ISTRUZIONI PER L'INSTALLAZIONE E LA MANUTENZIONE (IT)
INSTRUCTIONS FOR INSTALLATION AND MAINTENANCE (EN)
INSTRUCTIONS POUR L'INSTALLATION ET LA MAINTENANCE (FR)
INSTALLATIONS- UND WARTUNGSANLEITUNGEN (DE)
INSTRUCCIONES DE INSTALACIÓN Y MANTENIMIENTO (ES)
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ΟΔΗΓΙΕΣ ΕΓΚΑΤΑΣΤΑΣΗΣ ΚΑΙ ΣΥΝΤΗΡΗΣΗΣ (EL)
NÁVOD K INSTALACI A ÚDRŽBĚ (CS)
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ИНСТРУКЦИИ ПО УСТАНОВКЕ И ТЕХОБСЛУЖИВАНИЮ (РУ)
INSTALLATIONS- OCH UNDERHÅLLSINSTRUKTIONER (SV)
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TELEPÍTÉSI ÉS KARBANTARTÁSI ÚTMUTATÓ (HU)
ІНСТРУКЦІЯ З МОНТАЖУ ТА ТЕХНІЧНОМУ ОБСЛУГОВУВАННЮ (УКР)
安装与维护说明（简体中文）
تعليمات التركيب والصيانة (العربية)

FEKA VS

DAB
WATER•TECHNOLOGY

Translation from the original Italian version

CONTENTS

1. SYMBOLS KEY

1.1. Safety signs

The use and maintenance manual includes the signs illustrated below (where relevant). These signs have been included to draw users' attention to possible sources of danger.
Failure to pay attention to the signs could result in personal injury, death and/or damage to the machine or equipment.
As a general rule, there are three types of symbols (Table 1).

Symbol	Shape	Type	Description
	Outlined triangle	Danger	Indicates present or potential dangers
	Circular outline	Prohibition	Indicates actions that are to be avoided
	Solid circle	Obligation	Indicates information to be read and complied with
	Circular outline	Information	indicates useful information other than danger / prohibition / obligation

Table 1 Safety sign types

Depending on the information to be conveyed, the signs may contain symbols denoting the type of danger, prohibition or obligation.

The following symbols have been used in the discussion:


ATTENTION!
DANGER TO THE HEALTH AND SAFETY OF WORKERS.
Pay close attention to the instruction accompanied by this symbol.


ATTENTION!
DANGER OF ELECTROCUTION - DANGEROUS VOLTAGE.
The machine guards and protections marked with this symbol may only be opened by qualified personnel after disconnecting the machine's power supply.


ATTENTION!
DAMAGE TO THE MACHINE
Indicates useful information other than danger, prohibition and obligation. Can be found in any chapter of the manual


OBLIGATION TO COMPLY WITH A SAFETY REQUIREMENT.


PROHIBITION OF DANGEROUS ACTIVITY.


INSTRUCTIONS MARKED WITH THIS SYMBOL INDICATE THE NEED TO:
Open the disconnect switch on the electrical control panel ("0/Off" position);
Lock it in open position with the appropriate system (e.g. padlock);
Follow the company's Lockout-Tagout procedures.


Indicates maintenance operations that can be carried out by the machine user.


Indicates operations and maintenance work that can be carried out by qualified technicians.


Notes and general information.
Please read the following instructions carefully before operating and installing the machine.

1.2. Danger

Generic hazard
This sign indicates dangerous situations that may harm people, animals or property.
Failure to comply with the instructions associated with this sign may lead to danger.

Risk of electrocution
This sign indicates the risk of direct or indirect contact and electrocution arising from the presence of live machine parts.
Failure to comply with the instructions associated with this sign may result in serious injury or death.

Risk of automatic start-up
This sign indicates the risk of the machine performing operations in automatic mode. Failure to comply with the instructions associated with this sign may result in serious injury or death.

Risk of crushing
This sign indicates the risk of crushing the hands or upper limbs by moving machine parts. Failure to comply with the instructions associated with this sign may result in the risk of crushing the hands or upper limbs.

Risk of cutting/severing
This sign indicates the risk of cutting/severing the hands by moving machine parts or tools. Failure to comply with the instructions associated with this sign may result in the risk of cutting-severing the hands.

Risk of entanglement and dragging
This sign indicates the risk of entangling the hands or upper limbs. Failure to comply with the instructions associated with this sign may result in the risk of crushing the hands or upper limbs.

Danger explosive atmosphere
This sign indicates the danger of potentially explosive atmosphere.
Failure to comply with the instructions associated with this sign may lead to explosions.

Danger magnetic field
This sign indicates the presence of strong magnetic fields and requires care to avoid exposure.
Failure to comply with the instructions associated with this sign may interfere with pacemakers and cause injury to tissues and internal organs in the case of prolonged exposure.

Danger laser radiation
This sign indicates the risk arising from the presence of sources emitting artificial optical radiation.
Failure to comply with the instructions associated with the sign may cause harm to the vision.

Danger, biohazard
Take care to avoid exposure to a biohazard.

Danger, hot surface
This sign indicates the risk of burning as a result of contact with hot surfaces (> 60 °C).
Failure to comply with the instructions associated with this sign may lead to the risk of burns to the hand or upper limbs.

Danger, low temperature or frost
Take care to avoid exposure to low temperatures or freezing conditions.

Danger of ignition.
Take care not to cause a fire by igniting flammable and/or combustible material.

Slip hazard
This sign indicates the risk of slipping and falling as a result of damp and/or wet surfaces. Failure to comply with the instructions associated with the sign may result in the risk of serious injury or death caused by slipping and/or falling.

1.3. Prohibition

Generic prohibition
This sign indicates a manoeuvre, operation or behaviour that is prohibited. Failure to comply with the prohibitions associated with this sign may cause harm to persons, animals and property.

Do not touch
This sign indicates that the operator must not touch a certain part of the machine.
Failure to comply with the prohibitions associated with this sign may cause harm to the hands.

Do not insert hands
This sign indicates that the operator must not insert the hands into a certain area.
Failure to comply with the prohibitions associated with this sign may cause harm to the hands and/or upper limbs.

Do not alter the state of the switch
This sign indicates that altering the state of the switch and/or control device is prohibited.
Failure to comply with the prohibitions associated with this sign may cause harm to persons, animals and property.

No smoking or open flames
This sign indicates that smoking and/or open flames are prohibited.
Failure to comply with the prohibitions associated with this sign may cause explosions and/or fires.

Do not extinguish with water
This sign indicates that extinguishing flames and/or the incipient stage of a fire with water is prohibited.
Failure to comply with the prohibitions associated with this sign may cause harm to persons, animals and property.

1.4. Obligation

Generic obligation
This sign indicates the operator's obligation to comply.
Failure to comply with the instructions associated with this sign may cause harm to persons, animals and property.

Wear ear protectors
This sign indicates the obligation to use ear muffs or ear protectors during operations.
Failure to comply with the instructions associated with this sign may lead to even permanent hearing loss.

Wear protective clothing
This sign indicates the obligation to wear appropriate clothing during operations.
Failure to comply with the instructions associated with this sign may result in serious injury or death.

Use appropriate PPE
These signs indicate the obligation to use appropriate personal protective equipment during operations. Failure to comply with the instructions associated with these signs may result in serious injury or death.

Connect an earth terminal to the ground
This sign indicates the obligation to connect the machine to an efficient earthing system.
Failure to comply with the instructions associated with this sign may cause harm to persons, animals and property.

Unplug from the socket
This signal indicates the obligation to unplug the power supply before carrying out any other operation.
Failure to comply with the instructions associated with this sign may cause harm to persons, animals and property.

Disconnect the power supply before maintenance
This sign indicates the obligation to disconnect the equipment before carrying out any maintenance work.
Failure to comply with the instructions associated with this sign may cause harm to persons, animals and property.

Check guards
This sign indicates the obligation to check the efficiency of the guards (removed during maintenance, repairs, cleaning, lubrication). Failure to comply with the instructions associated with this sign may cause harm to persons, animals and property.

Refer to instruction manual/booklet
This sign indicates the obligation to read the instructions (use and maintenance manual, data sheets, etc.) prior to installation, use or any other operation to be carried out on the machine!
Failure to comply with the instructions associated with this sign may cause harm to persons, animals and property.

DAB Pumps makes every reasonable effort to ensure that the contents of this manual (e.g. illustrations, texts and data) are accurate, correct and up-to-date. Nevertheless, they may not be free of errors and may not be complete or up-to-date at any time. The company therefore reserves the right to make technical changes and improvements over time, even without prior notice.
DAB Pumps accepts no liability for the contents of this manual unless subsequently confirmed in writing by the company.

2. GENERAL

2.1. Product name

FEKA VS

2.2. Classification according to European Reg.

SEWAGE

3. FIELD OF APPLICATION OF PUMPABLE LIQUIDS

These pumps may not be used in swimming pools, ponds, basins where people are present, or for pumping hydrocarbons (petrol, diesel, fuel oils, solvents, etc.) in accordance with the relevant accident prevention regulations.
DO NOT USE THE PUMP WITH OTHER TYPES OF LIQUIDS.
N.B.: The liquid contained in the pump to lubricate the sealing device is non-toxic but may alter the characteristics of the water (when using pure water) if the sealing device leaks.

3.1. Description and intended use

The FEKA VS pump is a single-stage submersible pump designed for pumping wastewater free of faecal matter. The compact design makes it suitable for both temporary and permanent installations. The pumps may be installed on a self-coupling system or rest freely on the bottom of the sump. The pumps are used in pressurized systems, e.g. in hilly areas.
This appliance is also designed for use in commercial installations.

This appliance must not be used by children.

Use is only permitted in an ordinary, non-hazardous location, i.e. an environment with no risk of explosion according to EN 60079-14.

3.2. Improper use

The equipment is designed to be used solely for the purposes described in the dedicated section of the manual (paragraph 3 FIELD OF APPLICATION OF PUMPABLE LIQUIDS). Uses other than those described in this manual are improper and do not therefore comply with safety regulations.

ATTENTION!
Improper use may result in personal injury, death and/or damage to the equipment or installations.

Below is a list of improper uses that could cause personal injury or damage to the machine or equipment for which DAB Pumps. S.p.A. shall not be held liable:

- Unauthorised changes to or replacement of equipment parts;
- Failure to follow safety instructions;
- Failure to follow instructions on installation, use, operation, maintenance, repairs or having such operations carried out by unqualified personnel;
- Use of improper and incompatible materials or auxiliary equipment;
- Failure to comply with workplace safety rules or relevant legal regulations.

Also refer to the Safety Booklet enclosed with the product.

3.3. Specific product references

For technical data, refer to the CE marking (data plate) or the dedicated chapter 11 TECHNICAL DATA

4. WARNINGS AND RESIDUAL RISKS

Before installation, check that all the internal parts of the panel (components, leads, etc.) are completely free from traces of humidity, oxide or dirt: if necessary, clean accurately and check the efficiency of all the components in the panel. If necessary, replace any parts that are not perfectly efficient. When starting for the first time, check the motor's direction of rotation as indicated in 7.2 Check direction of rotation (for three-phase motors).

The capacitor of the direct current intermediate circuit remains charged with dangerously high voltage even after the mains power has been turned off. Only firmly wired mains connections are admissible. The appliance must be earthed (IEC 536 class 1, NEC and other applicable standards).

Before working on the equipment, disconnect the power and make sure there are no fluid and/or gas leaks in the surrounding environment. Do not open and do not operate if powered.

The pump is equipped with a carry handle, which can also be used to lower it into deep wells or trenches by means of a rope.

Damaged power cables must be replaced and not repaired (use H07RN-F cable with a suitable cross-section (see TECHNICAL DATA) with an outside diameter of 9 to 10 mm and a minimum length of 10 metres for the portable version, with UNEL plug 47166-68 for the SINGLE-PHASE version and with CEE plug for the THREE-PHASE version). It is therefore necessary to use specialised and qualified personnel who meet the requirements of current regulations.
To replace the power cable, refer to the dedicated chapter 12 Removing and replacing the power cable.

NEVER OPERATE THE PUMP WITHOUT WATER.
Water also acts as a lubricant, coolant and seal protector: running dry can cause permanent damage to the pump and void the warranty.

CAUTION - CUTTING HAZARD
The pump has sharp moving parts: do not carry out any maintenance or cleaning while it is running.

Also refer to the Safety Booklet enclosed with the product.

4.1. Hot or cold parts

Coming into contact with the pump or system parts may be dangerous.
Keep flammable materials away from the machine.
If hot or cold parts cause danger, appropriate protection shall be provided to prevent contact with them.

CAUTION – DANGER OF BURNS
The pump can reach high temperatures during operation: beware of accidental contact and wait for it to cool down after disconnection before carrying out maintenance, cleaning and inspection work.

Also refer to the Safety Booklet enclosed with the product.

4.2. Powered parts

Refer to the Safety Booklet enclosed with the product.

4.3. Product disposal

This product or its parts must be disposed of according to the instructions in the WEEE disposal sheet included in the packaging.

5. MANAGEMENT

5.1. Storage

All pumps must be stored in a dry covered place with constant air humidity where possible, free from vibrations and dust. They are supplied in their original packaging where they must remain until installation. If this is not the case, carefully close the suction and delivery port.

5.2. Transport

Avoid subjecting the product to needless impacts and collisions.
Avoid placing material that could damage the pump on top of the packaging.

5.3. Handling

Handling must be carried out in accordance with company regulations.
For mechanical handling, check the weight stated on the label.
For manual handling of loads, check the presence of any dedicated markings on the packaging.

CAUTION - heavy load, take care when handling to avoid injury and musculoskeletal strain

OBLIGATION - Two people are required to manually handle the pump and casing

Use appropriate PPE when handling loads

6. INSTALLATION

The product must only be installed by qualified, trained and experienced personnel.
The product must only be installed in technical locations and/or premises, accessible only to qualified, trained and experienced personnel.

Installation, electrical and hydraulic connections, testing and commissioning must only be carried out by qualified, trained and experienced personnel.

Installation, maintenance, repairs or transport must only be carried out by Specialised Personnel (see definition in safety booklet) who must only follow operations and manoeuvres within their competence and of which they are fully aware.

Wear protective clothing.

Wear goggles and gloves.

- The pumps may contain a small quantity of water left over from testing.
- We recommend flushing briefly with clean water before final installation.
- Prevent metal pipes from transmitting excessive stresses to the pump ports, so as not to create deformation or breakages.
- The diameter of the suction pipe must be greater than/equal to the diameter of the pump port.

- It is good practice to position the pump as close as possible to the liquid to be pumped.
- The pump must be installed under conditions appropriate to the specificities of the product.
- The pump must be installed as described in the manual, in compliance with the laws, directives and standards in force at the use site and in accordance with the application.
- Before positioning the pump, ensure that the pump body is not totally or partially obstructed by mud, sediment or the like.
- **Completely immerse the pump in water before starting it.**

Carefully follow the advice in this chapter to carry out correct electrical, hydraulic and mechanical installation. Before attempting any installation work, make sure that the power supply is switched off. Strictly respect the electric supply values indicated on the CE marking (data plate).

The pump must be connected to an efficient earthing system. Failure to comply with the instructions associated with this sign may cause harm to persons, animals and property.

6.1. Minimum clearances

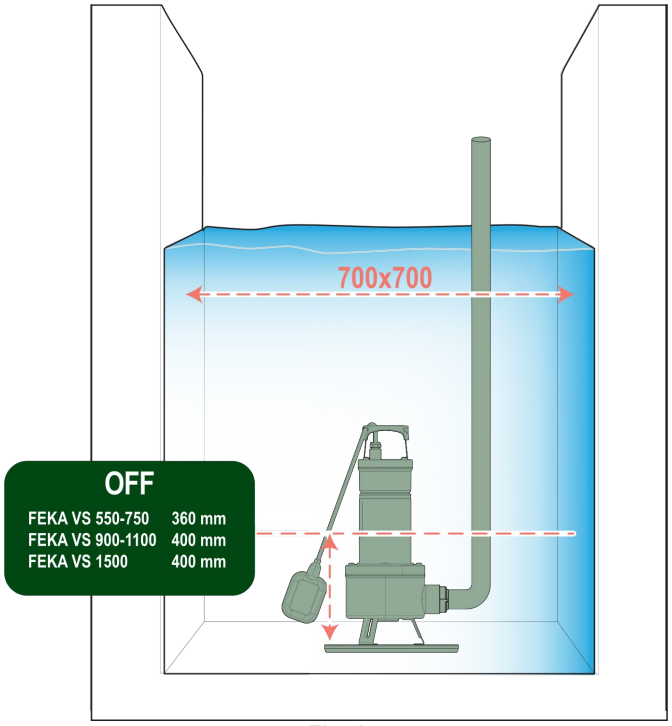


Fig. 1

6.2. Setup

We recommend fitting gate valves upstream and downstream of the pump so that maintenance can be carried out without draining the system.
In the event that the bottom of the sump, where the pump is to operate, is very dirty, it is advisable to provide a support to rest the pump on in order to avoid clogging (see **Fig. 5**)

For fixed installations, we recommend using the DSD2 lifting device (available on request - **Fig. 6**) to facilitate pump maintenance. Inserted between the pump's delivery port and the pipe, it avoids the need to dismantle the discharge pipe during maintenance operations. The DSD2 consists of 8 parts, plus one not supplied (3/4" pipes).

6.3. Installation configuration

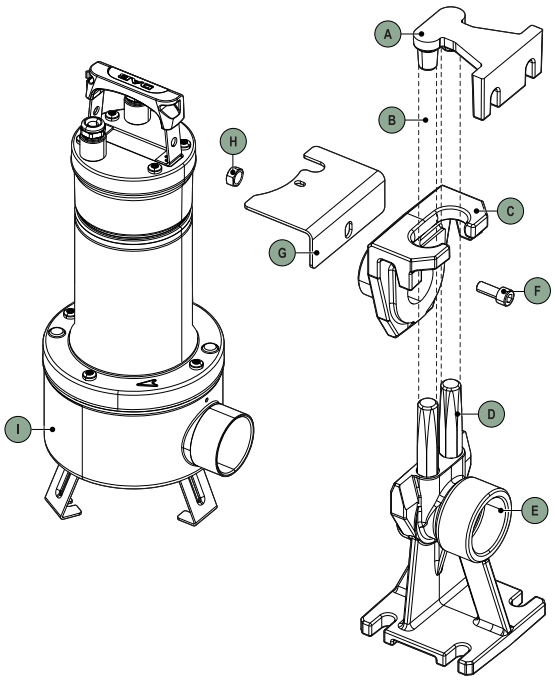


Fig. 2

Provide housing sumps with minimum dimensions as shown in **Fig. 5**.
The sump must also always be sized in relation to the amount of incoming water and the pump flow rate so as not to subject the motor to excessive start-ups.
When the pump is intended for fixed installation with a float, a non-return valve must always be installed in the discharge pipe. This design is also recommended for manually operated pumps.
For the version with a float switch, ensure that the float switch can move freely (see 7.3 Adjusting the float switch).

The support base must be placed on the bottom of the tank and secured with appropriately sized expansion screws.
The pipe guide bracket is placed at the top of the sump and inserted at the end of two 3/4" pipes (not supplied), which serve as chutes.
The two pipes connect the bracket to the support base.
Assemble the antirotation bracket (G).
Remove the slide (C) from the base elbow (E) and connect it to the pump delivery port using the screw (F) and nut (H).
Fasten the slide (C) to the pump as shown in the figure.
Reposition the slide/pump assembly on the base (**Fig. 6**)

A. Pipe fastening bracket
B. 3/4" pipes (not supplied)
C. Slide
D. Pipe guide posts
E. Base elbow (DS2D lifting device)
F. Hex socket head screw M10X25
G. Antirotation bracket
H. M10 nut
I. Pump

6.4. Water and pipe connections

Connect the delivery pipe directly to the pump port. If the pump is used in fixed installations, it is advisable to connect it to the pipe via a connector to make it easier to dismantle and reinstall. If a flexible hose is used, attach a threaded hose connector to the pump port. Seal the thread with suitable material to ensure an effective seal (Teflon tape or similar).

The appliance is intended to be permanently connected to the water mains but also temporarily connected to the water mains via temporary pipes.

6.5. Electrical connection

Installation, electrical and hydraulic connections, testing and commissioning must only be carried out by qualified, trained and experienced personnel.

Attention: always respect the safety regulations!

A device must be provided in the power supply network to ensure complete disconnection under the conditions of overvoltage category III. When the switch is in open position, the distance between contacts must comply with that shown in the table below:

Minimum distance between power switch contacts		
Power supply range (V)	> 127 and ≤ 240	> 240 and ≤ 480
Minimum distance (mm)	> 3	> 6

Table 2

Ensure that the mains voltage is the same as that stated on the product's CE marking (data plate).

With the unit at full speed, check that the current drawn by the motor does not exceed that stated on the CE marking (data plate).

In order to improve immunity to radiated noise to other equipment, we recommend using a separate electrical duct to supply the product.

Single-phase motors are equipped with built-in thermo-amperometric protection and can be connected directly to the mains.
N.B.: If the motor is overloaded, it stops automatically. Once cooled down, it restarts automatically without the need for any manual intervention.

Three-phase motors must be protected with a circuit breaker (e.g. magnetothermal switch) calibrated to the pump's plate data

6.5.1. Power supply connection and earthing

Connect the prepared earthing terminal (with the adjacent symbol in the terminal board) to the protective conductor (PE) as required by the relevant regulations.

Attention: always respect the safety regulations! The electrical installation must be carried out by an experienced, authorised electrician who assumes all responsibility

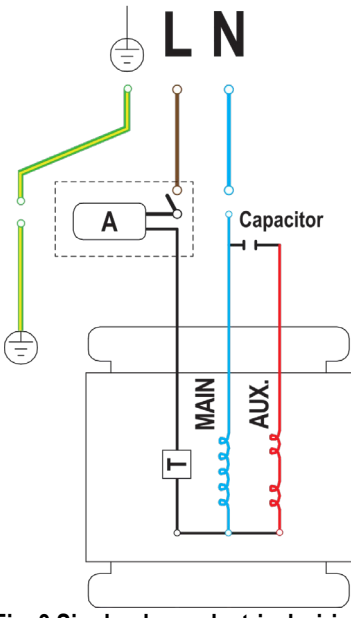


Fig. 3 Single-phase electrical wiring

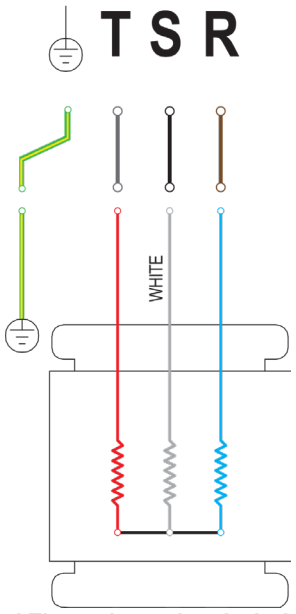


Fig. 4 Three-phase electrical wiring

The installation must provide suitable means for disconnection, which must be incorporated into the fixed wiring according to the regulations in force in the country where the product is to be installed.

Overcurrent and short-circuit protection must be correctly sized.
Omnipolar protective devices must be installed.

7. COMMISSIONING

Fully submerge the pump in water, then power the system.
Models with a float switch start automatically when the water level rises; models without a float are started via a start-up switch that must be installed upstream of the socket (not supplied).

7.1. Start-up

For the first start-up, follow the steps below:

- For correct start-up, make sure you have followed the instructions given in 6 INSTALLATION and 7 COMMISSIONING and the respective subsections;
- Check water is present;
- Provide electric power supply;
- Check direction of rotation.

The pump starts up to 20 times an hour.

7.2. Check direction of rotation (for three-phase motors)

At first start-up and/or after long periods of inactivity (approx. two months), with three-phase power supply, check the direction of rotation.

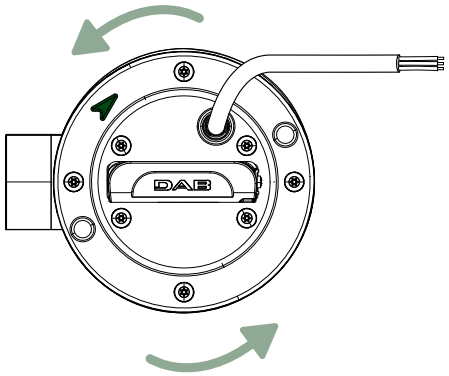


Fig. 5

The direction of rotation must be checked each time a new installation is performed.
Proceed as follows (see **Fig. 9**):

1. Place the pump on a flat surface.
2. Start the pump and stop it immediately.
3. Carefully observe the recoil at start-up while looking at the pump from the motor side. The direction of rotation is correct, i.e. clockwise, if the protective cap moves as shown in the drawing (anti-clockwise).

Recoil

Direction of impeller rotation

If it is not possible to carry out the above because the pump is already installed, check as follows:

1. Start the pump and observe the water flow rate.
2. Stop the pump, cut the power and invert two power line phases.
3. Restart the pump and check the water flow rate again.
4. Stop the pump.

The correct direction of rotation will be the one that corresponds to the GREATEST flow rate and the LOWEST power consumption!

7.3. Adjusting the float switch

To adjust the float, loosen the plate screw as shown in **Fig. 10**.
Lengthening or shortening the section of cable between the float and the stop point (slot in the handle - **Fig. 11**) adjusts the start level (START) and/or the stop level (STOP) of the pump.
Make sure that the float can move freely.

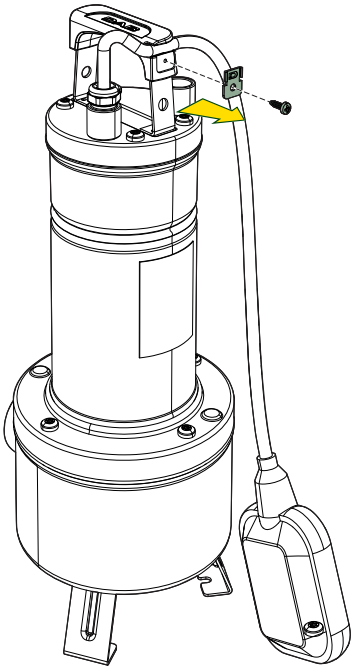


Fig. 6

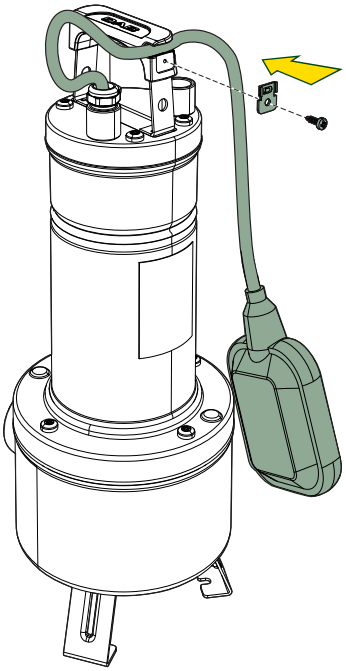


Fig. 7

Minimum stop levels:

FEKA VS 550-750 → Minimum stop level 360 mm from the bottom.
FEKA VS 900-1100 → Minimum stop level 400 mm from the bottom.
FEKA VS 1500 → Minimum stop level 400 mm from the bottom.

7.4. Precautions

The pump should not be started more than 20 times per hour so as not to subject the motor to excessive thermal stress.
If long periods of inactivity are expected, plan short running cycles to avoid deterioration and malfunctions.
RISK OF FREEZING: when the pump is inactive at a temperature below 0°C, ensure that there is no residual water that would freeze and crack the pump components.
If the pump has been used with substances that tend to settle, rinse with a powerful jet of water after use to avoid deposits or encrustations that would reduce the pump's performance.
When starting up after a long shutdown period, the operations listed in 7.1 must be repeated.
To avoid unnecessary motor overloads, carefully check that the density of the pumped liquid matches that used in the design phase: remember that the power absorbed by the pump increases proportionally to the density of the pumped liquid.

For power cables without a plug, provide a mains cut-off device (e.g. magnetothermal switch) with an opening distance between contacts of at least 3 mm for each pole.

7.5. Stopping

The appliance must be switched off whenever a malfunction occurs (see chap. 13 TROUBLESHOOTING).

8. MAINTENANCE

Maintenance, testing and subsequent re-commissioning must only be carried out by qualified, trained and experienced personnel.

Disconnect and padlock the power supply before starting any work on the system.

Disconnect the pump from the power supply (electrical and water) before carrying out any maintenance work.

Wear protective clothing

Wear goggles and gloves

Legal provisions for the disposal of any harmful liquids must also be observed. After a prolonged period of use it may become difficult to remove parts in contact with the water: for this purpose use a suitable solvent found on the market and where possible a suitable extractor. It is recommended not to apply force on the various parts with unsuitable tools.

Installation, maintenance, repairs or transport must only be carried out by Specialised Personnel (see definition in safety booklet) who must only follow operations and manoeuvres within their competence or of which they are fully aware.
Cleaning, checks and inspections to be carried out by the user must not be carried out in the presence of unsupervised children.

8.1. Periodic checks

Checks may be carried out by the equipment operator, whereas maintenance work must be carried out by trained, experienced and authorised personnel.

Monthly checks and inspections:

- Clean the pump body regularly;
- Integrity of the casing and controls;
- Integrity of the power supply;
- Functionality of the residual current device (monthly RCD test) protecting the equipment;
- No chemicals in the vicinity of the equipment;
- No dirt, dust and build-up on the hidden parts of the equipment;
- No degradation or wear of the covering and power cables;
- No water leaks;
- No abnormal noise;
- No functional or performance faults on the equipment and/or pump;

Routine maintenance, to be carried out if common problems are detected:

- Tighten pipes and replace seals where necessary;
- Replace fuses and/or protective devices when tripped;
- Regularly check the current absorption, the manometric head with the port closed and the maximum flow rate, which will enable faults or wear to be detected early.
- Clean mechanical components.
- Seal oil change (see dedicated paragraph 8.2 Check and change seal oil)

Other generic regular checks are outlined below.

MAINTENANCE, CHECKS, INSPECTIONS, CLEANING AND PERIODIC REPLACEMENT OF PARTS	FREQUENCY
General cleaning General cleaning of the line (especially dust) and surrounding areas.	Daily or according to use
Electrical cables Check the protective covering on the electrical cables for cuts, stripping, crushing, etc. and replace them if necessary.	Yearly
Electric control devices Check that there is no cracking or deformation, and check the condition of the connecting cables. Check the efficiency of the cooling systems, connectors and piping. Check the lettering and symbols are legible and in good condition and restore them if necessary.	Six-monthly
Electric motors Check that there is no cracking or deformation. Check that there are no breakages. Check the tightness of cables, seals, screws and bolts on parts that are subject to vibration and loads during operation. Check the power cables for cuts, stripping and crushing.	Yearly
Safety signs Check the safety signs are legible and in good condition.	Weekly
Abnormal noise Check for vibrations and malfunctions.	Daily
Capacitors Assess whether to replace the capacitors with the frequency indicated for the relevant type.	Class A expected service life 30,000 hours Class B expected service life 10,000 hours

Under normal operating conditions, the pump may require the seal oil to be checked and changed.
The pump may only be disassembled by specialised and qualified personnel who meet the requirements of the relevant regulations. In any case, all repairs and maintenance work must only be carried out after disconnecting the pump from the power supply.

8.2. Check and change seal oil

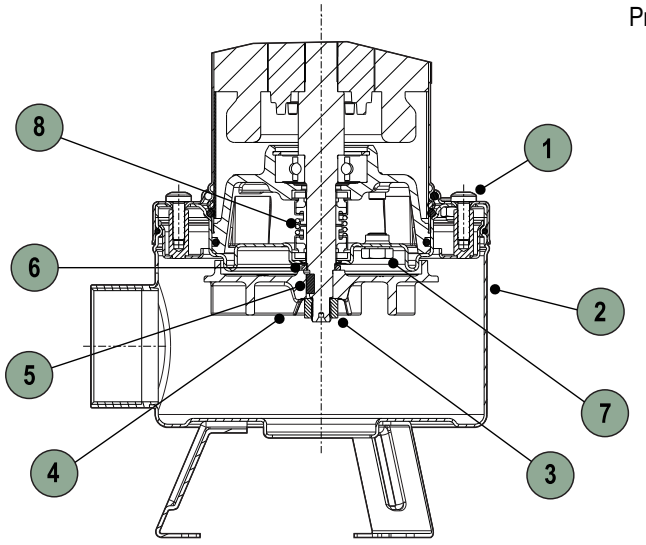


Fig. 8

Proceed as follows:

- unscrew the four screws (1) so that the pump body (2) can be removed.
- Hold the impeller (4) by hand and then unscrew the impeller locking nut (3) using a spanner.
- Retain the tab (5) and the sand guard ring (6), if present.
- Turn the pump upside down, unscrew and remove the cap (7). Tilt the pump so that the oil comes out of the cap hole (7) and pour it into a container.
- Analyse the oil: if it contains water or abrasive particles (e.g. sand), it is advisable to check the condition of the mechanical seal (8) and replace it if necessary (at a specialised centre). In the latter case, also replace the oil with **approx. 170 g of oil such as ESSO MARCOL 152 (or equivalent pharmaceutical grade white mineral oil).**
- Top up the oil level inside the sealed oil chamber by means of a funnel inserted into the cap hole (7).
- Screw the cap (7) back into place, spread a suitable amount of Teflon grease in the seat of the sand guard ring (6) and then follow the disassembly procedure in reverse to refit the pump.

WASTE OIL MUST BE DISPOSED OF IN ACCORDANCE WITH CURRENT REGULATIONS.

8.3. Clean impeller

Wear goggles and gloves

Proceed as follows:

- Unscrew the four screws (1) so that the pump body (2) can be removed.
- Clean the impeller using appropriate protective equipment.

8.4. Spare parts

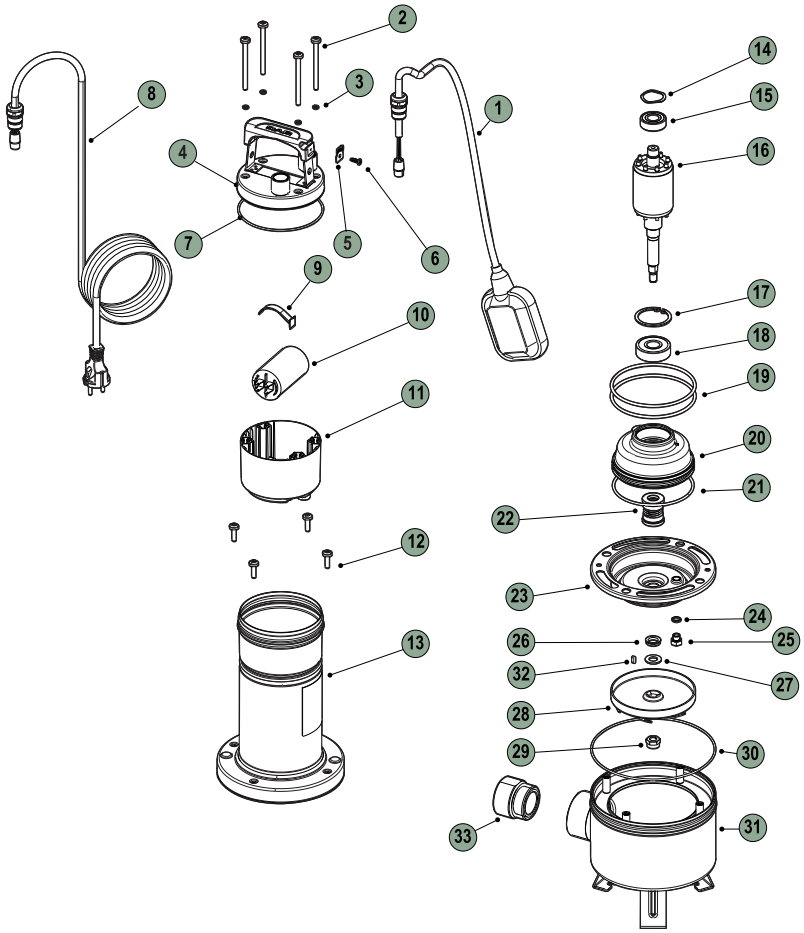
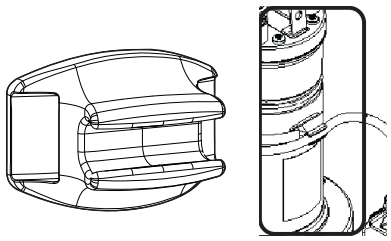
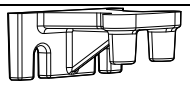
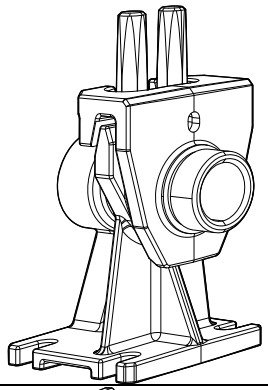
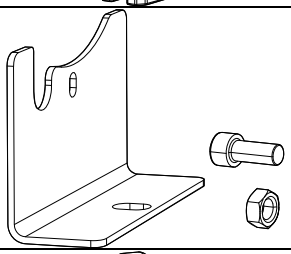
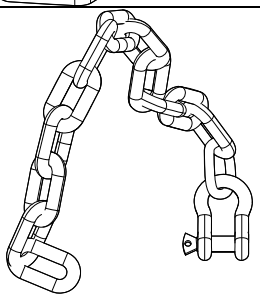


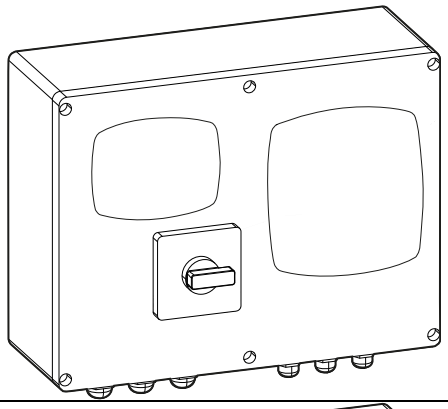
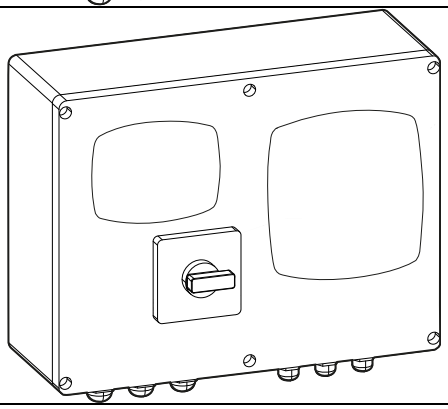
Fig. 9

Replacement kit	Composition
Replacement float	1 - 5 - 6
Replacement rotor shaft for FEKA VS 550-750	14 - 15 - 16 - 17 - 18 - 26 - 27 - 29
Replacement rotor shaft for FEKA VS 900-1100-1500	14 - 15 - 16 - 17 - 18 - 26 - 32 - 29
Replacement O-ring kit	3 - 26 - 7 - 21 - 19 - 24 - 30
Replacement pump body	12 - 30 - 31
Replacement impeller for FEKA VS 550-750	27 - 28 - 29
Replacement impeller for FEKA VS 900-1100-1500	32 - 28 - 29
Replacement motor	2 - 3 - 4 - 7 - 9 - 10 - 11 - 12 - 13
Replacement mechanical seal	22
Replacement impeller-side bearing	18
Replacement motor-side bearing	15

Replacement power cable	8
Replacement capacitor	9 - 10
Replacement NPT sleeve	33

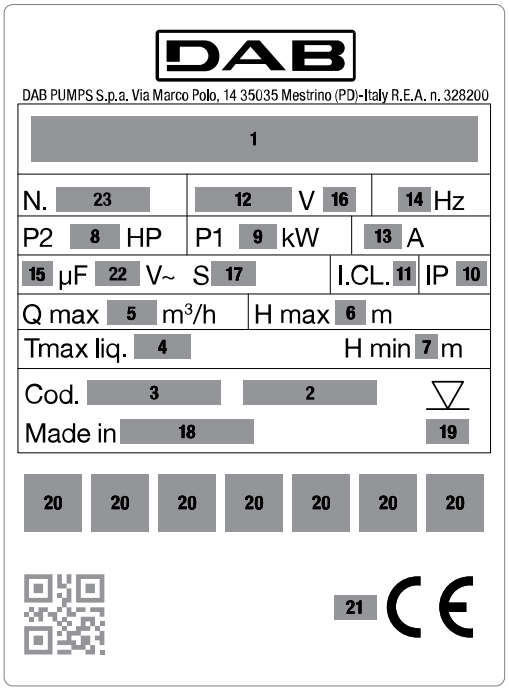
8.5. List of Interchangeable Accessories / Equipment

FLOAT CABLE GLAND	
DSD2 – LIFTING DEVICE	 
ANTIROTATION BRACKET	
CHAIN/SHACKLE	

EBOX BASIC ELECTRONIC PROTECTION PANEL	
EBOX PLUS ELECTRONIC PROTECTION PANEL	

8.6. CE marking and minimum instructions for DNA

Pos.	Description
1	Pump Designation
2	Serial number
3	Model Code
4	Max. liquid temperature
5	Max. flow rate
6	Max. head
7	Min head
8	Nominal shaft power
9	Nominal input power
10	IEC protection degree
11	Insulation class
12	Rated voltage
13	Rated current
14	Frequency
15	Capacitor capacity (not applicable)
16	Number of phases
17	Service level
18	Country of production
19	Max. installation depth
20	Ex/Quality Marks
21	CE Marking
22	Capacitor voltage
23	Serial number



Facsimile Feka VS CE Marking

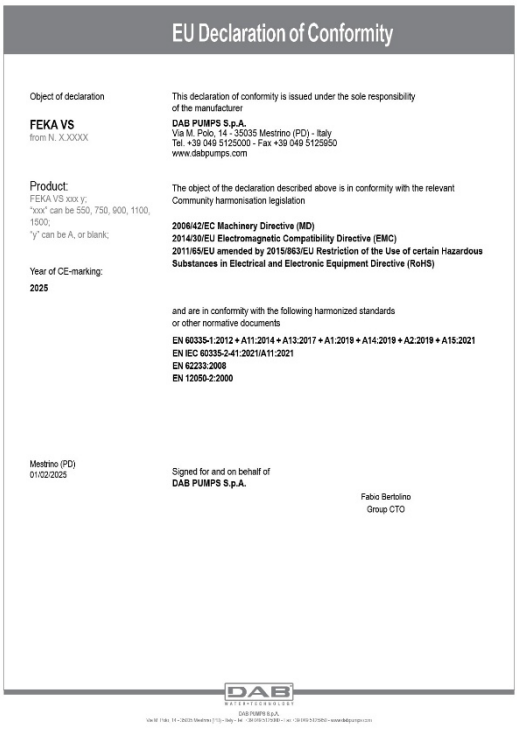
Consult the Product configurator (DNA) available on the DAB PUMPS website.

The platform allows you to search for pumps by hydraulic performance, model or article number. Technical data sheets, spare parts, user manuals and other technical documentation can be obtained.

https://dna.dabpumps.com/

9. DECLARATION OF CONFORMITY

For the product indicated in chapter 2.1, we declare that the device described in this instruction manual and marketed by us complies with the relevant EU health and safety regulations.
A detailed and updated declaration of conformity is available with the product.
If the product is modified in any way without our consent, this statement will become invalid.



EU Declaration of Conformity

Object of declaration

FEKA VS
from N. X.XXXX

Product:
FEKA VS xxx y;
"xxx" can be 550, 750, 900, 1100, 1500;
"y" can be A, or blank;

Year of CE-marking:
2025

This declaration of conformity is issued under the sole responsibility of the manufacturer

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The object of the declaration described above is in conformity with the relevant Community harmonisation legislation

2006/42/EC Machinery Directive (MD)
2014/30/EU Electromagnetic Compatibility Directive (EMC)
2011/65/EU amended by 2015/863/EU Restriction of the Use of certain Hazardous Substances in Electrical and Electronic Equipment Directive (RoHS)

and are in conformity with the following harmonized standards or other normative documents

EN 60335-1:2012 + A11:2014 + A13:2017 + A1:2019 + A14:2019 + A2:2019 + A15:2021
EN IEC 60335-2-41:2021/A11:2021
EN 62233:2008
EN 12050-2:2000

Mestrino (PD)
01/02/2025

Signed for and on behalf of
DAB PUMPS S.p.A.

Fabio Bertolino
Group CTO

Facsimile of EU Declaration of Conformity

10. GUARANTEE

DO NOT ALTER THE PERFORMANCE, CHARACTERISTICS, FUNCTIONALITY AND USE INTENDED BY THE MANUFACTURER
Any modification made without prior authorisation relieves the manufacturer of all responsibility.

The manufacturer is not liable for the proper functioning of pumps or any damage caused by them if they are tampered with, modified and/or operated outside the recommended working range or contrary to other provisions in this manual.

DAB undertakes to ensure that its Products comply with what has been agreed and are free from original defects and faults connected with their design and/or manufacture that make them unsuitable for the use for which they are normally intended.

For more details on the Legal Guarantee, please read the DAB Guarantee Conditions published on the website https://www.dabpumps.com/en or request a printed copy by writing to the addresses published in the “contact” section.

APPENDIX SECTION

11. TECHNICAL DATA

	FEKA VS 550	FEKA VS 750	FEKA VS 900	FEKA VS 1100	FEKA VS 1500
Supply voltage (V)	1 X 220/240V 3 X 400V				
Frequency (Hz)	50 Hz				
Pumps maximum rated current 1x220-240 (A)	4.1	4.8	6.3	7.3	9.1
Pumps maximum rated current 3x400 (A)	1.8	2	2.6	2.9	3.8
Pumps maximum rated power 1x220-240 (W)	900	1100	1350	1600	2000
Pumps maximum rated power 3x400 (W)	900	1100	1350	1600	2000
Motor insulation class	F				
Maximum head 1x220-240 (m)	7.8	9.6	11.8	14	17
Maximum head 3x400 (m)	7.8	9.6	11.8	14	17
Maximum flow rate 1x220-240 (l/min)	333	400	450	533	633
Maximum flow rate 3x400 (l/min)	333	400	450	533	633
Degree of protection	IP68				
Ambient operating temperature (°C)	40				
Storage temperature (°C)	-10 / +40				
Max liquid temperature (°C)	0 to +35 for domestic use (EN 60335-2-41) 0 to +50 for other uses (pump running for a period of time not exceeding 10 minutes)				
Maximum suction pressure (under head installation) (bar)	Not applicable				
Minimum suction pressure (under head installation) (bar)	Not applicable				
Sound pressure dB (A)	Below 70 dB				
Maximum altitude (m a.s.l.)	Up to 2000				
Weight (kg)	12.5	12.5	15.6	15.6	16.7
Type of service	S1 (continuous) S3 (maximum temperature 50°C for maximum 10 minutes)				

Table 3: Technical data

12. Removing and replacing the power cable

ATTENTION!
Before proceeding, make sure the pump is not connected to the power supply.

- Unscrew the four screws on the cap and remove it using the handle.
- Loosen the cable gland on the cap.
- Disconnect the power cable and motor cable connectors.
- Remove the cable from the cap.
- Replace the cable with a new H07RN-F one (see 8.4 Spare parts).

The power cable must be replaced using cable of the same type H07RN-F and with the same termination, following the disassembly instructions in reverse.

13. TROUBLESHOOTING

Before starting to look for faults it is necessary to disconnect and padlock the power supply to the pump (unplug from the socket).

Installation, maintenance, repairs or transport must only be carried out by Specialised Personnel who must only follow operations and manoeuvres within their competence and of which they are fully aware.
Cleaning, checks and inspections to be carried out by the user must not be carried out in the presence of unsupervised children.
If the causes require maintenance, see chapter MAINTENANCE

PROBLEMS	POSSIBLE CAUSES	REMEDIES
The motor does not start and generates no noise.	1.Check the motor is powered.	
	2.Check the safety fuses.	2.If blown, replace them.
	3.The float switch prevents start-up.	3.Check that the float moves freely. Check that the float is efficient (contact the supplier).
Pump delivery is not working.	1.The suction grille or pipes are clogged.	1.Remove the obstructions.
	2.The impeller is worn or obstructed.	2.Replace the impeller or remove the obstruction.
	3.The non-return valve when installed on the delivery pipe is locked in closed position.	3.Check the valve is working correctly and replace it if necessary.
	4.The liquid level is too low. At start-up the water level must be above that in the pump body.	4.Adjust the float switch cable length. (See “ADJUSTING THE FLOAT SWITCH”).
	5.The required head is above pump specifications.	
The pump does not stop.	1.The float does not interrupt pump operation.	- Check that the float moves freely. - Check the efficiency of the float (contacts may be damaged - contact the supplier).
Insufficient flow rate.	1.Check the suction grille is not partially obstructed.	1.Remove any obstructions.
	2.Check that the impeller or delivery pipe is not partially obstructed or fouled.	2.Remove any obstructions.
	3.Check that the impeller is not worn.	3.Replace the impeller.
	4.Check that the non-return valve (if fitted) is not partially clogged.	4.Clean the non-return valve thoroughly.
	5.Check the direction of rotation in three-phase versions (see “CHECK DIRECTION OF ROTATION”).	5.Invert the two power supply wires.
The pump starts but the thermal protection trips.	1.Check the pumped liquid is not too thick, as this would cause the motor to overheat.	
	2.Check that the water temperature is not too high (see liquid temperature range).	
	3.The pump is partially blocked by impurities.	3.Clean the pump thoroughly.
	4.The pump is mechanically blocked.	4.Check for dragging between moving and fixed parts; check the wear condition of the bearings (contact the supplier).
The pump does not start.	1.Blocked impeller.	1.Remove the obstruction, wash and clean; contact DAB Customer Service if necessary.
Absorption exceeds data plate values.	1.Blocked impeller.	1.Remove the obstruction, wash and clean; contact DAB Customer Service if necessary.
The pump is noisy	1.Check motor direction of rotation in three-phase version.	1.Invert the two power supply wires.
	2.Check that the blade rotates freely.	2.Contact DAB Customer Service.

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