ESBE SYSTEM UNITS

CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

GFA311 GFA394 GFA211 GFA212 GFF111

PRODUCT DESCRIPTION

The mixing groups are used for the temperature control, mixing function, in the heating systems. This means that the heating water prepared in the heating source is mixed down to the desired set temperature, which then is delivered to the heating receiver, e.g. underfloor heating.

The units GFxX00 are equipped with thermostatic mixing valves. The temperature control, mixing function, is performed without power supply to the valve, and the desired mixed temperature is set on the valve itself. The series GFxX00 are constant temperature units, which means that just the mixing temperature can be affected, and the indoor temperature is a result of the temperature settings on the valve. The groups are used in systems without controllers but still with a need of temperature control, systems where indoor temperature, comfort is not requested to be high. The series GFxX00 are often used in systems with controllers which cannot be upgraded and provide an easy solution for additional heating circuit which require temperature control, mixing function.

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 insulation shell. All units are equipped with thermostatic mixing valves which are responsible for the constant temperature control.

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.

KEY BENEFITS

- High class insulation of hydronic parts
- Compact design
- Pre tested and ready to use
- Ready for 180mm pumps - applies to GFF100
- Adjustable insulation shell - applies to GFF100
- Symmetric design for left/right pump placement
- Designed to last and perform
- High-end product finish

VERSIONS

ESBE direct supply circulation units are available in three different version; standard design with and without pump, and a compact design for areas with limited space. The compact version can be delivered with and without insulation shell.

SERIES GFA200

The ESBE series GFA200 is a fixed temperature circulation unit equipped with a pump and a thermostatic mixing valve with temperature range 20-55°C. The series comes in two sizes; DN25 with kvs 4,5 and DN32 with kvs 4,8, with the ability of pump choice, Wilo or Grundfos. The pumps can be set to constant speed, variable pressure or constant pressure. The Grundfos pumps come with AutoADAPT feature which adjust the available pump pressure and the flow to the current system requirements.

The compact design of the unit has been thought through and focus put on components such as pump resulted in high performance of the circulation unit.

SERIES GFA300

The ESBE series GFA300 is a compact but powerful fixed temperature circulation unit designed for applications where space matters, however there is no room for compromises. The GFA300 is a DN20 circulation pump with performance equals the corresponding DN25 groups. This is possible by adjusting the pump curves and consider the pressure losses in the group. By putting focus on performance, we achieved the smallest circulation unit with unique pump curves which are covering low and high demands. The series GFA300 is equipped with a thermostatic mixing valve with kvs 3,4 and temperature range 20-55°C.

The GFA310 is equipped with a Wilo PARA STG 15/8 which can be set to variable or constant pressure, and iPWM1/2.

The GFA390 is equipped with a Wilo PARA 15/6 which can be set to constant speed, variable pressure or constant pressure. The GFA390 is the only version that isn't equipped with insulation shell.

SERIES GFF100

The ESBE series GFF100 is a fixed temperature circulation unit, available in size DN25, designed to be used with almost any 180mm pump available on the market. The group is equipped with an insulation shell which can be adjusted according to the pump design, even if the pump is delivered with its own insulation. ESBE have put a lot of effort to make the adjustment process easy and clear, and to make the result of product adjustment like factory assembled.

The series GFF100 is equipped with a thermostatic mixing valve with kvs 3,4 and temperature range 20-55°C.

SERVICE AND MAINTENANCE

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

>>>

© Copyright. Rights reserved to make alterations.

CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

RELATED ACCESSORIES

ESBE Manifold

Manifolds for Series GFF100 and GFA200. See separate data sheet for further detailed information.

Manifolds for 1, 2, or 3 circulation units with integrated hydraulic separation.

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 hydraulic separation function.

Art. No.	
66001200	GMA421- for 2 units
66001300	GMA431 - for 3 units
66001400	GMA441 - for 4 units
66001500	GMA451 - for 5 units

Manifold for Series GFA300 without integrated hydraulic separation function. See separate data sheet for further detailed information.

Art. No.	
66000500	GMA321- for 2 units
66000600	GMA331 - for 3 units

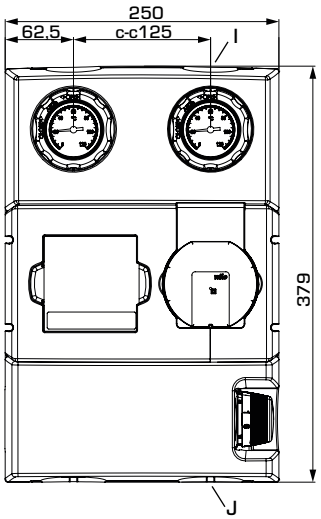
ESBE Manifold Box

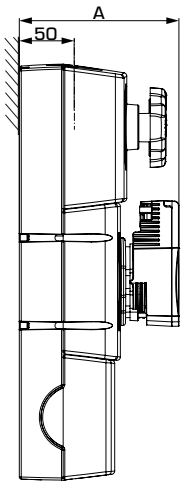
Manifold Box for Series GFA300 with option of hydraulic separation easily set with a screw. See separate data sheet for further detailed information.

Art. No.	
66000700	GMB631 for 2 or 3 units

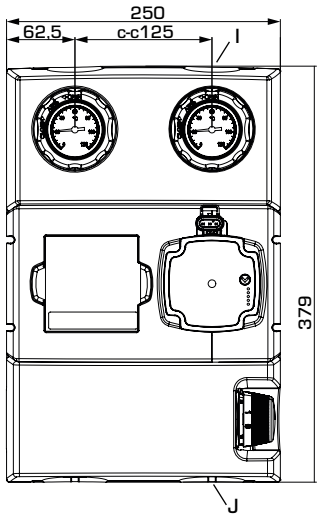
© Copyright. Rights reserved to make alterations.

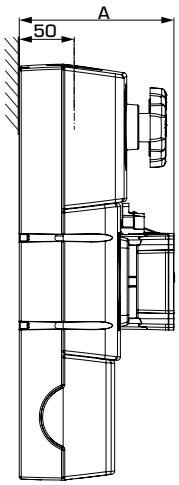
CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00





GFA211

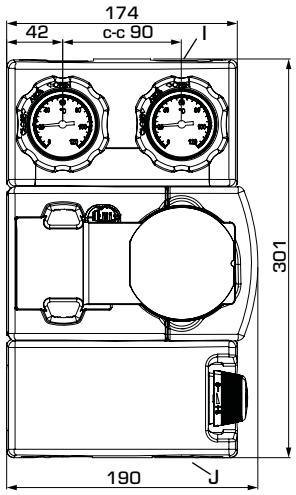


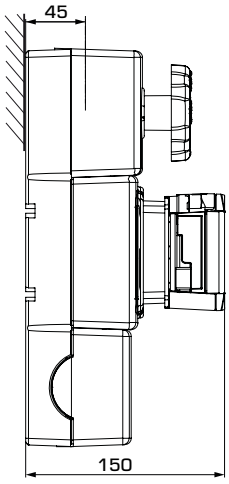


GFA212

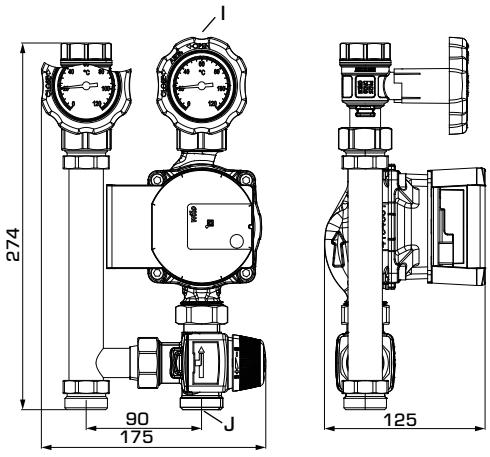
SERIES GFA200

Art. No.	Reference	DN	Pump	Temperature range	Connections		A	Weight [kg]	Replaces
					I	J			
61021100	GFA211	25	Wilo PARA 25/6	20–55 °C	G 1"	G 1½"	146	5,6	61020100
61021200		32	Wilo PARA 25/8		G 1¼"	G 1½"	157	5,9	61020200
61021300	GFA212	25	Grundfos UPM3 AUTO 25-50	20–55 °C	G 1"	G 1½"	141	5,7	61020300
61021400		32	Grundfos UPM3 AUTO 25-70		G 1¼"	G 1½"	141	5,8	61020400





GFA311



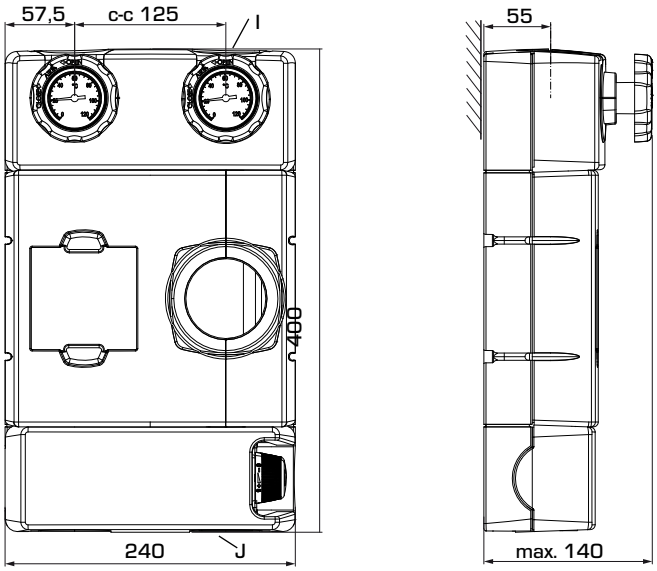
GFA394

SERIES GFA300

Art. No.	Reference	DN	Pump	Temperature range	Connections		Weight [kg]	Note
					I	J		
61023200	GFA311	20	Wilo PARA STG 15/8	20–55 °C	G ¾"	G 1"	4,1	Replaces 61023100
61025100	GFA394		Wilo PARA 15/6				3,4	without insulation shell

© Copyright. Rights reserved to make alterations.

CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

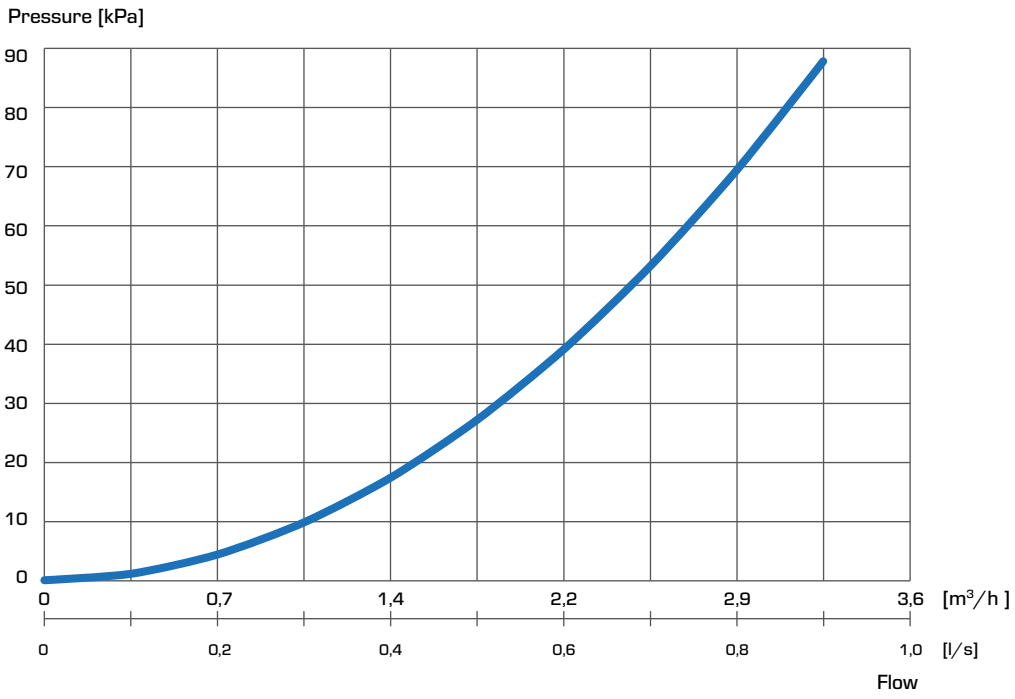


GFF111

SERIES GFF100

Art. No.	Reference	DN	Temperature range	Connections		Weight [kg]	Note
				I	J		
61220100	GFF111	25	20–55 °C	G 1"	G 1½"	3,3	

DIMENSIONING, CIRCULATION UNIT CHARACTERISTICS - PRESSURE LOSSES GFF111



© Copyright. Rights reserved to make alterations.

CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

TECHNICAL DATA Visit esbe.eu for further detailed information.

The Circulation unit, in general

Pressure class: PN 10
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
EnEV2014

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.

Series GFA211

Media temperature: max. +100°C
min. +5°C
Ambient temperature: max. +58°C
min. 0°C

Pump type, DN25: Wilo PARA 25-130/6-43 SC
DN32: Wilo PARA 25-130/8-75 SC
Power supply: 230 ± 10% V AC, 50/60 Hz
Power consumption – Wilo PARA 25/6: 3-43 W
– Wilo PARA 25/8 10-75 W
Enclosure rating: IP X4D
Insulation class: F
EEI (Energy Efficiency Index) - Wilo PARA 25/6: <0,20
- Wilo PARA 25/8: <0,21

Valve type: Thermostatic mixing valve VTA572
Max. differential pressure drop: 100kPa (1bar)
Temperature range: 20–55°C
Temperature stability: ±3°C*

* Valid at unchanged hot/cold water pressure, minimum flow rate 9 l/min. Minimum temperature difference between hot water inlet and mixed water outlet 10°C.

Material, in contact with water

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

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)

Series GFA212

Media temperature: max. +100°C
min. +5°C
Ambient temperature: max. +70°C
min. 0°C

Pump type, DN25: Grundfos UPM3 AUTO 25-50 130
DN32: Grundfos UPM3 AUTO 25-70 130
Power supply: 230 ± 10% V AC, 50/60 Hz
Power consumption – Grundfos UPM3 AUTO 25-50: 4-33 W
– Grundfos UPM3 AUTO 25-70 2-52 W
Enclosure rating: IP 44
Insulation class: N/A
EEI (Energy Efficiency Index): <0,20

Valve type: Thermostatic mixing valve VTA572
Max. differential pressure drop: 100kPa (1bar)
Temperature range: 20–55°C
Temperature stability: ±3°C*

* Valid at unchanged hot/cold water pressure, minimum flow rate 9 l/min. Minimum temperature difference between hot water inlet and mixed water outlet 10°C.

Material, in contact with water

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

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)

© Copyright. Rights reserved to make alterations.

CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

TECHNICAL DATA Visit esbe.eu for further detailed information.

Series GFA300

Media temperature: _____ max. +100°C
_____ min. +5°C
Ambient temperature: _____ max. +58°C
_____ min. 0°C
Pump type, GFA311: _____ Wilo PARA STG 15-130/8-60/0
GFA394: _____ Wilo PARA 15-130/6-43 SCU
Power supply: _____ 230 ± 10% V AC, 50/60 Hz
Power consumption: _____ 2-60 W
Enclosure rating: _____ IP X4D
Insulation class: _____ F
EEI (Energy Efficiency Index): _____ <0,20

Valve type: _____ Thermostatic mixing valve VTA378
Max. differential pressure drop: _____ 100kPa (1bar)
Temperature range: _____ 20–55°C
Temperature stability: _____ ±3°C*

* Valid at unchanged hot/cold water pressure, minimum flow rate 9 l/min. Minimum temperature difference between hot water inlet and mixed water outlet 10°C.

Material, in contact with water

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

Conformities and certificates

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

UKCA
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)

Series GFF100

Media temperature: _____ max. +100°C*
_____ min. +5°C*
Ambient temperature: _____ max. +60°C*
_____ min. 0°C*
*consider data for choosen pump
Pump type: _____ N/A
Valve type: _____ Thermostatic mixing valve VTA372
Max. differential pressure drop: _____ 100kPa (1bar)
Temperature range: _____ 20–55°C
Temperature stability: _____ ±3°C**

** Valid at unchanged hot/cold water pressure, minimum flow rate 9 l/min. Minimum temperature difference between hot water inlet and mixed water outlet 10°C.

Material, in contact with water

Components: _____ Brass, Steel
Sealing material: _____ PTFE, Aramid fibre, EPDM

Conformities and certificates

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

WIRING

Please see the Installation Instruction

© Copyright. Rights reserved to make alterations.

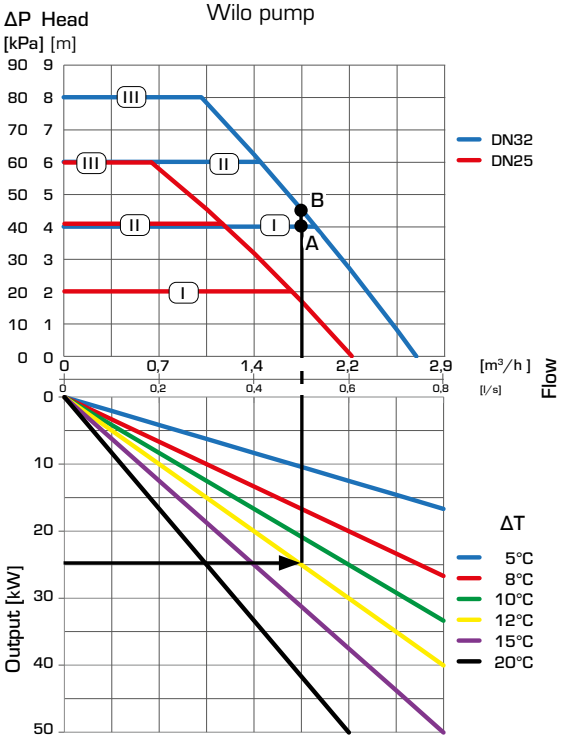
CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

DIMENSIONING, PUMP CAPACITY DIAGRAM

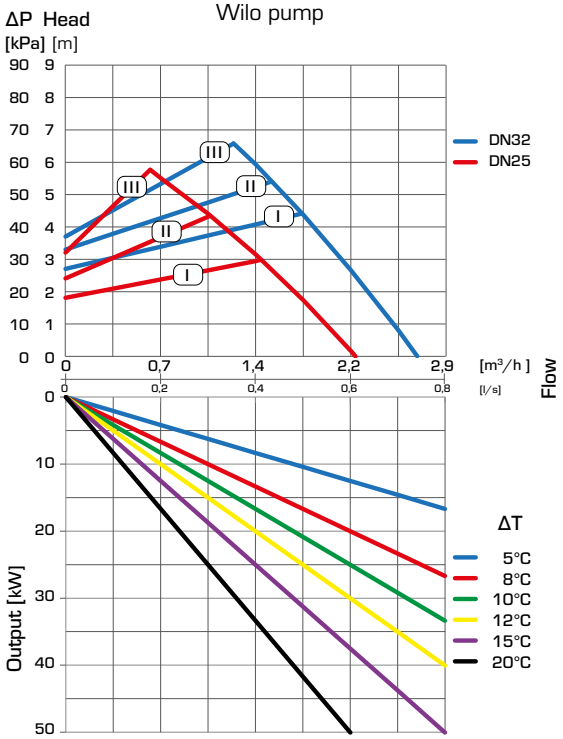
Example: Start with the heat demand of the heating circuit (e.g. 25 kW) and move horizontally to the right in the diagram to the Δt = 12°C (temperature difference between flow and return of the heating circuit). Next go up and find the possible duty points.

Setting I gives duty point A with a residual head of 40 kPa for DN32. Setting II and III gives duty point B with a residual head of 45 kPa for DN32.

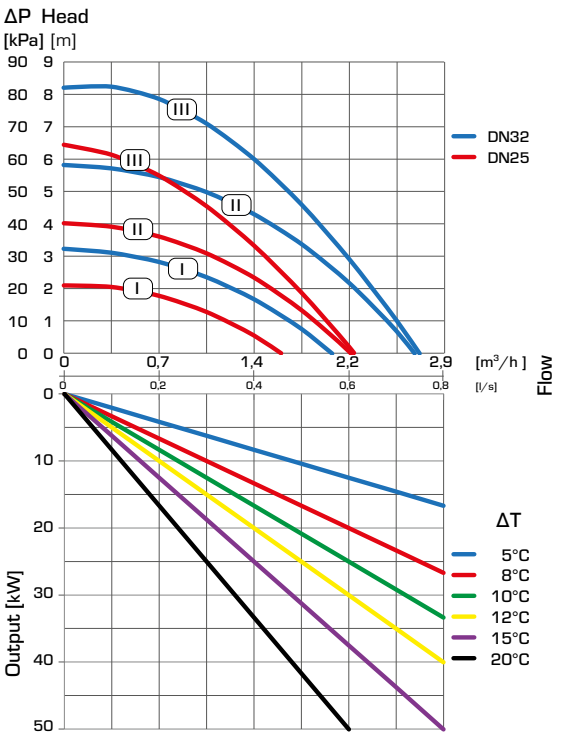
SERIES GFA211 – Constant differential pressure, Wilo pump



SERIES GFA211 – Variable differential pressure, Wilo pump



SERIES GFA211 – Constant speed, Wilo pump



© Copyright. Rights reserved to make alterations.

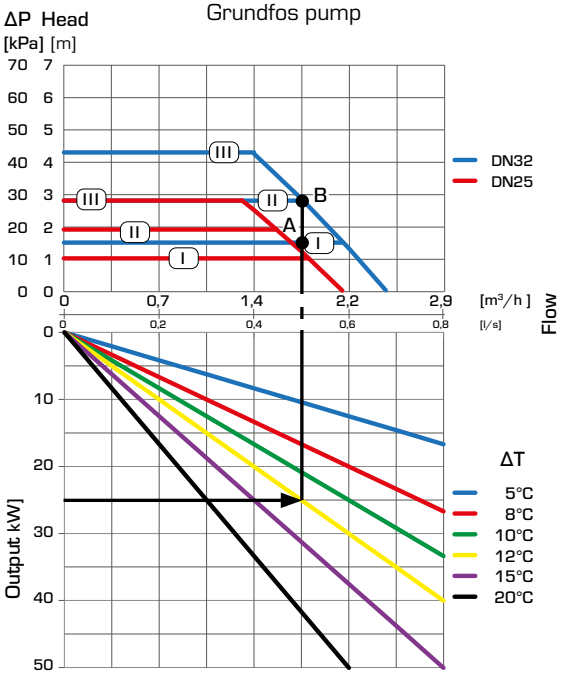
CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

DIMENSIONING, PUMP CAPACITY DIAGRAM

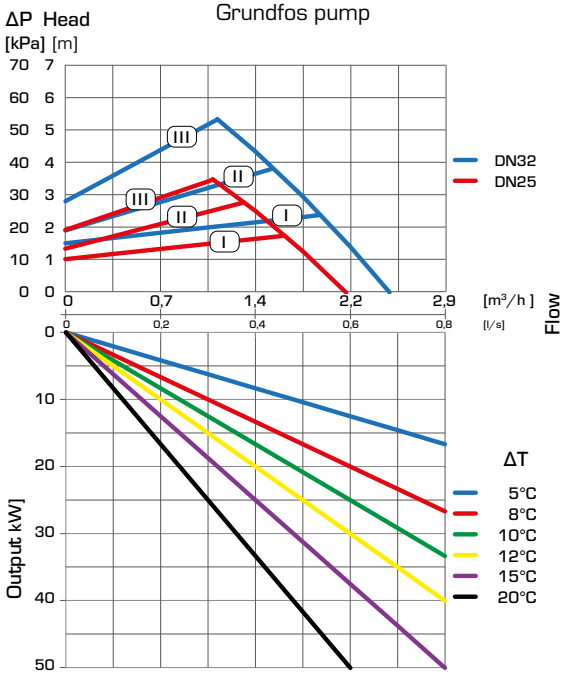
Example: Start with the heat demand of the heating circuit (e.g. 25 kW) and move horizontally to the right in the diagram to the Δt = 12°C (temperature difference between flow and return of the heating circuit). Next go up and find the possible duty points.

Setting I gives duty point A with a residual head of 15 kPa for DN32. Setting II and III gives duty point B with a residual head of 28 kPa for DN32.

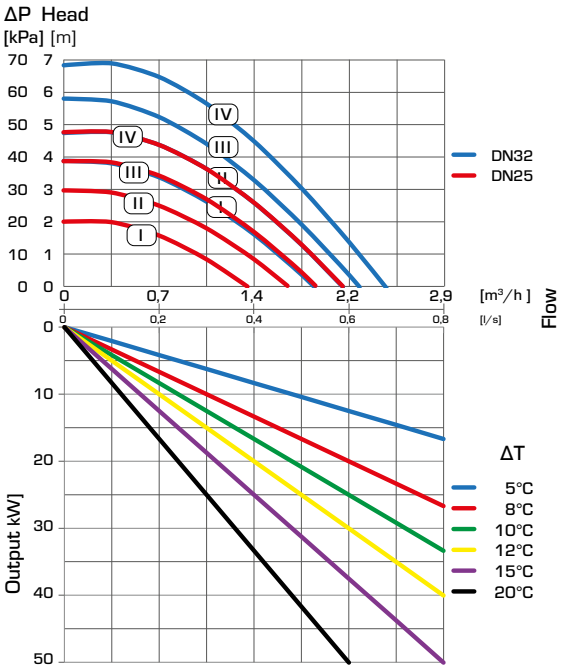
SERIES GFA212 – Constant differential pressure, Grundfos pump



SERIES GFA212 – Variable differential pressure, Grundfos pump



SERIES GFA212 – Constant speed, Grundfos pump



© Copyright. Rights reserved to make alterations.

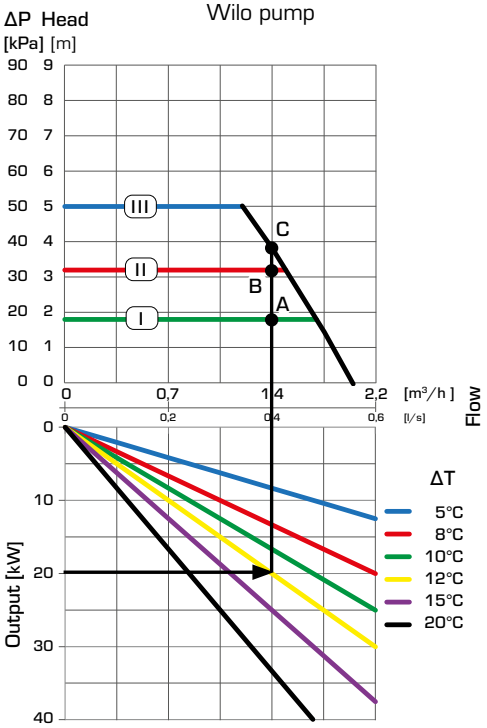
CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

DIMENSIONING, PUMP CAPACITY DIAGRAM

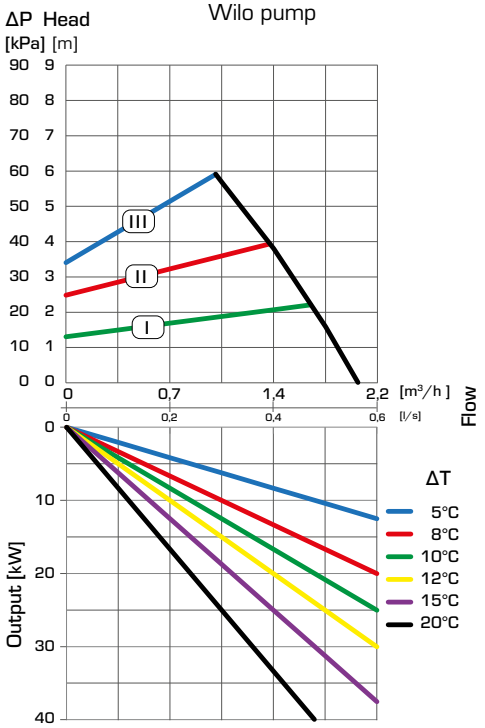
Example: Start with the heat demand of the heating circuit (e.g. 20 kW) and move horizontally to the right in the diagram to the choosen Δt, which is the temperature difference between flow and return of the heating circuit (e.g. 12°C). Next go up and find the possible duty points.

Setting I gives duty point A with a residual head of 18 kPa. Setting II gives duty point B with a residual head of 32 kPA and III gives duty point C with a residual head of 38 kPa.

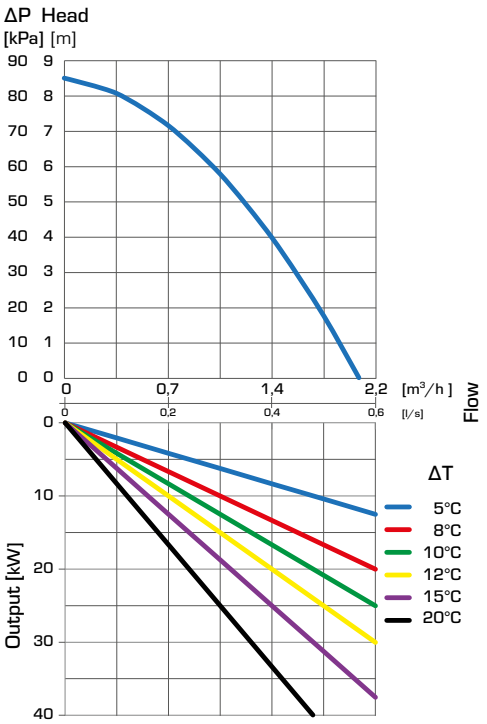
SERIES GFA311 – Constant differential pressure, Wilo pump



SERIES GFA311 – Variable differential pressure, Wilo pump



SERIES GFA311 – Ext iPWM 1/ iPWM 2, Wilo pump



© Copyright. Rights reserved to make alterations.

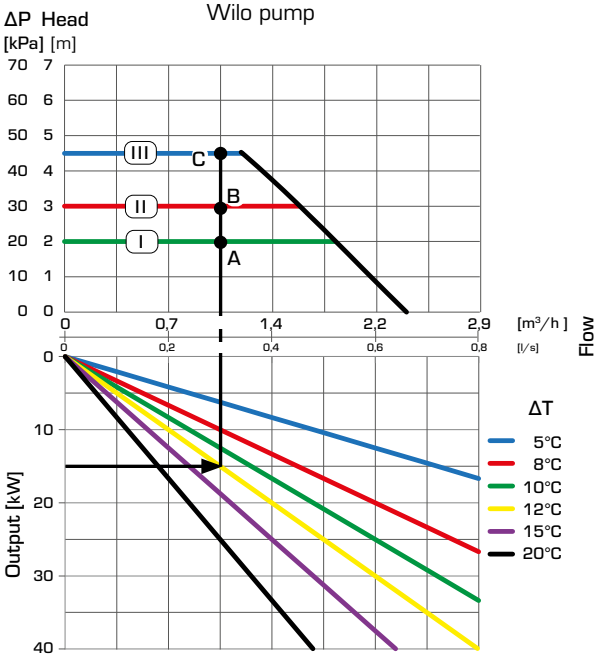
CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

DIMENSIONING, PUMP CAPACITY DIAGRAM

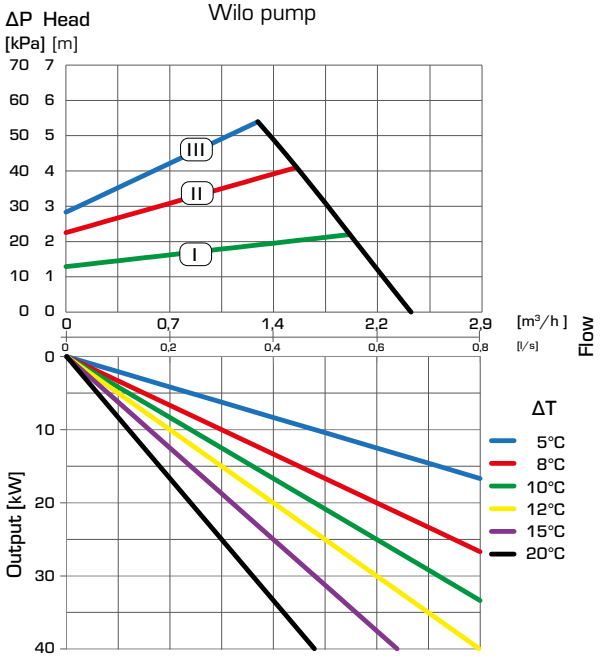
Example: Start with the heat demand of the heating circuit (e.g. 15 kW) and move horizontally to the right in the diagram to the choosen Δt, which is the temperature difference between flow and return of the heating circuit (e.g. 12°C). Next go up and find the possible duty points.

Setting I gives duty point A with a residual head of 20 kPa. Setting II gives duty point B with a residual head of 30 kPA and III gives duty point C with a residual head of 46 kPa.

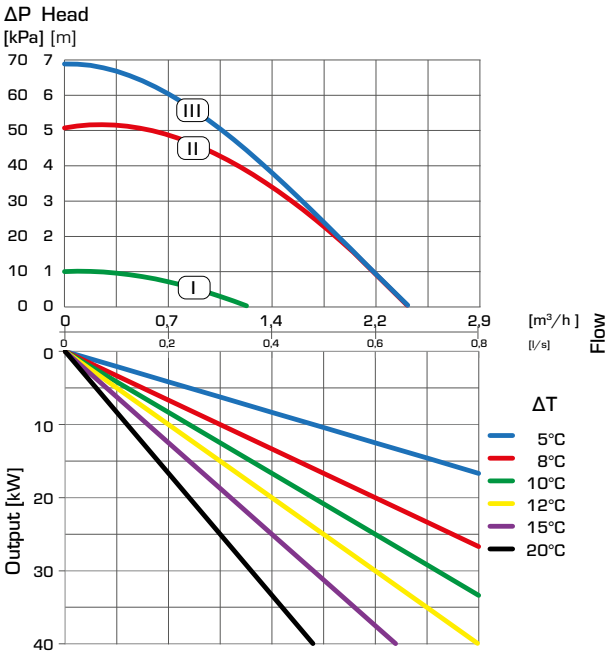
SERIES GFA394 – Constant differential pressure, Wilo pump



SERIES GFA394 – Variable differential pressure, Wilo pump



SERIES GFA394 – Constant speed, Wilo pump

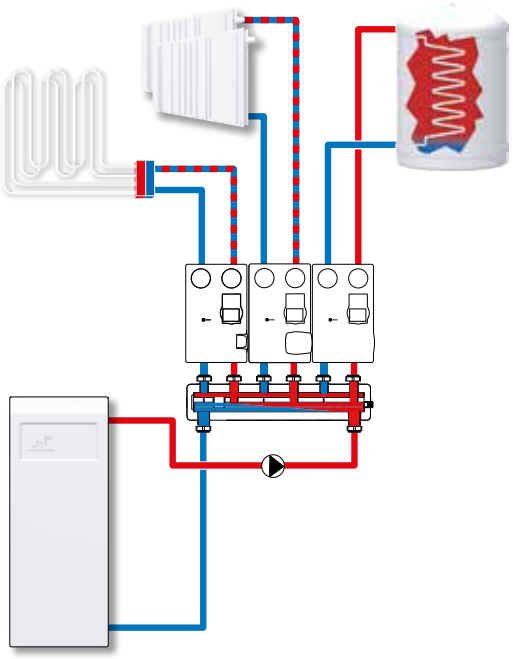


© Copyright. Rights reserved to make alterations.

CIRCULATION UNIT
FIXED TEMPERATURE, SERIES GFxX00

INSTALLATION EXAMPLES

1



The primary function of the thermostatic mixing Circulation unit (GFx) is flow temperature control, mixing function. The Series GFx of circulation units are used is systems where the heating source is not equipped with a controller or a controller with limited functions. The Circulation units Series GFx are the perfect choice for applications where mixing function is required and temperature comfort is not the highest priority.

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.

© Copyright. Rights reserved to make alterations.