

Electronic circulator pump operating manual: BETA



The operating manual must be read and understood.



There is a danger of electrocution.



There is a danger of equipment damage.



CAUTION Prior to operation, please read this operating manual. Due to safety reasons, the use of this equipment requires a thorough knowledge of this operating manual.



CAUTION This operating manual is the primary basis for the equipment's sale contract. Non-observance of the recommendations listed in this manual will result in a breach of this contract and will invalidate any claims made by the user relating to the equipment's failure resulting from its inappropriate use.



CAUTION Non-observance of recommendations listed in this operating manual may result in personal injuries or damage to units where the equipment is installed, the environment or the pump itself.



CAUTION! Children and persons with reduced physical, sensory or mental capabilities must not use this equipment; also persons with no experience or knowledge of the product unless under the supervision or in accordance with the equipment's operating manual and instructed by a person responsible for their safety. Children must not play with this equipment.

APPLICATION:

The pumps which this operating manual applies to are used to enforce circulation in central heating installations with constant or variable flows, where the heating medium temperature does not exceed 110°C and the installation pressure does not exceed 1Mpa (1 000 000Pa). The maximum ambient temperature in the pump installation area must not exceed 40°C and the relative humidity must be less than 90%.



The pumped water must not contain mechanical impurities.

The pump is designed to pump water which does not contain solids or abrasive particles. Pumping water with mechanical impurities will shorten the pump's service life and may lead to its failure. This type of equipment damage is not covered by the warranty and any repairs will have to be paid for.



The pump is not designed to pump substances which are corrosive, flammable or have damaging or explosive properties (for example petrol, nitro, petroleum, etc.), as well as foodstuffs and salt water. Equipment failures caused by this type of damage are not covered by the product's warranty.



The maximum temperature of pumped water is 110°C.



The pump is not adapted to pump water with an excessive level of mineral particles, as this causes lime scale to build up on the pumping elements. Such operating conditions will shorten the pump's service life. This type of equipment damage is not covered by the warranty and any repairs will have to be paid for.



The pump must not pump water which contains oils and petroleum derivatives. If the pump operates in such conditions, it may lead to the damage of rubber elements such as cables or seals, and as a result the pump may become unsealed and the motor may become damaged. This type of equipment damage is not covered by the warranty and any repairs will have to be paid for.

INSTALLATION:



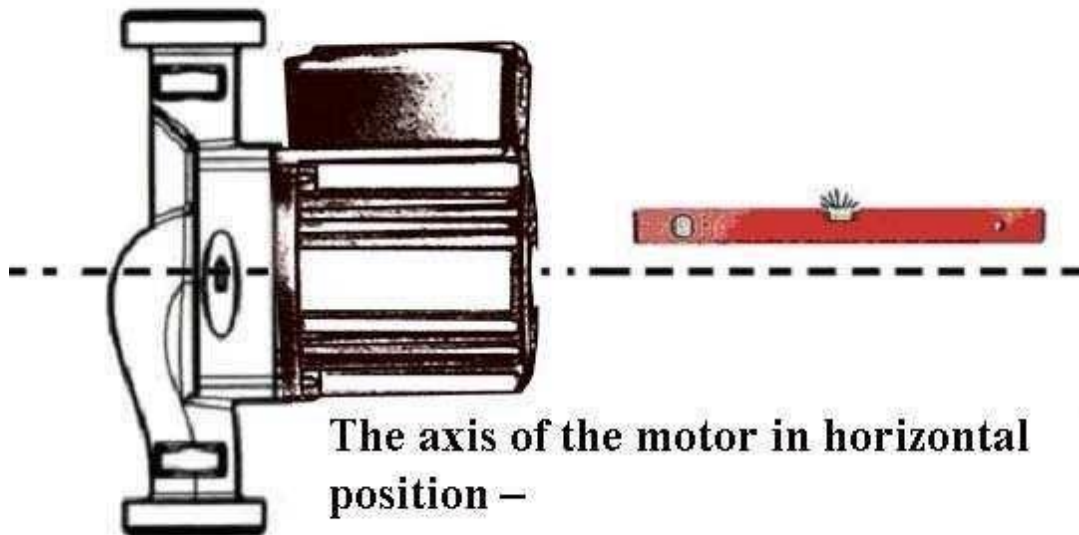
Prior to any installation works, the power supply must always be disconnected. It also must be secured to prevent accidental reconnections.



The pump can be connected after all the installation works are carried out on the pipework which will form a part of the installation with the pump. It must be remembered that welding or soldering works can introduce mechanical impurities into the pipework. The pipework should be flushed through, prior to the installation of the pump.



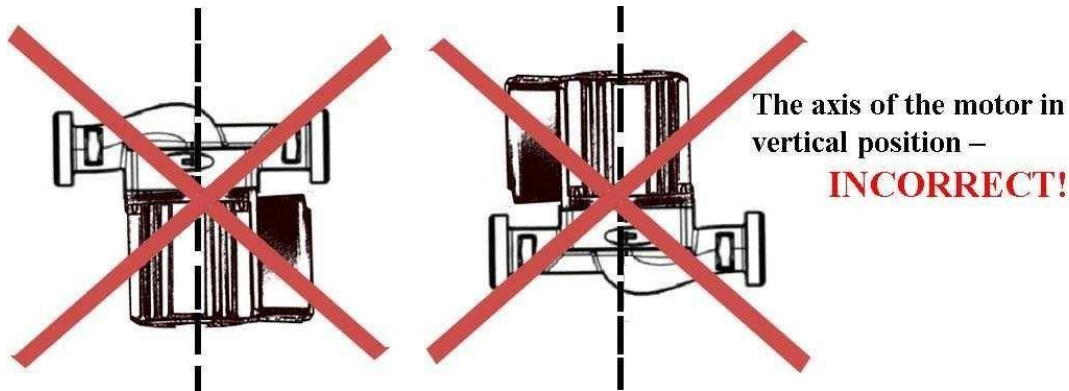
The pump should be installed with its shaft in a horizontal position. The pump's ports can be in different positions to the ones shown in the picture below, however, the shaft of the pump must always be in a horizontal position.



CORRECT!



If the pump is installed with its shaft in a vertical position, the bearings may become quickly damaged and the pump may fail. This type of equipment damage is not covered by the warranty and any repairs will have to be paid for.



The arrow moulded on the body shows the direction of water flow.



The pump should be installed in such a way that the junction box with the control box is at the top, on the body of the motor. This will prevent water from getting inside the junction box if the installation is not leaktight. This type of equipment damage is not covered by the warranty and any repairs will have to be paid for. Although the pump can circulate water vertically down, the pump's manufacturer recommends that the pump circulates water vertically up or horizontally.

ELECTRICAL CONNECTION:

The pump's power supply network should satisfy the requirements listed on the rating plate. The pump has a cable with a plug which can be inserted into an earthed socket.

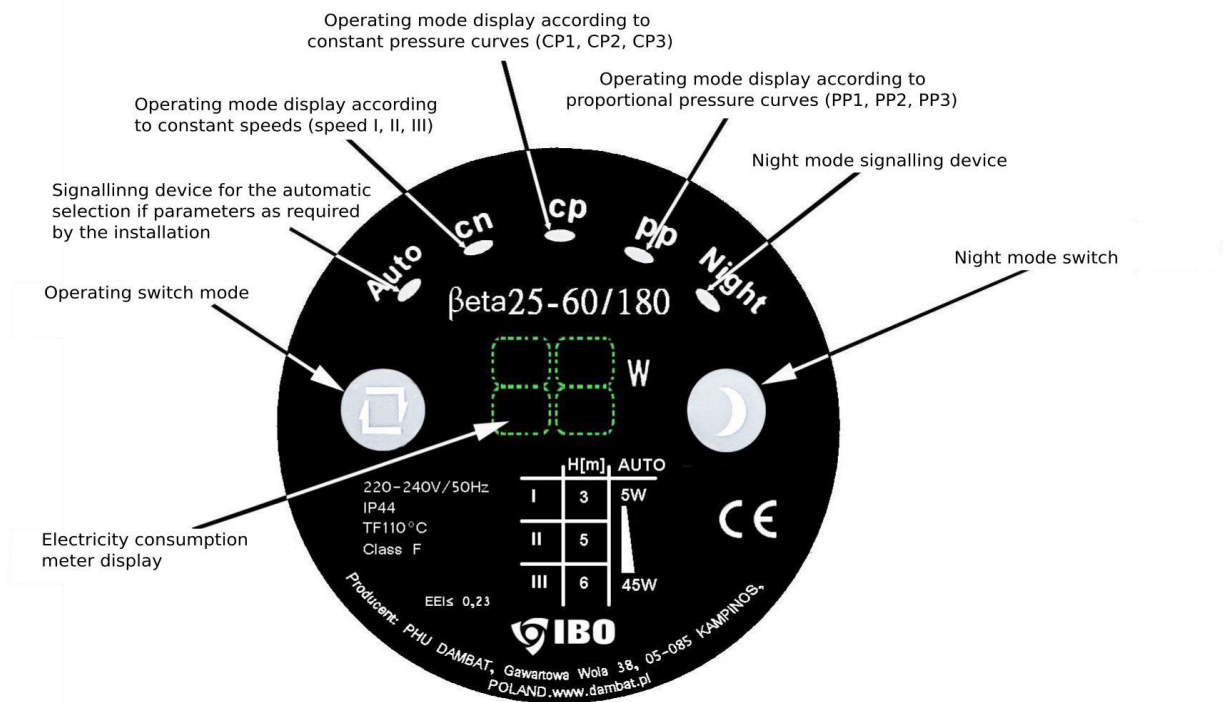


The pump needs to be connected to a network with an active earthing system. The manufacturer and the guarantor will bear no responsibility for injuries to people or any damage caused by the lack of an appropriate earthing system.



The electrical installation which supplies power to the pump should be equipped with an earth fault breaker for rated current which does not exceed 30 mA. The manufacturer and the guarantor will bear no responsibility for injuries to people or any damage caused by the pump's power supply failure due to the lack of an appropriate breaker.

PUMP OPERATION CONTROL:



On the pump start-up, the electricity consumption meter's display will display the current power consumption level of the pump. If two horizontal bars „- - „ are displayed, it will signify that the pump is blocked. The pump should be disconnected from the electrical network, it should be unblocked (failure repaired) and switched on again. Switching it off and then switching it back on again will reset the error message.

OPERATING MODES:

The subsequent pressing of the operating mode switch allows the user to select one of the eleven settings. The selected setting will be displayed by the operating mode display. Operating modes are grouped in five groups of settings. Selection of one such group results in lighting appropriate indicator on the pump's panel. The subsequent pressing of the operating switch mode changes settings and operating modes within these settings. After pressing the 'operating switch mode' an information about currently active operating mode appears on 'electricity consumption meter display' for a short time.

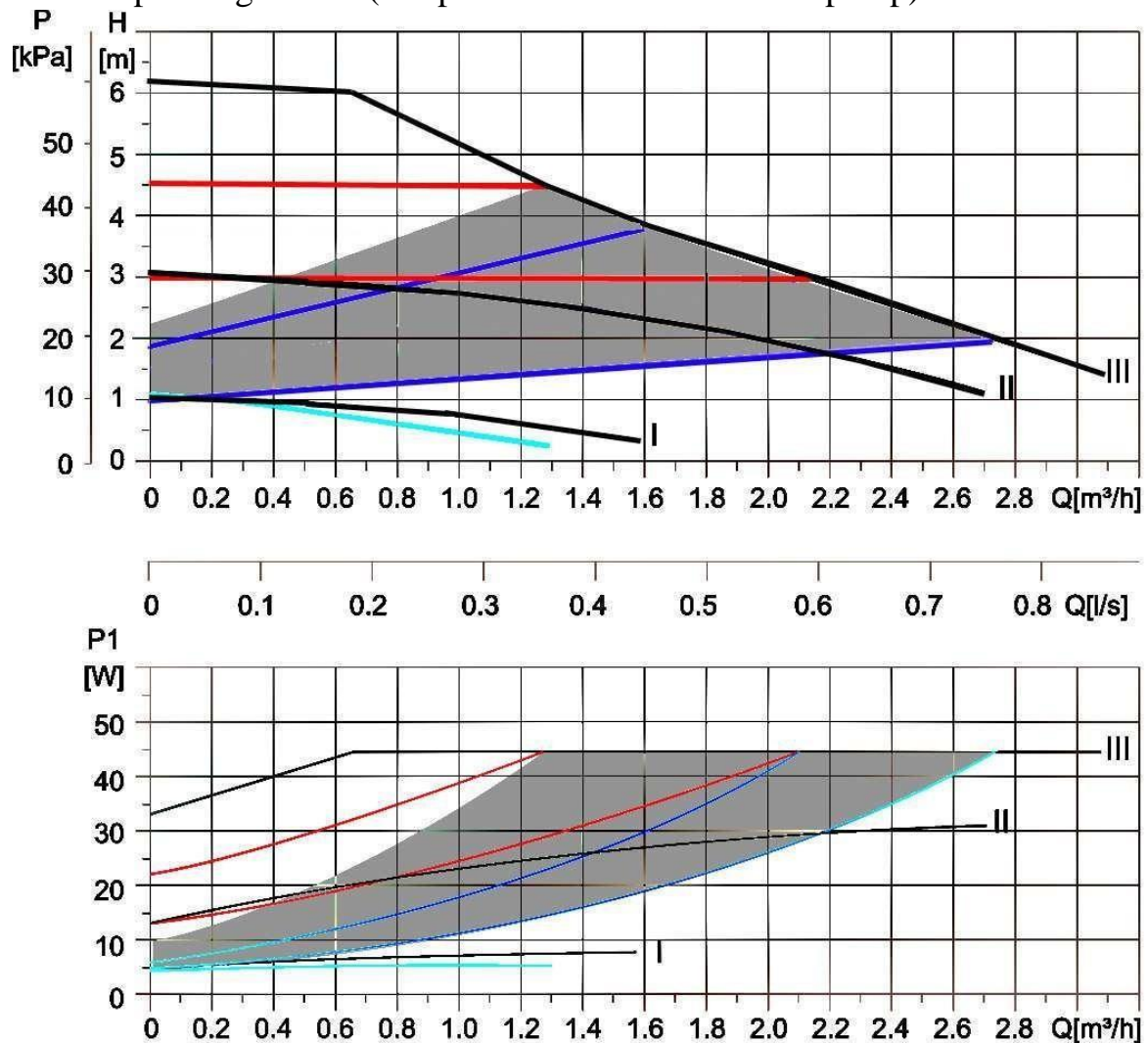
Information displayed on meter's display:

AU – a mode of automatic choice of pump's parameters for the needs of installation (chart – grey colour)

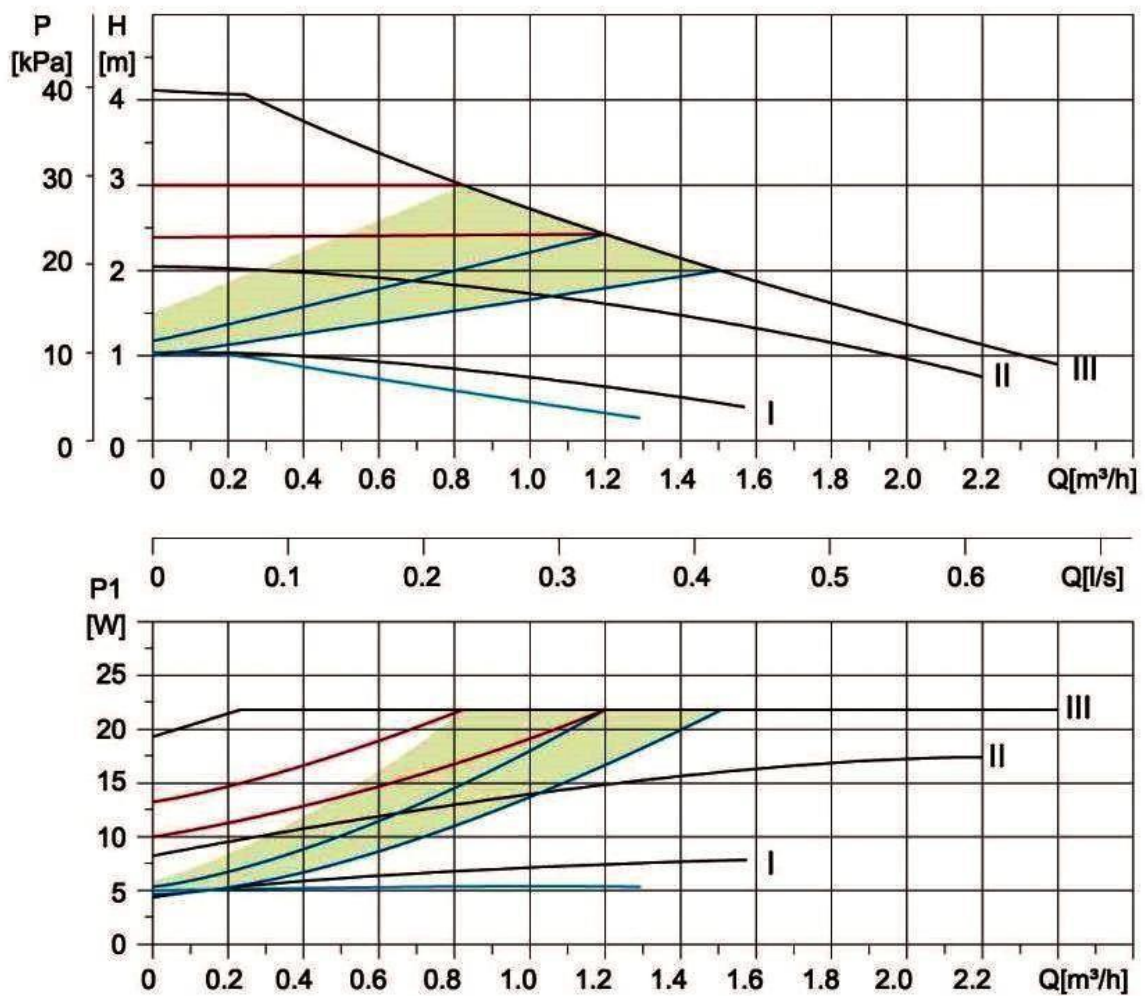
∩1 – constant speed, the lowest first speed (chart – black colour)

- ∩2 - constant speed, medium second speed (chart – black colour)
- ∩3 – constant speed, the highest third speed (chart – black colour)
- C1 – operation according to constant pressure curve (chart – red colour)
- C2 – operation according to constant pressure curve (chart – red colour)
- P1 – operation according to proportional pressure curve (chart - blue colour)
- P2 – operation according to proportional pressure curve (chart - blue colour)

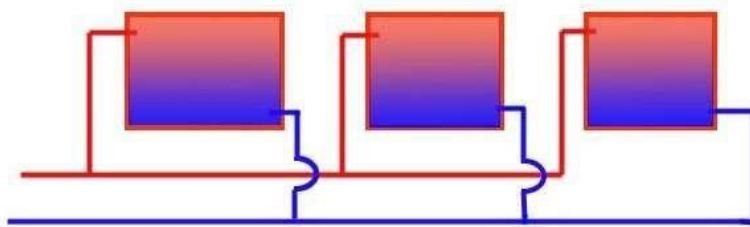
The pump's operating parameters are shown in the picture below, according to chosen operating modes (sample chart for BETA 25-60 pump):



The pump's operating parameters are shown in the picture below, according to chosen operating modes (sample chart for BETA 25-40 pump):



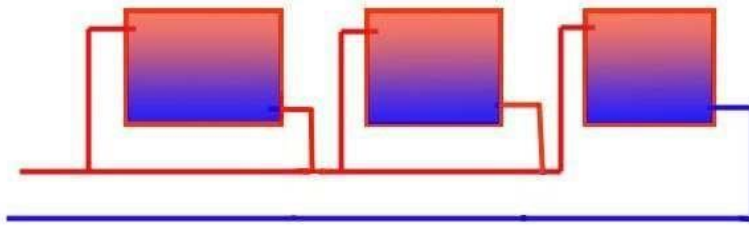
RECOMMENDED SETTINGS FOR DIFFERENT CENTRAL HEATING SYSTEMS:



1)

If a house has a two-pipe heating system, where one pipe is a supply pipe to all the radiators in a loop and the second parallel pipe is used to receive the cooled water

from the radiators, the most economic solution is to select the AUTO function. This type of installation also permits the selection of a higher setting from PP_1 alternating pressure. 2)



If a house has a one-pipe heating system, where the cooled water from a radiator enters a pipe supplying hot water to the next radiator and only

after passing through all the radiators in a loop it is taken to the boiler, the most economic setting is the lower setting from PP₂ proportional-pressure curve. Optionally, a higher setting from PP₁ proportional-pressure curve can also be selected.

3) The optimum choice for under floor heating is AUTO or optionally a higher CP₁ or a lower CP₂ constant-pressure curve setting.

NIGHT MODE:

The night mode operating setting can only be used in the following instances:

- The central heating installation and the boiler must be equipped with an automatic regulator of the heating medium temperature which must operate in night mode.
- The pump must be installed on the pipe coming out of the boiler. The night mode does not work when the pump is installed on the return pipe.
- Central heating installations with a small volume of the heating medium cannot work with a pump operating in night mode.

NIGHT MODE operating principles:

The selection of the night mode will set the pump to detect temperature changes of the flowing water. If the temperature sensor detects a decrease in temperature by at least 0.1°C/min during a period of approx. 2 hours, the pump will automatically start operating in night mode. If the temperature of the heating medium increases by approx. 10°C, the pump will automatically return to the standard operating mode.



The night mode setting will not work if the pump is running in one of its constant speeds. Disconnecting the electricity supply will deactivate the night mode. Once the power supply is reconnected, the night mode needs to be switched on again, using the appropriate switch.


START-UP, OPERATION:


Once the installation is filled up with water, the pump can be started-up.




CAUTION The installation needs to be leaktight as the pump must not be exposed to leaking pipework. If water enters the internal elements of the pump,

the equipment will become damaged. This type of equipment damage is not covered by the warranty and any repairs will have to be paid for. On the first startup, the pump should be vented using a metal plug located centrally on the rating plate. A vented pump is characterised by a lower noise level generated by the motor.

 **CAUTION** The pump must not be used to purge the central heating system of air! The vent valve installed above the pump should be used for this purpose.


 For the pump to operate correctly, there must be a minimum inlet pressure of the heating medium (water) on the suction side of the pump. The minimum inlet pressure of the medium is dependent on the temperature of the medium. The higher the temperature, the higher the inlet pressure of the heating medium on the suction side of the pump should be. The following limits must be observed:

Heating medium temperature [°C]	Minimum inlet pressure on the suction side [bar] / [m] / [Pa]
≤ 75	0.05 bar / 0.5 m / 5 000 Pa
90	0.28 bar / 2.8 m / 28 000 Pa
110	1.08 bar / 10.8 m / 108 000 Pa

 An incorrect ratio of the ambient temperature to the heating medium temperature may result in water vapour condensation in the terminal box and in the motor stator. To prevent this from happening, the heating medium temperature must be higher than the ambient temperature. The minimum temperature of the heating medium is 2°C.

With the ambient temperature of 30°C, the maximum temperature of the heating medium is 110°C. With the ambient temperature of 40°C, the maximum temperature of the heating medium is 70°C. With the ambient temperature of 35°C, the maximum temperature of the heating medium is 90°C.

Any equipment damage caused by water vapour condensation is not covered by a warranty.

 The surface temperature of the pump must not exceed 120°C.

Any equipment damage caused by the installation overheating is not covered by the warranty.

DISPOSAL OF THE PUMP:



Waste equipment must be disposed of as waste collected selectively by the Municipal Network of Electrical and Electronic Waste Collection Points. The consumer is entitled to return waste equipment to the equipment distributor, free of charge and directly, if the

returned items are of the correct type and have the same function as the newly purchased products. It is prohibited to dispose of waste electric equipment together with other house municipal waste.

FAULT IDENTIFICATION AND RECOMMENDED SOLUTIONS:

Fault:	Possible cause:	Remedy:
The pump does not run. The panel does not display any information.	Electricity supply failure	Check if the pump's electrical plug is correctly inserted into the socket.
		Check fuses at home and any other installation fuses which could have disconnected the power supply from the supply network.
		Check the electrical power supply in the vicinity of your home- the electrical current might have been disconnected by your energy company for the whole area.
	The pump is damaged.	Contact the technical maintenance department.
The pump does not run. The display shows „-“,	The parameters of the electrical supply current are inadequate.	Check the parameters of the electrical supply. If they are not adequate, contact the relevant energy supplier.
	The bearings or the impeller are blocked with impurities.	After disconnecting the power supply from the pump, remove it from the installation and remove any impurities.
The pump is noisy; there is noise in the installation. The panel displays a number.	There is air in the pump.	Remove air from the system and vent the pump.
	The inlet pressure is too low.	Increase inlet pressure by adding the heating medium to the installation.
		Check the air quantity in the expansion vessel.
	The pump performance is too high.	Decrease the pressure on the suction side.

The pump is running but provides insufficient heat. The panel displays a number.	The pump operating parameters are too low.	Increase the pressure on the suction side. Run the pump in a higher operating mode.
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CE DECLARATION OF CONFORMITY (Module A):

PHU DAMBAT

Gawartowa Wola 38, 05-085 KAMPINOS

Pursuant to the Conformity Assessment System Act of 30 August 2002 (Journal of Laws, Dz. U. from 2004, No. 204, item 2087) we declare under our sole responsibility that the series BETA pumps, to which declaration relates, are in conformity with these following directives of the European Parliament and the European Council, which apply to:

- 1) Low Voltage Directive (2006/95/EC). Standards used: EN 60335-2- 51:2003.
- 2) EMC Directive (2004/108/EC). Standards used: EN 55014-1:2006 and EN 55014- 2:1997.
- 3) Ecodesign Directive 2009/125/EC. Circulating pumps: Commission regulation (EC) 641/2009. Standards used: EN 16297-1:2012 and EN 16297-2:2012.

Gawartowa Wola, 23.08.2011

Adam Jastrzębski

A reference criterion for the most energy-efficient circulating pumps is $EEI \leq 0,20$.

For BETA pump a ratio $EEI \leq 0,23$ indicates that BETA pump is a energy-efficient pump.