UP/UPS-B/UPN
Hot Water Service Circulators

Visions & Values

"It is the Vision of the Company to achieve our Corporate Mission by providing quality and innovative products and services that give our customers complete satisfaction, through well-motivated, high performing and well rewarded people.
We achieve this by developing a caring, enjoyable stimulating and challenging working environment, incorporating all our Values"

Sustainable Development

"Sustainable development is a key concept at Grundfos. It is vital that our products demonstrate respect for the environment, especially in terms of energy consumption and use of materials."

BE > THINK > INNOVATE >

GRUNDFOS®

2. Applications

UP, UPS, UPD, UPSD pumps are primarily suitable for circulation of liquid in

- central heating systems
- district heating systems
- hot-water service systems
- solar heating systems

- secondarily for circulation of liquid in

- small industrial systems
- cooling systems
- air-conditioning systems.

The pumps can be used in both open and closed systems.

2.1 Pumped liquids

UP, UPS, UPD, UPSD pumps are suitable for pumping the following liquids:

- Thin, clean, non-aggressive and non-explosive liquids without solid particles or fibres.
- Cooling liquids, not containing mineral oil.
- Domestic hot water, max. 14°dH (recommended value).
- Softened water, max. 14°dH (recommended value).

The kinematic viscosity of water is 1 cSt (1 mm^2/s) at 20°C. If the circulator pump is used for a liquid with a higher viscosity, the hydraulic performance of the pump will be lower. So when selecting a pump, the viscosity of the pumped liquid must be taken into consideration.

Example: A pumped liquid consisting of 50% glycol at 20°C has a viscosity of approx. 10 cSt; consequently, the pump performance will be approx. 15% lower.

4. Identification

4.1 Type key

Example	UP	S	D	40	- 40	F

UP: Circulator pump
Solar: Solar circulator pump

Electric speed control

Twin-head pump

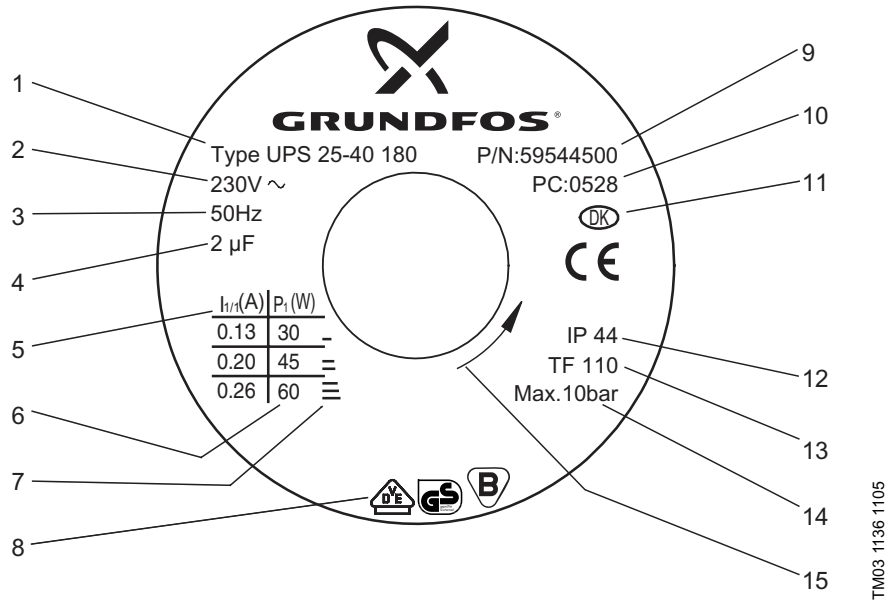
Nominal diameter (DN) of suction and discharge ports [mm]

Maximum head [dm]

Pipe connection:
= Pipe thread (no letter = pipe thread)
F = Flange

Pump housing:
= Cast iron (no letter = cast iron)
N = Stainless steel
B = Bronze
A = Pump housing with air separator, upward water flow
K = Cold-water version
KU = Cold-water version (foam filled terminal box and stator)

4.2 Nameplate



Pos.	Description
1	Type designation
2	Voltage [V]
3	Frequency [Hz]
4	Capacitor size [µF] (only single-phase pumps)
5	Rated current [A]
6	Maximum input power P_1 [W]
7	Speed
8	Approvals

Pos.	Description
9	Product number
10	Production code: 1st and 2nd figures = year 3rd and 4th figures = week
11	Country of origin
12	Enclosure class
13	Temperature class
14	Maximum system pressure [bar]
15	Direction of rotation

The circulator pumps are recognizable by the colour of their nameplates:

Black = standard circulator pump
Blue = cold-water circulator pumps
Yellow = solar circulator pumps
Silver = stainless-steel circulator pumps
Gold = bronze circulator pumps

9. Operating conditions

9.1 Liquid temperature

See data sheets for permissible liquid temperatures of individual pump types.

Standard version:

Standard pumps can be used at liquid temperatures up to 120°C for short periods (maximum 30 minutes at intervals of minimum four hours).

Temperatures: +2°C to +110°C
–25°C to +110°C.

Domestic hot-water version:

Temperatures: +2°C to +110°C.

We recommend you to keep the operating temperature as low as possible (e.g. +60°C) to avoid precipitation of calcium.

Cold-water version:

Standard pumps or special pump version, type K, depending on type/size.
Type KU, with foam-filled terminal box.

Temperatures: –25°C to +95°C
–25°C to +110°C.

9.2 Ambient and liquid temperatures

The ambient temperature for standard pumps with a permissible liquid temperature from +2°C to +110°C should always be lower than the liquid temperature, as otherwise condensation may form in the stator housing.

Do not cover the drain holes of an insulated pump if the liquid temperature is lower than the ambient temperature.

Liquid temperature [°C]	110	105	100	90	80	60	40	2
Max. ambient temperature [°C]	40							0

If a pump is not used during a period of frost, protect it to avoid damage.

9.3 Maximum system pressure

Pump with unions PN 10: 1.0 MPa (10 bar).

Flanged pump PN 6/10: 0.6/1.0 MPa (6/10 bar).

Pump with Grundfos flanges: 1.0 MPa (10 bar).

9.4 Inlet pressure

To avoid cavitation noise and damage to the pump bearings, the following minimum pressures are required at the pump suction port:

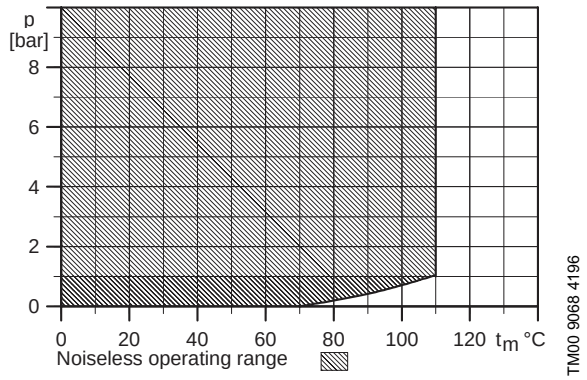
Liquid temperature	**85°C**	**90°C**	**110°C**
Min. inlet pressure	0.5 m head 0.049 bar	2.8 m head 0.27 bar	11.0 m head 1.08 bar

9.5 Location

For indoor use only. If the pump is not used during periods of frost, it must be protected to avoid damage.

9.6 Noiseless operation

In the grey-shaded part of the operating range the pump sound pressure level is below 43 dB(A).



9.7 Environment

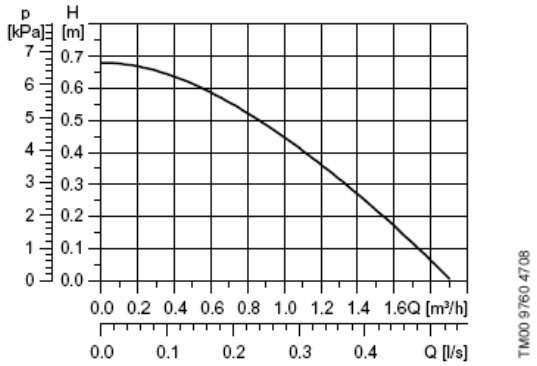
Non-aggressive and non-explosive atmosphere.
Relative air humidity: Maximum 95%.

9.8 Disposal

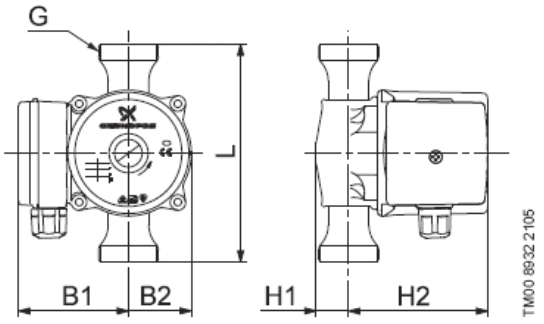
This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

UP 20-07 N **1 x 230 V, 50 Hz**



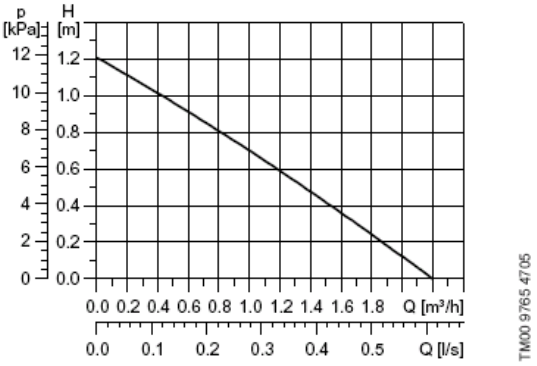
Speed	P_1 [W]	$I_{1/1}$ [A]
1	50	0.24



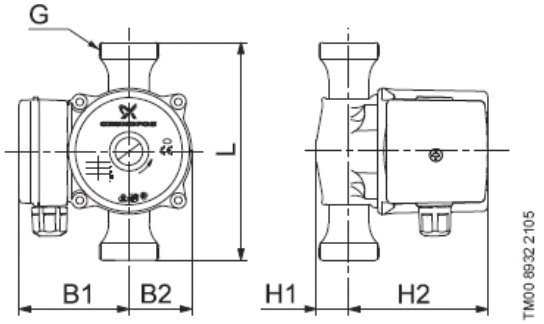
Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: +2 °C to +110 °C (TF 110)

Pump type	Dimensions [mm]						Weights [kg]		Ship. vol.
	L	H1	H2	B1	B2	G	Net	Gross	[m^3]
UP 20-07 N	150	25	100	75	43	1 1/4	2.1	2.3	0.004

UP 20-15 N **1 x 230 V, 50 Hz**



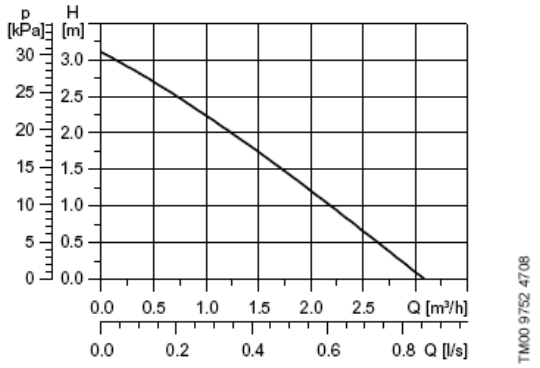
Speed	P_1 [W]	$I_{1/1}$ [A]
1	65	0.28



Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: +2 °C to +110 °C (TF 110)

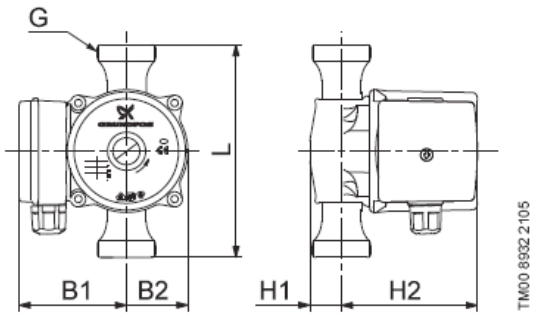
Pump type	Dimensions [mm]						Weights [kg]		Ship. vol.
	L	H1	H2	B1	B2	G	Net	Gross	[m^3]
UP 20-15 N	150	28	100	75	43	1 1/4	2.1	2.3	0.004

UP 20-30 N **1 x 230 V, 50 Hz**



TM00 9752 4708

Speed	P_1 [W]	$I_{1/1}$ [A]
1	75	0.31

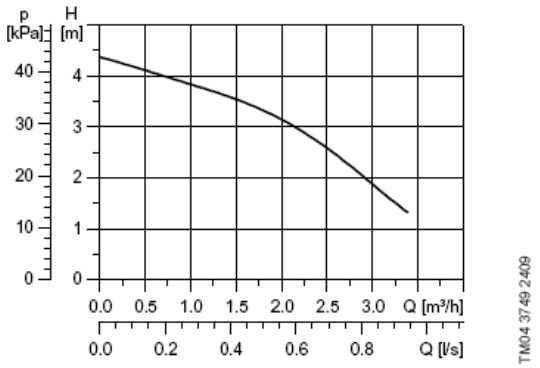


TM00 8932 2105

Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: +2 °C to +110 °C (TF 110)

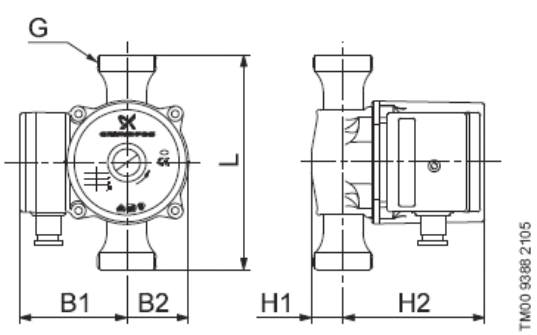
Pump type	Dimensions [mm]						Weights [kg]		Ship. vol.
	L	H1	H2	B1	B2	G	Net	Gross	[m^3]
UP 20-30 N (K)	150	28	100	75	43	1 1/4	2.1	2.3	0.004

UP 20-45 N **1 x 230 V, 50 Hz**



TM04 3749 2409

Speed	P_1 [W]	$I_{1/1}$ [A]
1	110	0.5



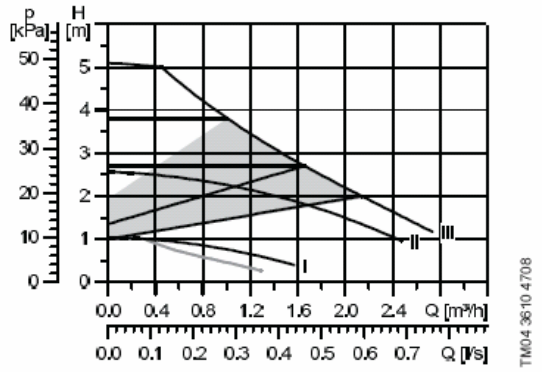
TM00 9388 2105

Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: +2 °C to +110 °C (TF 110)

Pump type	Dimensions [mm]						Weights [kg]		Ship. vol.
	L	H1	H2	B1	B2	G	Net	Gross	[m^3]
UP 20-45 N	150	25	126	85	53.5	1 1/4	3.6	3.8	0.008

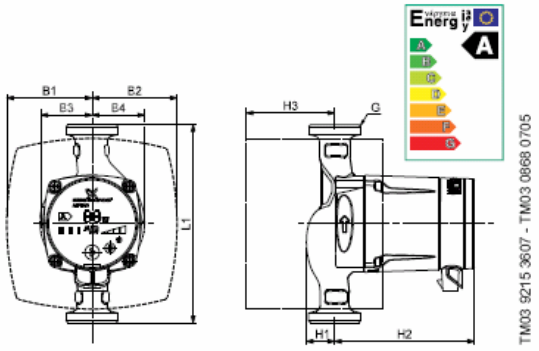
ALPHA2 15-50 N

1 x 230 V, 50 Hz



Speed	P_1 [W]	$I_{1/1}$ [A]
Min.	5	0.05
Max.	32	0.27

The pump incorporates overload protection.

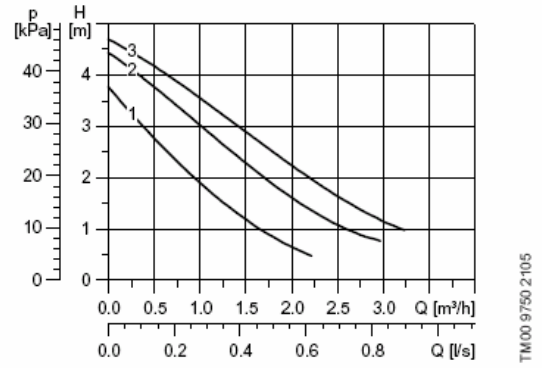


Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: +2 °C to +110 °C (TF 110)

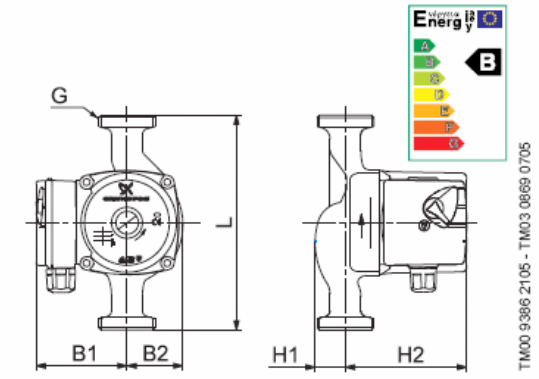
Pump type	Dimensions [mm]									Weights [kg]		Ship. vol.
	L1	B1	B2	B3	B4	H1	H2	H3	G	Net	Gross	[m³]
ALPHA2 15-50 N	130	78	78	48	48	27	127	58	1 1/2	1.9	2.1	0.00383

UPS 15-50 N

1 x 230 V, 50 Hz



Speed	P_1 [W]	$I_{1/1}$ [A]
3	50	0.23
2	45	0.20
1	35	0.16

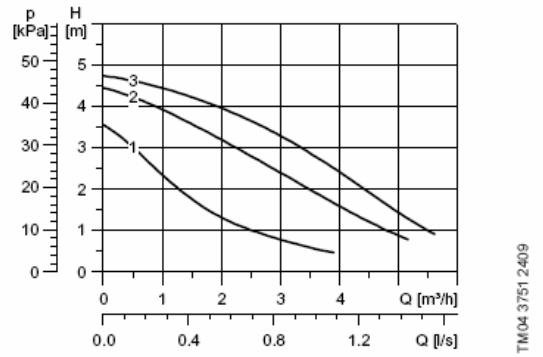


Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: +2 °C to +110 °C (TF 110)

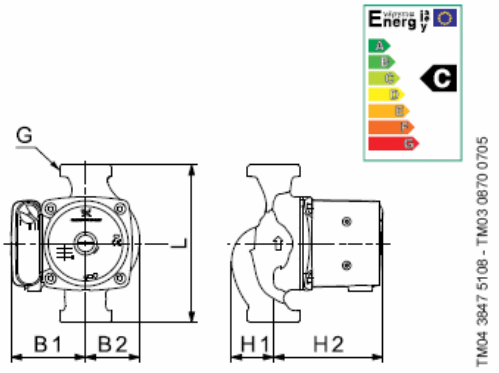
Pump type	Dimensions [mm]						Weights [kg]		Ship. vol.
	L	H1	H2	B1	B2	G	Net	Gross	[m³]
UPS 15-50 N	130	28	102	75	51	1 1/2	2.6	2.8	0.004

UPS 25-55 N

1 x 230 V, 50 Hz



Speed	P_1 [W]	$I_{1/1}$ [A]
3	85	0.38
2	80	0.36
1	65	0.30

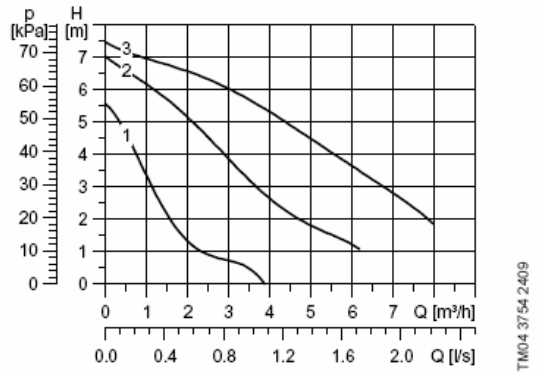


Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: -25 °C to +110 °C (TF 110)
Also available with: Stainless-steel pump housing, type N

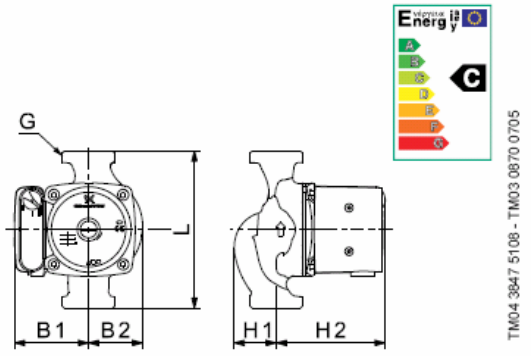
Pump type	Dimensions [mm]						Weights [kg]		Ship. vol. [m³]
	L	H1	H2	B1	B2	G	Net	Gross	
UPS 25-55 N	180	46	125	85	62	1 1/2	4.6	4.7	0.008

UPS 25-80 N

1 x 230 V, 50 Hz



Speed	P_1 [W]	$I_{1/1}$ [A]
3	165	0.70
2	155	0.70
1	110	0.50

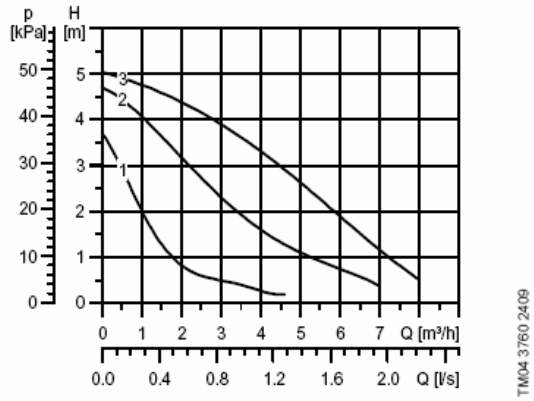


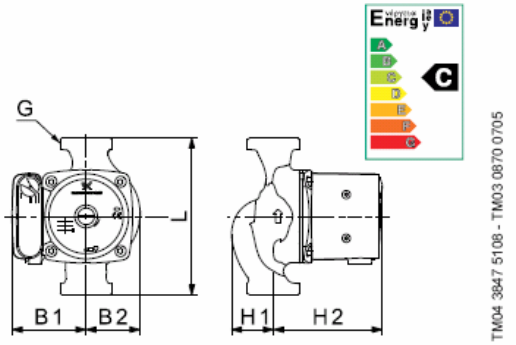
Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: -25 °C to +110 °C (TF 110)
Also available with: Stainless-steel pump housing, type N

Pump type	Dimensions [mm]						Weights [kg]		Ship. vol. [m³]
	L	H1	H2	B1	B2	G	Net	Gross	
UPS 25-80 N	180	46	125	85	62	1 1/2	4.4	4.7	0.008

UPS 32-55 N

1 x 230 V, 50 Hz





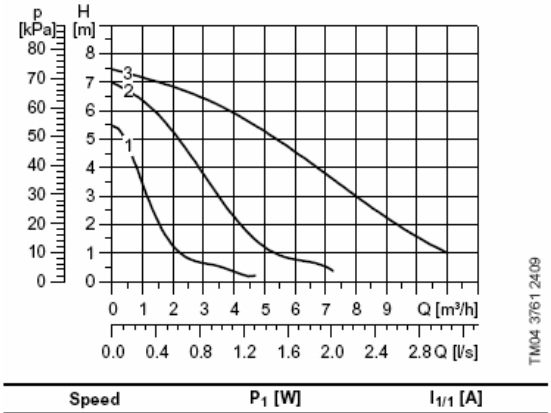
Speed	P_1 [W]	$I_{1/1}$ [A]
3	105	0.46
2	100	0.44
1	65	0.32

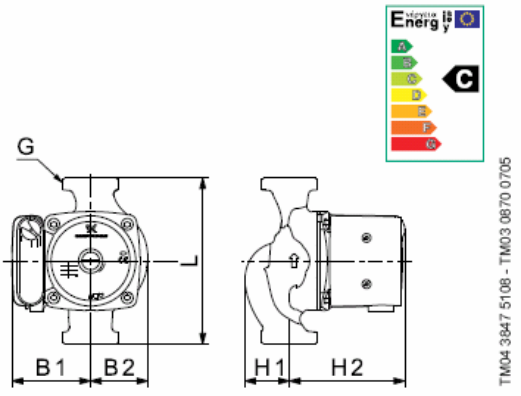
Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: -25 °C to +110 °C (TF 110)
Also available with: Stainless-steel pump housing, type N

Pump type	Dimensions [mm]						Weights [kg]		Ship. vol. [m³]
	L	H1	H2	B1	B2	G	Net	Gross	
UPS 32-55 N	180	48	125	85	62	2	4.6	4.9	0.008

UPS 32-80 N

1 x 230 V, 50 Hz



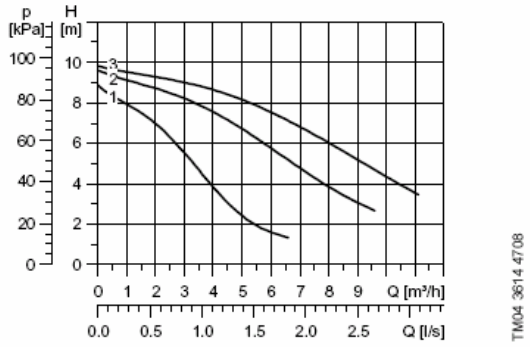


Speed	P_1 [W]	$I_{1/1}$ [A]
3	220	0.98
2	200	0.90
1	135	0.60

Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: -25 °C to +110 °C (TF 110)
Also available with: Stainless-steel pump housing, type N

Pump type	Dimensions [mm]						Weights [kg]		Ship. vol. [m³]
	L	H1	H2	B1	B2	G	Net	Gross	
UPS 32-80 N	180	48	125	85	62	2	4.6	4.9	0.008

UPS 32-100 N **1 x 230 V, 50 Hz**



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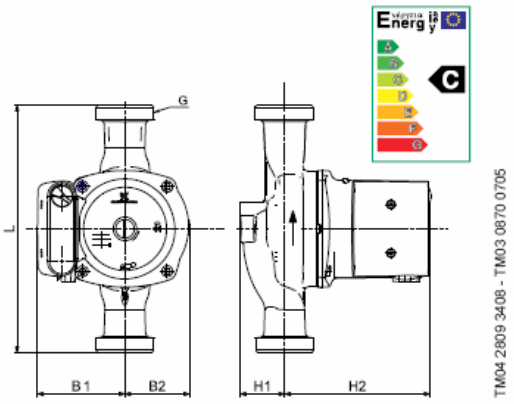
Speed	P_1 [W]	$I_{1/1}$ [A]
3	345	1.52
2	340	1.50
1	280	1.30

The pump has a built-in thermal switch and requires no additional motor protection.



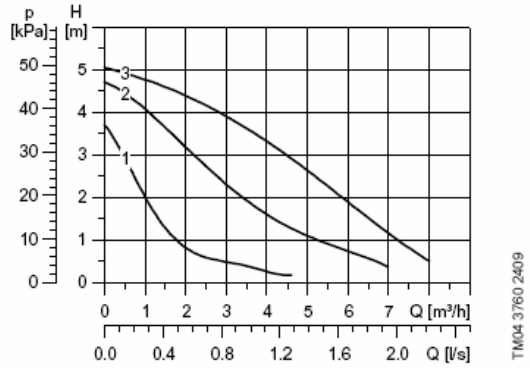
TM04 2809 3408 - TM03 0870 0705

Connections:	See *Pipe connections* on page 51
System pressure:	Max. 10 bar
Liquid temperature:	-25 °C to +110 °C (TF 110)
Also available with:	Stainless-steel pump housing, type N (only UPS 32-100 180)

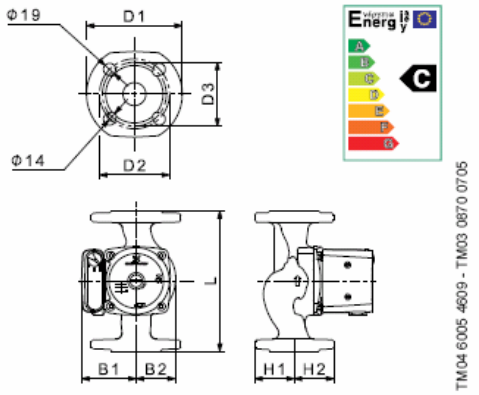
Pump type	Dimensions [mm]						Weights [kg]		Ship. vol. [m^3]
	L	H1	H2	B1	B2	G	Net	Gross	
UPS 32-100 N	180	47	150	90	68	2	6.4	7.0	0.012

UPS 40-50 FN

1 x 230 V, 50 Hz



Speed	P_1 [W]	$I_{1/1}$ [A]
3	105	0.46
2	100	0.44
1	75	0.32

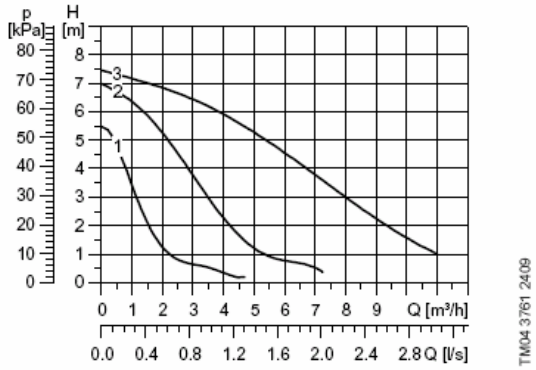


Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: -25 °C to +110 °C (TF 110)
Also available with: Stainless-steel pump housing, type N (only UPS 40-50 F 250)

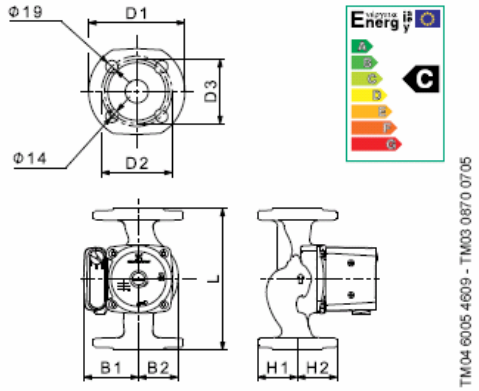
Pump type	Dimensions [mm]									Weights [kg]		Ship. vol.
	L	D1	D2	D3	H1	H2	B1	B2	G	Net	Gross	[m^3]
UPS 40-50 FN	250	150	110	100	67	125	85	62	-	8.0	8.4	0.011

UPS 40-80 FN

1 x 230 V, 50 Hz



Speed	P_1 [W]	$I_{1/1}$ [A]
3	220	0.98
2	200	0.90
1	135	0.60



Connections: See *Pipe connections* on page 51
System pressure: Max. 10 bar
Liquid temperature: -25 °C to +110 °C (TF 110)
Also available with: Stainless-steel pump housing, type N (only UPS 40-80 F 250)

Pump type	Dimensions [mm]									Weights [kg]		Ship. vol.
	L	D1	D2	D3	H1	H2	B1	B2	G	Net	Gross	[m^3]
UPS 40-80 FN	250	150	110	100	67	125	85	62	-	8.1	8.5	0.011

Hot Water Service Circulators

PUMP CONNECTIONS & FITTINGS

Screwed Connections

Pump Model	Pump Product Code	Pressure Rating (Bar)	Pump Connection	Pipe Connection BSPF	Union Product Code
UP 20-07 N **UP 20-15 N** **UP 20-30 N** **UP 20-45 N**	59640506 59641500 59643500 95906472	10	1¼" BSPM	¾" Union 22mm Valves	529997 529999
ALPHA2 15-50 N **UPS 15-50 N** **UPS 25-55 N** **UPS 25-80 N**	95047511 97549426 95906772 95906439	10	1½" BSPM	1"	529998
UPS 32-55 N **UPS 32-80 N** **UPS 32-100 N**	95906773 95906448 95906489	10	2" BSPM	1¼"	509971

Flanged Connections

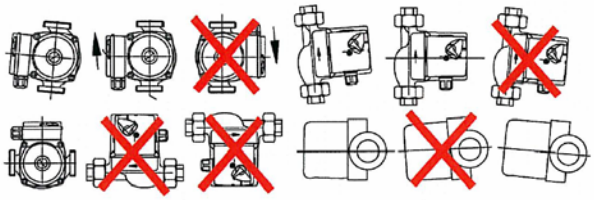
Pump Model	Pump Product Code	Pressure Rating (Bar)	Pump Connection	Pipe Connection BSPF	Flange Product Code
UPS 40-50 FN **UPS 40-80 FN**	95906422 95906774	10(4) *	Flanged to BS4504 6/11 NB 40mm	1½"	539910

Fittings are not included in the box with the circulator, and must be order separately.

Installation/Specification

GENERAL

HWS Circulators should be installed in a vertical pipe pumping upwards. This position ensures that the pump shaft is horizontal, which reduces the thrust bearing load and ensures positive air purging from both the rotor chamber and impeller housing. Pumping downwards in a vertical pipe is not recommended, as this may lead to air locking of the pump, with resultant loss of performance.



Where pumps can only be installed in horizontal pipe work, it is imperative that the pump shaft is horizontal, or slightly higher at the vent plug end. The shaft must not fall below the horizontal plane, even by a few degrees, as this causes premature wear of the top bearing and shaft. Pumps must never be installed with the shaft in a vertical plane, as this may lead to dry running of the top bearing, noise and possible pump failure.

SITING THE PUMP

1. To avoid sediment do not fit the pump in the lowest part of the system.
2. Fit isolating valves either side of the pump.
3. To prevent noise avoid sharp bends either side of the pump.
4. Position the motor away from heat sources, and allow and access for removing the pump head from base and terminal box from the head.
5. Always try to ensure that the terminal box is not adjacent to hot surfaces. Ensure pump speed switch is accessible on UPS models.
6. In open-vented systems position the pump so that it neither pumps over into the feed and expansion tank nor causes air to be drawn down the vent pipe. Generally, this means fitting the pump in the flow pipe with the vent on the inlet side of the pump.
7. In systems where all the flow can be stopped while the pump is running, e.g. in systems fitted with thermostatic radiator valves, a bypass should be fitted between flow and return pipes, to ensure water flow through the boiler and pump at all limes. Approximately 7.5% of maximum pump capacity.
8. Ensure that the pump is not stressed by the pipe work and that the pipe work is properly supported either side of the pump, if necessary use proprietary mounting brackets.

OPERATING CONDITIONS

UPS 25 and UPS 32 are rated for a maximum system pressure of 10 bar (145psi). All UPS 40 models are suitable for a maximum system pressure of 10 bars (145psi) except those models fitted with 2" BSPF counter flanges which have a 4 bar rating (58psi).
Water temperature range: -25°C to +110°C, except for UP20, UPS15-50N and ALPHA2 15-50N models.
The minimum inlet pressure for all models should be 0.5m at 82°C, 2.8m at 90°C and 11.0m at 110°C to avoid cavitation and to ensure quiet running of the pump. The minimum inlet pressure must be available at the pump inlet during operation to ensure satisfactory bearing life and to avoid cavitation.

MATERIAL SPECIFICATION

Component	Material	Grade
Pump housing:	Stainless Steel	304
Stator housing:	Aluminium alloy	ALSi10Cu2
Shaft:	Ceramic	
Split cone:	Stainless steel	304
Impeller:	Composite	PP 30% GF
Neck ring:	Stainless steel	304
Rotor can:	Stainless steel	304
Rotor cladding:	Stainless steel	304
'O'rings:	Rubber	EPDM
Radial bearing:	Ceramic	
Thrust bearing:	Carbon	

MOTOR DATA

Standard voltages:	240V Single Phase 50Hz
Motor enclosure class:	IP44
Winding insulation:	Class H on all models.

Single phase motors are protected by either thermal or impedance protection. No external protection is required.

FLOW ADJUSTMENT

UP N models are single speed. UPS N & FN models are fitted with a three speed selector switch on the terminal box.

PIPE CONNECTIONS

Grundfos circulators are not supplied with unions in the pump box. Please order these separately if required.

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01/12/2009

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