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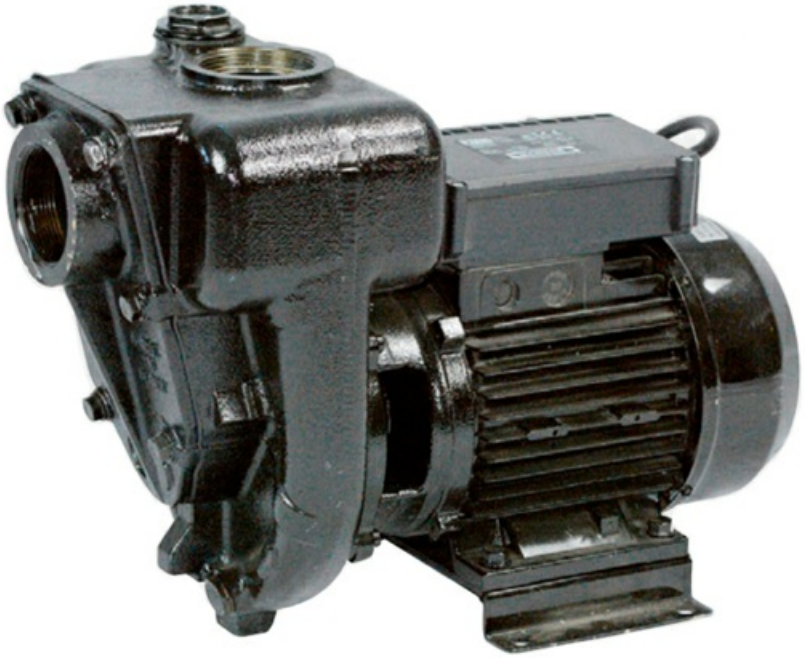
PIUSI E300 INSTALLATION, USE AND MAINTENANCE MANUAL



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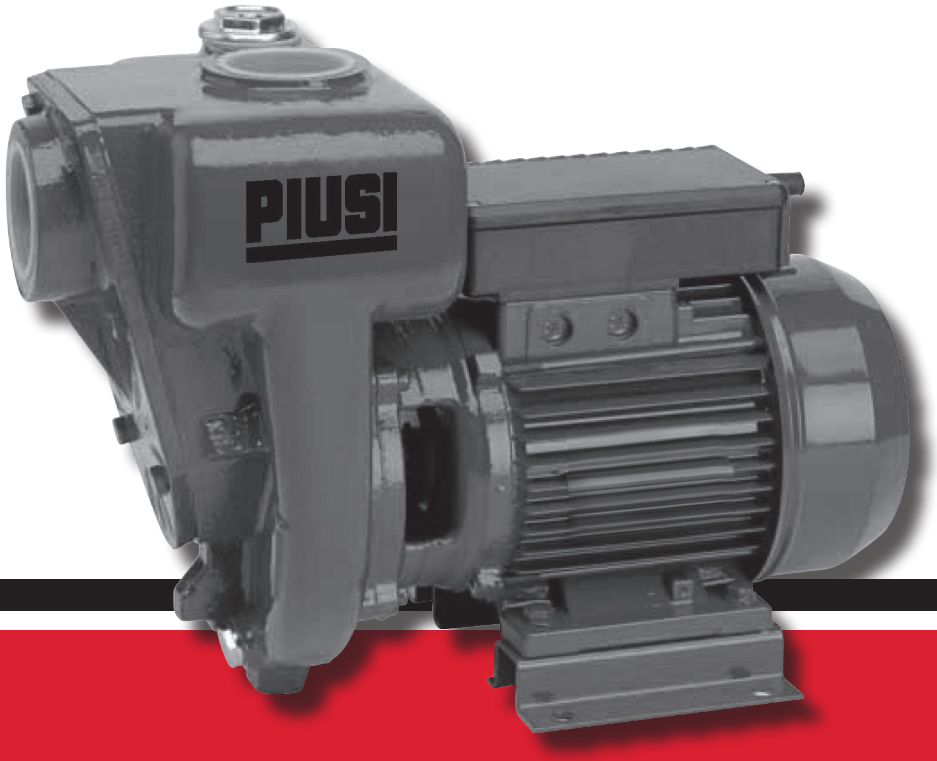
PIUSI®

Fluid Handling Innovation

E300



Installazione, uso e manutenzione | **IT**

Instalación, uso y mantenimiento | **ES**

Installation, use and maintenance | **EN**

MADE IN ITALY

BULLETIN MO362 A ML _ 00

ENGLISH

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B MACHINE AND MANUFACTURER IDENTIFICATION

Available models	***E300***
MANIFACTURER	PIUSI S.p.A Via Pacinotti c.m. z.i.Rangavino 46029 Suzzara - Mantova - Italy
ATTENTION	***Before installing, always make sure the unit is correct and suitable for the available power supply (Voltage/Frequency).***

C DECLARATION OF CONFORMITY

The undersigned: PIUSI S.p.A
Via Pacinotti c.m. z.i.Rangavino
46029 Suzzara - Mantova - Italy

Serial number: refer to Lot Number shown on CE plate affixed to product
Year of manufacture: refer to the year of production shown on the CE plate affixed to the product
is in conformity with the legal provisions indicated in the directives :
- Machine Directive 2006/42/EC
- Electromagnetic Compatibility Directive 2004/108/EC

The documentation is at the disposal of the competent authority following motivated request at Piusi S.p.A. or following request sent to the email address: doc_tec@piusi.com
The person authorised to compile the technical file and draw up the declaration is Otto Varini as legal representative.

Suzzara 01/01/2015

Otto Varini
legal representative.

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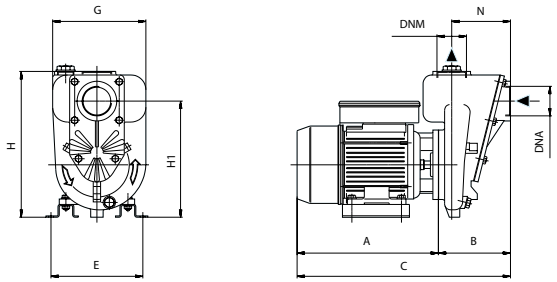
D MACHINE DESCRIPTION

PUMPA	Mono block self-priming electric pumps with open impeller.
MOTOR	2-pole induction electric motor (n=2850 min $^{-1}$)

D1 HANDLING AND TRANSPORT

Whenever the pump is raised, check that the capacity of the lifting devices and accessories (e.g. bands) is suitable. Any mechanical devices for handling and lifting should be operated only by qualified and suitably trained personnel.



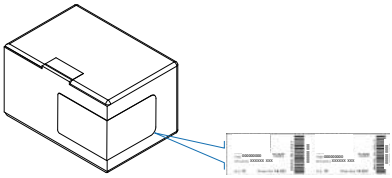
TYPE	DIMENSIONS										DIMENSION mm			WEIGHT
SINGLE PHASE	A	B	C	E	G	H	H1	N	DNA	DNM	P	L	H	Kg
E300	260	152	412	185	193	302	240	122	2"	2"	220	420	330	28

D2 PACKAGING

FOREWORD

E300 comes packed in a cardboard box with a label indicating the following data:

1 - contents of the package
2 - weight of the contents
3 - description of the product



E GENERAL WARNINGS

Important precautions

To ensure operator safety and to protect the pump from potential damage, workers must be fully acquainted with this instruction manual before performing any operation.

Symbols used in the manual

The following symbols will be used throughout the manual to highlight safety information and precautions of particular importance:

ATTENTION

This symbol indicates safe working practices for operators and/or potentially exposed persons.

WARNING

This symbol indicates that there is risk of damage to the equipment and/or its components.

NOTE

This symbol indicates useful information.

Manual preservation

This manual should be complete and legible throughout. It should remain available to end users and specialist installation and maintenance technicians for consultation at any time.

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F FIRST AID RULES

ATTENTION Contact with the product

In the event of problems developing following EYE/SKIN CONTACT, INHALATION or INGESTION of the treated product, please refer to the SAFETY DATA SHEET of the fluid handled.

NOTE

Please refer to the safety data sheet for the product

SMOKING PROHIBITED

When operating the dispensing system and in particular during refuelling, do not smoke and do not use open flame.

Persons who have suffered electric shock

Disconnect the power source, or use a dry insulator to protect yourself while you move the injured person away from any electrical conductor. Avoid touching the injured person with your bare hands until he is far away from any conductor. Immediately call for help from qualified and trained personnel. Do not operate switches with wet hands.

EN

G GENERAL SAFETY RULES

Essential protective equipment characteristics

Wear protective equipment that is:
suited to the operations that need to be performed;
resistant to cleaning products.

Personal protective equipment that must be work

Wear the following personal protective equipment during handling and installation:
safety shoes;

close-fitting clothing;

protective gloves;

safety goggles;

Other equipment

instruction manual

Protective gloves

Prolonged contact with the treated product may cause skin irritation; always wear protective gloves during dispensing.

WARNING

Never touch the electric plug or socket with wet hands.

Do not switch the dispensing system on if the network connection cable or important parts of the apparatus are damaged, such as the inlet/outlet pipe, nozzle or safety devices. Replace the damaged pipe immediately.

Before each use, check that the network connection cable and power plug are not damaged. Have the network connection cable replaced immediately by a qualified electrician.

ATTENTION

The electrical connection between the plug and socket must be kept well away from water.

Unsuitable extension leads can be dangerous. In accordance with current regulations, only extension cords that are labelled for outdoor use and have a sufficient conduction path should be used outdoors.

For safety reasons, we recommend that, in principle, the equipment be used only with a earth-leakage circuit breaker (max 30 mA).

In case of a fault of the pump, repair works can only be made by repair workshops of the technical support. Only original spare parts must be used.

BE AWARE THAT, PURSUANT TO PRODUCT LIABILITY LAW, WE SHALL NOT BE RESPONSIBLE FOR DAMAGES CAUSED BY OUR EQUIPMENT:

1. ***For improper repairs which are not made by the personnel of the service points authorized by us***
2. ***If original spare parts are not used.***
3. ***If the indications and provisions in this instruction manual are not observed.***

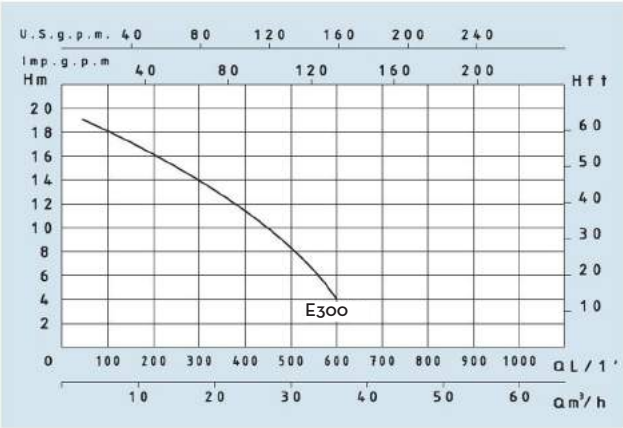
The same conditions shall apply to accessories.

H TECHNICAL SPECIFICATIONS

H1 ELECTRICAL DATA

POWER			POWER	CURRENT	RPM
POWER	Voltage (V)	Frequency (Hz)	Nominal (Watt)	Max (Amp)	Nominal (rev./m)
AC	230	50	1500	9.3	2580

H2 PERFORMANCE



TYPE	NOMINAL POWER P2		ABSORBED POWER P1	AMPERE	Q = FLOW RATE										
SINGLE-PHASE				SINGLE-PHASE	M³/h	1.5	3	6	12	18	24	36	48	60	72
	HP	kW	kW		lt/min.	25	50	100	200	300	400	600	800	1000	1200
230 V - 50 Hz				1 x 230 V	TOTAL GAUGE HEAD IN m.C.A.										
E300	2	1.5	2	9.3	H (m)		19	18	16	14	11	4			

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I OPERATING CONDITIONS

I1 ENVIRONMENTAL CONDITIONS

TEMPERATURE	min. 20 °C / max +60 °C
RELATIVE HUMIDITY	max. 90%
LIGHTING	***The environment must conform to directive 89/654/EEC on work environments. In case of non-EU countries, refer to directive EN ISO 12100-2 § 4.8.6.***
ATTENTION	***The temperature limits shown apply to the pump components and must be respected to avoid possible damage or malfunction.***

I2 POWER CONSUPTION

NOTA

Depending on the model, the pump must be fed by single-phase alternating current whose nominal values are those indicated in the Table.
The maximum acceptable variations from the electrical parameters are:
Voltage:+/- 5% of the nominal value
Frequency:+/- 2% of the nominal value

ATTENTION

Power from lines with values outside the indicated limits can damage the electrical components.

I3 WORKING CYCLE

NOTE

The motors are intended for continuous use. Under normal operating conditions they can function continuously with no limitations

I4 PERMITTED AND NON-PERMITTED FLUIDS

PERMITTED FLUDS	DIESEL WITH A VISCOSITY BETWEEN 2 AND 5.35 cST (AT A TEMPERATURE OF 37.8 °C) MINIMUM FLASH POINT (PM): 55 °C Ref: EN5902010 dtd. 25/03/2010
NON PERMITTED FLUIDS	ALL THE FLUIDS NOT MENTIONED IN "ADMITTED FLUIDS"

L INSTALLATION

L1 ASSEMBLY

ATTENTION PRELIMINARY INSPECTION

The pump must never be operated before the delivery and suction lines have been connected.

- Verify that all components are present. Request any missing parts from the manufacturer.
- Check that the pump has not suffered any damage during transport or storage
- Carefully clean the suction and delivery inlets and outlets, removing any dust or other packaging material that may be present
- Check that the electrical data corresponds to those indicated on the data plate

ATTENTION

THE MOTORS ARE NOT OF THE ANTI-EXPLOSIVE-TYPE.

POSITIONING

For detailed machine assembly instructions, refer to the exploded view:

For machine assembly and installation, always keep the same position indicated on the exploded diagram in this manual.

Take care to ensure that the unit is installed in a well-ventilated and illuminated environment.

The pump can be installed in any position (pump axis vertical or horizontal)

Attach the pump using screws of adequate diameter for the attachment holes provided in the bracket of the pump (see section "OVERALL DIMENSIONS" for their position and dimension).

L2 HYDRAULIC CONNECTION

NOTE

Before connecting, make sure that the hoses and the suction tank are free of dirt and thread residue, which could damage the pump and accessories.

ATTENTION

Before connecting the delivery hose, partially fill the pump body with the liquid that needs to be pumped (do not allow the pump to run dry during the priming stages).

ATTENTION

Do not use conical threaded joints that could damage the threaded pump openings if excessively tightened.

The MINIMUM recommended characteristics for hoses are as follows:

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SUCTION HOSE

- Install the suction hose in ascending position towards the pump. Do not install the suction hose beyond the pump height (air bubbles in the suction hose).
- Install the suction hose so as not to exert any mechanical pressure on the pump.
- The suction valve must be located at least 30 cm under the fluid level.
- Non-airtight suction hoses suck air and prevent the fluid from being sucked.
- Minimum nominal diameter: 2”
- Nominal recommended pressure: 10 bar
- Use tubing suitable for functioning under suction pressure.

DELIVERY HOSE

- Install the delivery hose so as not to exert any mechanical pressure on the pump.
-Minimum nominal diameter: 2”
-Nominal recommended pressure: 10 bar

ATTENTION

During the suction phase, the stop components (nozzles, valves etc.) in the delivery hose should be fully opened, so that the air in the suction hose is freely removed.

ATTENTION

It is the responsibility of the installer to provide the necessary line accessories to ensure the correct and safe operation of the pump. The accessories that are not suitable to be used with the previously indicated material could damage the pump and/or cause injury to persons, as well as causing pollution.
Loosening of the connections (threaded connections, flanges, gasket seals) could cause serious ecological and safety problems. Check all the connections after the first installation and, subsequently, check on a weekly basis. If necessary, tighten all the connections.

To maximise performance and prevent damage that could affect pump operation, always demand original accessories.

During initial start-up or accidental draining of the pump, fill the oil sump directly through the suction inlet of the pump. At the end of the operation, remember to connect the hose to the suction inlet.

When connecting the delivery and suction hoses, use the correct fittings (not supplied with the unit) with thread seal.

L3 CONSIDERATIONS REGARDING DELIVERY AND SUCTION LINES

DELIVERY

The choice of pump model to use should be made keeping in mind the viscosity of the oil to be pumped and the characteristics of the system attached to the delivery of the pump. The combination of the oil viscosity and the characteristics of the system could, in fact,create back pressure greater than the anticipated maximums (equal to Pmax), so as to cause the (partial) opening of the pump by-pass with a consequent noticeable reduction of the flow rate supplied.
In such a case, in order to permit the correct functioning of the pump equal to the viscosity of the oil being pumped, it will be necessary to reduce resistance in the system by employing shorter hoses and/or of larger diameter. On the other hand, if the system cannot be modified it will be necessary to select a pump model with a higher Pmax.

SUCTION

High suction pressure values lead to cavitation phenomena with high operation noise that over time can cause pump damage, as well as lower pump performance.
In any case, for as much as was said above, it is important to guarantee low suction pressures (short hoses and possibly of larger diameter than the suction inlet of the pump, fewer bends, wide section filters and kept clean).

ATTENTION

It is a good system practice to immediately install vacuum and air pressure gauges at the inlets and outlets of the pump which allow verification that operating conditions are within anticipated limits. To avoid emptying the suction hose when the pump is turned off, the installation of a foot valve is recommended.

L4 LINE ACCESSORIES

ATTENTION

It is the installer's responsibility to provide the line accessories necessary for the safe and proper functioning of the pump.The use of accessories unsuitable for use with diesel fuel can damage the pump, injurepersons and cause pollution.

Pumps are supplied without electrical safety devices such as fuses, motor protectors, and systems to prevent accidental restarting after periods of power failure or any other kind. It is the installer's responsibility to carry out the electrical connection with respect to the applicable regulations

IT IS THE INSTALLER'S RESPONSIBILITY TO CARRY OUT THE ELECTRICAL CONNECTIONS IN COMPLIANCE WITH THE RELEVANT STANDARDS.

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L5 ELECTRICAL CONNECTIONS

FOREWORD

The electrical connections must be performed in a workmanlike manner by skilled personnel, respecting the regulations in effect in the country of installation. To make the necessary connections, refer to the electrical wiring diagram in this manual.

ATTENTION

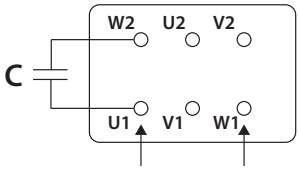
DIREC-TION FOR CORRECT ELECTRICAL INSTALLA-TION

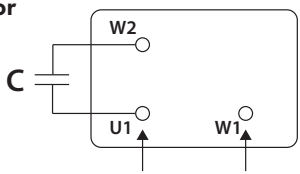
Respect the following (not exhaustive) instructions to ensure a proper electrical installation:

- During installation and maintenance make sure that power to the electric lines has been turned off.
- Employ cables characterized by minimum cross-sections, rated voltages and installation type adequate to the characteristics indicated in paragraph ELECTRICAL SPECIFICATIONS and the installation environment.
- All motors are equipped with a ground terminal to connect to the ground line of the electrical network
- Always close the cover of the terminals trip box before turning on the electric power, after checking the integrity of the gasket seals.

The unit is not equipped with circuit breakers. It is therefore recommended to install a 30-mA residual current operated circuit breaker on the plug. Protection: minimum 10 Amp.

C = Capacitor





ATTENTION

Single-phase motors are supplied with a bipolar switch and capacitors wired and installed inside the terminal strip box (see chart). The capacitor characteristics are those indicated on the pump label. The switch has the function of starting/stopping the pump and cannot in any way replace the main power switch required by the applicable regulations.

M INITIAL START-UP

FOREWORD

The pump E300 are self-priming and, therefore, able to draw oil from the tank even when the suction hose is empty on start-up. The priming height (distance between the surface of the oil and the inlet opening) must not exceed 2,5 meters.
- Check that the quantity of fluid in the suction tank is greater than the amount you wish to transfer.
- Make sure that the piping and line accessories are in good condition.
- Do not run the pump dry. This can cause serious damage to its components.
- Do not operate switches with wet hands.

ATTENTION ***Fluid leaks can damage objects and injure persons.***

NOTE ***- Never start or stop the pump by connecting or cutting out the power supply.***
- Prolonged contact with oil can damage the skin. The use of goggles and gloves is recommended.

NOTE ***It is recommended to use a suitable preliminary filter and a suction kit equipped with hose and foot valve (flow stop) to avoid long suction times and a useless damage of the pump caused by solid foreign objects incidentally sucked.***

ATTENTION ***In the priming phase the pump must relieve the air initially present in the entire installation out of the delivery line. Therefore keep the outlet open to allow the air to be relieved.***
If an automatic dispensing nozzle is installed at the end of the delivery line, the air relief may be difficult because of the automatic stopping device that keeps the valve closed when the line pressure is too low. It is recommended that the automatic nozzle be temporarily removed during initial start-up.

The priming phase may last from several seconds to a few minutes, depending on the characteristics of the system. If this phase is excessively prolonged, stop the pump and verify:

- that the pump is not running completely"dry".
- that the suction hose guarantees against air infiltration and is correctly immersed in the fluid to be drawn.
- that the delivery hose allows for the easy evacuation of the air.
- that the pump is under head

Verify that the pump is functioning within the anticipated ranges, possibly checking:

1. That under conditions of maximum back pressure, the power absorption of the motor stays within the values shown on the identification plate
2. That the suction pressure does not exceed the limits indicated in paragraph CONSIDERATIONS REGARDING SUCTION & DELIVERY LINES
3. That the back pressure in the delivery line does not exceed the values indicated in paragraph CONSIDERATIONS REGARDING SUCTION & DELIVERY LINES.

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N START-UP AND EVERY DAY USE

N1 GENERAL INFORMATION

FOREWORD

Make sure that the hoses and line accessories are in good condition. Oil leaks can damage objects and injure persons.

Extreme operating conditions can raise the motor temperature and, consequently, cause the thermal protection switch to stop it.

Switch off the unit and wait for it to cool down before using again. The thermal protection automatically turns off when the motor is sufficiently cool.

ATTENTION

Before starting up the system, make sure that the unit has been assembled correctly, with all lids correctly closed.

N2 EVERY DAY USE

1. Supply voltage to the system by connecting the plug to the mains
2. If flexible pipes are used, attach the ends of the piping to the tanks. In the absence of an appropriate slot, solidly grasp the end of delivery pipe before beginning dispensing.
3. Before starting the pump make sure that the delivery valve is closed (dispensing nozzle or line valve).
4. Turn the ON/OFF switch on.
5. Open the delivery valve, solidly grasping the end of the tubing.
6. Close the delivery valve to stop dispensing.
7. When dispensing is finished, turn off the pump.

ATTENTION

Operation with delivery closed is only allowed for short periods (2 to 3 minutes maximum). After use, make sure the pump is turned off.

N3 NO POWER SUPPLY

NOTE

An electric power failure, with the consequent accidental stopping of the unit, can be caused by:
- safety device tripping (if present at the system inlet)
- drop in line voltage
- fuse burnt out

O NOISE LEVEL

Under normal operating conditions noise emission for all models does not exceed the value of 70 dB "A" at a distance of 1 Meter from the electric pump.

P MAINTENANCE

Foreword

The unit is designed and built to require a minimum of maintenance. In any case always remember the following basic recommendations to ensure a good functioning of the unit:

In case of frost risk, empty the pump completely.

Before a long period of inactivity, empty the pump, rinse it with water and store it in a dry place. Before restarting it, check its correct operation by turning it on and off shortly. Afterwards fill the pump with delivery fluid and prepare it for use.

ATTENTION

DISCONNECT THE HYDRAULIC POWER DURING ANY MAINTENANCE OPERATION ON THE UNIT

Q PROBLEMS AND SOLUTIONS

PROBLEM	CAUSE	SOLUTION
THE MOTOR DOES NOT START	No mains voltage	Check the voltage
	Pump impeller locked	Remove the hydraulic part and check if the impeller is free to rotate. Reinstall carefully
	Thermostat disconnected	
THE PUMP DOES NOT SUCK	Suction valve outside the fluid	Place the valve into the fluid (minimum 30 cm below the level)
	Pump chamber without fluid	Pour the fluid into the suction fitting
	Air in the suction hose	Check the seal of suction hose
	No hermetic suction valve	Clean the suction tube
	Dirty suction filter	Clean the filter
	Maximum suction height exceeded	Check suction height
INSUFFICIENT FLOW-RATE	Suction height too high	Check suction height
	Dirty suction filter	Clean the filter
	Fluid level lowers quickly	Place suction valve lower
	Pump flow-rate reduced by foreign objects	Clean the pump and replace worn parts
THE THERMAL SWITCH TURNS OFF THE PUMP	Overload motor. Too much friction caused by foreign objects	Remove foreign objects Wait until thermal protection switch trips again

If the fault cannot be removed, contact the authorised service department nearest to you. To avoid any damage during transport, PLEASE CARRY OUT THE SHIPMENT WITH ORIGINAL PACKAGING.

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R DEMOLITION AND DISPOSAL

Foreword

If the system needs to be disposed, the parts which make it up must be delivered to companies that specialize in the recycling and disposal of industrial waste and, in particular:

Disposing of packing materials

The packaging consists of biodegradable cardboard which can be delivered to companies for normal recycling of cellulose.

Metal Parts Disposal

Metal parts, whether paint-finished or in stainless steel, can be consigned to scrap metal collectors.

Disposal of electric and electronic components

These must be disposed of by companies that specialize in the disposal of electronic components, in accordance with the indications of directive 2012/19/UE (see text of directive below).

Information regarding the environment for clients residing within the European Union

European Directive 2012/19/UE requires that all equipment marked with this symbol on the product and/or packaging not be disposed of together with non-differentiated urban waste. The symbol indicates that this product must not be disposed of together with normal household waste. It is the responsibility of the owner to dispose of these products as well as other electric or electronic equipment by means of the specific refuse collection structures indicated by the government or the local governing authorities.

Disposing of RAEE equipment as household wastes is strictly forbidden. Such wastes must be disposed of separately.

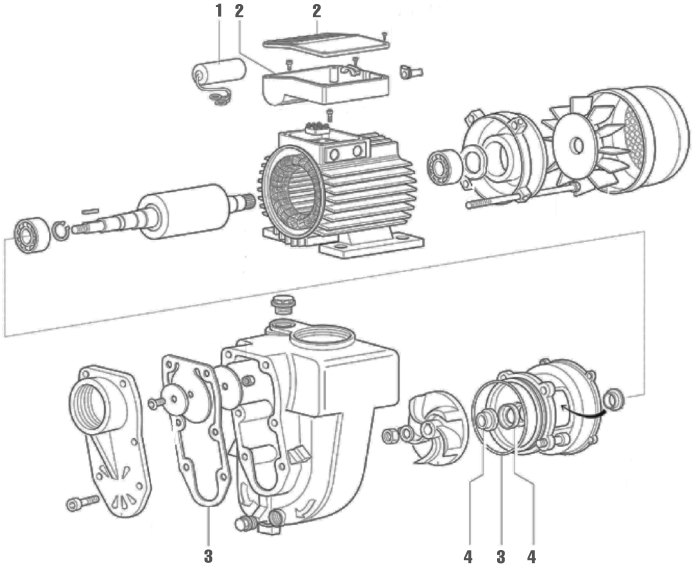
Any hazardous substances in the electrical and electronic appliances and/or the misuse of such appliances can have potentially serious consequences for the environment and human health.

In case of the unlawful disposal of said wastes, fines will be applicable as defined by the laws in force.

Miscellaneous parts disposal

Other components, such as pipes, rubber gaskets, plastic parts and wires, must be disposed of by companies specialising in the disposal of industrial waste.

S EXPLODED VIEW



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