

# CIRCULATION UNIT MIXING FUNCTION, SERIES GRC100, GRC200



GRC111    GRC112    GRC141    GRC142    GRC211

## PRODUCT DESCRIPTION

The ESBE series GRC is a circulation mixing unit which is intended for heating circulations where the outstanding flow and outdoor temperature control are required. Equipped with two shut-off valves with thermometers, check valve, high class insulation shell and high efficiency circulation pump. The GRC is delivered with the 3-way rotary progressive mixing valve and actuator combined with outdoor temperature controller. 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 perfect heating curve characteristic.

## SERVICE AND MAINTENANCE

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

## KEY BENEFITS

- Outstanding flow control thanks to the progressive characteristic of the valve
- Perfect heating curve characteristic
- 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.

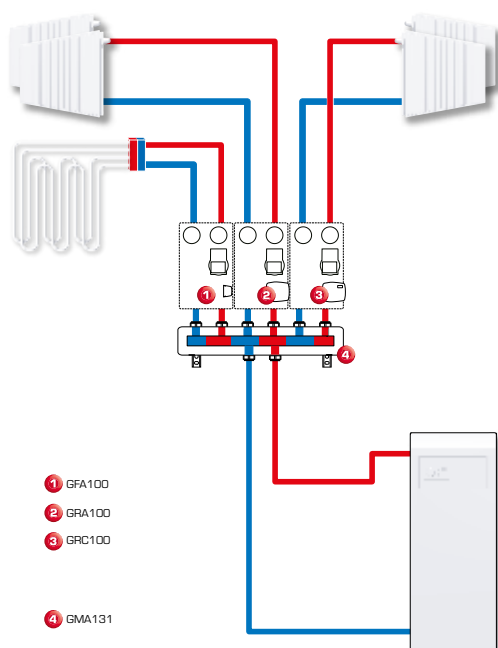
66001200 \_\_\_\_\_ GMA421 - for 2 units

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

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

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

## INSTALLATION EXAMPLE

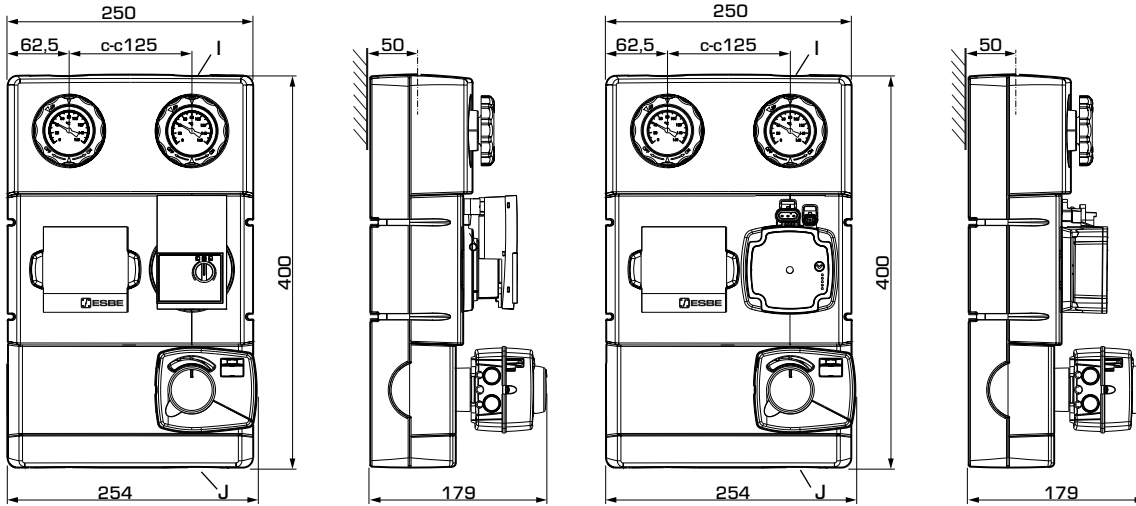


# CIRCULATION UNIT

## MIXING FUNCTION,

### SERIES GRC100, GRC200

#### PRODUCT ASSORTMENT



GRC111/GRC141

GRC112/GRC142

#### SERIES GRC100

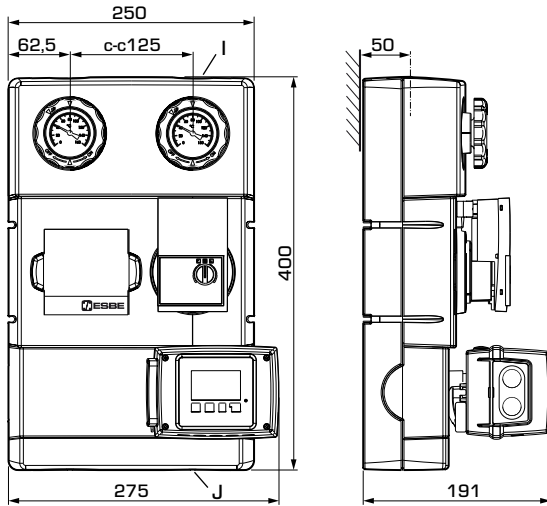
Art. No.	Reference	DN	Pump	Connections		Weight [kg]	Note
				I	J		
61040200	GRC111	25	Wilo 25/6	G 1"	G 1½"	6,3	
61040700		32	Wilo 25/7,5	G 1¼"	G 1½"	7,0	
61040900	GRC112	25	Grundfos 25-50	G 1"	G 1½"	6,4	
61041100		32	Grundfos 25-70	G 1¼"	G 1½"	7,1	
61041300	GRC141	25	Wilo 25/6	G 1"	G 1½"	7,0	With Room display unit
61041400		32	Wilo 25/7,5	G 1¼"	G 1½"	7,8	
61041500	GRC142	25	Grundfos 25-50	G 1"	G 1½"	7,1	
61041600		32	Grundfos 25-70	G 1¼"	G 1½"	7,9	

# CIRCULATION UNIT

## MIXING FUNCTION,

### SERIES GRC100, GRC200

#### PRODUCT ASSORTMENT



GRC211

#### SERIES GRC200

Art. No.	Reference	DN	Pump	Connections		Weight [kg]	Note
				I	J		
61040300	GRC211	25	Wilo 25/6	G 1"	G 1½"	7,2	

#### 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, GRC100: \_\_\_\_\_ max. +50°C  
 GRC200: \_\_\_\_\_ max. +40°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 0,036 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  RoHS 2015/863/EU  EnEV2014  
 PED 2014/68/EU, article 4.3

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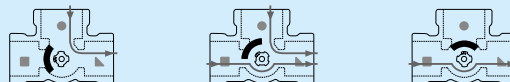
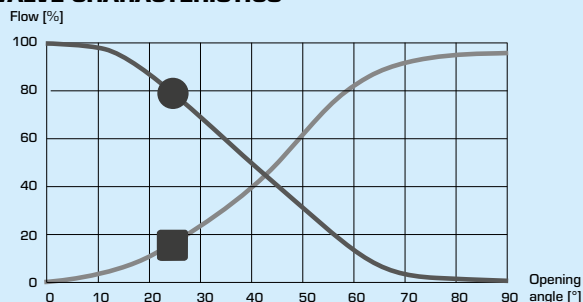
### TECHNICAL DATA

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

#### 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 controller, GRC110:

Controller type: \_\_\_\_\_ CRC111  
 Power supply: \_\_\_\_\_ 230 ± 10% V AC, 50 Hz  
 Power consumption: \_\_\_\_\_ 10 VA  
 Running time at max. speed: \_\_\_\_\_ 30s  
 Enclosure rating: \_\_\_\_\_ IP41  
 Protection class: \_\_\_\_\_ II  
 ErP Temperature controls class: \_\_\_\_\_ III  
 Energy efficiency contribution: \_\_\_\_\_ 1,5%

#### The integrated controller, GRC200:

Controller type: \_\_\_\_\_ 90C-1A-90  
 Power supply: \_\_\_\_\_ 230 ± 10% V AC, 50/60 Hz  
 Power consumption: \_\_\_\_\_ 5 VA  
 Running time at max. speed: \_\_\_\_\_ 120s  
 No. of input sources: \_\_\_\_\_ 5  
 No. of output sources: \_\_\_\_\_ 1  
 Enclosure rating: \_\_\_\_\_ IP54  
 Protection class: \_\_\_\_\_ II  
 ErP Temperature controls class: \_\_\_\_\_ III  
 Energy efficiency contribution: \_\_\_\_\_ 1,5%

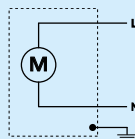
#### The integrated controller, GRC140:

Controller type: \_\_\_\_\_ CRD122  
 Power supply - Actuator unit: \_\_\_\_\_ 230 ± 10% VAC, 50 Hz  
 - Room display unit - wireless: \_ 2x 1,5 V LR6/AA  
 Power consumption - 230 V AC: \_\_\_\_\_ 10 VA  
 Battery endurance, wireless room display unit: \_\_\_\_\_ 1 year  
 Running time at max. speed: \_\_\_\_\_ 30s  
 Enclosure rating - Actuator unit: \_\_\_\_\_ IP41  
 - Room display unit: \_\_\_\_\_ IP20  
 Protection class: \_\_\_\_\_ II  
 ErP Temperature controls class: \_\_\_\_\_ VII  
 Energy efficiency contribution: \_\_\_\_\_ 3,5%  
 Radio frequency CRD120: \_\_\_\_\_ 868MHz  
 \_\_\_\_\_ ITU region 1 approved acc. to EN 300220-2

#### 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\*



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

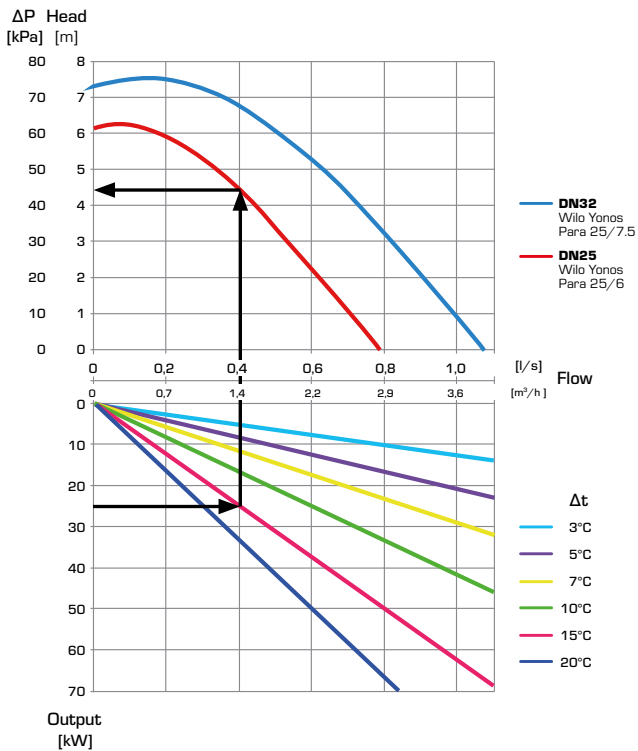
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### DIMENSIONING, PUMP CAPACITY DIAGRAM

**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 GRC100, GRC200** – available pressure, Wilo pumps



**SERIES GRC100** – available pressure, Grundfos pumps

