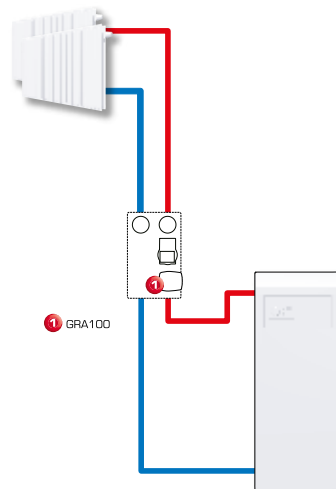
Art. No.

66001200 \_\_\_\_\_ GMA421 - for 2 units

66001300 \_\_\_\_\_ GMA431 - for 3 units

66001400 \_\_\_\_\_ GMA441 - for 4 units

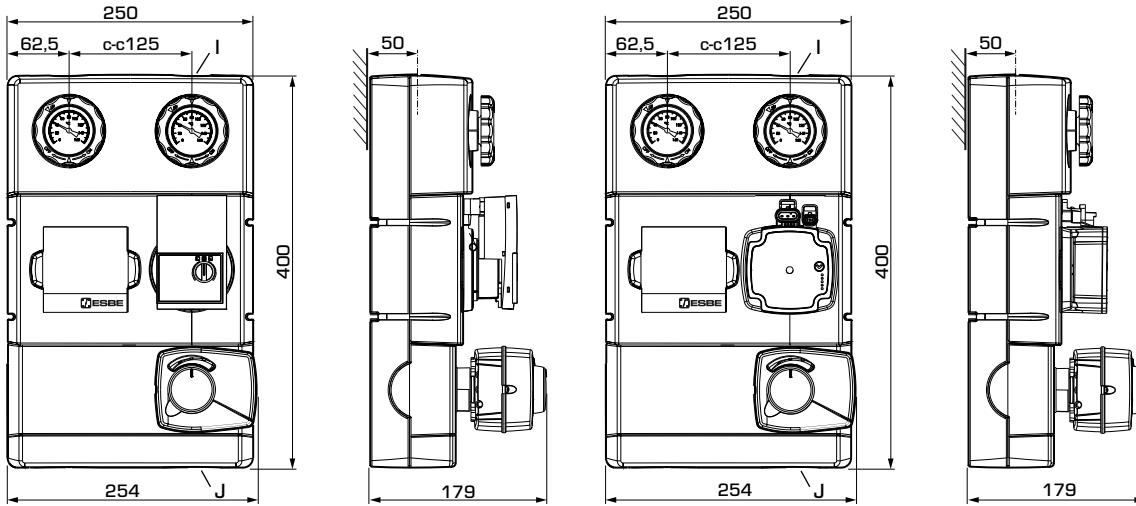
66001500 \_\_\_\_\_ GMA451 - for 5 units



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### PRODUCT ASSORTMENT



GRA111, GRA131

GRA112, GRA132

### SERIES GRA110

Art. No.	Reference	DN	Pump	Connections		Weight [kg]	Note
				I	J		
61040100	GRA111	25	Wilo 25/6	G 1"	G 1½"	5,7	230V, 3 point control signal
61040400		32	Wilo 25/7,5	G 1¼"	G 1½"	6,4	
61040500	GRA112	25	Grundfos 25-50	G 1"	G 1½"	5,8	
61040600		32	Grundfos 25-70	G 1¼"	G 1½"	6,5	


### SERIES GRA130

Art. No.	Reference	DN	Pump	Connections		Weight [kg]	Note
				I	J		
61043200	GRA131	25	Wilo 25/6	G 1"	G 1½"	5,7	24V, Proportional signal
61043300		32	Wilo 25/7,5	G 1¼"	G 1½"	6,4	
61043400	GRA132	25	Grundfos 25-50	G 1"	G 1½"	5,8	
61043500		32	Grundfos 25-70	G 1¼"	G 1½"	6,5	

# CIRCULATION UNIT

## MIXING FUNCTION, SERIES GRA100

### TECHNICAL DATA

 Visit [esbe.eu](http://esbe.eu) for further detailed information.

#### 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  $\lambda$  0,036 W/mK  
 Media: \_\_\_\_\_ Heating water (in accordance with VDI2035)  
 \_\_\_\_\_ Water / Glycol mixtures, max. 50%  
 \_\_\_\_\_ (above 20% admixture, the pump data must be checked)  
 \_\_\_\_\_ Water / Ethanol mixtures, max. 28%


#### 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  
 Grundfos circulation pump: \_\_\_\_\_ <0,20

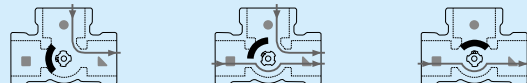
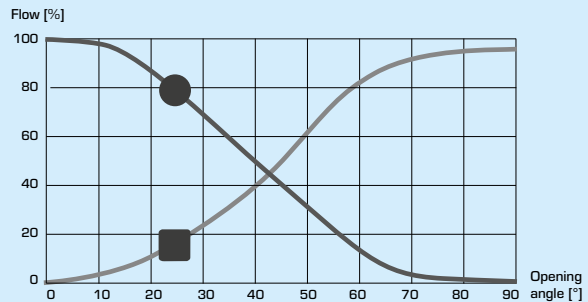
#### Conformities and certificates:

 LVD 2014/35/EU  ErP 2015    
 EMC 2014/30/EU  ErP 2015  
 RoHS3 2015/863/EU  ErP 2015  
 PED 2014/68/EU, article 4.3

#### The integrated mixing valve:

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)

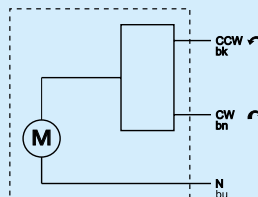
#### VALVE CHARACTERISTICS



#### The integrated actuator, GRA110:

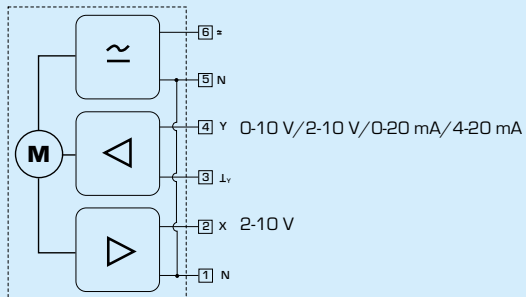
Actuator type: \_\_\_\_\_ ARA661  
 Control signal: \_\_\_\_\_ 3-point  
 Power supply: \_\_\_\_\_ 230 ± 10% V AC, 50 Hz  
 Power consumption: \_\_\_\_\_ 5 VA  
 Running time 90°: \_\_\_\_\_ 120s  
 Enclosure rating: \_\_\_\_\_ IP41  
 Protection class: \_\_\_\_\_ II

#### ACTUATOR WIRING\*



#### The integrated actuator, GRA130:

Actuator type: \_\_\_\_\_ ARA639  
 Control signal: \_\_\_\_\_ proportional  
 Feedback signal: \_\_\_\_\_ 2-10 V  
 Power supply: \_\_\_\_\_ 24 ± 10% V AC/DC, 50/60 Hz  
 Power consumption - Operation, AC: \_\_\_\_\_ 5 W  
 DC: \_\_\_\_\_ 2,5 W  
 Power consumption - Dimensioning, AC: \_\_\_\_\_ 11 VA  
 DC: \_\_\_\_\_ 6 VA  
 Running time 90°: \_\_\_\_\_ 15/30/60/120s  
 Enclosure rating: \_\_\_\_\_ IP41  
 Protection class: \_\_\_\_\_ II




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

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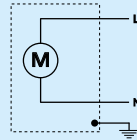
**TECHNICAL DATA**

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**The integrated circulation pump:**

Power supply: \_\_\_\_\_ 230 ± 10% V AC, 50/60 Hz  
 Power consumption - Wilo 25/6: \_\_\_\_\_ 3-45 W  
                           - Wilo 25/7,5: \_\_\_\_\_ 3-76 W  
                           - Grundfos 25-50: \_\_\_\_\_ 2-34 W  
                           - Grundfos 25-70: \_\_\_\_\_ 2-53 W  
 Enclosure rating: \_\_\_\_\_ IP X4D  
 Insulation class: \_\_\_\_\_ F  
 EEI (Energy Efficiency Index) - Wilo 25/6: \_\_\_\_\_ <0,20  
   - Wilo 25/7,5: \_\_\_\_\_ <0,21  
   - Grundfos: \_\_\_\_\_ <0,20

**PUMP WIRING\***

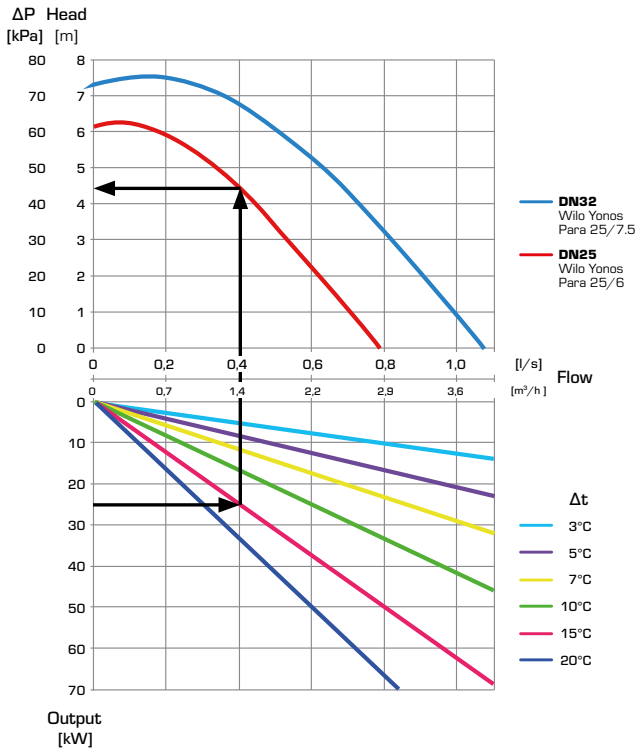


\* The circulation pump should be preceded by a multi-pole contact breaker in the fixed installation.

**DIMENSIONING, PUMP CAPACITY DIAGRAM**

**Example:** Start with the heating demand of heating circuit (e.g. 25 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 -  $\Delta p = 45 \text{ kPa}$ .

**SERIES GRA100 – available pressure, Wilo pumps**



**SERIES GRA100 – available pressure, Grundfos pumps**

