Pioneering for You

Wilo-Helix EXCEL 22-36-52

de Einbau- und Betriebsanleitung
en Installation and operating instructions
fr Notice de montage et de mise en service
nl Inbouw- en bedieningsvoorschriften
ru Инструкция по монтажу и эксплуатации

4 152 003-Ed.02 / 2015-03-Wilo

Fig. 1

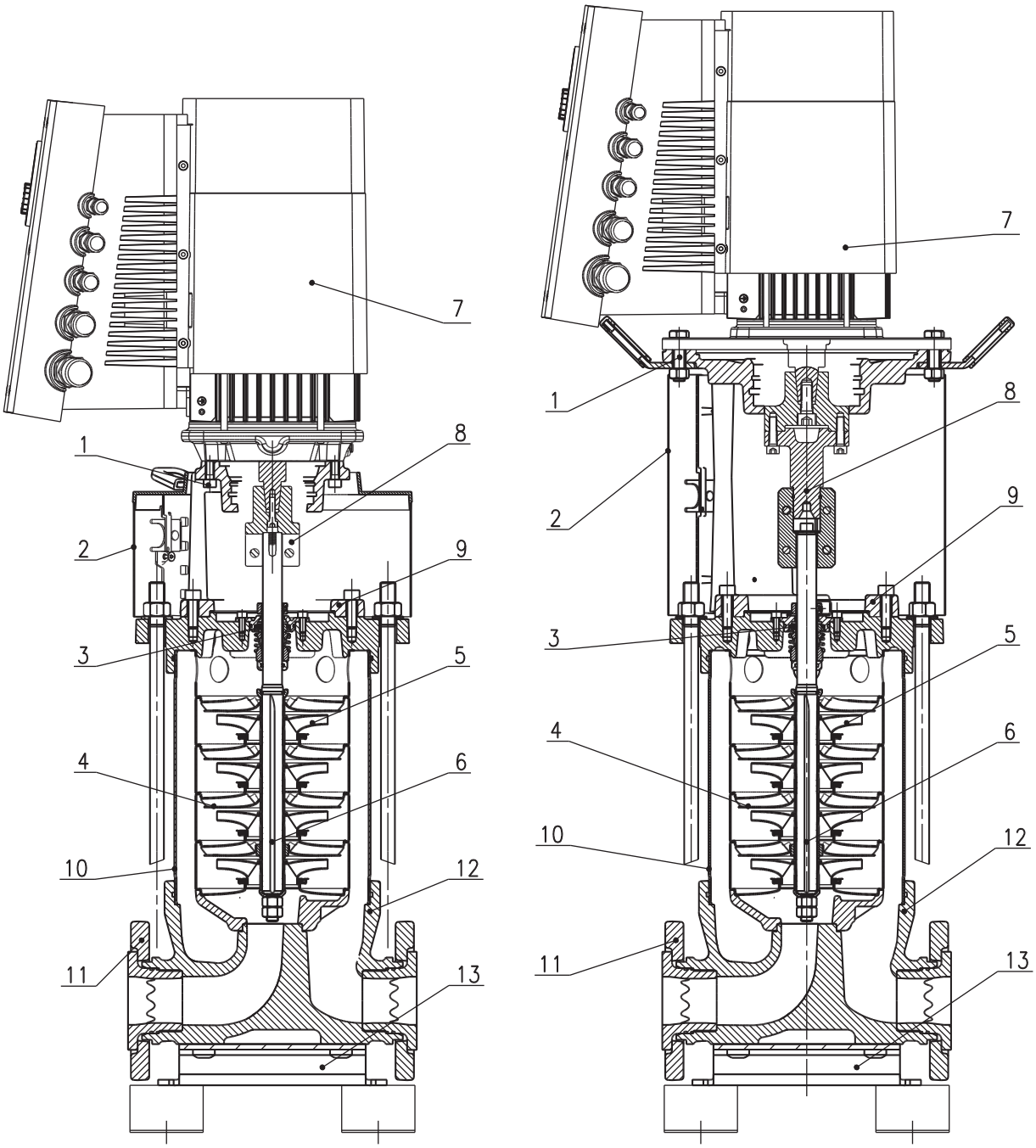


Fig. 2

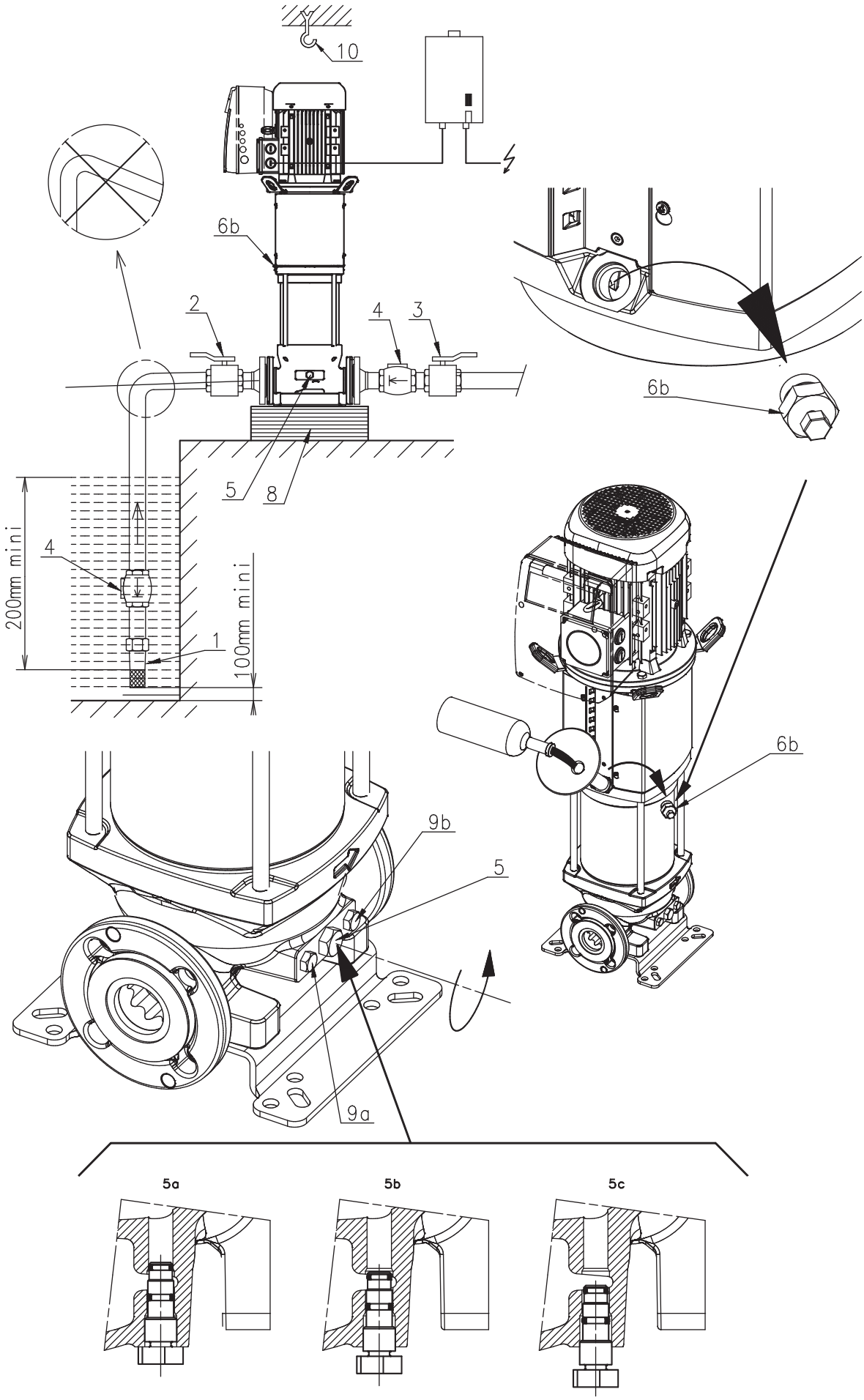


Fig. 3

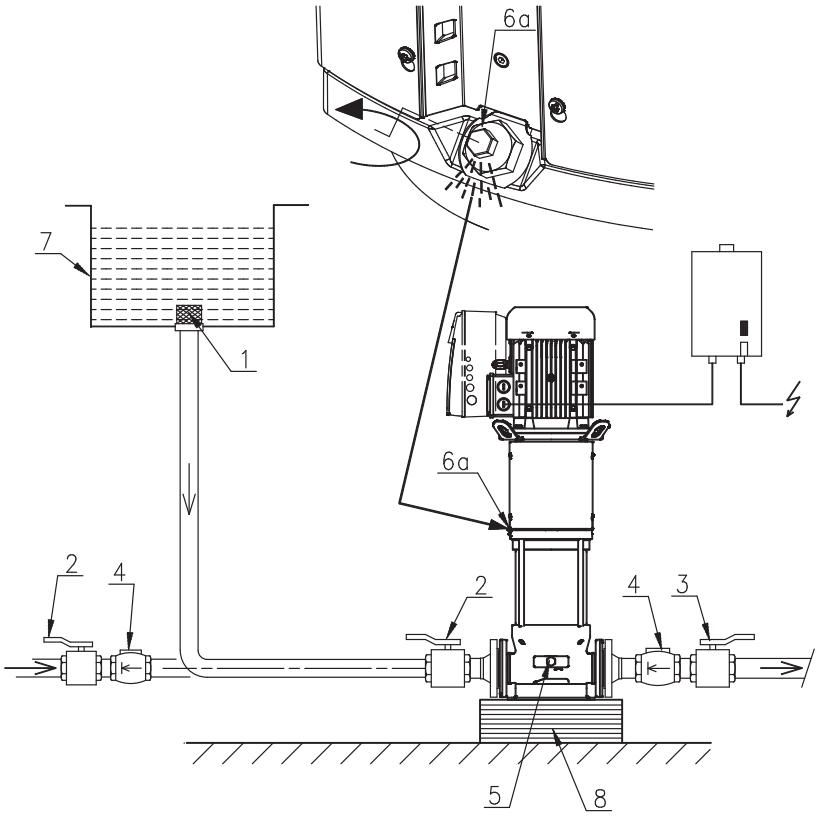


Fig. 4

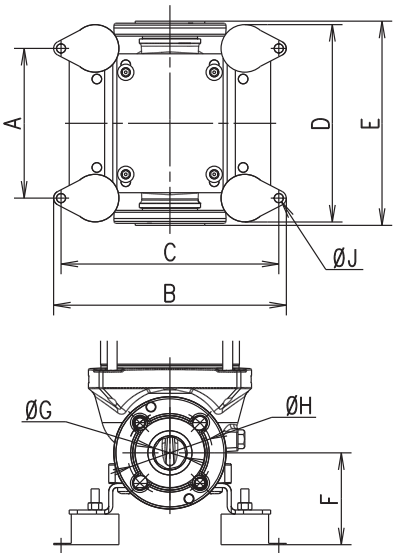


Fig. A1

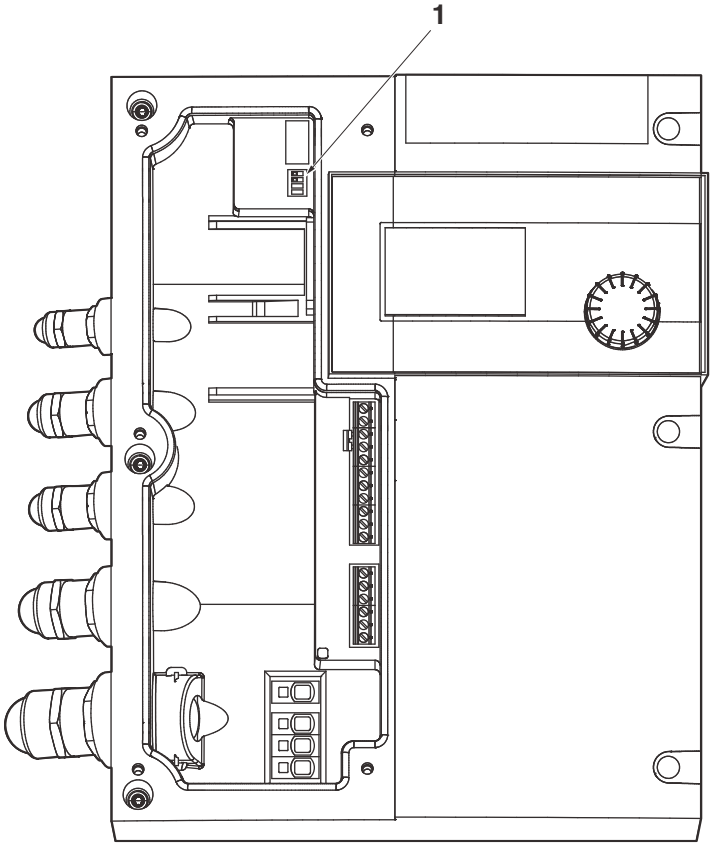


Fig. A2

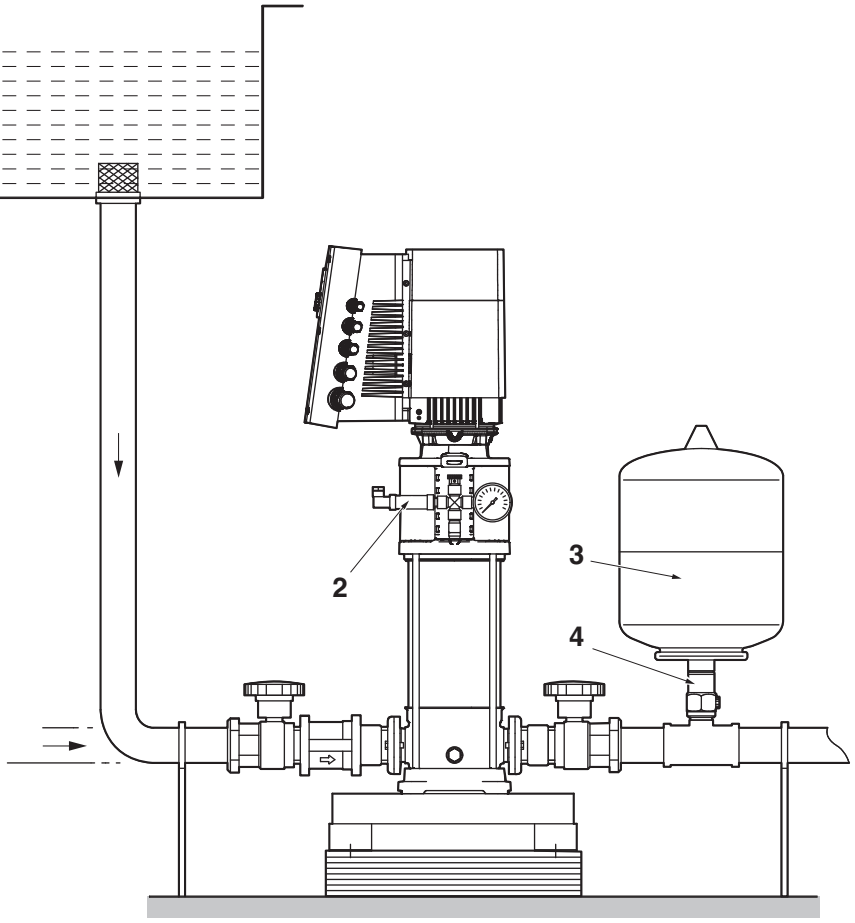


Fig. A3

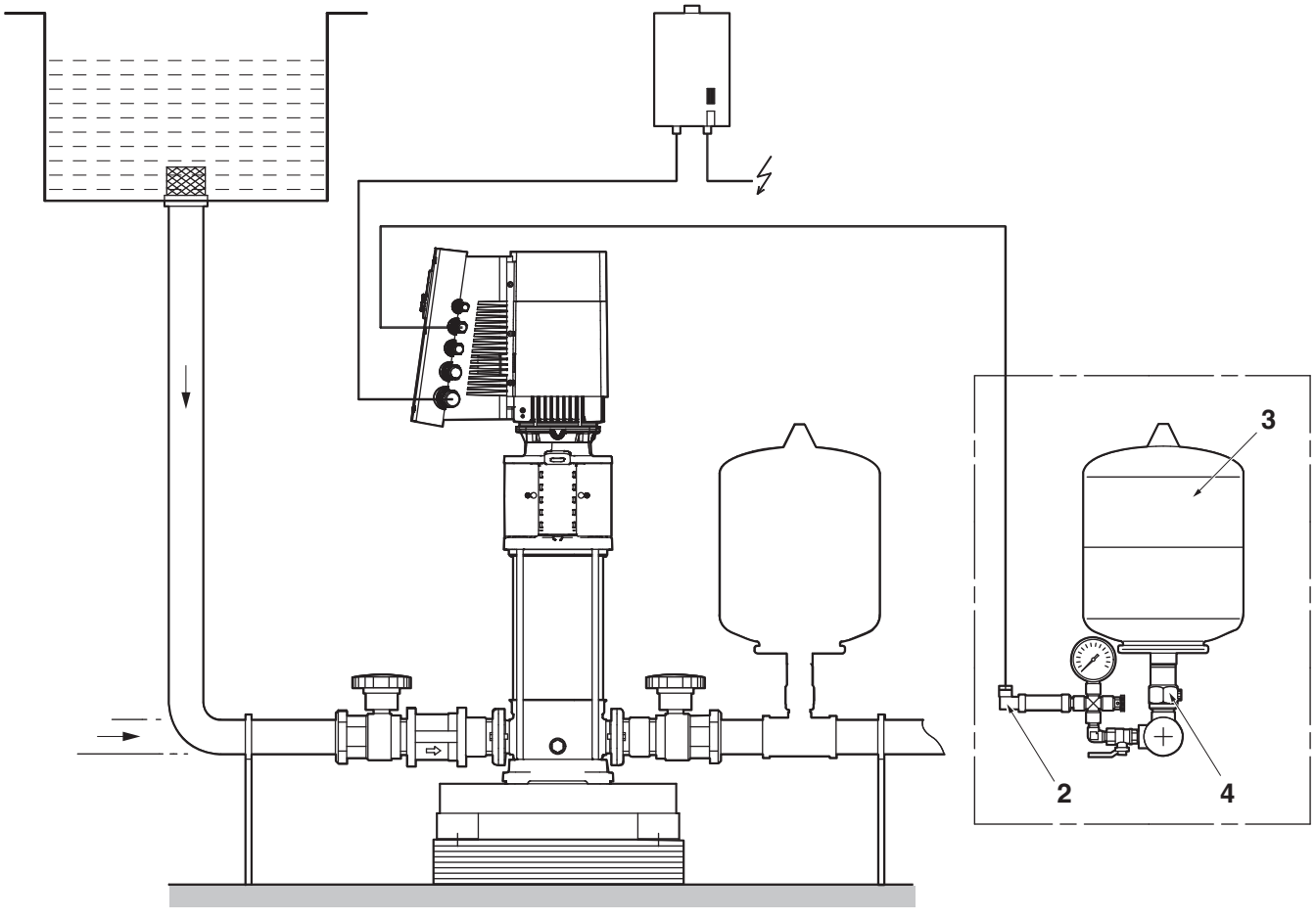


Fig. A4

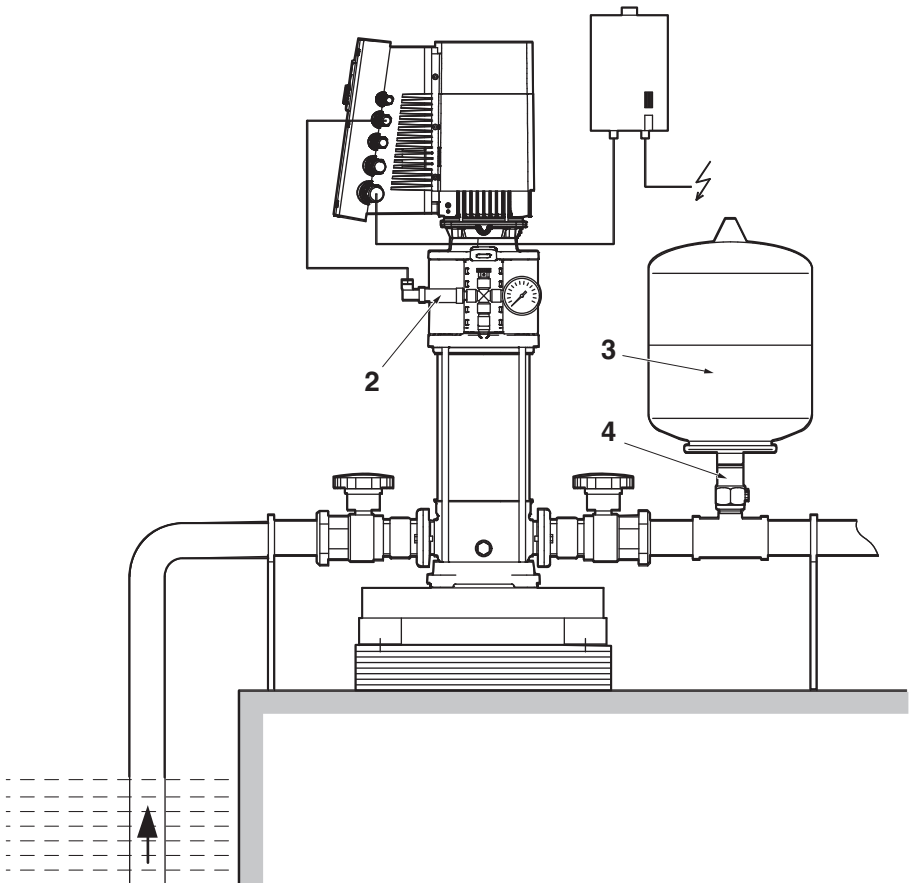


Fig. A5

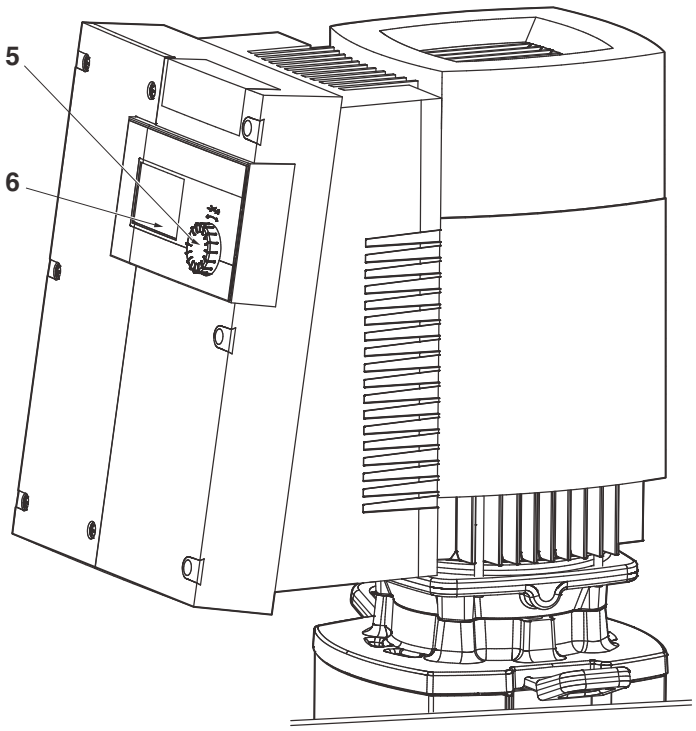
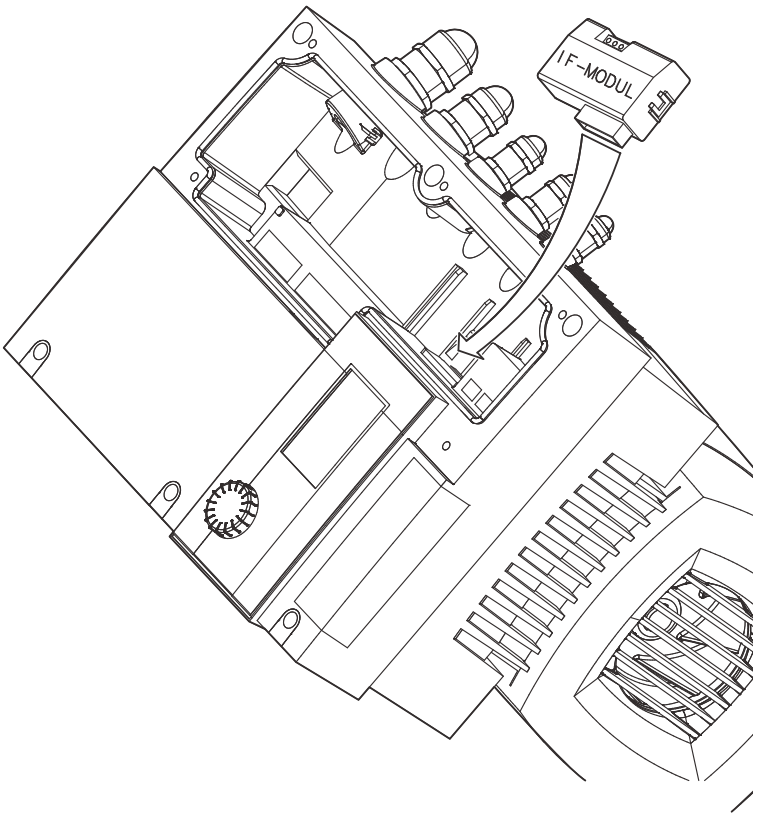


Fig. A6



1. General

1.1 About this document

The language of the original operating instructions is English. All other languages of these instructions are transations of the original operating instructions.

These Installation and Operating Instructions form an integral part of the unit. They must be kept close to the unit and in readiness whenever required. Precise observance of these instructions is a pre-condition for use of the unit for the intended purpose and for its correct operation.

These Installation and Operating Instructions conform to the relevant version of the equipment and the underlying safety standards valid at the time of going to press.

2. Safety

These instructions contain important information which must be followed when installing and operating the pump. It is therefore imperative that they be read by both the installer and the operator before the circulator is installed or started up. Both the general safety instructions in the 'Safety precautions' section and those in subsequent sections indicated by danger symbols should be carefully observed.

2.1 Symbols and signal words used in these operating instructions

Symbols

General Safety symbol.

Hazards from electrical causes.

Signals:

DANGER! Imminently hazardous situation. Will result in death or serious injury if not avoided.

WARNING! The user can be exposed to (severe) injury. 'Warning' refers that harm to the user when the user is neglecting the procedure.

CAUTION! The product is at risk of damage. 'Caution' refers to the product when the user is neglecting the procedures.

NOTE: A notice with useful information for the user in relation to the product. It attends the user to possible problems.

2.2 Qualified Personnel

The personnel installing the pump must have the appropriate qualifications for this work.

2.3 Risks incurred by failure to comply with the safety precautions

Failure to comply with the safety precautions could result in personal injury or damage to the pump or installation. Failure to comply with the safety precautions could invalidate warranty and/or damage claims.

In particular, failure to comply with these safety precautions could increase the possibility of the following risks:

- the failure of important parts of the pump or installation,
- personal injury due to electrical and mechanical causes,
- material damage.

2.4 Safety instructions for the operator

Existing regulations for the prevention of accidents must be observed.

National Electrical Codes, local codes and regulations must be followed.

2.5 Safety instructions for inspection and installation

The operator must ensure that all inspection and installation work is carried out by authorized and qualified specialists who have carefully reviewed these instructions.

Work on the pump/unit must be carried out only with the pump switched off and at complete standstill.

2.6 Unauthorized alterations and manufacture of spare parts

Alterations to the pump or installation may only be carried out with the manufacturer's consent. The use of original spare parts and accessories authorized by the manufacturer will ensure safety. The use of any other parts may invalidate claims invoking the liability of the manufacturer for any consequences.

2.7 Improper use

The operational safety of the pump or installation supplied can only be guaranteed if it is used in accordance with §4 of the operating instructions. The limits given in the catalogue or data sheet must under no circumstances be exceeded.

3. Transport and interim storage

When receiving the material, check that there has been no damage during the transport. If shipping damage has occurred, take all necessary steps with the carrier within the allowed time.

CAUTION! Outside influences may cause damages !

If the delivered material is to be installed later on, store it in a dry place and protect it from impacts and any outside influences (humidity, frost etc.).

Handle the pump carefully so as not to damage the unit prior to installation!

4. Application

This pump's basic function is to pump hot or cold water, water with glycol or other low viscosity fluids that contain no mineral oil, solid or abrasive substances, or materials having long fibres. The manufacturer's approval is required for use to pump corrosive chemicals.

DANGER! Risk of explosion!
Do not use this pump to handle flammable or explosive liquids.

Application areas:
- water distribution and boosting installations
- industrial circulation systems
- process fluids
- cooling water circuits
- fire-fighting and washing stations
- watering installations, etc.

5. Technical data

5.1 Pump designation

Helix EXCEL 4 14 - 1 / 16 / E / KS

- Helix: Verticale multistages pump in-line with high hydraulic efficient
- EXCEL: With high efficiency Drive (motor/converter)
- 4: Nominal flow rate in m^3
- 14: Number of stages
- 1: 1: pump casing in stainless steel 304 + hydraulic in stainless steel 304
  2: pump casing in stainless steel 316L + hydraulic in stainless steel 316L
  3: pump casing in cast iron GJL-250 + hydraulic in stainless steel 304
- 16: 16: Flanges PN16
  25: Flanges PN25
- E: E : O rings EPDM (WRAS/KTW)
  V : O rings VITON
- KS: KS : Cartridge seal + System orientation

5.2 Technical data

- Maximum operating pressure
  - Pump casing: 30 bar
  - Maximum suction pressure: 10 bars
- Temperature range
  - Fluid temperature: - 20°C à + 120°C
    (if full stainless stell): - 30°C à + 120°C
  - Ambient temperature: + 50°C
- Electrical data:
  - Motor efficiency: >IE4
  - Frequency: See motor plating
  - Electrical voltage: 400V (±10%) 50Hz
    380V (±10%) 60Hz
    460V (±10%) 60Hz
- Ambient humidity: < 90 % without condensation
- Acoustic pressure level: ≤ 68 dB(A)
- Electromagnetic compatibility (*)
  - residential emission - 1st environment: EN 61800-3
  - industrial immunity - 2st environment: EN 61800-3
- Section of the power cable (cable equipped of 4 wires):
  - 1,1kW : 4 x 1,5 mm^2 min. 4 x 2,5 mm^2 max.
  - 2,2/3,2/4,2 kW : 4 x 2,5 mm^2 min. 4 x 4 mm^2 max.
  - 5,5/6,5/7,5 kW : 4 x 4 mm^2

(*) In the frequency range between 600 MHz and 1 GHz, the display or the pressure indication in the display might be disturbed in the direct vicinity (< 1 m from the electronic module) of radio transmission installations, transmitters or similar devices working in this frequency range. The functioning of the pump is at no time affected.

Outline and pipe dimensions (Fig. 4).

Types		dimensions (mm)							
		A	B	C	D	E	F	G	H
Helix EXCEL 22		220	342	320	300	300	135	DN50	4xM16
Helix EXCEL 36	PN16	220	342	320	300	320	150	DN65	4xM16
	PN25								8xM16
Helix EXCEL 52		220	342	320	300	365	185	DN80	8xM16

5.3 Scope of Supply

- Multistage pump.
- Installation and operating instructions.
- Counterflange bolts and nuts, gaskets.

5.4 Accessories

Original accessories are available for Helix range.

Designation	article N°
2x round counterflanges in stainless steel 1.4404 (PN16 – DN50)	4038587
2x round counterflanges in stainless steel 1.4404 (PN25 – DN50)	4038589
2x round counterflanges in steel (PN16 – DN50)	4038585
2x round counterflanges in steel (PN25 – DN50)	4038588
2x round counterflanges in stainless steel 1.4404 (PN16 – DN65)	4038592
2x round counterflanges in stainless steel 1.4404 (PN25 – DN65)	4038594
2x round counterflanges in steel (PN16 – DN65)	4038591
2x round counterflanges in steel (PN25 – DN65)	4038593
2x round counterflanges in stainless steel 1.4404 (PN16 – DN80)	4073797
2x round counterflanges in stainless steel 1.4404 (PN25 – DN80)	4073799
2x round counterflanges in steel (PN16 – DN80)	4072534
2x round counterflanges in steel (PN25 – DN80)	4072536
By-pass kit 25 bar	4124994
By-pass kit (with Manometer 25 bar)	4124995

The accessories must be ordered separatly.

- IF-Module PLR for connecting to PLR/interface converter.
- IF-Module LON for connection to the LONWORKS network (Fig. A6).
- Non-return valves (with nose or spring ring when operating in constant pressure).
- protection kit against dry-running.
- sensor kit for pressure regulation (accuracy: ≤ 1 % ; use between 30 % and 100 % of the reading range).

Use of new accessories is recommended.

6. Description and function

6.1 Description of the product

Fig. 1

1 - Motor connection bolt
2 - Coupling gard
3 - Mechanical seal
4 - Hydraulic stage casing
5 - Impeller
6 - Pump shaft
7 - Motor
8 - Coupling
9 - Lantern
10 -Tube liner
11 -Flange
12 -Pump housing
13 -Base plate

Fig. 2 and 3

1 - Strainer
2 - Pump suction valve
3 - Pump discharge valve
4 - Check valve
5 - Drain + priming plug
6 - Air bleed screw + Filling plug
7 - Tank
8 - Foundation block
10 -Lifting hook

Fig. A1, A2, A3 et A4

1 - Block of switches
2 - Pressure sensor
3 - Tank
4 - Insulation valve of the tank

6.2 Design of product

- Helix pumps are vertical high pressure non-self priming pumps with inline connection based on multistage design.
- Helix pumps combine use of both high efficiency hydraulics and motors (if any).
- All metallic parts in contact with water are made of stainless steel.
- For aggressive fluid, special versions exist with stainless steel only for all wetted components.
- A cartridge seal is used as standard for all Helix range in order to ease maintenance.
- In addition, for heaviest motor (>40 kgs), a specific coupling allows to change this seal without removing the motor.
- Helix lantern design integrates an additional ball bearing that withstand hydraulic axial forces: this allows the pump to use a fully standard motor.
- Special handling devices are integrated in order to facilitate pump installation.

7. Installation and electrical connection

7.1 Commissioning

Unpack the pump and dispose of the packaging in an environmentally-responsible manner.

7.2 Installation

The pump must be installed in a dry, well-ventilated and frost-free place.

CAUTION! Possible damage of the pump!
Dirt and solder drops in to the pump body can effect the pump operation.
• It is recommended that any welding and soldering work be done before installing the pump.
• Thoroughly flush the system out before installing the pump.

- The pump must be installed in an easily accessible position to facilitate inspection or replacement.
- For heavy pumps, install a lifting hook (Fig. 2, item 10) above the pump in order to ease its disassembly.
- The motor is provided with condensate hole (under the motor), filled in factory by caps to guarantee the IP55 protection. For a use in technical climatological or refrigerated, these caps must be removed to allow the evacuation of the water of condensation.

WARNING! Risk of accident by hot surfaces!
The pump must be positioned so that someone cannot come into contact with the hot pump surfaces while operation.

- Install the pump in a dry place protected from frost, on a flat concrete block using appropriate accessoiries. If possible, use an insulating mate-

rial under the concrete block (cork or reinforced rubber) to avoid any noise and vibration transmission into the installation.

WARNING! Risk of fall!
The pump must be correctly screwed to the ground.

- Place the pump where it will be easy to reach, to facilitate inspection and removal work. The pump must always be installed perfectly upright on a sufficiently heavy concrete base.

CAUTION! Risk of parts inside the pump!
Take care to remove closure members of the pump housing before installation.

NOTE: Each pumps could be tested regarding hydraulic features in factory, some water may remain in them. It is recommended for hygienic purposes, to carry out a rinsing of the pump before any using with potable water supply.

- The installation and connection dimensions are given § 5.2.
- Lift the pump carefully by using the integrated hooks rings, if necessary with a hoist and suitable slings according to the current hoist guidelines.

WARNING! Risk of fall!
Take care to pump fixations especially for the highest pumps whose centre of gravity may lead to risk during pump handling.

WARNING! Risk of fall!
Use integrated rings only if they are not damaged (no corrosion ...). Replace them if needed.

WARNING! Risk of fall!
The pump must be never carried by using motor hooks: these are only designed to lift the motor alone.

7.3 Pipe connection

- Connect the pump to the pipes by using only counterflange accessories supplied with the product.

CAUTION!
Tightening of screws or bolts must not exceed 10 daN.m.
Use of impact wrench is prohibited.

- The circulation sense of the fluid is indicated on the identification label of the pump.
- Pump must be installed in such a way that it is not stressed by the pipework. The pipes must be attached so that the pump does not bear their weight.
- It is recommended that isolation valves be installed on the suction and discharge side of the pump.
- Use of expansion joints may mitigate noise and vibration of the pump.
- As regards the nominal cross-section of the suction pipe, we recommend a cross-section at least as large as that of the pump connection.
- A check valve could be placed on the discharge pipe in order to protect the pump against hammer shock.
- For direct connection to a public drinking water system, the suction pipe must also have a check valve and a guard valve.
- For indirect connection via a tank, the suction pipe must have a strainer to keep any impurities out of the pump and a check valve.

7.4 Motor connection for bare-shaft pump (without motor)

- Remove coupling guards.

NOTE: Coupling guards can be removed without entirely unscrewing screws.

- Install the motor on the pump by using screws (FT lantern size – see product designation) or bolts, nuts and handling devices (FF lantern size – see product designation) provided with the pump: check motor power and dimension in Wilo catalogue.

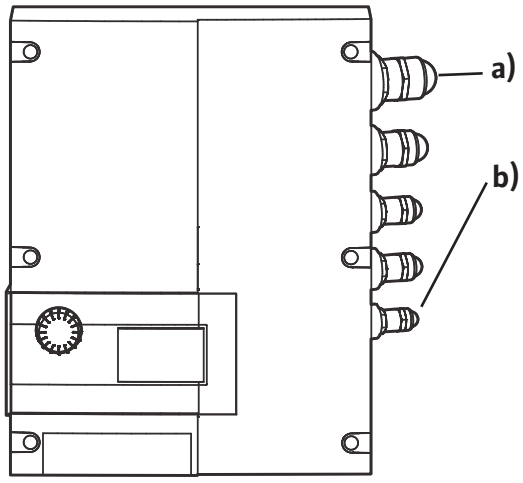
NOTE: Depending on fluid characteristics, motor power could be modified. Contact Wilo Customer Services if needed.

- Close the coupling guards by screwing all screws provided with the pump.

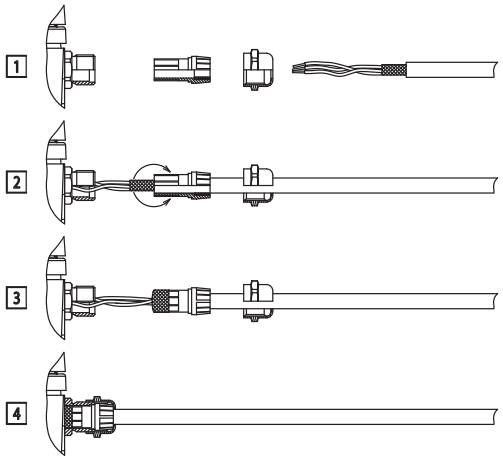
7.5 Electrical connections

WARNING! Electrical shock hazard!
Dangers caused by electrical energy must be excluded.

- Electrical work by a qualified electrician only!
- All electrical connections must be performed after the electrical supply has been switched off and secured against unauthorized switching.
- For safe installation and operation a proper grounding of the pump to the power supply's grounding terminals is required.



- (Pos. a) The power cable (3 phases + earth) must be fed through the cable gland M25. Nonallocated cable glands must remain sealed with the plugs provided by the manufacturer (see below).
- (Pos. b) The sensor, external setpoint and [aux.]/[ext.off] input cable must be necessarily screened and must be inserted into the gland M12 or M16. The cable glands of the converter are adapted to the assembly with a shielding braid (see below).



- The electric characteristics (frequency, voltage, nominal current) of the motor-converter are mentioned on the pump identification sticker. Check that the motor-converter complies with the mains supply used.
- The electric protection of the motor is integrated into the converter. The parameters take into account the characteristics of the pump and must ensure its protection and the one of the motor.
- In case of impedance between earth and neutral point, install a protection before motor-converter.
- Provide a fuse-disconnecting switch (type gF) to protect the mains installation.

NOTE: If you have to install a differential circuit-breaker for users protection, it must have a delay effect. Adjust it according to the current mentioned on the pump identification sticker.

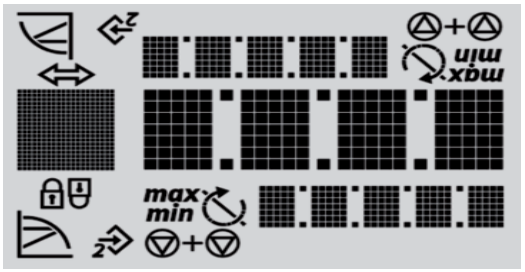
NOTE: This pump is equipped with a frequency converter and may not be protected by a residual-current-operated protection switch. Frequency converters can impair the function of residual-current-operated protection circuits.

Exception: Residual-current-operated protection switches which have a selective universal-current-sensitive design are allowed.

- Labelling: RCD 
- Trigger current: > 30 mA.

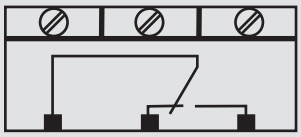
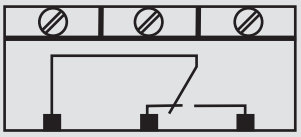
- Use power cables conforming to standards.
- Network protection: maximum acceptable 25 A
- Trigger characteristic of the fuses: B

- As soon as the power supply of the converter has been activated, a 2 second display test is carried out, where all characters on the display are shown (Fig. A5, item 6).

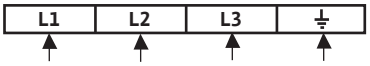
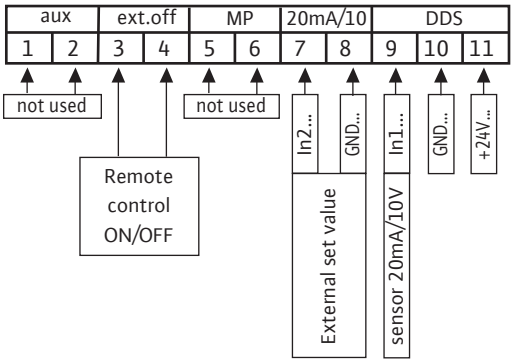


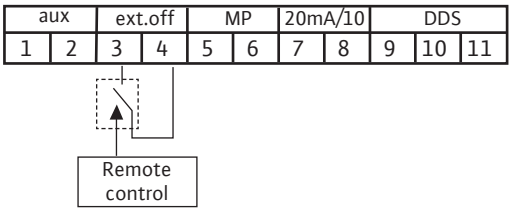
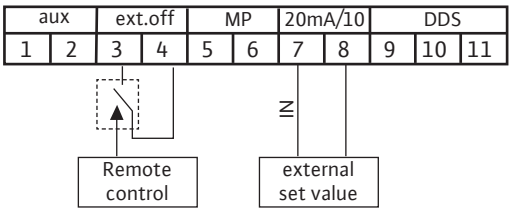
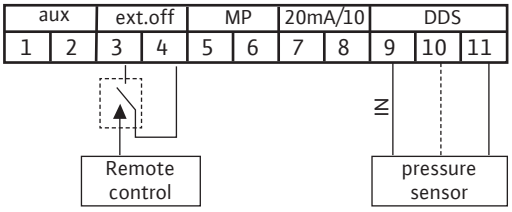
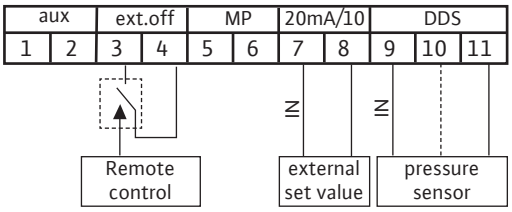
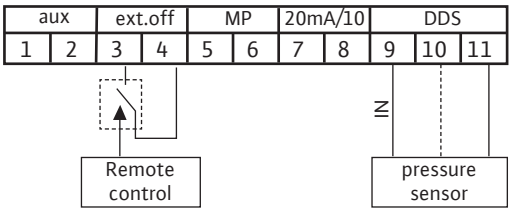
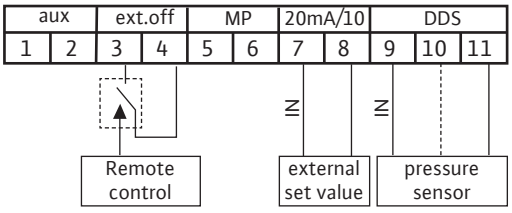
Connection terminal allocation

- Loosen the screws and remove the converter cover.

Designation	Allocation	Notes
L1, L2, L3	Mains connection voltage	Three-phase current 3 ~ IEC38
PE	Earth connection	
IN1	Sensor input	Type of signal: Voltage (0 – 10 V, 2 – 10 V) Input resistance: Ri ≥ 10 kΩ Type of signal: currrent (0 – 20 mA, 4 – 20 mA) Input resistance: R_B = 500 Ω Can be configured in the « Service » menu <5.3.0.0>
IN2	External setpoint input	Type of signal: Voltage (0 – 10 V, 2 – 10 V) Input resistance: Ri ≥ 10 kΩ Type of signal: currrent (0 – 20 mA, 4 – 20 mA) Input resistance: R_B = 500 Ω Can be configured in the « Service » menu <5.4.0.0>
GND (x2)	Ground connections	For both inputs IN1 and IN2
+ 24 V	DC voltage for sensor	Load max. : 60 mA The voltage is short-circuit proof
Ext. off	Control input (ON/OFF) « Overriding Off » for external potential-free switch	The pump can be switched on/off via the external potential-free contact. In systems with a high switching frequency (> 20 switch-ons/offs/day), switching on/off is to be done via « ext. off ».
SBM	« Available transfer » relay 	In normal operating, the relay is activated when the pump runs or is in a position to run. When a first defect appears or by main supply cutoff (the pump stops), the relay is deactiveted. Information is given to the control box, regarding the availability of the pump, even temporarily. Can be configured in the « Service » menu <5.7.6.0> Contact load: minimum: 12 V DC, 10 mA maximum: 250 V AC, 1 A
SSM	« Failures transfer » relay 	After a series of detection (from 1 to 6 according to significance) of the same type of defect, the pump stops and this relay is activated (up to manual action). Contact load: minimum: 12 V DC, 10 mA maximum: 250 V AC, 1 A
PLR	Connection terminals of the interface PLR	The optional IF-Module PLR is to be pushed into the multiplug in the connection area of the converter. The connection is twist-proof.
LON	Connection terminals of the interface LON	The optional IF-Module LON is to be pushed into the multiplug in the connection area of the converter. The connection is twist-proof.

NOTE: The terminals IN1, IN2, GND and Ext. Off meet the requirement for «safe isolation» (in acc. with EN61800-5-1) to the mains terminals, as well as to the SBM and SSM terminals (and vice versa).

Network connection	Power terminals
Connect the 4 wires cable on the power terminals (phases + earth).	
Connection of inputs / outputs	**Inputs / outputs terminals**
• The sensor, external set value and [ext.off] inputs cable must be necessarily screened.	
• The remote control allows the switching On or Off of the pump (free contact), this function has priority on the others. • This remote control can be removed by shunting the terminals (3 and 4).	Example: Float switch, pressure gauge for dry-running...

« Speed control » connection	Connection of inputs / outputs
Setting of the frequency by hand:	
Setting of the frequency by external control:	
« Constant pressure » connection	
Regulation through a pressure sensor: • 2 wires ([20mA/10V] / +24V) • 3 wires ([20mA/10V] / 0V / +24V) and setting point by the encoder	
Regulation through a pressure sensor: • 2 wires ([20mA/10V] / +24V) • 3 wires ([20mA/10V] / 0V / +24V) and setting point by the external set value	
« P.I.D. control » connection	
Regulation through a sensor (temperature, flow...): • 2 wires ([20mA/10V] / +24V) • 3 wires ([20mA/10V] / 0V / +24V) and setting point by the encoder	
Regulation through a sensor (temperature, flow...): • 2 wires ([20mA/10V] / +24V) • 3 wires ([20mA/10V] / 0V / +24V) and setting point by the external set value	

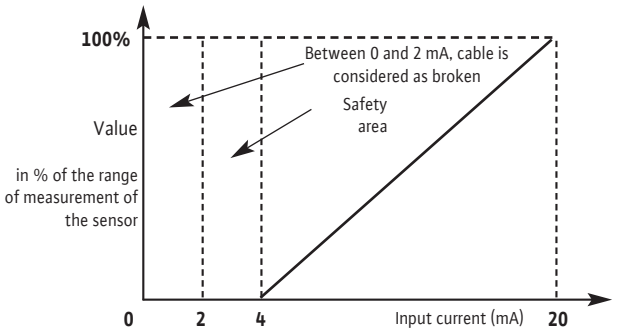
DANGER! Danger of death!
Contact voltage hazardous due to the discharge of the converter capacitors.

- Before any intervention on the converter, wait for 5 minutes after disconnecting of the supply voltage.
- Check whether all electrical connections and contacts are voltage-free.
- Check the righ allocation of the connection terminals.
- Check the right earth connection of the pump and installation.

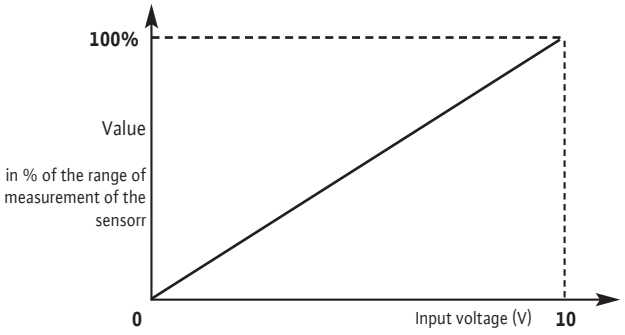
Control laws

IN1 : Input signal in « Constant pressure » and « P.I.D. control » mode

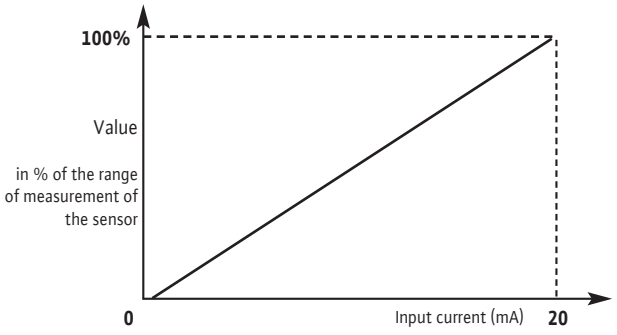
Sensor signal 4-20mA



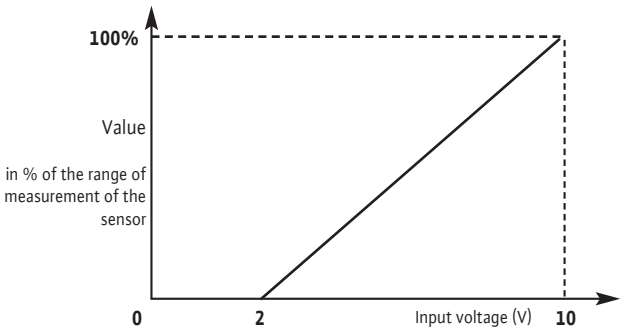
Sensor signal 0-10V



Sensor signal 0-20mA

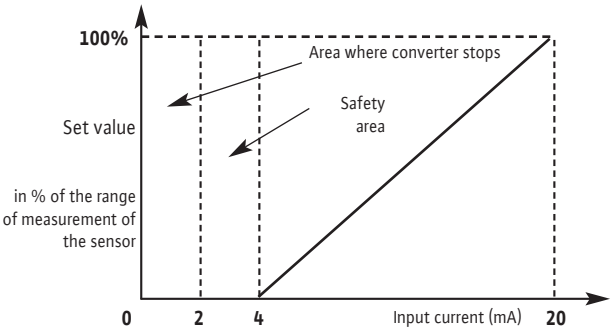


Sensor signal 2-10V

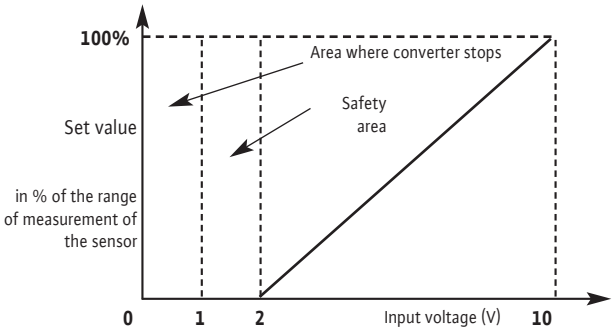


IN2 : Input of the external set value control in « Constant pressure » and « P.I.D. control » mode

Set value 4–20mA

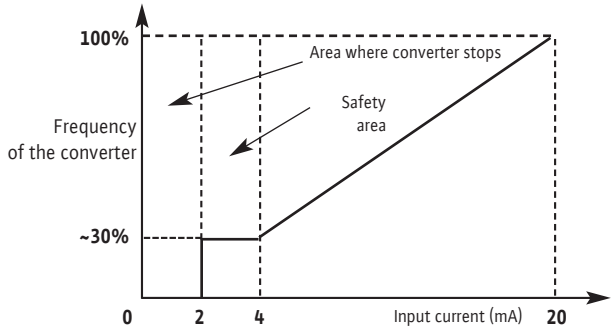


Set value 0–10V

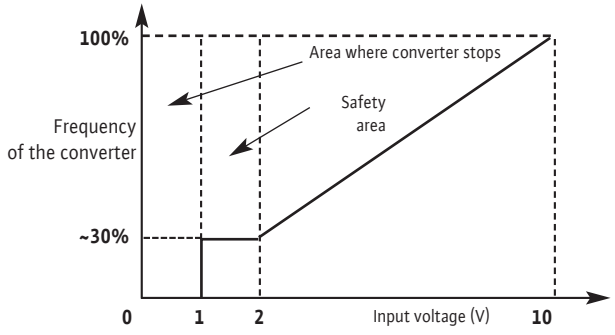


IN2 : Input of external frequency control in « Speed control » mode

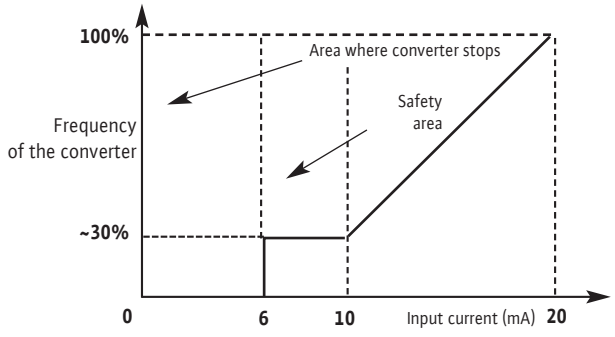
External Signal 0–20mA



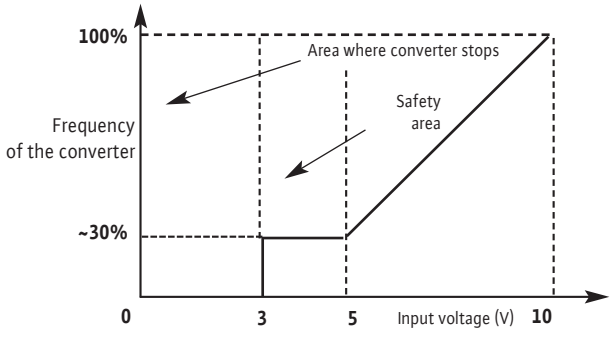
External Signal 0–10V



External Signal 4–20mA



External Signal 2–10V



8. Start up

8.1 System filling – Venting

CAUTION! Possible damage of the pump!
Never operate the pump dry.
The system must be filled before starting the pump.

8.1.1 Air evacuation process – Pump with sufficient supply pressure (Fig. 3)

- Close the two guard valves (2, 3).
- Unscrew the air bleed screw from filling plug (6a).
- Slowly open the guard valve on the suction side (2).
- Retighten the air-bleed screw when air escapes at the air bleed screw and the pumped liquid flows (6a).

WARNING!
When the pumped liquid is hot and the pressure high, the stream escaping at the air bleed screw may cause burns or other injuries.

- Open the guard valve on the suction side completely (2).
- Start the pump and check if direction of rotation matches the one printed on pump plating.

CAUTION! Possible damage of the pump!
A wrong direction of rotation will cause bad pump performances and possibly coupling damage.

- Open the guard valve on the discharge side (3).

8.1.2 Air evacuation process – Pump in suction (Fig. 2)

- Close the guard valve on the discharge side (3). Open the guard valve on the suction side (2).
- Remove the filling plug (6b).
- Open the drain-priming plug not completely (5b).
- Fill the pump and the suction pipe with water.
- Make sure that there is no air in the pump and in the suction pipe: refilling until complete removal of air is required.
- Close the filling plug with air bleed screw (6b).
- Start the pump and check if direction of rotation matches the one printed on pump plating.

CAUTION! Possible damage of the pump!
A wrong direction of rotation will cause bad pump performances and possibly coupling damage.

- Open the guard valve on the discharge side a little (3).
- Unscrew the air bleed screw from filling plug for air venting (6a).
- Retighten the air-bleed screw when air escapes at the air bleed screw and the pumped liquid flows.

WARNING! Risk of burning!
When the pumped liquid is hot and the pressure high, the stream escaping at the air bleed screw may cause burns or other injuries.

- Open the guard valve on the discharge side completely (3).
- Close the drain-priming plug (5a).

8.2 Starting up

CAUTION! Possible damage of the pump!
The pump must not operate at zero flow (closed discharge valve).

WARNING! Risk of injury!
When the pump runs, coupling guards must be in place, tightened with all appropriate screws.

WARNING! Important noise!
Noise emitted by most powerful pumps could be very high : protection must be used in case of long stay close to the pump.

WARNING!
Installation must be designed in order that no one could be hurt in case of fluid leakage (mechanical seal failure ...).

8.3 Operation with frequency converter

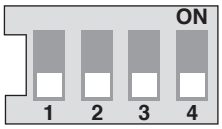
8.3.1 Control elements

The converter operates using the following control elements:

Encoder (Fig. A5, item 5)

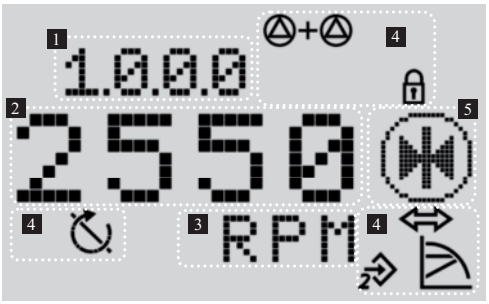
- The selection of a new parameter is done only with a simple rotation, « + » on right and « – » on left.
- A short impulse on the encoder validates this new setting.

Switches



- This converter has got a block with two switches with two positions each (Fig. A1, item 1):
- Switch 1 allows to change the « OPERATION » mode [switch 1–>OFF] to « SERVICE » mode [switch 1–>ON] and vice versa. The « OPERATION » position allows the selected mode to run and hinders the access to parameters input (normal operating). The « SERVICE » position is used to enter the parameters of the different operations.
- Switch 2 is for activating or deactivating the « Access lock », see chapter 8.5.3.
- The switch 3 is not used.
- The switch 4 is not used.

8.3.2 Display structure (Fig. A5, Item 6)



Pos.	Description
1	Menu number
2	Value display
3	Units display
4	Standard symbols
5	Icon display

8.3.3 Description of standard symbols

Symbol	Description
	Operating in « Speed control » mode.
	Operating in « Constant pressure » or « P.I.D. control » mode.
	Input IN2 activated (external setpoint).
	Access locked. When this symbol appears, current settings or measurements cannot be changed. Information displayed is only in reading.
	BMS (building management system) PLR or LON is active.
	Pump runs.
	Pump stops.

8.3.4 Display

Display status page

- The status page is shown as the standard view on the display.
  The currently set setpoint is displayed.
  Basic settings are displayed using symbols.

Example of display status page

NOTE: If the encoder is not activated within 30 seconds in all menus, the display returns to the status page and the change is not registered.

Navigation element

- The arborescence of the menu allows to call the functions of the converter. A number is attributed to every menu and submenu.
- The rotation of the encoder allows the scrolling of a same menu level (example 4000–>5000).
- Any blinking elements (value, menu number, symbol or icon) allow the choice of a new value, a new menu number or a new function.

Symbol	Description
	When the arrow appears: • An impulse on the encoder allows the access to the submenu (example 4000->4100).
	When the arrow « return »” appears: • An impulse on the encoder allows the access to the higher menu (example 4150->4100).

8.3.5 Menu description

List (Fig. A7)

<1.0.0.0>

Position	Switch 1	Description
OPERATION	OFF	Adjustment of the setting point, possible for both cases.
SERVICE	ON	

- To adjust the setting point, turn the encoder. The display changes to menu <1.0.0.0> and the set-point begins to blink. The new rotation (or a new action on arrows) allows increasing or decreasing of the value.
- To confirm the change, give an impulse on the encoder, the display returns to the status page.

<2.0.0.0>

Position	Switch 1	Description
OPERATION	OFF	Only on reading for operating modes.
SERVICE	ON	Setting for operating modes.

- The operating modes are the « Speed control », the « Constant pressure » and the « P.I.D. control ».

<3.0.0.0>

Position	Switch 1	Description
OPERATION	OFF	Setting ON / OFF of the pump.
SERVICE	ON	

<4.0.0.0>

Position	Switch 1	Description
OPERATION	OFF	Only reading for the « Information » menu.
SERVICE	ON	

- The « Information » menu displays measuring, device and operating data, see, (Fig. A8).

<5.0.0.0>

Position	Switch 1	Description
OPERATION	OFF	Only reading for the « Service » menu.
SERVICE	ON	Setting for « Service » menu.

- The « Service » menu allows to get access to the converter parameter setting.

<6.0.0.0>

Position	Switch 1	Description
OPERATION	OFF	Display of the error page.
SERVICE	ON	

- If one or several defects arise, the page of defects appears.
  The letter « E » followed by three digit code appears (chapter 10).

<7.0.0.0>

Position	Switch 1	Description
OPERATION	OFF	Display of « Access lock » symbol.
SERVICE	ON	

- The « Access lock » is available when the switch 2 is in the ON position.

CAUTION! Material damage!
Inadequate setting changes can lead to pump operation defects, which can lead to material damage on the pump or installation.
- Settings in « SERVICE » mode should only be made during commissioning and only by skilled technicians.

Fig. A7

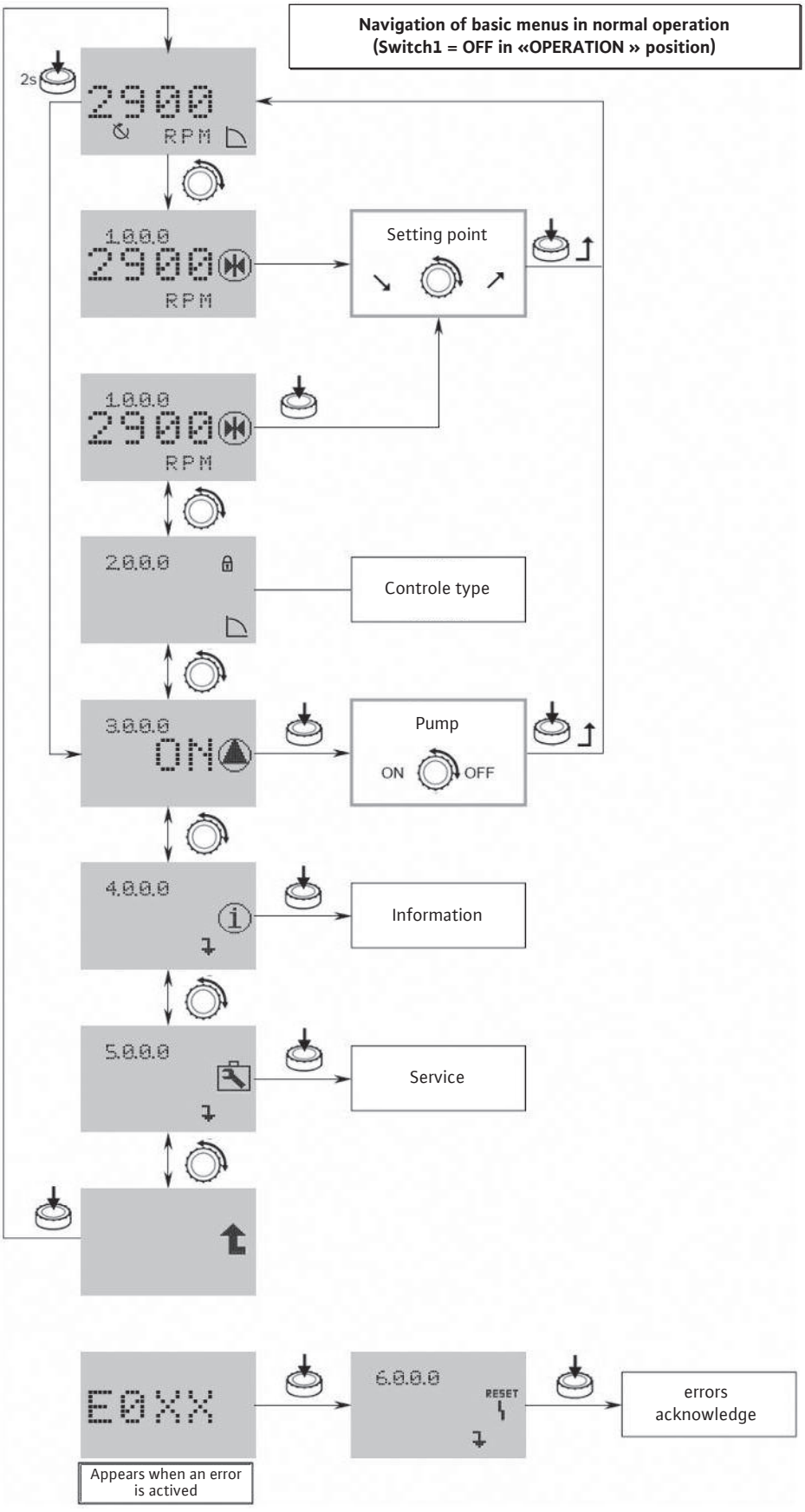
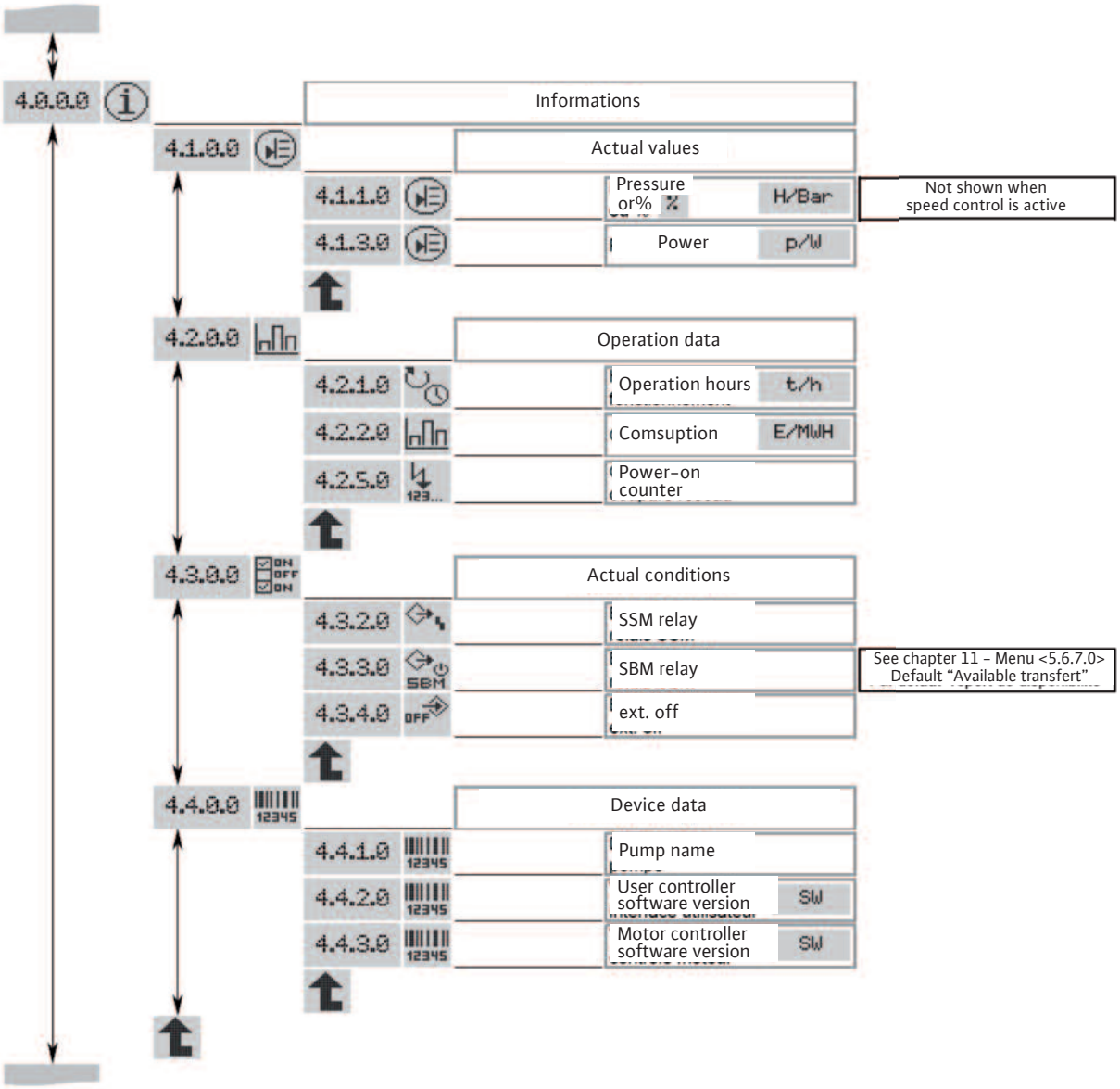

Navigation of basic menus in normal operation
(Switch1 = OFF in «OPERATION » position)
2s
2900
RPM
1.0.0.0
2900
RPM
Setting point
1.0.0.0
2900
RPM
2.0.0.0
Controle type
3.0.0.0
ON
Pump
ON
OFF
4.0.0.0
Information
5.0.0.0
Service
E0XX
6.0.0.0
RESET
errors
acknowledge
Appears when an error
is actived

Fig. A8

Navigation of menu <4.0.0.0> « Informations »

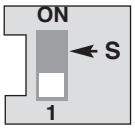


Parametrization of <2.0.0.0> and <5.0.0.0> menu

In « SERVICE » mode, the menu parameters <2.0.0.0> and <5.0.0.0> can be modified.

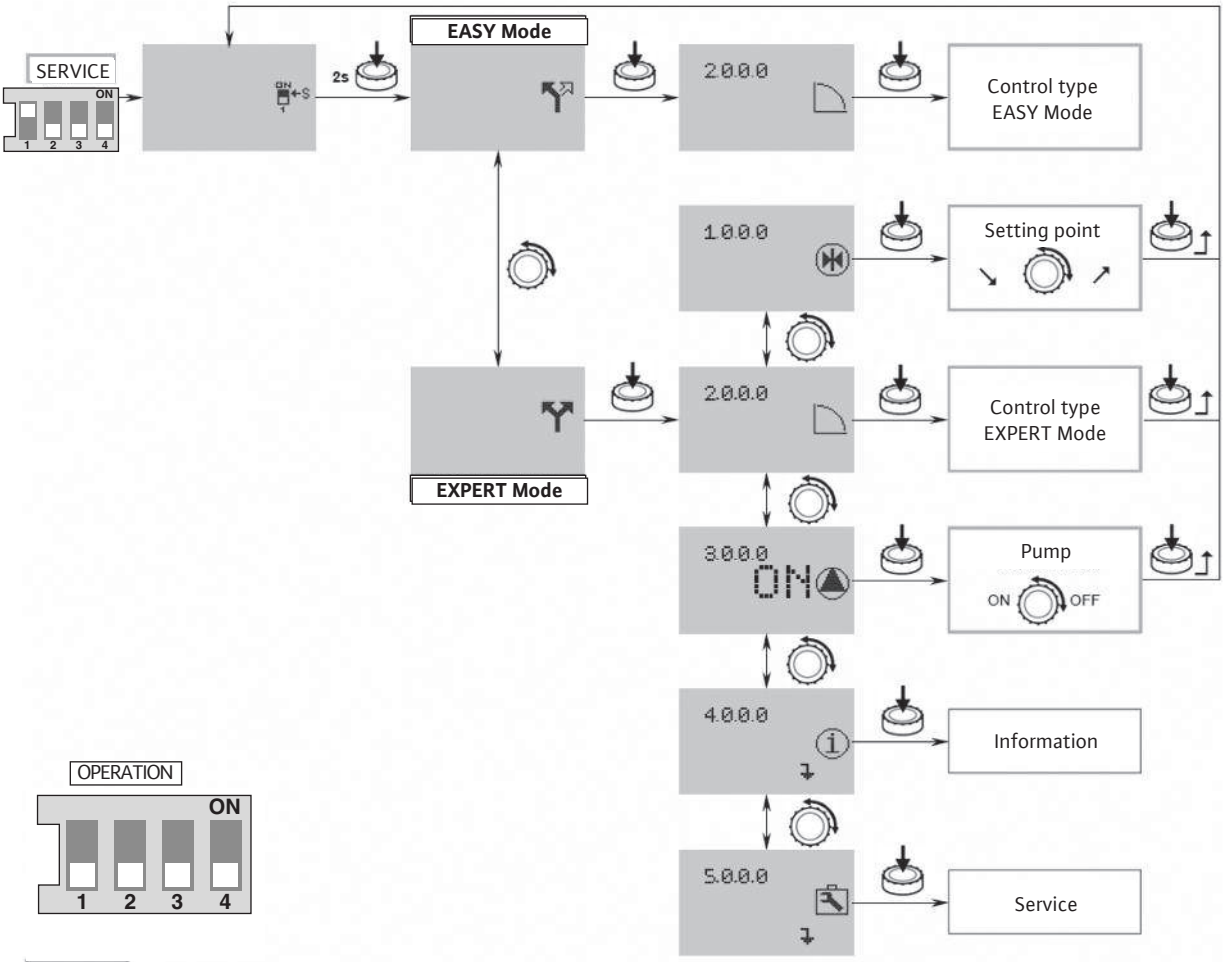
Two setting modes exist:

- The « **Easy Mode** » : fast mode to get access to the 3 operating modes.
- The « **Expert Mode** » : mode to get access to all parameters.



- Put the switch 1 on ON position (Fig. A1, rep. 1).
- The « SERVICE » mode is activated.
  This symbol blinks on the status page of the display (Fig. A9).

Fig. A9



Easy Mode

- Press the encoder during 2 secondes. The symbol « Easy Mode » appears (Fig. A9).
- Press the encoder to validate this choice. The display changes to menu number <2.0.0.0>.

  The « Easy Mode » allows, quickly, the setting of the 3 operating modes (Fig. A10)
- Speed control »
- « Constant pressure »
- « P.I.D. control »
- After setting, put the switch 1 on OFF position (Fig. A1, item 1).

Expert Mode

- Press the encoder during 2 secondes. Go to the expert mode, the symbol « Expert Mode » appears (Fig. 14).
- Press the encoder to validate this choice. The display changes to menu number <2.0.0.0>.

  At first, select the operating mode in menu <2.0.0.0>.
- « Speed control »
- « Constant pressure »
- « P.I.D. control »

  Then in menu <5.0.0.0>, the expert mode gives access to all the converter parameters (Fig. A11).
- After setting, put the switch 1 on OFF position (Fig. A1, item 1).

Fig. A10

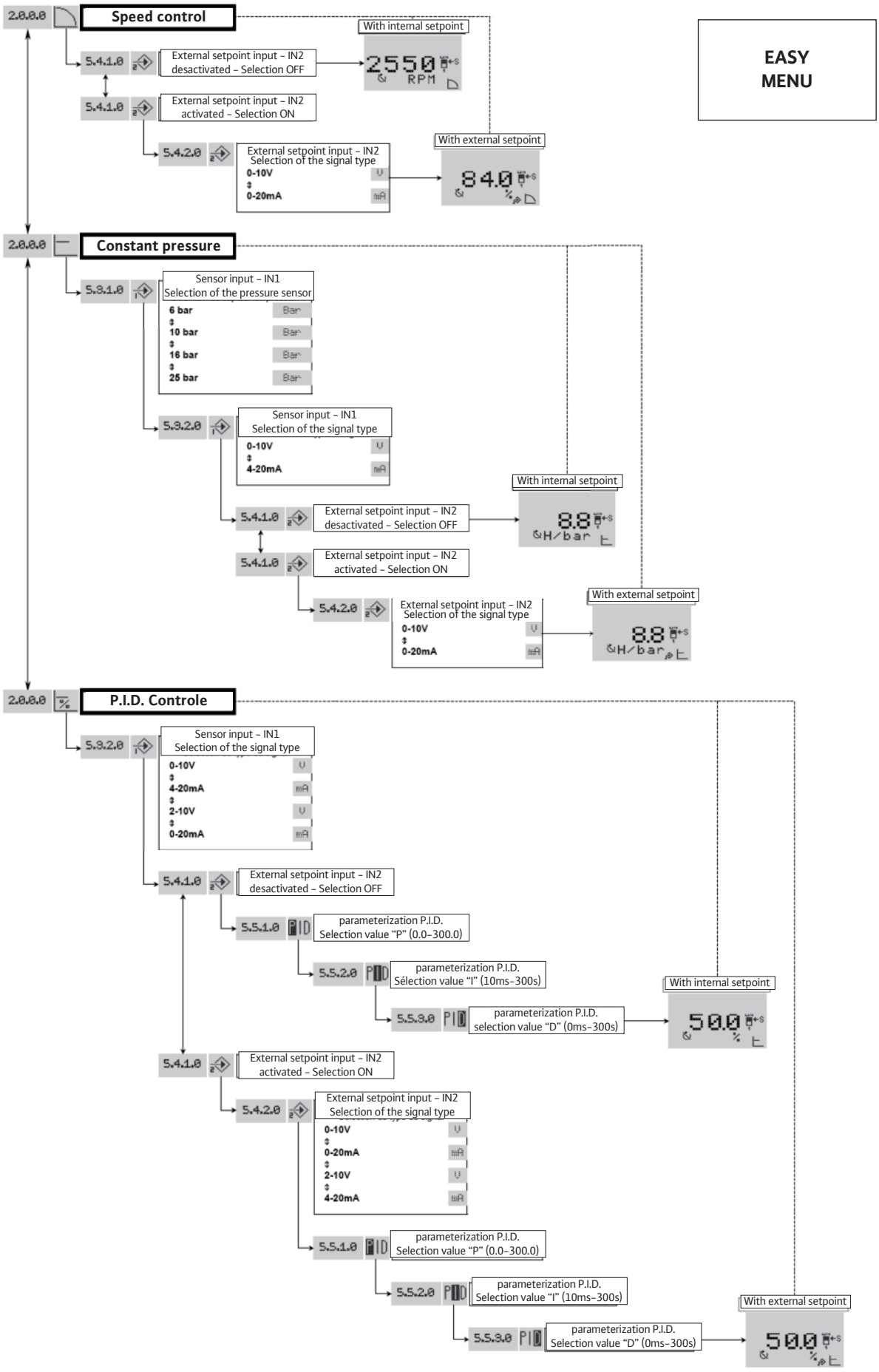
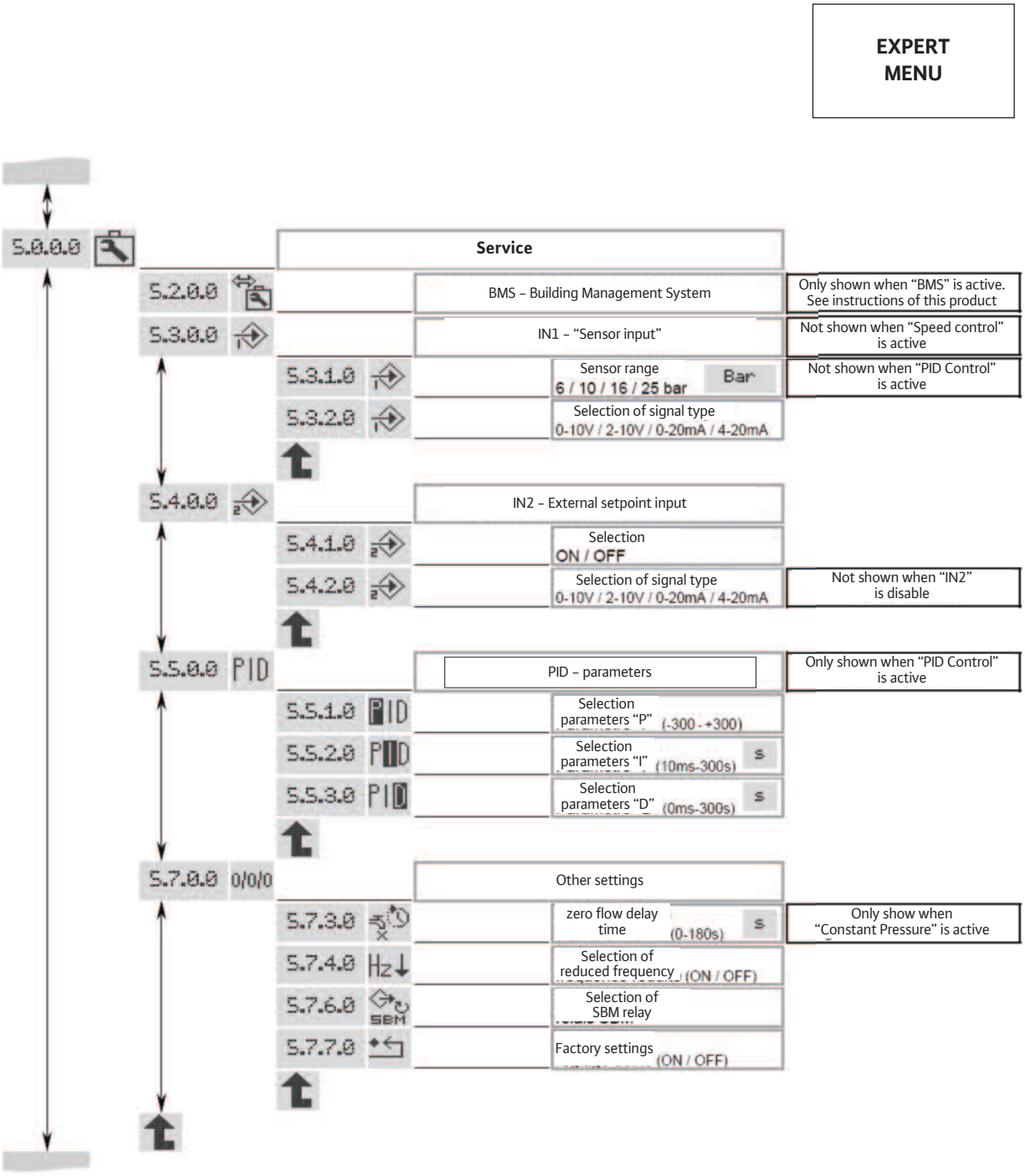

EASY MENU
2.0.0.0
Speed control
With internal setpoint
5.4.1.0
External setpoint input – IN2 desactivated – Selection OFF
2550 RPM
5.4.1.0
External setpoint input – IN2 activated – Selection ON
5.4.2.0
External setpoint input – IN2 Selection of the signal type
0-10V
0-20mA
With external setpoint
84.0
2.0.0.0
Constant pressure
5.3.1.0
Sensor input – IN1 Selection of the pressure sensor
6 bar
10 bar
16 bar
25 bar
Bar
5.3.2.0
Sensor input – IN1 Selection of the signal type
0-10V
4-20mA
With internal setpoint
8.8 H/bar
5.4.1.0
External setpoint input – IN2 desactivated – Selection OFF
5.4.1.0
External setpoint input – IN2 activated – Selection ON
5.4.2.0
External setpoint input – IN2 Selection of the signal type
0-10V
0-20mA
With external setpoint
8.8 H/bar
2.0.0.0
P.I.D. Controle
5.3.2.0
Sensor input – IN1 Selection of the signal type
0-10V
4-20mA
2-10V
0-20mA
5.4.1.0
External setpoint input – IN2 desactivated – Selection OFF
5.5.1.0
parameterization P.I.D. Selection value "P" (0.0–300.0)
5.5.2.0
parameterization P.I.D. Sélection value "I" (10ms–300s)
5.5.3.0
parameterization P.I.D. selection value "D" (0ms–300s)
With internal setpoint
50.0
5.4.1.0
External setpoint input – IN2 activated – Selection ON
5.4.2.0
External setpoint input – IN2 Selection of the signal type
0-10V
0-20mA
2-10V
4-20mA
5.5.1.0
parameterization P.I.D. Selection value "P" (0.0–300.0)
5.5.2.0
parameterization P.I.D. Selection value "I" (10ms–300s)
5.5.3.0
parameterization P.I.D. Selection value "D" (0ms–300s)
With external setpoint
50.0

Fig. A11


EXPERT MENU
5.0.0.0
Service
5.2.0.0
BMS – Building Management System
Only shown when "BMS" is active. See instructions of this product
5.3.0.0
IN1 – "Sensor input"
Not shown when "Speed control" is active
5.3.1.0
Sensor range
6 / 10 / 16 / 25 bar
Bar
Not shown when "PID Control" is active
5.3.2.0
Selection of signal type
0-10V / 2-10V / 0-20mA / 4-20mA
5.4.0.0
IN2 – External setpoint input
5.4.1.0
Selection
ON / OFF
5.4.2.0
Selection of signal type
0-10V / 2-10V / 0-20mA / 4-20mA
Not shown when "IN2" is disable
5.5.0.0
PID
PID – parameters
Only shown when "PID Control" is active
5.5.1.0
Selection parameters "P"
(-300 - +300)
5.5.2.0
Selection parameters "I"
(10ms-300s)
s
5.5.3.0
Selection parameters "D"
(0ms-300s)
s
5.7.0.0
0/0/0
Other settings
5.7.3.0
zero flow delay time
(0-180s)
s
Only show when "Constant Pressure" is active
5.7.4.0
Selection of reduced frequency
(ON / OFF)
5.7.6.0
Selection of SBM relay
5.7.7.0
Factory settings
(ON / OFF)

Access lock
In order to lock the pump settings, it is possible to use the « Access lock ».

To activate or deactivate it, proceed as follows:
- Put the switch 2 on ON position (Fig. A1, item 1). The <7.0.0.0> menu is called up.
- Turn the encoder to activate or deactivate the locking. The current state of the locking is represented with the following symbols:


Lock active: Parameters are locked, the access to menus is allowed only on reading.


Lock inactive: Parameters can be changed, the access to menus is allowed for setting.

- Return the switch 2 on OFF position (Fig. 4, item S). The display returns to the status page.

8.3.6 Configurations

NOTE: If the pump is delivered as separate part, not integrated into a system we mounted, the standard configuration mode is « Speed control ».

« Speed control » mode (Fig. 1, 2)
Setting of the frequency by hand or external control.
- For the starting up, we recommend to set the motor speed at 2400 RPM.

« Constant pressure » mode (Fig. A2, A3, A9)
Regulation with a pressure sensor and setting point (internal or external).
- The addition of a pressure sensor (with tank; sensor kit delivered as accessories) allows a pressure regulation of the pump (with no water in the tank, pressurize the tank to a pressure 0.3 bar less than the pressure regulation of the pump).
- The accuracy of the sensor shall be ≤ 1% and it is used between 30 % and 100 % of the measuring scale range. The tank must have a useful volume of 8L minimum.
- For the starting up, we recommend a pressure set value at 60% of its maximum pressure.

« P.I.D. control » mode
Regulation with a sensor (temperature, flow...) by P.I.D.control and setting point (internal or external).

9. Maintenance

All servicing should be performed by an authorized service representative!

WARNING! Electrical shock hazard!
Dangers caused by electrical energy must be excluded.
All electrical work must be performed after the electrical supply has been switched off and secured against unauthorized switching.

WARNING! Risk of scalding!
At high water temperatures and system pressure close isolating valves before and after the pump. First, allow pump to cool down.

- These pumps are maintenance free.
- If needed, mechanical seal could be easily replace thanks to its cartridge seal design. Insert its adjusting wedge in its housing (Fig. 6) once mechanical seal position is set.
- For pumps equipped with one grease feeder (Fig. 7, ref. 1) respect lubrication frequences mentioned on sticker glued on lantern part (ref.2).
- Always keep the pump perfectly clean.
- Pumps which are not being used during periods of frost should be drained to avoid damage: Close the guard valves, open completely the drain-priming plug and the air bleed screw.

DANGER! Danger of death !
The rotor inside the motor is subjected to a permanent magnetic field and represents a severe danger for the persons with a pacemaker. The disregard gives death or serious injury.

- Don't open the motor!
- Do the dismantling / reassembly of the rotor in purposes of repair only by the after-sales service!

10. Faults, causes and remedies

WARNING! Electrical shock hazard!
Dangers caused by electrical energy must be excluded.
All electrical work must be performed after the electrical supply has been switched off and secured against unauthorized switching.

WARNING! Risk of scalding!
At high water temperatures and system pressure close isolating valves before and after the pump.
First, allow pump to cool down.

Defaults	Possible causes	Remedies
Pump fails to operate	No current	Check the fuses, the wiring, and the connectors
	Thermistor tripping device has tripped out, cutting off power	Eliminate any cause of overloading of the motor
Pumps runs but delivers too little	Wrong direction of rotation	Check the direction of rotation of the motor and correct it if necessary
	Parts of the pump are obstructed by foreign bodies	Check and clean the pipe
	Air in suction pipe	Make the suction pipe airtight
	Suction pipe too narrow	Install a larger suction pipe
	The valve is not open far enough	Open the valve properly
Pump delivers unevenly	Air in pump	Evacuate the air in the pump; check that the suction pipe is airtight. If required, start the pump 20–30s – open the air bleed screw in order to move air away – close the air bleed screw and repeat it several times until no more air is going out of the pump
	In « Constant pressure » mode, the pressure sensor is not adequate	Put a sensor with conforming pressure scale and accuracy
Pump vibrates or is noisy	Foreign bodies in pump	Remove the foreign bodies
	Pump not properly attached to ground	Retighten the screws
	Bearing damaged	Call Wilo Customer Service
Motor overheats, its protection trips out	A phase is open-circuit	Check the fuses, the wiring, and the connectors
	Ambient temperature too high	Provide cooling
Mechanical seal is leaking	Mechanical seal is damaged	Replace the mechanical seal
In « Constant pressure » mode, the pump does not stop if the flow is zero	The non-return valve is not tight	Clean it or change it
	The non-return valve is not adequate	Replace it by an adequate non-return valve
	The tank has low capacity due to the installation	Change it or add an other one on the installation

If the fault cannot be solved, please contact Wilo customer services.

Faults should only be remedied by qualified personnel!
Observe the safety instructions, see chapter 9 Maintenance.
If the operating defect can't be remedied, contact an after-sales service technician or representative office.

Relays
The converter is fitted with 2 output relays aimed for an interface to centralized control.
ex.: control box, pumps control.

SBM relay:
This relay can be configured in the « Service » menu < 5.7.6.0 > in 3 operating states.

State: 1
« Available transfer » relay (normal operating for this pump type).
The relay is activated when the pump runs or is in a position to run.
When a first defect appears or by mains supply cutoff (the pump stops), the relay is deactiveted.
Information is given to the control box, regarding the availability of the pump, even temporarily.

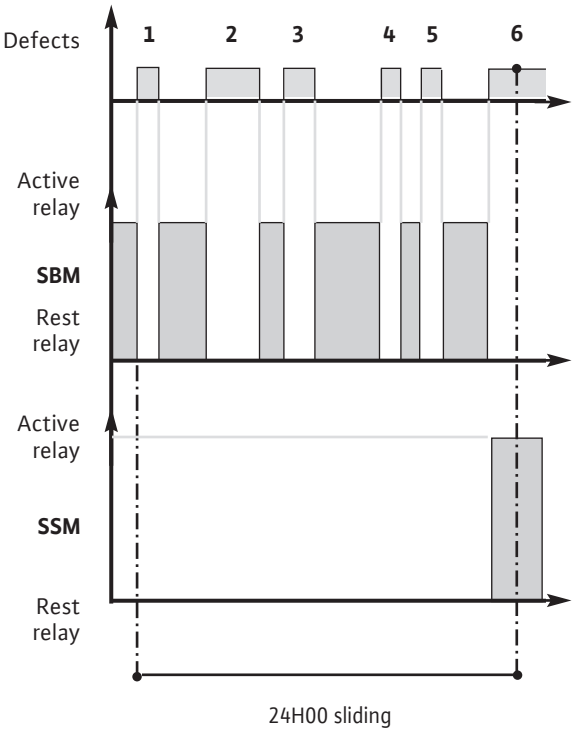
State: 2
« Run transfer » relay.
The relay is activated when the pump runs.

State: 3
« Power on transfer » relay.
The relay is activated when the pump is connected to the network.

SSM relay:
« Failures transfer » relay.
After a series of detection (from 1 to 6 according to significance) of the same type of defect, the pump stops and this relay is activated (up to manual action).

Example: 6 defects with a variable time limit on 24 sliding hours.

State of SBM relay is « Available transfer ».



10.1 Error table

All incidents hereafter mentioned give rise to:

- The deactivation of the SBM relay (When this one is parametrized in « available transfer » mode).
- The activation of the SSM relay « failure transfer » when the maximum quantity of one type of defect is reached over a 24-hour range.
- Ligthening of a red LED.

Error N°	Reaction time before error signalisation	Time before consideration of the defect, after signalisation	Waiting time before automatic restart	Max defects over 24 hours	Faults Possible causes	Remedies	Waiting time before reset
E001	60s	immediate	60s	6	The pump is in overload, defective.	Density and/or viscosity of the conveyed fluid are too big.	300s
					The pump is obstructed by particles.	Dismantle the pump and replace the defective components or clean them.	
E004 (E032	~5s	300s	Immediate if defect deleted	6	The converter supply is in under voltage.	Check the converter terminals: • error if network < 330V	0s
E005 (E033)	~5s	300s	Immediate if defect deleted	6	The converter supply is in over voltage.	Check the converter terminals: • error if network > 480V	0s
E006	~5s	300s	Immediate if defect deleted	6	A supply phase is missing.	Check the supply.	0s
E007	immediate	immediate	Immediate if defect deleted	no limit	The converter runs like a generator. It is a warning, without stop of the pump.	The pump veers, check the tightness of the non-return valve.	0s
E009	immediate	immediate	Immediate if defect deleted	no limit	The converter runs like a generator, pump OFF.	The pump veers, check the tightness of the non-return valve.	0s
E010	~5s	immediate	no restart	1	The pump is locked.	Dismantle the pump, clean it and replace the defective parts. It may be a mechanical failure of the motor (bearings).	60s
E011	15s	immediate	60s	6	Pump is no more primed or runs dry.	Prime the pump once again by filling it (see chapter 8.3). Check the tightness of the foot valve.	300s
E020	~5s	immediate	300s	6	The motor heats.	Clean the cooling ribs of the motor.	300s
					Ambient temperature higher than +40°C.	The motor is foreseen to run at an ambient temperature of +40°C.	
E023	immediate	immediate	60s	6	The motor is in short-circuit.	Dismantle the motor-converter of the pump, check it or replace it.	60s
E025	immediate	immediate	no restart	1	Missing phase of the motor.	Check the connection between motor and converter.	60s
E026	~5s	immediate	300s	6	The thermal sensor of the motor is defective or has a wrong connection.	Dismantle the motor-converter of the pump, check it or replace it.	300s
E030 E031	~5s	immediate	300s	6	The converter heats.	Clean the cooling ribs rearside and under the converter as well as the fan cover.	300s
					Ambient temperature higher than +40°C.	The converter is foreseen to run at an ambient temperature of +40°C.	
E042	~5s	immediate	no restart	1	The cable of the sensor (4-20mA) is cut.	Check the correct supply and the cable connection of the sensor.	60s
E050	60s	immediate	Immediate if defect deleted	no limit	BMS communications time-out.	Check the connection.	300s
E070	immediate	immediate	no restart	1	Internal communication error.	Call the after-sales technician.	60s
E071	immediate	immediate	no restart	1	EEPROM error.	Call the after-sales technician.	60s
E072 E073	immediate	immediate	no restart	1	Problem inside converter.	Call the after-sales technician.	60s
E075	immediate	immediate	no restart	1	Inrush current relay defect.	Call the after-sales technician.	60s
E076	immediate	immediate	no restart	1	Current sensor defect.	Call the after-sales technician.	60s
E077	immediate	immediate	no restart	1	24V defect	Call the after-sales technician.	60s
E099	immediate	immediate	no restart	1	Unknown pump type.	Call the after-sales technician.	Power off/on

E110	immediate	immediate	Immediate if defect deleted	no limit	Loss of synchronization	The pump restarts automatically	0s
E111	~5s	300s	Immediate if defect deleted	6	The motor currents exceeds the limit of the maximum converter output current	Density and/or viscosity of the conveyed fluid are too big. Check if the pump is not obstructed by particles	0s
E112	immediate	immediate	Immediate if defect deleted	no limit	Motor speed higher around 120% of the max. speed	The pump takes again his normal speed.	0s
E119	immediate	immediate	Immediate if defect deleted	no limit	The pump tried to start without success while it veers	Check the tightness of the non-return valve.	0s

10.2 Acknowledging errors

CAUTION! Material damage!
Only acknowledge defect when they have been remedied.

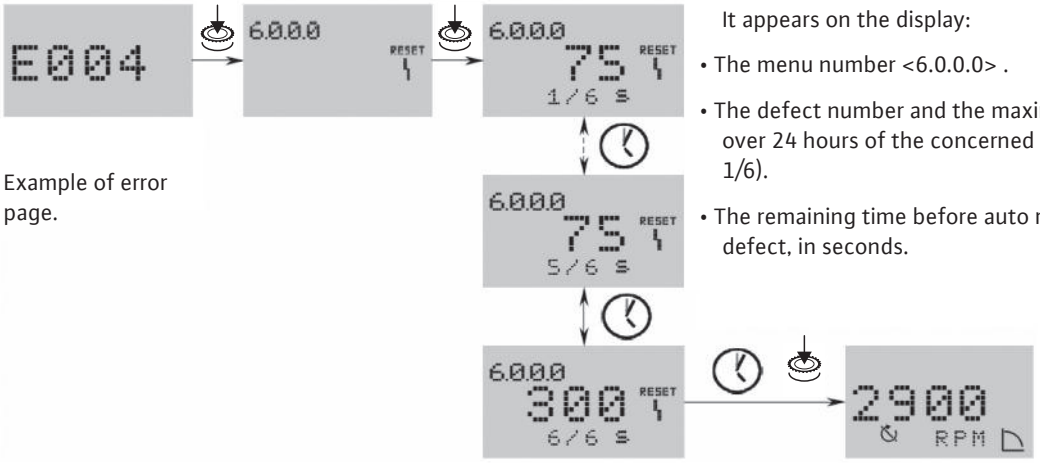
- Only skilled technicians are allowed to remedy the defect.
- If doubt, contact the manufacturer.

- In the event of an error, the error page is displayed instead of the status page.

To acknowledge, proceed as follows.

- Press the encoder.

It appears on the display:



Example of error page.

Example of status page

- The menu number <6.0.0.0> .
- The defect number and the maximum number over 24 hours of the concerned defect (example: 1/6).
- The remaining time before auto reset of the defect, in seconds.
- Wait for the auto reset time.

A timer runs within the system. The remaining time (in seconds) is displayed until the error is automatically acknowledged.

- When the maximum number of the defect is reached and the last timer has elapsed, press the encoder to acknowledge.

The system returns to the status page.

NOTE: When there is a time before considering of the defect, after signalling (example: 300s), the defect must always be manually acknowledged.
The auto reset timer is inactive and "- - -" is displayed.

11. Spare parts

Spare parts may be ordered via local approved technicians and/or the Wilo after-sales service.
To avoid any questions or wrong orders, all data of the name plate should be mentioned when ordering.

CAUTION! Danger of material damage!
Perfect pump function can only be guaranteed when original spare parts are used.

- Only use original spare parts.

Subject to technical alterations!

D EG – Konformitätserklärung

GB EC – Declaration of conformity

F Déclaration de conformité CE

(gemäß 2006/42/EG Anhang II,1A und2004/108/EG Anhang IV,2,
according 2006/42/EC annex II,1A and2004/108/EC annex IV,2,
conforme 2006/42/CE appendice II,1A et 2004/108/CE appendice IV,2)

Hiermit erklären wir, dass die Bauart der Baureihe : **Helix EXCEL**
Herewith, we declare that the product type of the series:
Par le présent, nous déclarons que l'agrégat de la série :
(Die Seriennummer ist auf dem Typenschild des Produktes nach Punkten b) & c) von §1.7.4.2 und §1.7.3 des Anhanges I angegeben. /
The serial number is marked on the product site plate according to points b) e› c) of §1.7.4.2 and §1.7.3 of the annex I of the Machinery directive 2006/42/EC. /Le numéro de série est inscrit sur la plaque signalétique du produit en accord avec les points b) e› C) du §1.7.4.2 et du §1.7.3 de l'annexe I de la Directive Machines 2006/42/CE.)

in der gelieferten Ausführung folgenden einschlägigen Bestimmungen entspricht:
in its delivered state complies with the following relevant provisions:
est conforme aux dispositions suivantes dont il relève:

EG-Maschinenrichtlinie **2006/42/EG**
EC-Machinery directive
Directives CE relatives aux machines
Die Schutzziele der Niederspannungsrichtlinie 2006/95/EG werden gemäß Anhang I, Nr. 1.5.1 der Maschinenrichtlinie 2006/42/EG eingehalten. / *The protection objectives of the low-voltage directive* 2006/95/EC *are realized according annex I, No. 1.5.1 of the EC-Machinery directive 2006/42/EC. / Les objectifs protection de la directive basse-tension* 2006/95/CE *sont respectées conformément à appendice I, n° 1.5.1 de la directive CE relatives aux machines 2006/42/CE.*

Elektromagnetische Verträglichkeit - Richtlinie **2004/108/EG**
Electromagnetic compatibility - directive
Compatibilité électromagnétique- directive

Richtlinie energieverbrauchsrelevanter Produkte **2009/125/EG**
Energy-related products
Produits liés à l'énergie
Dieses entspricht den Ökodesign-Anforderungen der Verordnung 547/2012 für Wasserpumpen.
This applies according to eco-design requirements of the regulation 547/2012 for water pumps.
Qui s'applique suivant les exigences d'éco-conception du règlement 547/2012 pour les pompes à eau.

---

und entsprechender nationaler Gesetzgebung,
and with the relevant national legislation,
et aux législations nationales les transposant,

angewendete harmonisierte Normen, insbesondere: **EN 809+A1, EN ISO 12100,**
as well as following relevant harmonized standards:: **EN 61800-5-1, EN 60034-1,**
ainsi qu'aux normes européennes harmonisées suivantes: **EN 60204-1, EN 61800-3+A1:2012**

Bevollmächtigter für die Zusammenstellung der technischen Unterlagen ist:
Authorized representative for the completion of the technical documentation:
Mandataire pour le complément de la documentation technique est :

Division Pumps & Sytems
Quality Manager PBU Multistage & Domestic
Pompes Salmson
80 Bd de l'Industrie - BP 0527
F-53005 Laval Cédex

Dortmund, 30. November 2012

i. A. C. Brasse
Claudia Brasse
Group Quality

wilo

WILO SE
Nortkirchenstraße 100
44263 Dortmund
Germany

Document: 2117776.2
CE-AS-Sh. Nr. 4164296

NL
EG-verklaring van overeenstemming
Hiermede verklaren wij dat dit aggregaat in de geleverde uitvoering voldoet aan de volgende bepalingen:
EG-richtlijnen betreffende machines 2006/42/EG
De veiligheidsdoelstellingen van de laagspanningsrichtlijn worden overeenkomstig bijlage I, nr. 1.5.1 van de machinerichtlijn 2006/42/EG aangehouden.

Elektromagnetische compatibiliteit 2004/108/EG
Richtlijn voor energieverbruiksrelevante producten 2009/125/EG

De gebruikte 50 Hz inductie-elektromotoren – draaistroom, kooianker, ééntraps – conform de ecodesign-vereisten van de verordening 640/2009.

Conform de ecodesign-vereisten van de verordening 547/2012 voor waterpompen.

gebruikte geharmoniseerde normen, in het bijzonder: zie vorige pagina

IT
Dichiarazione di conformità CE
Con la presente si dichiara che i presenti prodotti sono conformi alle seguenti disposizioni e direttive rilevanti:
Direttiva macchine 2006/42/EG
Gli obiettivi di protezione della direttiva macchine vengono rispettati secondo allegato I, n. 1.5.1 dalla direttiva macchine 2006/42/CE.

Compatibilità elettromagnetica 2004/108/EG
Direttiva relativa ai prodotti connessi all'energia 2009/125/CE

I motori elettrici a induzione utilizzati da 50 Hz – corrente trifase, motore a gabbia di scoiattolo, monostadio – soddisfano i requisiti di progettazione ecocompatibile del regolamento 640/2009.
Ai sensi dei requisiti di progettazione ecocompatibile del regolamento 547/2012 per le pompe per acqua.
norme armonizzate applicate, in particolare: vedi pagina precedente

ES
Declaración de conformidad CE
Por la presente declaramos la conformidad del producto en su estado de suministro con las disposiciones pertinentes siguientes:
Directiva sobre máquinas 2006/42/EG
Se cumplen los objetivos en materia de seguridad establecidos en la Directiva de Baja tensión según lo especificado en el Anexo I, punto 1.5.1 de la Directiva de Máquinas 2006/42/CE.
Directiva sobre compatibilidad electromagnética 2004/108/EG
Directiva 2009/125/CE relativa a los productos relacionados con el consumo de energía

Los motores eléctricos de inducción de 50 Hz utilizados (de corriente trifásica, rotores en jaula deardilla, motores de una etapa) cumplen los requisitos relativos al ecodiseño establecidos en el Reglamento 640/2009.
De conformidad con los requisitos relativos al ecodiseño del Reglamento 547/2012 para bombas hidráulicas.
normas armonizadas adoptadas, especialmente: véase página anterior

PT
Declaração de Conformidade CE
Pela presente, declaramos que esta unidade no seu estado original, está conforme os seguintes requisitos:
Directivas CEE relativas a máquinas 2006/42/EG
Os objectivos de protecção da directiva de baixa tensão são cumpridos de acordo com o anexo I, nº 1.5.1 da directiva de máquinas 2006/42/CE.
Compatibilidade electromagnética 2004/108/EG
Directiva relativa à criação de um quadro para definir os requisitos de concepção ecológica dos produtos relacionados com o consumo de energia 2009/125/CE
Os motores eléctricos de indução de 50 Hz utilizados – corrente trifásica, com rotor em curto-circuito, monocelular – cumprem os requisitos de concepção ecológica do Regulamento 640/2009.
Cumprem os requisitos de concepção ecológica do Regulamento 547/2012 para as bombas de água.
normas harmonizadas aplicadas, especialmente: ver página anterior

SV
CE- försäkran
Härmed förklarar vi att denna maskin i levererat utförande motsvarar följande tillämpliga bestämmelser:
EG–Maskindirektiv 2006/42/EG
Produkten uppfyller säkerhetsmålen i lågspänningsdirektivet enligt
bilaga I, nr 1.5.1 i maskindirektiv 2006/42/EG.
EG–Elektromagnetisk kompatibilitet – riktlinje 2004/108/EG
Direktivet om energirelaterade produkter 2009/125/EG

De använda elektriska induktionsmotorerna på 50 Hz – trefas, kortslutningsmotor, enstegs – motsvarar kraven på ekodesign för elektriska motorer i förordning 640/2009.

Motsvarande ekodesignkraven i förordning 547/2012 för vattenpumpar.

tillämpade harmoniserade normer, i synnerhet: se föregående sida

NO
EU-Overensstemmelseserklæring
Vi erklærer hermed at denne enheten i utførelse som levert er i overensstemmelse med følgende relevante bestemmelser:
EG–Maskindirektiv 2006/42/EG
Lavspenningsdirektivets vernemål overholdes i samsvar med
vedlegg I, nr. 1.5.1 i maskindirektivet 2006/42/EF.
EG–EMV–Elektromagnetisk kompatibilitet 2004/108/EG
Direktiv energirelaterte produkter 2009/125/EF

De 50 Hz induksjonsmotorene som finner anvendelse – trefasevekselstrøms kortslutningsmotor, ettrinns – samsvarer med kravene til økodesign i forordning 640/2009.
I samsvar med kravene til økodesign i forordning 547/2012 for vannpumper.

anvendte harmoniserte standarder, særlig: se forrige side

FI
CE-standardinmukaisuusseloste
Ilmoitamme täten, että tämä laite vastaa seuraavia asiaankuuluvia määräyksiä:

EU–konedirektiivit: 2006/42/EG
Pienjännitedirektiivin suojatavoitteita noudatetaan
konedirektiivin 2006/42/EY liitteen I, nro 1.5.1 mukaisesti.
Sähkömagneettinen soveltuvuus 2004/108/EG
Energiaan liittyviä tuotteita koskeva direktiivi 2009/125/EY
Käytettävät 50 Hz:n induktio-sähkömoottorit (vaihevirta- ja oikosulkumoottori, yksivaiheinen moottori) vastaavat asetuksen 640/2009 ekologista suunnittelua koskevia vaatimuksia.
Asetuksessa 547/2012 esitettyjä vesipumppujen ekologista suunnittelua koskevia vaatimuksia vastaava.
käytetyt yhteensovitetut standardit, erityisesti: katso edellinen sivu.

DA
EF-overensstemmelseserklæring
Vi erklærer hermed, at denne enhed ved levering overholder følgende relevante bestemmelser:
EU–maskindirektiver 2006/42/EG
Lavspændingsdirektivets mål om beskyttelse overholdes i henhold til bilag I, nr. 1.5.1 i maskindirektivet 2006/42/EF.
Elektromagnetisk kompatibilitet: 2004/108/EG
Direktiv 2009/125/EF om energirelaterede produkter
De anvendte 50 Hz induktionselektromotorer - trefasestrøm, kortslutningsmotor, et-trins - opfylder kravene til miljøvenligt design i forordning 640/2009.

I overensstemmelse med kravene til miljøvenligt design i forordning 547/2012 for vandpumper.
anvendte harmoniserede standarder, særligt: se forrige side

HU
EK-megfelelőségi nyilatkozat
Ezennel kijelentjük, hogy az berendezés megfelel az alábbi irányelveknek:

Gépek irányelv: 2006/42/EK
A kisfeszültségű irányelv védelmi előírásait a 2006/42/EK gépekre vonatkozó irányelv I. függelékének 1.5.1. sz. pontja szerint teljesíti.
Elektromágneses összeférhetőség irányelv: 2004/108/EK
Energiával kapcsolatos termékekről szóló irányelv: 2009/125/EK
A használt 50 Hz-es indukciós villanymotorok – háromfázisú, kalickás forgórész, egyfokozatú – megfelelnek a 640/2009 rendelet környezetbarát tervezésre vonatkozó követelményeinek.
A vízszivattyúkról szóló 547/2012 rendelet környezetbarát tervezésre vonatkozó követelményeinek megfelelően.
alkalmazott harmonizált szabványoknak, különösen: lásd az előző oldalt

CS
Prohlášení o shodě ES
Prohlašujeme tímto, že tento agregát v dodaném provedení odpovídá následujícím příslušným ustanovením:
Směrnice ES pro strojní zařízení 2006/42/ES
Cíle týkající se bezpečnosti stanovené ve směrnici o elektrických zařízeních nízkého napětí jsou dodrženy podle přílohy I, č. 1.5.1 směrnice o strojních zařízeních 2006/42/ES.

Směrnice o elektromagnetické kompatibilitě 2004/108/ES
Směrnice pro výrobky spojené se spotřebou energie 2009/125/ES

Použité 50Hz třífázové indukční motory, s klecovým rotorem, jednostupňové – vyhovují požadavkům na ekodesign dle nařízení 640/2009.
Vyhovuje požadavkům na ekodesign dle nařízení 547/2012 pro vodní čerpadla.

použité harmonizační normy, zejména: viz předchozí strana

PL
Deklaracja Zgodności WE
Niniejszym deklarujemy z pełną odpowiedzialnością, że dostarczony wyrób jest zgodny z następującymi dokumentami:
dyrektywą maszynową WE 2006/42/WE
Przestrzegane są cele ochrony dyrektywy niskonapięciowej zgodnie z załącznikiem I, nr 1.5.1 dyrektywy maszynowej 2006/42/WE.

dyrektywą dot. kompatybilności elektromagnetycznej 2004/108/WE
Dyrektywa w sprawie ekoprojektu dla produktów związanych z energią 2009/125/WE.

Stosowane elektryczne silniki indukcyjne 50 Hz – trójfazowe, wirniki klatkowe, jednostopniowe – spełniają wymogi rozporządzenia 640/2009 dotyczące ekoprojektu.
Spełniają wymogi rozporządzenia 547/2012 dotyczącego ekoprojektu dla pomp wodnych.

stosowanymi normami zharmonizowanymi, a w szczególności: patrz poprzednia strona

RU
Декларация о соответствии Европейским нормам
Настоящим документом заявляем, что данный агрегат в его объеме поставки соответствует следующим нормативным документам:
Директивы ЕС в отношении машин 2006/42/EG
Требования по безопасности, изложенные в директиве по низковольтному напряжению, соблюдаются согласно приложению I, № 1.5.1 директивы в отношении машин 2006/42/EG.
Электромагнитная устойчивость 2004/108/EG
Директива о продукции, связанной с энергопотреблением 2009/125/EC

Используемые асинхронные электродвигатели 50 Гц – трехфазного тока, короткозамкнутые, одноступенчатые – соответствуют требованиям к экодизайну
Соответствует требованиям к экодизайну предписания 547/2012 для водяных насосов.
Используемые согласованные стандарты и нормы, в частности : см. предыдущую страницу

EL
Δήλωση συμμόρφωσης της ΕΕ
Δηλώνουμε ότι το προϊόν αυτό σ' αυτή την κατάσταση παράδοσης ικανοποιεί τις ακόλουθες διατάξεις :
Οδηγίες ΕΚ για μηχανήματα 2006/42/ΕΚ
Οι απαιτήσεις προστασίας της οδηγίας χαμηλής τάσης τηρούνται σύμφωνα με το παράρτημα Ι, αρ. 1.5.1 της οδηγίας σχετικά με τα μηχανήματα 2006/42/ΕΚ.
Ηλεκτρομαγνητική συμβατότητα ΕΚ-2004/108/ΕΚ
Ευρωπαϊκή οδηγία για συνδεόμενα με την ενέργεια προϊόντα 2009/125/ΕΚ

Οι χρησιμοποιούμενοι επαγωγικοί ηλεκτροκινητήρες 50 Hz – τριφασικοί, δρομέας κλωβού, μονοβάθμιοι – ανταποκρίνονται στις απαιτήσεις οικολογικού σχεδιασμού του κανονισμού 640/2009.
Σύμφωνα με τις απαιτήσεις οικολογικού σχεδιασμού του κανονισμού 547/2012 για υδραντλιές.
Εναρμονισμένα χρησιμοποιούμενα πρότυπα, ιδιαίτερα: Βλέπε προηγούμενη σελίδα

TR
CE Uygunluk Teyid Belgesi
Bu cihazın teslim edildiği şekliyle aşağıdaki standartlara uygun olduğunu teyid ederiz:

AB-Makina Standartları 2006/42/EG
Alçak gerilim yönergesinin koruma hedefleri, 2006/42/AT makine yönergesi Ek I, no. 1.5.1'e uygundur.
Elektromanyetik Uyumluluk 2004/108/EG
Enerji ile ilgili ürünlerin çevreye duyarlı tasarımına ilişkin yönetmelik 2009/125/AT

Kullanılan 50 Hz indüksiyon elektromotorları – trifaze akım, sincap kafes motor, tek kademeli – 640/2009 Düzenlemesinde ekolojik tasarımla ilgili gerekliliklere uygundur.

Su pompaları ile ilgili 547/2012 Düzenlemesinde ekolojik tasarıma ilişkin gerekliliklere uygun.
kısmen kullanılan standartlar için: bkz. bir önceki sayfa

RO
EC-Declarație de conformitate
Prin prezenta declarăm că acest produs aşa cum este livrat, corespunde cu următoarele prevederi aplicabile:
Directiva CE pentru maşini 2006/42/EG
Sunt respectate obiectivele de protecţie din directiva privind joasa tensiune conform Anexei I, Nr. 1.5.1 din directiva privind maşinile 2006/42/CE.
Compatibilitatea electromagnetică – directiva 2004/108/EG
Directivă privind produsele cu impact energetic 2009/125/CE

Electromotoarele cu inducţie, de 50 Hz, utilizate – curent alternativ, motor în scurtcircuit, cu o treaptă – sunt în conformitate cu parametrii ecologici cuprinşi în Ordonanţa 640/2009.
În conformitate cu parametrii ecologici cuprinşi în Ordonanţa 547/2012 pentru pompe de apă.
standarde armonizate aplicate, îndeosebi: vezi pagina precedentă

ET
EÜ vastavusdeklaratsioon
Käesolevaga tõendame, et see toode vastab järgmistele asjakohastele direktiividele:
Masinadirektiiv 2006/42/EÜ
Madalpingedirektiivi kaitse-eesmärgid on täidetud vastavalt masinate direktiivi 2006/42/EÜ I lisa punktile 1.5.1.

Elektromagnetilise ühilduvuse direktiiv 2004/108/EÜ
Energiamõjuga toodete direktiiv 2009/125/EÜ
Kasutatud 50 Hz vaheldUvvoolu elektrimootorid (vahelduvvool, lühisrootor, üheastmeline) vastavad määruses 640/2009 sätestatud ökodisaini nõuetele.

Kooskõlas veepumpade määruses 547/2012 sätestatud ökodisaini nõuega.

kohaldatud harmoneeritud standardid, eriti: vt eelmist lk

LV
EC - atbilstības deklarācija
Ar šo mēs apliecinām, ka šis izstrādājums atbilst sekojošiem noteikumiem:
Mašīnu direktīva 2006/42/EK
Zemsprieguma direktīvas drošības mērķi tiek ievēroti atbilstoši Mašīnu direktīvas 2006/42/EK
Pielikumam I, Nr. 1.5.1.
Elektromagnētiskās savietojamības direktīva 2004/108/EK
Direktīva 2009/125/EK par ar enerģiju saistītiem produktiem
Izmantotie 50 Hz indukcijas elektromotori – maiņstrāva, īsslēguma rotora motors, vienpakāpes – atbilst Regulas Nr. 640/2009 ekodizaina prasībām.

Atbilstoši Regulas Nr. 547/2012 ekodizaina prasībām ūdenssūkņiem.

piemēroti harmonizēti standarti, tai skaitā: skatīt iepriekšējo lappusi

LT
EB atitikties deklaracija
Šiuo pažymima, kad šis gaminys atitinka šias normas ir direktyvas:
Mašinų direktyvą 2006/42/EB
Laikomasi Žemos įtampos direktyvos keliamų saugos reikalavimų pagal Mašinų direktyvos 2006/42/EB I priedo 1.5.1 punktą.

Elektromagnetinio suderinamumo direktyvą 2004/108/EB
Su energija susijusių produktų direktyva 2009/125/EB
Naudojami 50 Hz indukciniai elektriniai varikliai – trifazės įtampos, su narveliniu rotoriumi, vienos pakopos – atitinka ekologinio projektavimo reikalavimus pagal Reglamentą 640/2009.
Atitinka ekologinio projektavimo reikalavimus pagal Reglamentą 547/2012 dėl vandens siurblių.
pritaikytus vieningus standartus, o būtent: žr. ankstesniame puslapyje

SK
ES vyhlásenie o zhode
Týmto vyhlasujeme, že konštrukcie tejto konštrukčnej série v dodanom vyhotovení vyhovujú nasledujúcim príslušným ustanoveniam:
Stroje - smernica 2006/42/ES
Bezpečnostné ciele smernice o nízkom napätí sú dodržiavané v zmysle prílohy I, č. 1.5.1 smernice o strojových zariadeniach 2006/42/ES.
Elektromagnetická zhoda - smernica 2004/108/ES
Smernica 2009/125/ES o energeticky významných výrobkoch

Použité 50 Hz indukčné elektromotory – jednostupňové, na trojfázový striedavý prúd, s rotormi nakrátko – zodpovedajú požiadavkám na ekodizajn uvedeným v nariadení 640/2009.
V súlade s požiadavkami na ekodizajn uvedenými v nariadení 547/2012 pre vodné čerpadlá.

používané harmonizované normy, najmä: pozri predchádzajúcu stranu

SL
ES – izjava o skladnosti
Izjavljamo, da dobavljene vrste izvedbe te serije ustrezajo sledečim zadevnim določilom:

Direktiva o strojih 2006/42/ES
Cilji Direktive o nizkonapetostni opremi so v skladu s
prilogo I, št. 1.5.1 Direktive o strojih 2006/42/ES doseženi.
Direktiva o elektromagnetni združljivosti 2004/108/ES
Direktiva 2009/125/ES za okoljsko primerno zasnovo izdelkov, povezanih z energijo

Uporabljeni 50 Hz indukcijski elektromotorji – trifazni tok, kletkasti rotor, enostopenjski – izpolnjujejo zahteve za okoljsko primerno zasnovo iz Uredbe 640/2009.

izpolnjujejo zahteve za okoljsko primerno zasnovo iz Uredbe 547/2012 za vodne črpalke.

uporabljeni harmonizirani standardi, predvsem: glejte prejšnjo stran

BG
ЕО-Декларация за съответствие
Декларираме, че продуктът отговаря на следните изисквания:

Машинна директива 2006/42/ЕО
Целите за защита на разпоредбата за ниско напрежение са съставени съгласно Приложение I, № 1.5.1 от Директивата за машини 2006/42/ЕС.
Електромагнитна съвместимост – директива 2004/108/ЕО
Директива за продуктите, свързани с енергопотреблението 2009/125/ЕО

Използваните индукционни електродвигатели 50 Hz – трифазен ток, търкалящи се лагери, едностъпални – отговарят на изискванията за екодизайн на Регламент 640/2009.
Съгласно изискванията за екодизайн на Регламент 547/2012 за водни помпи.

Хармонизирани стандарти: вж. предната страница

MT
Dikjarazzjoni ta' konformità KE
B'dan il-mezz, niddikjaraw li l-prodotti tas-serje jissodisfaw id-dispożizzjonijiet relevanti li ġejjin:
Makkinarju - Direttiva 2006/42/KE
L-objettivi tas-sigurta tad-Direttiva dwar il-Vultaġġ Baxx huma konformi mal-Anness I, Nru 1.5.1 tad-Direttiva dwar il-Makkinarju 2006/42/KE.
Kompatibbiltà elettromanjetika - Direttiva 2004/108/KE
Linja Gwida 2009/125/KE dwar prodotti relatati mal-użu tal-enerġija
Il-muturi elettrici b'induzzjoni ta' 50 Hz użati- tliet fażijiet, squirrel-cage, singola - jissodisfaw ir-rekwiżiti tal-ekodisinn tar-Regolament 640/2009.
b'mod partikolari: ara l-paġna ta' qabel

HR
EZ izjava o sukladnosti
Ovim izjavljujemo da vrste konstrukcije serije u isporučenoj izvedbi odgovaraju sljedećim važećim propisima:
EZ smjernica o strojevima 2006/42/EZ
Ciljevi zaštite smjernice o niskom naponu ispunjeni su sukladno prilogu I, br. 1.5.1 smjernice o strojevima 2006/42/EZ.
Elektromagnetna kompatibilnost – smjernica 2004/108/EZ
Smjernica za proizvode relevantne u pogledu potrošnje energije 2009/125/EZ
Korišteni 50 Hz-ni indukcijski elektromotori – trofazni, s kratko spojenim rotorom, jednostupanjski – odgovaraju zahtjevima za ekološki dizajn iz uredbe 640/2009.
primijenjene harmonizirane norme, posebno: vidjeti prethodnu stranicu

SR
EZ izjava o usklađenosti
Ovim izjavljujemo da vrste konstrukcije serije u isporučenoj verziji odgovaraju sledećim važećim propisima:
EZ direktiva za mašine 2006/42/EZ
Ciljevi zaštite direktive za niski napon ispunjeni su u skladu sa prilogom I, br. 1.5.1 direktive za mašine 2006/42/EZ.
Elektromagnetna kompatibilnost - direktiva 2004/108/EZ
Direktiva za proizvode relevantne u pogledu potrošnje energije 2009/125/EZ
Korišćeni 50 Hz-ni indukcioni elektromotori – trofazni, s kratkospojenim rotorom, jednostepeni – odgovaraju zahtevima za ekološki dizajn iz uredbe 640/2009.
primenjeni harmonizovani standardi, a posebno: vidi prethodnu stranu

WILO SE
Nortkirchenstraße 100
44263 Dortmund
Germany

Wilo – International (Subsidiaries)

Argentina
WILO SALMSON
Argentina S.A.
C1295ABI Ciudad
Autónoma de Buenos Aires
T+ 54 11 4361 5929
info@salmson.com.ar

Australia
WILO Australia Pty Limited
Murrarrie, Queensland,
4172
T +61 7 3907 6900
chris.dayton@wilo.com.au

Austria
WILO Pumpen
Österreich GmbH
2351 Wiener Neudorf
T +43 507 507-0
office@wilo.at

Azerbaijan
WILO Caspian LLC
1014 Baku
T +994 12 5962372
info@wilo.az

Belarus
WILO Bel OOO
220035 Minsk
T +375 17 2535363
wilo@wilo.by

Belgium
WILO SA/NV
1083 Ganshoren
T +32 2 4823333
info@wilo.be

Bulgaria
WILO Bulgaria Ltd.
1125 Sofia
T +359 2 9701970
info@wilo.bg

Brazil
WILO Brasil Ltda
Jundiaí – SP – CEP
13.201-005
T + 55 11 2817 0349
wilo@wilo-brasil.com.br

Canada
WILO Canada Inc.
Calgary, Alberta T2A 5L4
T +1 403 2769456
bill.lowe@wilo-na.com

China
WILO China Ltd.
101300 Beijing
T +86 10 58041888
wilobj@wilo.com.cn

Croatia
WILO Hrvatska d.o.o.
10090 Zagreb
T +38 51 3430914
wilo-hrvatska@wilo.hr

Czech Republic
WILO Praha s.r.o.
25101 Cestlice
T +420 234 098711
info@wilo.cz

Denmark
WILO Danmark A/S
2690 Karlslunde
T +45 70 253312
wilo@wilo.dk

Estonia
WILO Eesti OÜ
12618 Tallinn
T +372 6 509780
info@wilo.ee

Finland
WILO Finland OY
02330 Espoo
T +358 207401540
wilo@wilo.fi

France
WILO S.A.S.
78390 Bois d'Arcy
T +33 1 30050930
info@wilo.fr

Great Britain
WILO (U.K.) Ltd.
DE14 2WJ Burton-
Upon-Trent
T +44 1283 523000
sales@wilo.co.uk

Greece
WILO Hellas AG
14569 Anixi (Attika)
T +302 10 6248300
wilo.info@wilo.gr

Hungary
WILO Magyarország Kft
2045 Törökbálint
(Budapest)
T +36 23 889500
wilo@wilo.hu

India
WILO India Mather and
Platt Pumps Ltd.
Pune 411019
T +91 20 27442100
service@
pun.matherplatt.co.in

Indonesia
WILO Pumps Indonesia
Jakarta Selatan 12140
T +62 21 7247676
citrawilo@cbn.net.id

Ireland
WILO Ireland
Limerick
T +353 61 227566
sales@wilo.ie

Italy
WILO Italia s.r.l.
20068 Peschiera
Borromeo (Milano)
T +39 25538351
wilo.italia@wilo.it

Kazakhstan
WILO Central Asia
050002 Almaty
T +7 727 2785961
info@wilo.kz

Korea
WILO Pumps Ltd.
621-807 Gimhae
Gyeongnam
T +82 55 3405890
wilo@wilo.co.kr

Latvia
WILO Baltic SIA
1019 Riga
T +371 7 145229
mail@wilo.lv

Lebanon
WILO SALMSON
Lebanon
12022030 El Metn
T +961 4 722280
wsl@cyberia.net.lb

Lithuania
WILO Lietuva UAB
03202 Vilnius
T +370 5 2136495
mail@wilo.lt

Morocco
WILO Maroc
SARLQUARTIER
INDUSTRIEL AIN SEBAA
20250
CASABLANCA
T +212 (0) 5 22 660 924
contact@wilo.ma

The Netherlands
WILO Nederland b.v.
1551 NA Westzaan
T +31 88 9456 000
info@wilo.nl

Norway
WILO Norge AS
0975 Oslo
T +47 22 804570
wilo@wilo.no

Poland
WILO Polska Sp. z.o.o.
05-090 Raszyn
T +48 22 7026161
wilo@wilo.pl

Portugal
Bombas Wilo-Salmson
Portugal Lda.
4050-040 Porto
T +351 22 2080350
bombas@wilo.pt

Romania
WILO Romania s.r.l.
077040 Com. Chiajna
Jud. Ilfov
T +40 21 3170164
wilo@wilo.ro

Russia
WILO Rus ooo
123592 Moscow
T +7 495 7810690
wilo@wilo.ru

Saudi Arabia
WILO ME – Riyadh
Riyadh 11465
T +966 1 4624430
wshoula@wataniaind.com

Serbia and Montenegro
WILO Beograd d.o.o.
11000 Beograd
T +381 11 2851278
office@wilo.co.yu

Slovakia
WILO Slovakia s.r.o.
83106 Bratislava
T +421 2 33014511
wilo@wilo.sk

Slovenia
WILO Adriatic d.o.o.
1000 Ljubljana
T +386 1 5838130
wilo.adriatic@wilo.si

South Africa
Salmson South Africa
1610 Edenvale
T +27 11 6082780
errol.cornelius@
salmson.co.za

Spain
WILO Ibérica S.A.
28806 Alcalá de Henares
(Madrid)
T +34 91 8797100
wilo.iberica@wilo.es

Sweden
WILO Sverige AB
35246 Växjö
T +46 470 727600
wilo@wilo.se

Switzerland
EMB Pumpen AG
4310 Rheinfelden
T +41 61 83680-20
info@emb-pumpen.ch

Taiwan
WILO-EMU Taiwan Co. Ltd.
110 Taipeh
T +886 227 391655
nelson.wu@
wiloemutaiwan.com.tw

Turkey
WILO Pompa Sistemleri
San. ve Tic. A.Ş.
34956 İstanbul
T +90 216 2509400
wilo@wilo.com.tr

Ukraina
WILO Ukraina t.o.w.
01033 Kiew
T +38 044 2011870
wilo@wilo.ua

United Arab Emirates
WILO Middle East FZE
Jebel Ali Free Zone –
South - Dubai
T +971 4 880 91 77
info@wilo.ae

USA
WILO USA LLC
Rosemont, IL 60018
T +1 866 945 6872
info@wilo-usa.com

Vietnam
WILO Vietnam Co Ltd.
Ho Chi Minh City, Vietnam
T +84 8 38109975
nkminh@wilo.vn

wilo

Pioneering for You

WILO SE
Nortkirchenstraße 100
D-44263 Dortmund
Germany
T +49(0)231 4102-0
F +49(0)231 4102-7363
wilo@wilo.com
www.wilo.com