

CIRCULATION UNIT

MIXING FUNCTION, SERIES GRC100, GRC200



GRC111 GRC112 GRC141 GRC142 GRC211 GRC212

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

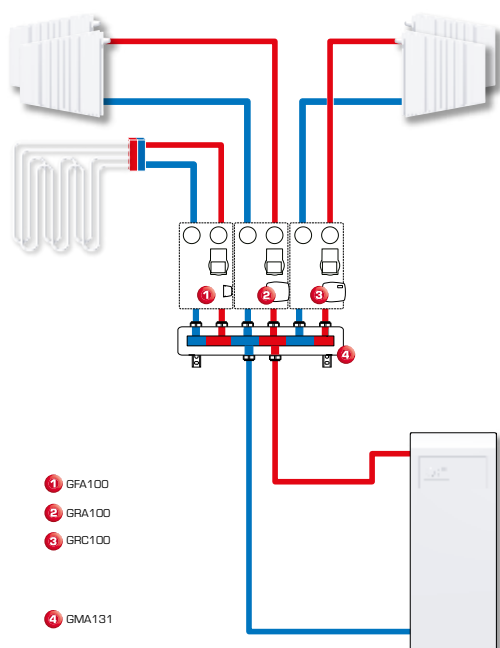
See separate data sheet for further detailed information.

ESBE Manifold

Manifold for 2 or 3 circulation units. With or without integrated separator function.

Art. No.	
66000100	GMA121
66000200	GMA131
66000300	GMA221
66000400	GMA231

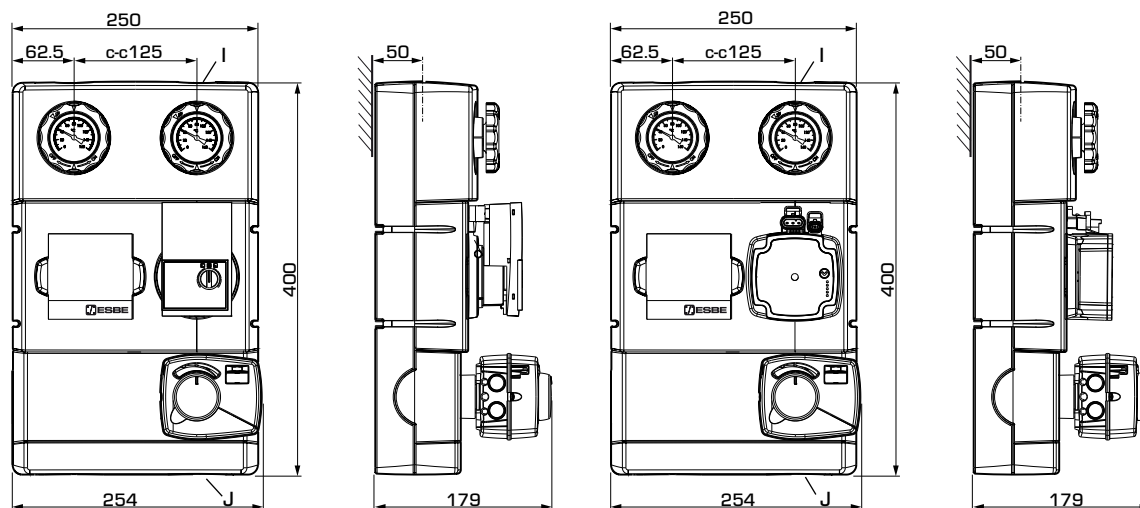
INSTALLATION EXAMPLE



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PRODUCT ASSORTMENT



GRC111/GRC141

GRC112/GRC142

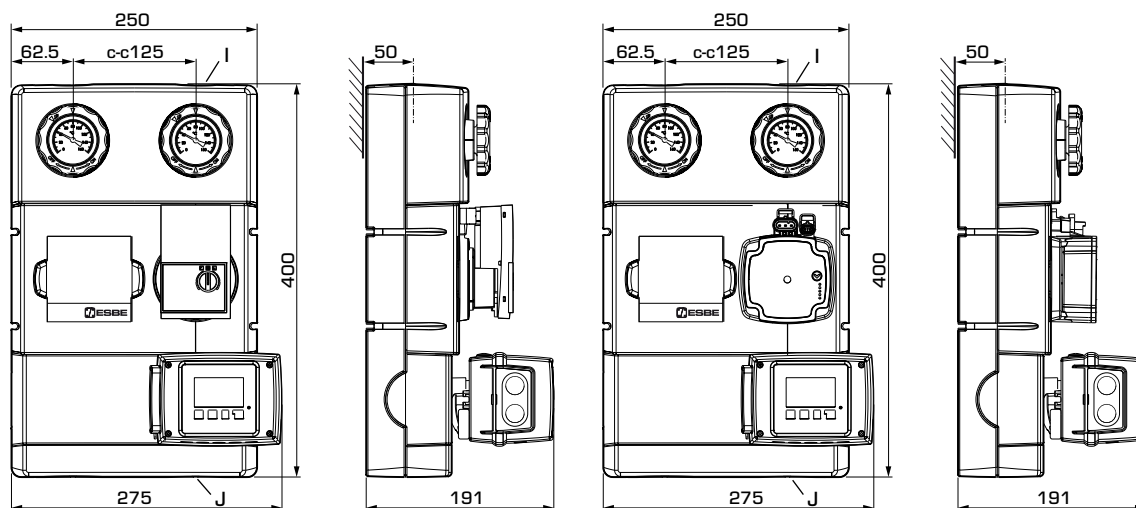
SERIES GRC100

Art. No.	Reference	DN	Pump	Connections		Weight [kg]	Note
				I	J		
61040200	GRC111	25	Wilo 25/6	G 1"	G 1½"	6.3	With Room display unit
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	
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	

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PRODUCT ASSORTMENT



GRC211

GRC212

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	
61040800		32	Wilo 25/7.5	G 1¼"	G 1½"	7.9	
61041000	GRC212	25	Grundfos 25-50	G 1"	G 1½"	7.3	
61041200		32	Grundfos 25-70	G 1¼"	G 1½"	8.0	

TECHNICAL DATA

 Visit 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

Conformities and certificates:

PED 2014/68/EU, article 4.3

CE LVD 2014/35/EU
 EMC 2014/30/EU
 RoHS 2011/65/EU

ErP 2009/125/EC
 ErP 2015
 EnEV2014

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TECHNICAL DATA



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The integrated mixing valve:

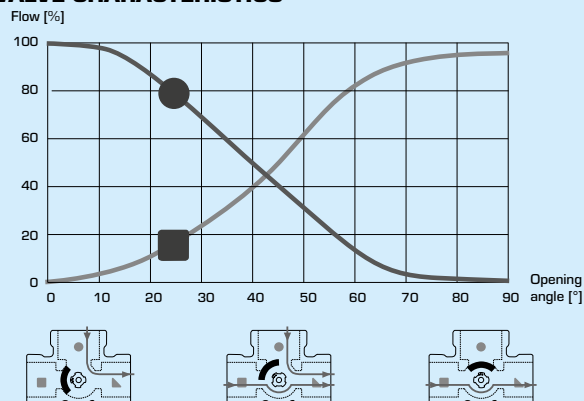
Max. differential pressure drop: _____ 100 kPa (1 bar)

Close off pressure: _____ 200 kPa (2 bar)

Leakrate in % of flow*: _____ < 0.5%

* 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, 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 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 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

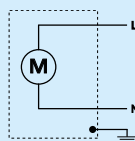
- Grundfos 25-50: _____ 2-34 W

- Grundfos 25-70: _____ 2-53 W

Enclosure rating: _____ IP X4D

Insulation class: _____ F

PUMP WIRING*



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

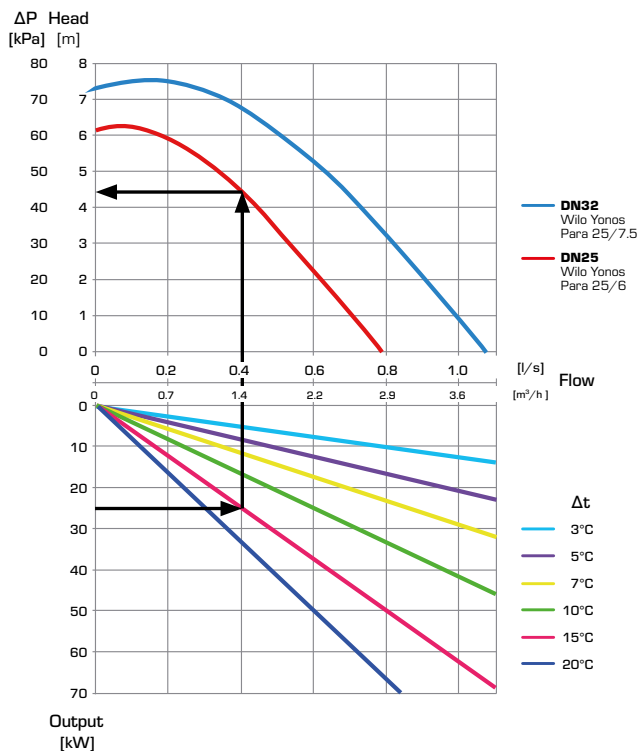
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DIMENSIONING, PUMP CAPACITY DIAGRAM

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, GRC200 – available pressure, Grundfos pumps

