ONLY ORIGINAL WITH THE DIAMOND®

WITA Delta HE 75F-XX | 100F-XX | 120F-XX

ErP 2015+

EEI ≤ 0,23

Content

EC Declaration of Conformity

Name of the issuer:	**WITA-Wilhelm Taake GmbH** **Pumpen-, Armaturen- und Regeltechnik** **Böllingshöfen 85** **D-32549 Bad Oeynhausen**
Subject of the declaration:	**Heizungs-Umwälzpumpe**
Type:	**Delta HE**
Design:	**75-XX, 100-XX, 120-XX** **75F-XX, 100F-XX, 120F-XX**

We declare with sole responsibility that the products specified above, to which this EC Declaration of Conformity refers, fulfil the following standards and guidelines:

Electromagnetic Compatibility Directive 2014/30/EU
EN 55014-1 : 2006 + A1 : 2009 + A2 : 2011
EN 55014-2 : 1997 + A1 : 2001 + A2 : 2008
EN 61000-3-2 : 2014
EN 61000-3-3 : 2013
Low Voltage Guideline 2014/35/EU
Guideline for Energy-Consuming Products 2009/125/EG
Eco-design requirements 641/2009 and 622/2012.
EN 16297-1 : 2012
EN 16297-2 : 2012
EN 60335-1 : 2012
EN 60335-2-51 : 2003 + A1 : 2008 + A2 : 2012
RoHS 2011/65/EU

This declaration is submitted for and on behalf of the manufacturer by:

Frank Kerstan
Management

Bad Oeynhausen, 07.05.2019

2 Safety Instructions

2.1 General

These installation and operating instructions are a part of the product, and contain basic information that must be observed during installation, operation and maintenance. For this reason, the installer and specialist personnel or operators must read these instructions prior to set-up.
Please observe both the general safety instructions listed under section 2 and the special safety instructions detailed in the other sections.
A copy of the EC Declaration of Conformity is provided with these instructions. This declaration shall be deemed void in the event of a modification that has not been agreed with us.

2.2 Identification of notes in the operating instructions

**General hazard symbol
Warning! Danger of personal injury!
Observe the relevant accident prevention regulations.**

Warning! Danger from electrical voltage! Prevent hazards arising from electrical energy. Observe the instructions in local or general regulations (e.g. IEC, VDE, etc.), and those of the local energy supplier.

NOTE

This symbol indicates useful information for handling the product. It indicates potential difficulties and aims to ensure safe operation.

Signs attached directly on the product, such as:
- direction of rotation arrow
- type plate
- identification of connections must be strictly observed and kept in an easily legible state.

2.3 Personnel qualification

The personnel used for mounting, operation and maintenance must have relevant qualifications. Areas of responsibility and monitoring of personnel must be guaranteed by the owner/operator. If personnel do not have the necessary know-how, they must be trained or instructed accordingly.

This device can be used by **children** at or above the age of 8 years, as well as by persons with reduced physical, sensory or mental capabilities, or who lack experience and knowledge, if they are supervised or have been instructed concerning the safe use of the device and if they understand the hazards arising from its use. **Children** may not play with the device.
Cleaning and **maintenance operations** may not be carried out by **children** without supervision.

2.4 Danger of not observing safety instructions

Not observing the safety information can endanger persons, the environment and the system. Not observing the safety instructions shall result in the loss of any and all claims to warranty.
Potential dangers include:

- Hazards to persons through electrical and mechanical effects.
- Failure of important system functions.
- Hazard to the environment from escaping fluids resulting from a leak.
- Failure of prescribed repair and maintenance work.

2.5 Safety-conscious working

Observe the safety instructions detailed in this manual, along with the current national accident prevention regulations. Should the system operator also have their own internal regulations, these must also be observed.

2.6 Safety instructions for the operator

- Any existing touch guard protecting moving parts may be neither removed nor shut down while the system is in operation.
- In the event of a fluid leak, any fluids must be collected or diverted in a way that prevents hazards to persons and the environment from arising.
- Prevent hazards arising from electrical energy.

- Observe the instructions in local or general regulations (e.g. IEC, VDE, etc.), and those of the local energy supplier.

- In the event of hazards arising from the system due to contact with hot or cold parts, these parts must be fitted with a touch guard.
- Keep flammable substances away from the product.

2.7 Safety instructions for installation and maintenance work

The system operator is responsible for ensuring that all installation and maintenance work is carried out by qualified personnel. These persons must also have familiarised themselves in advance with the product using the operating instructions. Conducting work on the pump is only permitted when the system is shut down.
Ensure that the device is securely disconnected from the power supply. Disconnect the device plug to achieve this. Prescribed instructions for shutting down the device can be found in the operating instructions. All protective mechanisms, such as a touch guard, must be correctly reattached after work.

2.8 Unauthorised conversion and production of spare parts

Modification or conversion of the product is only permitted after prior consultation with the manufacturer. Only use original spare parts for repairs. Only use accessories that have been approved by the manufacturer. The manufacturer shall bear no

liability for any consequences resulting from the use of other parts.

2.9 Unpermitted operation

If the pump is disconnected from the power supply, wait at least 1 minute before reactivating. Otherwise, the pump's in-rush current limit has no effect, which can lead to functional errors or damage to any connected heating controller.
The pump's operational safety can only be ensured if it is used as intended. Please observe section 4 of these operating instructions here. Ensure compliance with the limit values detailed in the technical data.

3 Transport and Storage

After receiving the product, inspect it immediately for damage caused in transport. Should you detect any transport damage, assert a claim with the haulier.

Incorrect transport and storage can lead to personal injury or damage to the product.

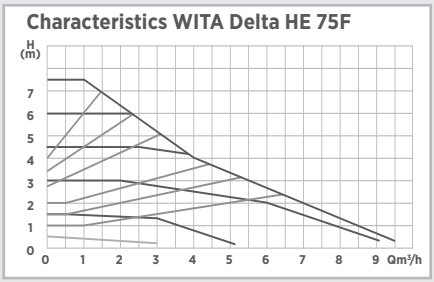
- **Protect the product against frost, moisture and damage during transport and storage.**
- **Only carry the pump by the pump housing, and never by the connection cable or terminal box.**
- **If the packaging weakens due to moisture, this can lead to the pump falling out and causing severe injury.**

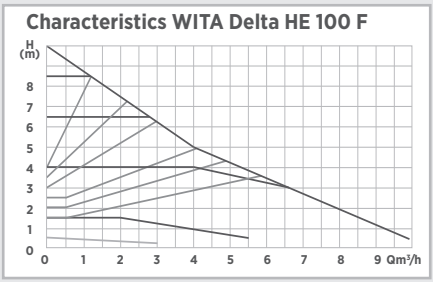
4 Intended use

The WITA high-efficiency pumps Delta HE 75-XX, 100-XX, 120-XX are designed for circulating of hot water in central heating systems and are also suitable for the supply of low-viscosity media in industry and commerce. They are also suitable for solar technology systems.

5 Information about the Product

5.1 Technical data Delta 75F-XX | 100F-XX | 120F-XX





	HE 75F-XX	HE 100F-XX
Max. pump lift	7,5 m	10,0 m
Max. flow rate	9450 l/h	9950 l/h
Power consumption (W)	5 - 98	5 - 123
Supply voltage	1 x 230V 50Hz	
Emission sound pressure level	< 40dB(A)	
EEI	≤ 0,23	
IP rating	IP 42	
Temperature class	TF 110	
Ambient temperature	0°C bis 40°C	
Media temperature	+5 bis 110°C	
Max. systeme pressure	10 bar (1MPa)	
Permitted pumping media	Heating water according VDI 2035 Water/glycol mixture 1:1	

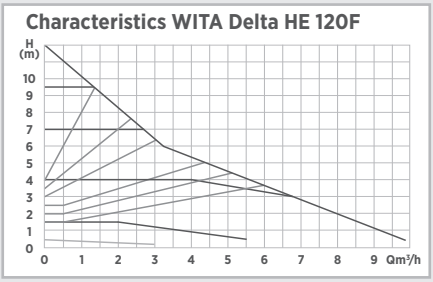
Inlet pressure

fluid temperature	Minimum inlet pressure		
< 75 °C	0,05 bar	0,005 MPa	0,5 m
75 °C - 90 °C	0,3 bar	0,03 MPa	3,0 m
90 °C - 110 °C	1,1 bar	0,11 MPa	11,0 m

Permissible range of application

Temperature range at maximum ambient temperature	Permissible fluid temperature
25 °C	5 °C bis 110 °C
40 °C	5 °C bis 95 °C

5.1 Technical data Delta HE 120F-XX



HE 120F-XX

Max. pump lift	12,0 m
Max. flow rate	9950 l/h
Power consumption (W)	5 - 127
Supply voltage	1 x 230V 50Hz
Emission sound pressure level	< 40dB(A)
EEI	≤ 0,23
IP rating	IP 42
Temperature class	TF 110
Ambient temperature	0°C bis 40°C
Media temperature	+5 bis 110°C
Max. systeme pressure	10 bar (1MPa)
Permitted pumping media	Heating water according VDI 2035 Water/glycol mixture 1:1

Inlet pressure

fluid temperature	Minimum inlet pressure		
< 75 °C	0,05 bar	0,005 MPa	0,5 m
75 °C - 90 °C	0,3 bar	0,03 MPa	3,0 m
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Permissible range of application

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40 °C	5 °C bis 95 °C

Caution! Unpermitted pumping media can destroy the pump and cause personal injury. Observe the manufacturer's information and safety data sheets!

NOTE

5.2 Scope of delivery

- Original Installation and Operating Manual
- Pumps
- 2 flat seals
- Pumpenstecker (optional)
- Insulation

6 Description of the Pumps

In an average household, around 10 to 20% of the energy consumption is caused by common standard pumps. With the Delta HE series of pumps, we have developed a circulation pump with an energy efficiency index of ≤ 0.20. The Delta HE pump can reduce energy consumption by up to 80% compared to a standard circulation pump, whilst maintaining the same level of hydraulic power. The pump output can be adjusted to the actual needs of the system, as it works
according to the proportional pressure process and has a switchable night setback.

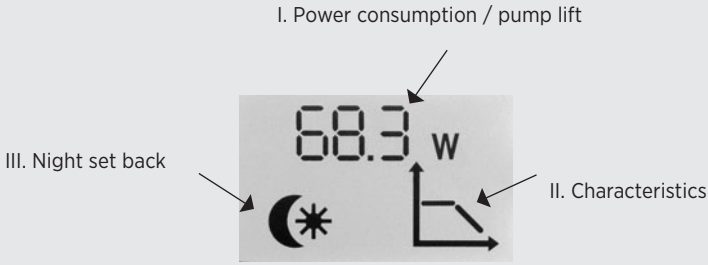
7 Pump Settings and Output

Description of controls

7.1 The buttons

All functions of the pump can be controlled with only two buttons. If these two buttons are pressed briefly (<3s), a other function than when pressed long (> = 3s).

7.2 Display

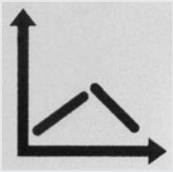


I. Display of instantaneous electrical power alternated with the currently set delivery head of the pump.

The display illumination is switched on for 10 seconds each time the button is pressed.

II. Possible displays are here:

Regulation with
Constant speed



Regulation in
proportional-
method

III. The symbol appears when the night reduction is activated.

7.3 Selection of the operating state

With this pump you have the option between the following operating states to choose:

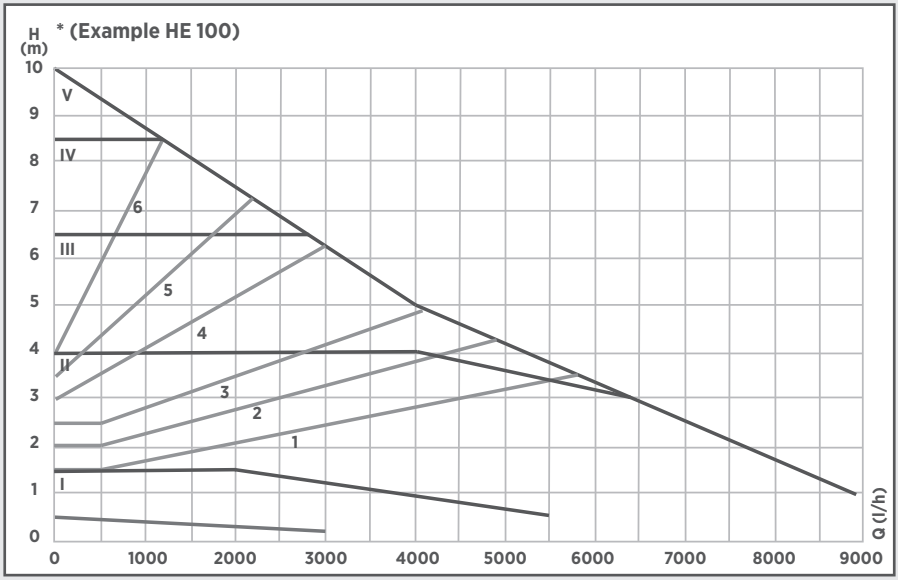
I. Five characteristics with fixed speeds
II. Six characteristic curves with regulation in the proportional pressure method
III. Automatic and permanent night reduction
IV. Deaeration program
V. optional special function PWM mode

I+II. To select a constant or proportional characteristic, press the key . The symbol for the characteristic type now flashes and by repeatedly pressing this key you can choose between the two modes switched back and forth.
Pressing the key takes you to the area where the individual characteristics are displayed can be chosen. This is indicated by flashing the height indication in the display.
By pressing the + or - key you move up and down in the respective table.
If no key is pressed for more than 8 seconds, the program automatically returns to the Normal operation back.

WITA Delta HE 75F-XX | 100F-XX | 120F-XX

	Display
I	1,5 m
II	4,0 m
III	6,5 m
IV	8,5 m
V	10,0 m

	Display
1	1,5 m
2	2,0 m
3	2,5 m
4	3,0 m
5	3,5 m
6	4,0 m



III Automatic night reduction

Requirements for automatic night reduction

Pumps installed in gas water heaters that have only a small amount of water, should never be set to automatic night setback.

If the heating system does not supply enough heat to the radiators, check whether the automatic night setback is activated.

If necessary, deactivate the automatic night reduction.
In order to ensure the correct function of the night reduction,
the following conditions must be fulfilled:
1. The pump must be installed in the flow
2. The heating system must be equipped with an automatic flow temperature control.

By briefly pressing the button, the night reduction is activated and in the display with this icon will be shown. A short press again deactivates this function. If this operating mode it will be automatically switched between normal operation and night reduction.
The changeover depends on the flow temperature. The pump switches automatically to night setback when the flow temperature within 1 hour by more as 10 ° - 15 ° C decreases. The display then shows this as follows:
The three bars are displayed alternately.
Switching to normal operation is without
Delay once the flow temperature returns
has risen by 3 ° C.

Permanent night reduction

To select this function, first turn on the automatic night setback.
If the button is pressed for more than 5 seconds, the pump changes to the permanent one Night reduction. This is immediately shown in the display as follows:
The three bars are displayed alternately.

The pump remains permanently in lowered mode until:

- Press the button again for more than 5 seconds.
- to increase the flow temperature then the automatic night reduction is activated, also after a power failure.

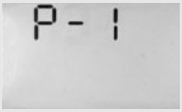
IV Venting program

By pressing the button for longer, a venting program will be started.
This program runs the pump alternately at different speeds.
This leads to the following display: The first segment is
a moving icon to indicate that the program running. In
segment 2 and 3 is displayed in which of 16 stages the

program is currently. Begun is counted down at level 16 and then. Every level takes about 1 minute. After the end of the entire program will be automatically returned to the display of normal operation. The venting program can be terminated prematurely by pressing the button for a long time.

V PWM operation

In order to use the special function PWM operation, the pump must be equipped with an additional module be retrofitted. If this function is to be used, it is first in the characteristic curves
To change selection menu. This is done by briefly pressing the button.
After that press the same key again, this time for more than 3 seconds.
The display changes to the following display. By pressing
the + or - button can now select one of 4 PWM operating
modes are selected. Display P-1 to P-4.
After 8 seconds, the pumps change to PWM mode.



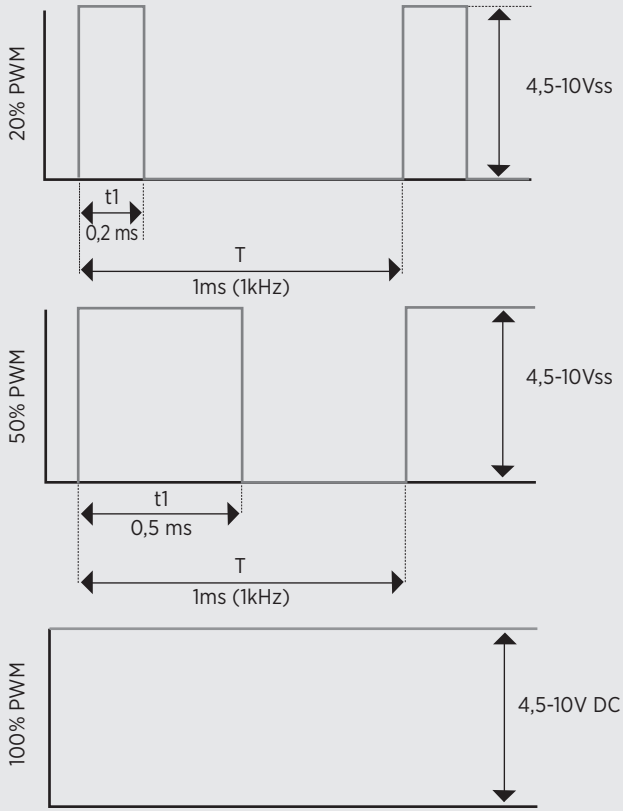
The display now shows the power (W) alternating with the PWM mode name (P-1 to P-4) displayed. The pump must now be controlled with an external PWM signal.
The display alternates between power (W) and PWM mode name (P-1 to P-4). To the
To cancel PWM operation, press the key for less than 3 sec. To enter the menu for
Selecting the PWM modes to arrive. Will this button be longer than 3 seconds
pressed, the pump changes to the characteristic menu and from there automatically
after 8 seconds into normal operation.

P 1: • between 0 and 20% PWM signal rotates the pump at minimum speed.
• from 20 -100% PWM signal the speed increases up to the maximum value.
P 2: • between 0 and 20% PWM signal turns the pump at minimum speed.
• from 20 -100% PWM signal, the speed decreases from the maximum value to its minimum value.
P 3: • between 0 and 20% PWM signal the pump is switched off.
• From 20 -100% PWM signal, the speed increases from the minimum value to the maximum value.
P 4: • between 0 and 20% PWM signal the pump is switched off.
• from 20 -100% PWM signal, the speed decreases from the maximum value to its minimum value.

Without a PWM signal connected, the pump turns into P 1 and P 2 at minimum speed.
In P 3 and P 4 it is turned off. The settling time for speed changes is about 2 seconds.

8 PWM signal

Connection of the PWM line:
blue = PWM mass
brown = PWM (+)



PWM: 20% - 100%, ~100Hz - 4kHz

9 Installation

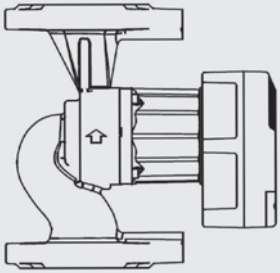


Fig. 1

Carry out voltage-free installation with horizontal pump motor (directional arrow on the pump housing indicates the flow direction) (Fig.1). For thermal insulation work on it Make sure that the pump motor and electronics housing are not insulated.
If the installation position is to be changed, the motor housing must be turned as follows (Figures 2a to 2d):

- Loosen hexagon socket screws
- Turn the motor housing
- Screw in the hexagon socket screws again and tighten.

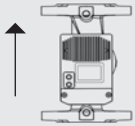


Fig. 2a

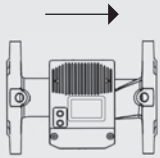


Fig. 2b

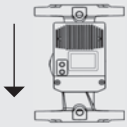


Fig. 2c

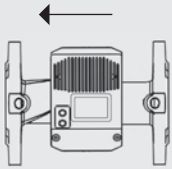


Fig. 2d

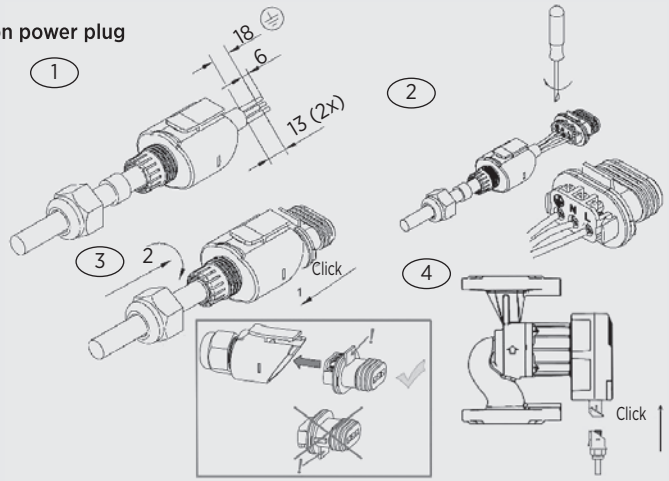
10 Electrical connection

Attention danger to life!

Improper installation and improper electrical connection can be life threatening. Are hazards due to electrical energy excluded.

- **Installation and electrical connection only by qualified personnel and in accordance with the applicable regulations Have regulations (eg IEC, VDE, etc.) carried out!**
- **Current type and voltage must correspond to the information given on the nameplate.**
- **Observe the regulations of the local energy suppliers!**
- **Observe accident prevention regulations!**
- **Never pull on the power cord.**
- **Do not kink the cable.**
- **Do not place objects on the cable.**
- **When using the pump in systems with temperatures above 90 ° C, an appropriate heat-resistant connection cable can be used.**
- **During installation hazards due to sharp edges or burrs arise.**
- **Never transport the pump by wearing it on the power cord.**
- **There is a risk of injury due to the pump falling down.**

10.1 Installation power plug



Connect the power cord to the pump as shown. **Caution Mains voltage!**
Absolutely the necessary protective measures, VDE regulations and local regulations note. The conductor cross section must not be less than 0.75 mm². When using Fine-wire cables are to be used with ferrules.

11 Filling and vernting of the system

Fill system properly and vent.
To vent the pump, this should be done as in chapter 7.3 Section IV. After this process, the pump can be set in the desired control mode.

NOTE

An incomplete venting leads to noise in the pump and plant.

Warning! Burns!
Depending on the operating condition of the system can the whole pump gets very hot.

12 Maintenance / Service

Before maintenance, cleaning and repair work, voltage-free switch and secure against unauthorized restart.

At high water temperatures and system pressures, cool the pump first to let. There is **a risk of scalding** !

13 Disorders, causes and eliminations

Maintenance work or repair attempts may only be undertaken by qualified personnel. Prior to maintenance, cleaning and repair work switch off the system and against Secure unauthorized restart. At high water temperatures and system pressures Allow the pump to cool down first. **There is a risk of scalding!**

Error indication or code display of the pump	**possible causes**	**Remedy**
Pump does not run; Display does not light up	Error in the power supply	Check the voltage at the pump. If necessary, switch on the circuit breaker again.
Pump is running; but do not supply water	Air in the system	Vent the pump (see chapter 7.3, section IV and chapter 10 in the manual)
	Slide closed	Open the gate valve
Noises in the system	Air in the pump	Vent the system
	Pump capacity too high	Check pump settings
Pump is making noise	Air in the pump	Vent the pump (see chapter 7.3, section IV and chapter 10 in the manual)
	the pressure in the system is too low	Increase inlet pressure
	Expansion vessel defective	Check the gas volume in the expansion tank
the building will be not warm	Pump setting incorrect	Increase setpoint (see chapter 7.3 in the manual)
	Nightsetback is possibly switched on	Switch off nightsetback
the pump settings can be not changed	Error in the program sequence	Reset the pump to the factory settings (Reset): * To do this, disconnect the pump from the power supply and wait at least 15 seconds. * Restore power supply while keeping + and - keep the button pressed. * The display shows dEF for a short time. * The pump is now in the factory settings and can be reset.
No automatic regulation of the power output in the proportional pressure stages.	An opened overflow valve in the system prevents the regulation	if possible - remove the overflow valve if possible or close it.

Error display or code display of the pump	possible causes	Remedy
ihe lights are flashing in the display A8	The pump will not supplied by the main voltage. The flashing of the display arises from the fact that the pumprotor itself will be turned through the movement of water and the pump behaves like a generator.	Check the voltage supply at the pump.
E 1	Overcurrent protection circuit	Press any key or disconnect the pump from the power for 1 minute fat least. Is the error still existing the pump must be replaced.
E 2	overtemperature	Lower the temperature in the system. Press any key or disconnect the pump at least for 1 minute from the power supply. Is the error still existing the pump must be replaced.
E 3	Locked rotor	Disconnect the pump form the power supply and prevent it from being switched on again. If possible close the shut-off valve in front and behind the pump or drain the water. **Hot water can be leak depending on the operating condition of the system! Risk of burns!** Motor head by loosening of the 4 hexagon socket screws unlock and remove the pump head. Pump impeller must turn easily. Remove possible impurities or foreign bodies and reassemble the pump. Is the error still existing the pump must be replaced.

If the fault can not be eliminated, please contact the specialist craftsmen.

14 Disposal

The pump and its parts have not to be disposed in the household waste and must be disposed in an environmentally friendly way !
Please use the public or private disposal companies.
In the download area of our homepage the materials as used in our products are listed. (www.wita.de).

NOTE

ONLY ORIGINAL WITH THE DIAMOND®

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