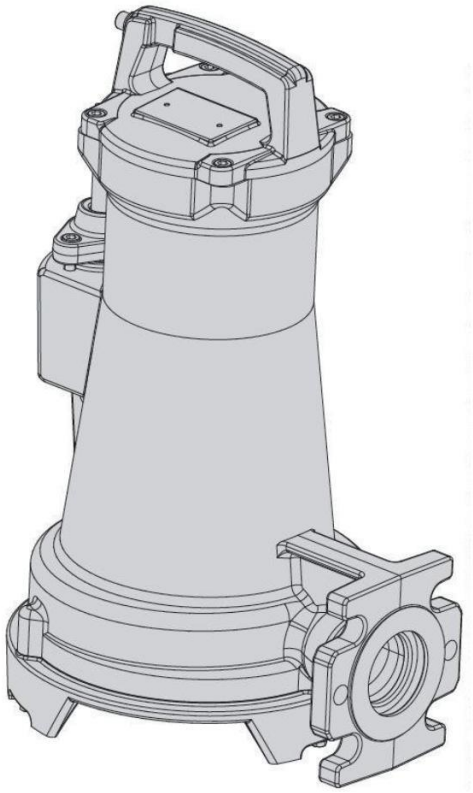
# DRAINEX 400-500-600



**EN** Instruction manual
*(Translation from the original Spanish)*

## EN: EVIDENCE OF CONFORMITY

We declare, under our responsibility, that the products in this manual comply with the following directives and standards:

- Directive 2006/42/EC (Machine Security): Standard EN 809 and EN 60204-1
- Directive EMC 2014/30/EU (Electromagnetic compatibility): Standard EN 61000-6-1 y EN 61000-6-3
- Directive 2014/35/EU (Low voltage): Standard EN 60335-1, EN 60335-2-41
- Directive 2011/65/UE (Restriction of hazardous substances): Standard EN 50581.
- UNE-EN ISO 3744 (Noise emisión values in instruction manual)

## UKCA CERTIFICATE OF CONFORMITY

### EVIDENCE OF CONFORMITY

We declare, under our responsibility, that the products in this manual comply with the following directives and standards:

- Supply of Machinery (Safety) Regulations 2008: Standard BS 809 and BS 60204-1
- Electromagnetic Compatibility Regulations 2016: Standard BS 61000-6-1 and BS 61000-6-3.
- Electrical Equipment (Safety) Regulations 2016: Standard BS 60335-1 and BS 60335-2-41.
- The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012. Standard BS 50581.

Banyoles, April 15th 2021



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## Damage prevention and safety instructions (See figure 5)

| | |
|---|---|
| **A** | Warning! Observe limitations of use. |
| **B** | The nameplate voltage must be the same as the mains voltage. |
| **C** | Connect the pump to the mains via an omnipolar switch with at least a 3 mm opening between contacts. |
| **D** | Install a high-sensitivity differential switch (0.03A) as extra protection against lethal electric shocks. |
| **E** | Connect the pump to the ground. |
| **F** | Use pump only within performance limits indicated on the nameplate. |
| **G** | Be careful with hazardous liquids and environments. |
| **H** | Do not carry the pump by the power cable. |
| **I** | This apparatus may be used by children 8 years or older and persons with reduced physical, sensory or mental capacities, or lacking experience and knowledge, if they are supervised or receive adequate training on the safe use of the apparatus and understand the dangers.<br>Children should not be allowed to play with the apparatus.<br>Children should not perform the ordinary cleaning and maintenance tasks without supervision. |
| **J** | The pump should only be dismantled by authorized personnel. |
| **K** | Cut out power supply before servicing pump. |
| **L** | Caution! Avoid icing. |

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## Safety precautions

This symbol  together with one of the following words “Danger” or “Warning” indicates the risk level deriving from failure to observe the prescribed safety precautions:

| | | |
|---|---|---|
|  | **DANGER risk of electric shock** | Warns that failure to observe the pre cautions involves a risk of electric shock. |
|  | **DANGER** | Warns that failure to observe the pre cautions involves a risk of damage to persons and/or things. |
|  | **WARNING** | Warns that failure to observe the pre cautions involves the risk of damaging the pump and/or the facility. |

## 1. GENERAL INFORMATION

Please observe the following instructions to achieve the best pump performance possible and a trouble free installation.


Read these instructions before installing the pump. Save them for future reference.

The DRAINEX models are used for the drainage of sewage water with particles in suspension, septic tanks, etc. Passage of particles in the DRAINEX 400/500 models = 40mm (MAX) and in the DRAINEX 600 models = 65mm (MAX).
The maximum water temperature is 40°C.

All pumps have been manufactured in top quality material, submitted to strict hydraulic and electric controls.


Correct pump operation is assured providing the instructions on electrical connection, installation and use are strictly adhered to.


Failure to adhere to the instructions can result in premature failure of the pump and voiding of the warranty.


The pump cannot be used in a swimming-pool while there are people bathing.


**Do not put your hand or any object into the suction or discharge mouth, since the rotating impeller could cause serious injury or damage.**

## 2. APPLICATION

- Equipment to transfer water containing suspended particles.

- Pumps suitable for extracting drainage and waste water; with filter for solids measuring 40mm and 65 mm.

## 3. SAFETY

The pump must only be installed in pits by qualified personnel in strict compliance with health and safety regulations in force.

Pit work must be carried out in accordance with local regulations.

## 4. HANDLING

The pumps are supplied suitably packaged to prevent damage in transit. Before unpacking, check that the packaging has not been damaged or de-formed,


Lift and handle the product with care and with the right tools.

## 5. INSTALLATION

### 5.1. Fixing and transport

- Transportable option

- Stationary option

In both cases, the necessary accessories can be supplied separately with their assembly instruct- ions.

For the transportable option, the following are supplied: a chain, stainless steel bases, discharge elbow and screws to fix the latter.

For the stationary option, the following are supplied: a pump fixing accessory, a stationary accessory, a base for two 1” tubes, a joint and all necessary nuts and bolts. See (Fig. 3)

Always lift the pump using the handle.

The pump must always be totally submerged which will provide it with the necessary cooling.
Ensure there is enough space for the free operation of the float switch (fig.3).


The pump must never be supported by the electric cable or the discharge line (fig.3).

### 5.2. Discharge pipe assembly

In cases in which the discharge run is lengthy or sinuous, we recommend using lines with a larger diameter than the discharge mouth, to avoid head loss due to friction as much as possible and to obtain the best hydraulic performance possible.

Install a check valve to the outlet of the pump and you will prevent pipe from emptying each time pump stops. The check valve must permit the passage of solids.
Ensure that the pipe is not bent and that is correctly secured to the outlet connection because, in addition to preventing the desired flow, proper pump operation will be hindered.

### 5.3. Electrical connection

The electrical installation must have an effective earth and comply with the national regulations in force.

The protection of the system will be based on a differential switch (Δfn = 30mA) in addition to a multi-pole isolator with a minimum 3 mm contact openings,

Pumps assembled with a starting control box or fitted with a capacitor are supplied ready for operation.

In the case of three-phase pumps the user must provide the protection system.

All pumps must be connected to a controlpanel fitted with a motor protector. ESPA control panels are built in. The panel comes with theoperating instructions and technical information.

### 5.4. Pre-start checks

The fitter must use a liquid level detection system to ensure that the pump remains submerged at all times.

Pumps are supplied with thermal protectors in their windings. The latter must be connected to a protective switch so that the pump is disconnected before the winding reaches the maximum permitted temperature. Regulations do not permit automatic reconnection, so the control panel must also be equipped with a system to prevent automatic resetting.

ESPA control panels are equipped with all the safety devices mentioned.

See connections diagram (Fig. 2).

THIS PUMP MUST NEVER BE DRY RUN.

### 5.5. Checkspriortoinitialstart-up

ATTENTION. Check that the mains voltage and frequency coincide with those shown on the nameplate.

The pump must work in a **fullysubmerged** positionto achieve optimal cooling. See**(Fig. 4)**

**THE PUMP MUST NEVER OPERATE WITHOUT WATER.**

## 6. STARTING

If there is a line valve, open it completely.

Connect the electrical panel plug into a socket. If there is an appropriate level of water, the motor will immediately start up.
Check that the absorbed current is the same as marked on the name plate.
If the motor does not start or no water flows at the end of the line, try to find the anomaly using the troubleshooting guide in point 8.

In the case of three-phase pumps check that the turning direction corresponds to the direction marked by the arrow situated in the suction cone. (fig. 4)

Contact with the rotating impeller may cause serious injury.

## 7. MAINTENANCE

### 7.1. General indications

Disconnect the pump from the mains before performing any operation whatsoever.

Under normal conditions these pumps require no special or planned maintenance.

During frosty periods, remember to drain the line.

If the pump is not going to be operated for a long period of time, it is recommended to remove the tank, clean it and store it in a dry, well ventilated place.

To unclog or clean the impeller, it is only necessary to raise the suction cone. To do this, unscrew the screws that fasten the legs. The cover assembly must come off as a whole (fig.4).

ATTENTION: In the event of faults or damage occurring to the pump, repairs should only be carried out by an authorised service agent.

The Official Technical Services list is in www.espa.com.

### 7.2. Maintenance / inspection

**Maintenance must be carried out exclusively by a specialist.**

Annual checks:
Check the power consumption, comparing it to the plate showing the characteristics of the pump.

Bearings and lubrication:
The bearings are supplied greased. They do not require subsequent lubrication.
To ensure that the bearings work properly, check whether the axis produces noise or does not rotate smoothly.

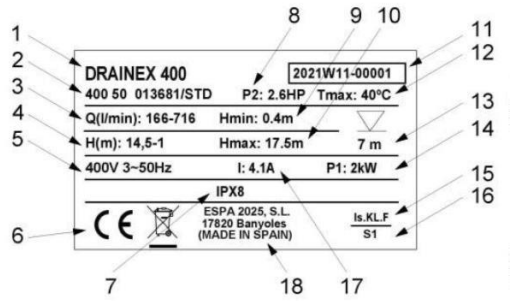
Wire inlet and suspension chain:
Visually check that the wire inlet is sealed and that the wire is not bent or pinched.
Check that the chain is secured properly and that it is not damaged.

Cleaning the runner:
To unblock or clean the runner, you only need to lift the suction base. To do so, loosen the fixing screws (as shown in (Fig. 4)).
Changing the oil:
The oil that lubricates the locks while the pump operates under normal conditions should be changed after 3000 h of operation or once a year.
To empty it, dismantle the runner and loosen the T screw shown in (Fig. 4); and/or remove the lock.
Remember that once the rotating part of the lock has been loosened, the oil may leak between the friction areas.
To aid extraction of the runner, once you have removed the fixing screw you can screw in a M10 screw in the thread in the centre of the runner fitted for this purpose.
The oil used is a white oil of mineral origin with medicinal quality. The quantity is 0.7 l.
When changing the oil, use one with similar characteristics that fulfils regional regulations.
If you dismantle the mechanical locks, you are advised to replace them and change the oil.

## 8. DISPOSING OF THE PRODUCT

When the pump is eventually disposed of, please note that it contains no toxic or polluting material. All main components are material identified to allow selective disposal.
This product or parts of it must be disposed of in an environmentally sound way, use the waste collection service. If this is not possible, contact the nearest ESPA service workshop.

## 9. PLATE SHOWING CHARACTERISTICS




| | DESCRIPTION |
|---|---|
| 1 | Item reference |
| 2 | Voltage + frequency + item specifications |
| 3 | Flow |
| 4 | Pressure |
| 5 | Nominal voltage, no. stages, alternate current symbol and frequency |
| 6 | EC mark |
| 7 | Humidity protection level |
| 8 | Motor max. nominal output (P2) |
| 9 | Minimum working pressure |
| 10 | Maximum pressure |
| 11 | Year and week of manufacture + Pump serial number |
| 12 | Max. liquid temperature |
| 13 | Max. immersed depth |
| 14 | Electric pump unit absorbed power (P1) |
| 15 | Designated motor insulation |
| 16 | Continuous operation symbol |
| 17 | Maximum nominal intensity at nominal voltage |
| 18 | Name and address of vendor responsible for the product |

## 10. POSSIBLE FAULTS, CAUSES AND SOLUTIONS

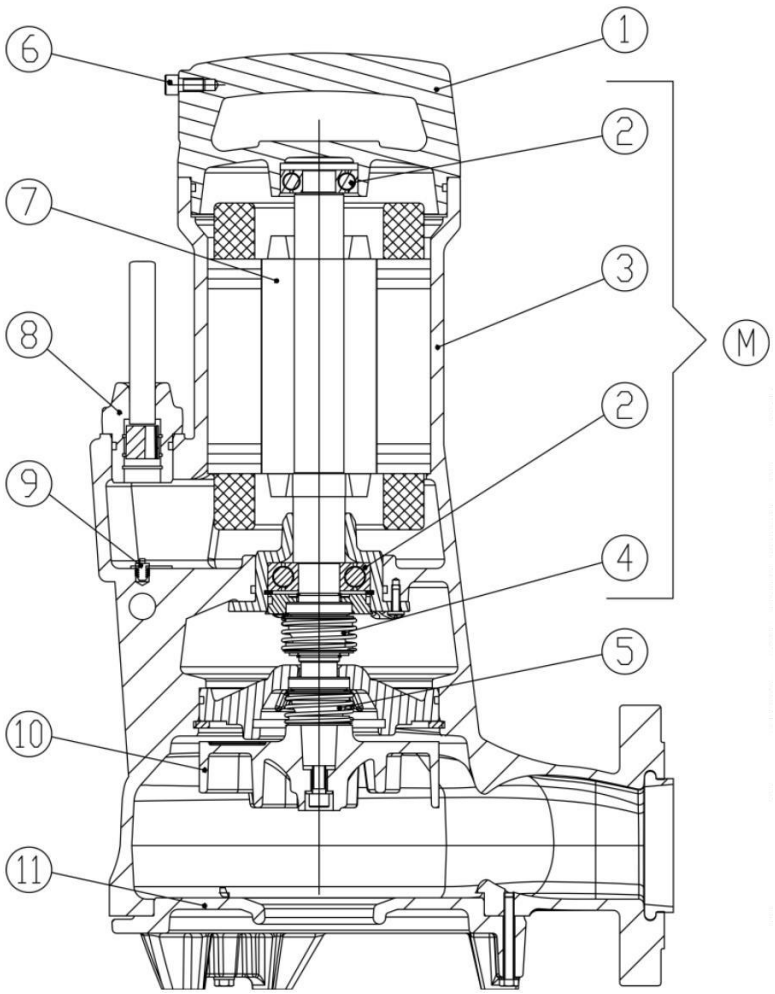
1) The pump does not start.
2) Pump runs but there is no flow.
3) Pump stops automatically.
**4)** Pump does not deliver rated capacity.

| 1 | 2 | 3 | 4 | POSSIBLE PROBLEM | SOLUTIONS |
|---|---|---|---|---|---|
| X | | | | Lack of electricity | Replace fuses or switch RCCB (30mA) |
| X | | X | | Improper thermal protection | Switch thermal protector or check that voltage is correct |
| X | | | | Float switch disconnected | Wait for water level to be back to adequate level |
| X | | X | | Wet end blocked | Call Service Engineer |
| X | | | | Blocked float switch | Check the free operation of the float switch |
| | X | | | Disconnected discharge pipe | Connect it and fix the discharge pipe correctly |
| | X | | | Air trapped at the pump body | Move the pump laterally to empty the air |
| | X | | | Check valve assembled way round | Assemble the valve correctly |
| | X | | | Pump partially covered of water | Submerge the pump or wait to have the suitable level |
| | X | | X | Inlet filter obstructed | Clean the suction filter |
| | | | X | Total manometric head higher than expected | Check the geometric head and loss of head |
| | | | X | Impeller worn | Contact a Service Engineer |
| | | | X | Deteriorated discharge pipe | Replace it by a new one |

## 11. TECHNICAL DATA

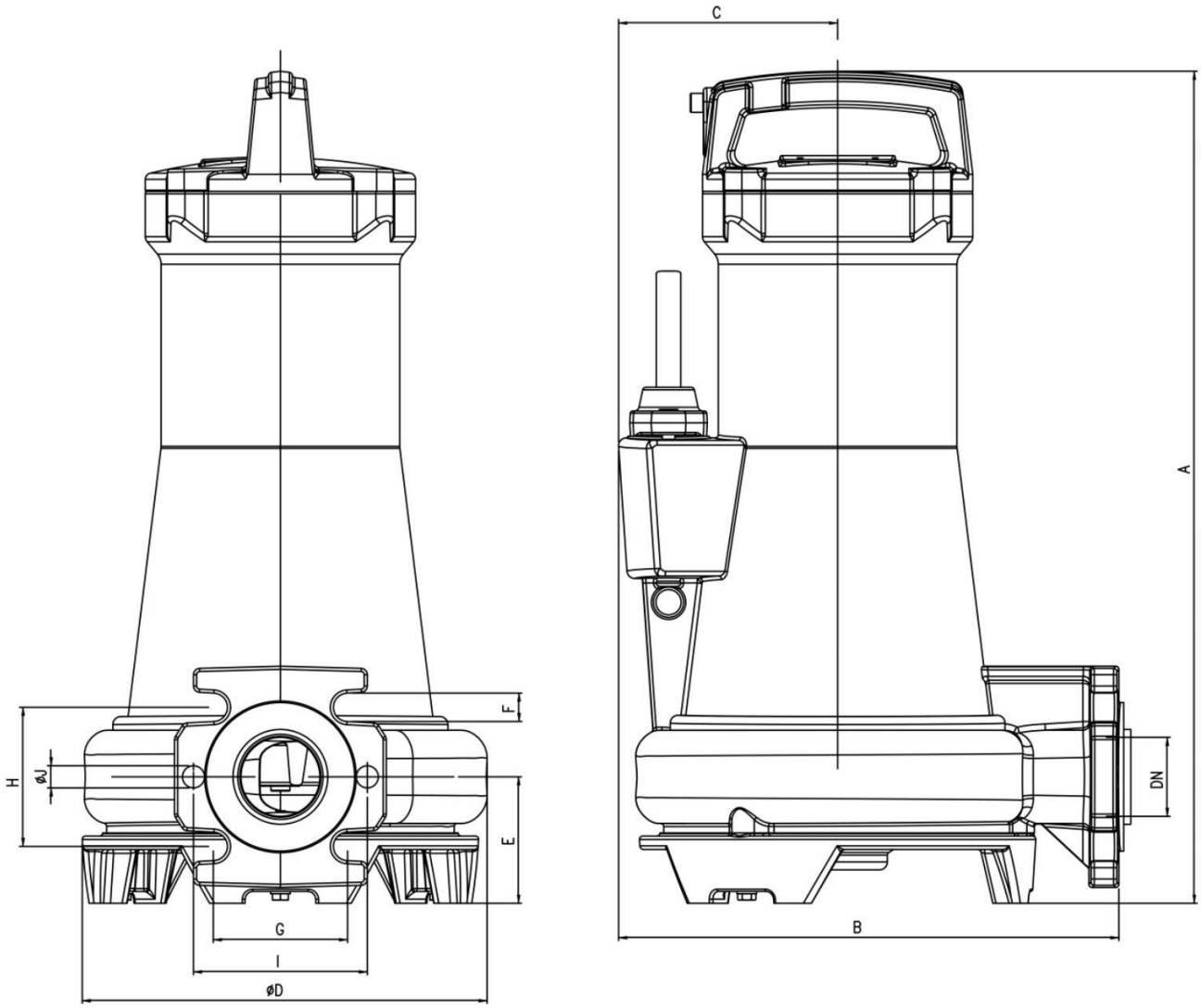
Liquid temperature… .....4ºC - 40ºC
Ambient temperature: .....0ºC - 40ºC
Storage temperature:.....-10ºC - 50ºC
Ambient relative humidity, max.: ..... 95%
Motor class I.
Other data see Figure 1.

EN List of main components




| | EN |
|---|---|
| 1 | Motor casing |
| 2 | Bearing |
| 3 | Pump casing |
| 4 | Motor system lock |
| 5 | Hidraulic system lock |
| 6 | Equipotential connection |
| 7 | Motor shaft |
| 8 | Cable |
| 9 | Humidity sensor (*) |
| 10 | Impeller |
| 11 | Suction cover |

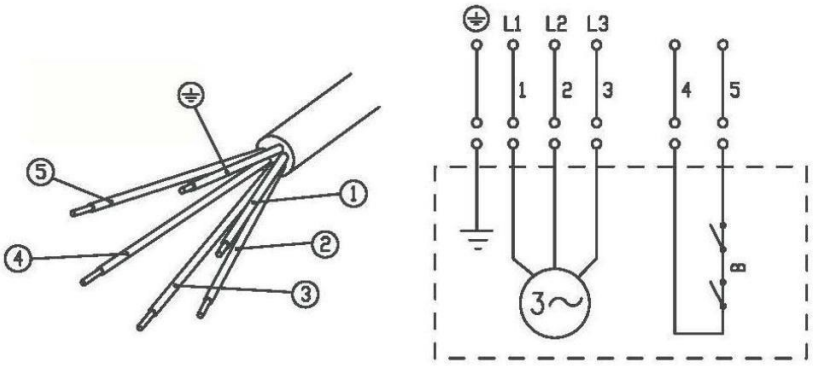
Fig.1




| 50 Hz | Q max. [l/min] | H max. [m] | A 3~ 400V | P1 [kW] | IP | η(%) | A [mm] | B [mm] | C [mm] | D [mm] | DN | E [mm] | F [mm] | G [mm] | H [mm] | I [mm] | J [mm] | ⚖ [kg] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DRAINEX 400 | 716 | 17,5 | 4,1 | 2 | X8 | 43 | 488 | 319 | 130 | 251 | 50 | 75 | 19 | 86 | 86 | 110 | 14 | 45 |
| DRAINEX 401 | 783 | 20,5 | 4,7 | 2,5 | X8 | 47 | 488 | 319 | 130 | 251 | 50 | 75 | 19 | 86 | 86 | 110 | 14 | 45 |
| DRAINEX 402 | 865 | 23,5 | 5,5 | 3,2 | X8 | 48 | 488 | 319 | 130 | 251 | 50 | 75 | 19 | 86 | 86 | 110 | 14 | 45 |
| DRAINEX 500 | 850 | 25 | 7,2 | 4,2 | X8 | 47 | 526 | 319 | 139 | 256 | 50 | 80 | 19 | 86 | 86 | 110 | 14 | 55 |
| DRAINEX 501 | 870 | 29 | 8,3 | 5 | X8 | 48,5 | 526 | 319 | 139 | 256 | 50 | 80 | 19 | 86 | 86 | 110 | 14 | 55 |
| DRAINEX 502 | 890 | 33 | 8,7 | 5,3 | X8 | 48 | 526 | 319 | 139 | 256 | 50 | 80 | 19 | 86 | 86 | 110 | 14 | 55 |
| DRAINEX 600 | 1050 | 16 | 5,7 | 3 | X8 | 48,5 | 567 | 348 | 139 | 254 | 65 | 87 | 19 | 110 | 110 | - | - | 60 |
| DRAINEX 601 | 1200 | 19 | 6,8 | 3,9 | X8 | 52 | 567 | 348 | 139 | 254 | 65 | 87 | 19 | 110 | 110 | - | - | 60 |
| DRAINEX 602 | 1310 | 22 | 8,1 | 4,8 | X8 | 52 | 567 | 348 | 139 | 254 | 65 | 87 | 19 | 110 | 110 | - | - | 60 |

Fig.2

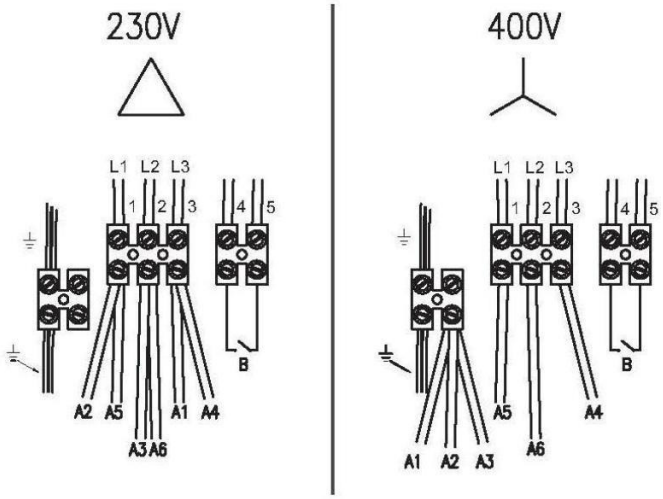
B – HEAT PROTECTORS




A1. White

A5. Black

MOTOR INTERNAL WIRING




A2. Red

A6. Blue

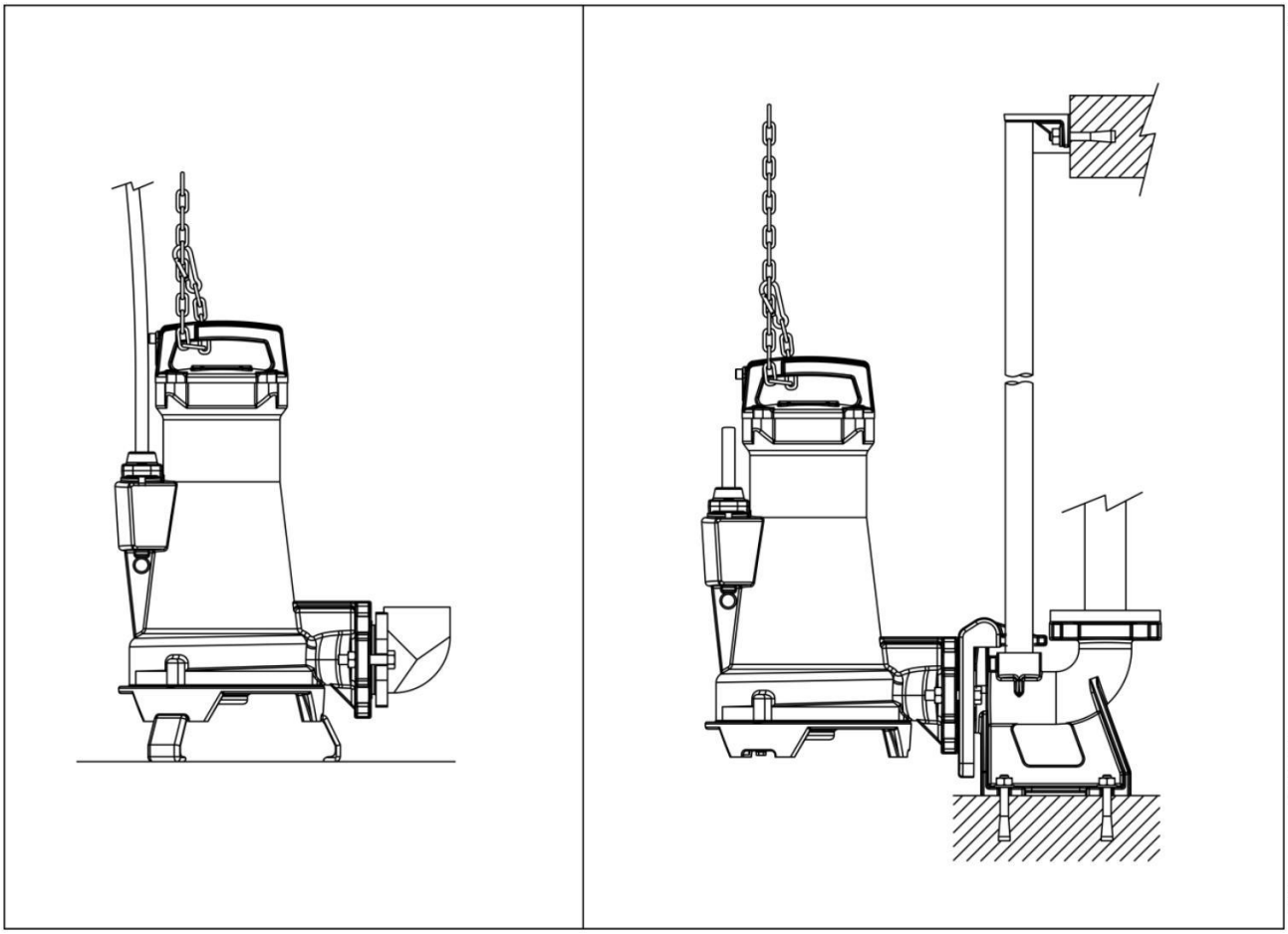
A3. Violet

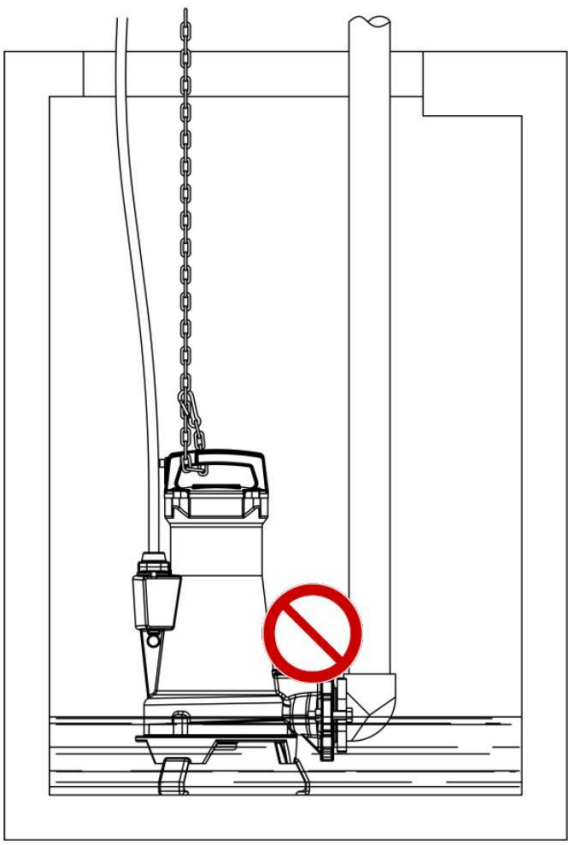
A7. Brown

A4. Green

A8. Gray

Fig.3





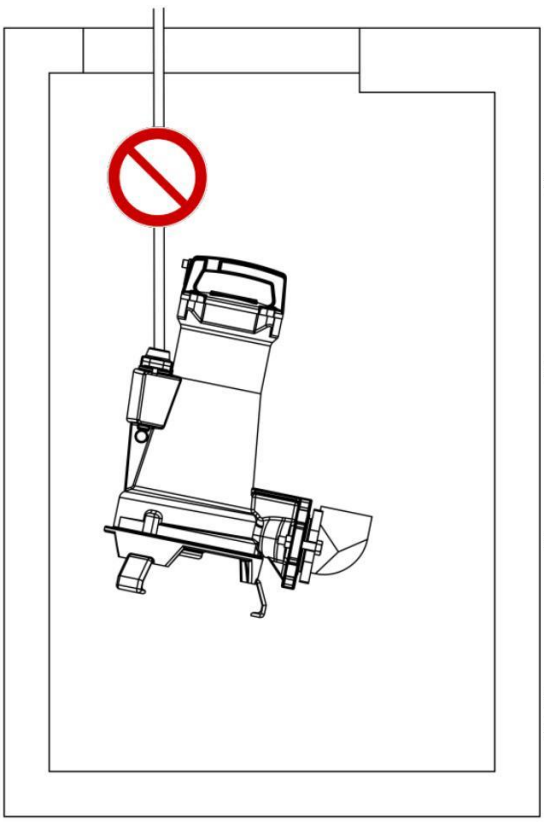


Fig. 4

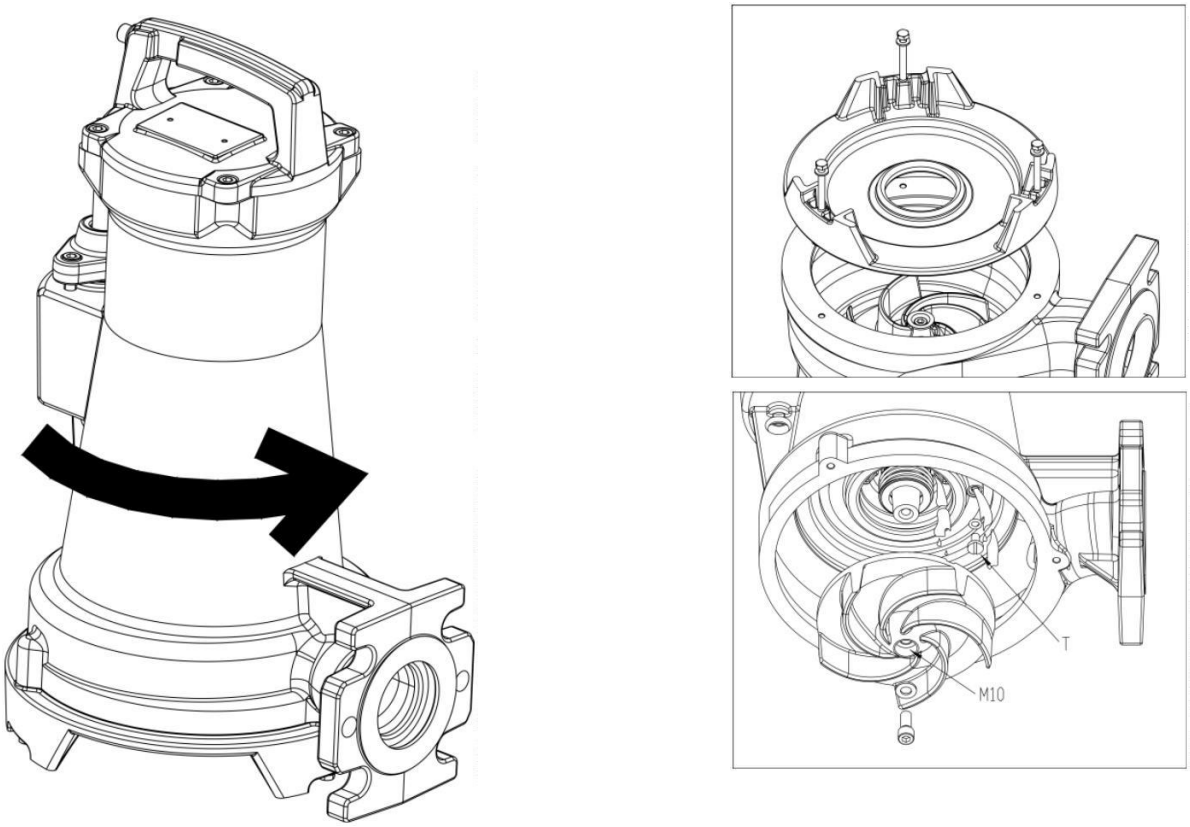
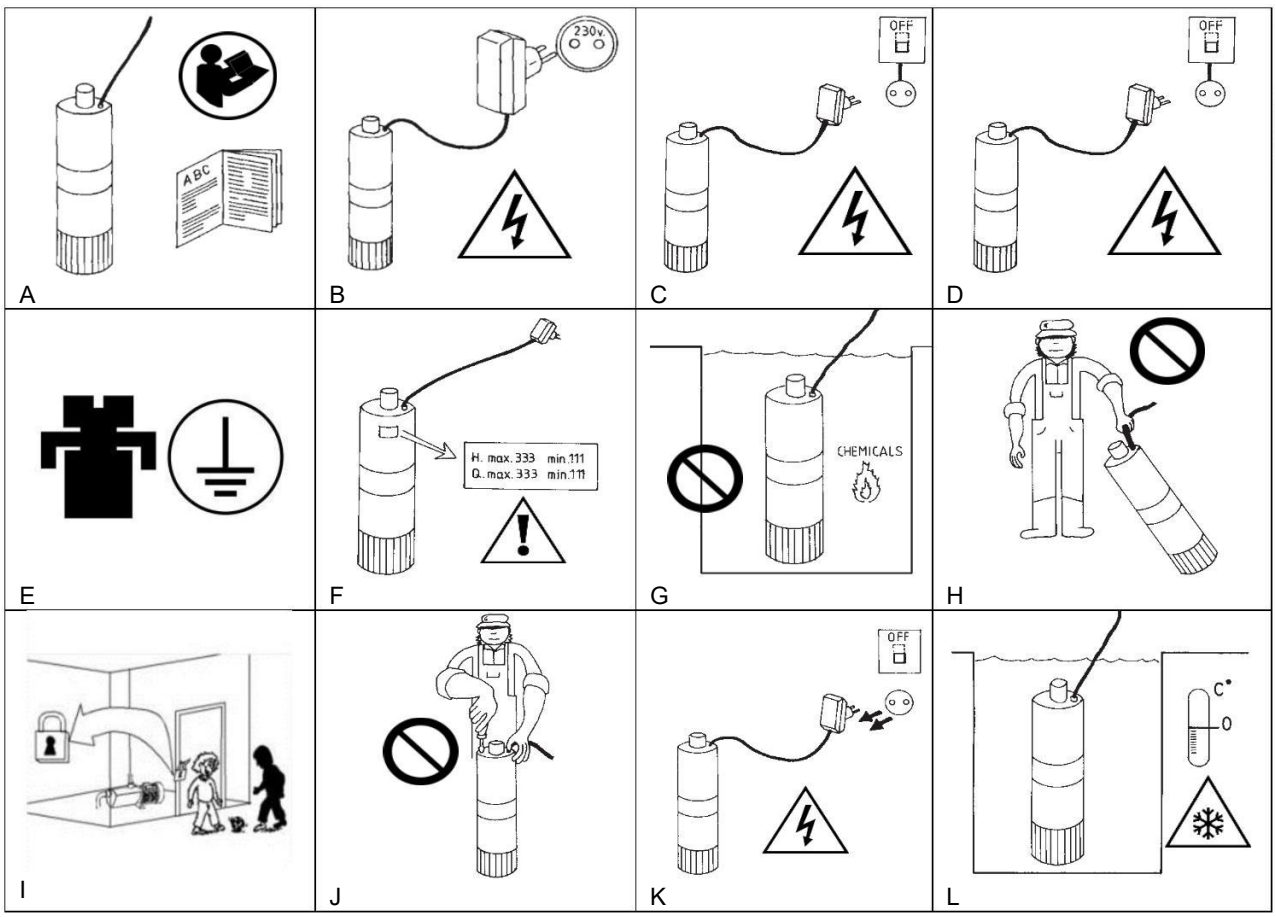

T
M10

Fig. 5


A
B
230v
C
OFF
D
OFF
E
F
H. max. 333 min.111
Q. max. 333 min.111
G
CHEMICALS
H
I
J
K
OFF
L
C°
0

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