TABLE OF CONTENTS

1 MACHINE AND MANUFACTURER IDENTIFICATION
2 CONFORMITY
3 MACHINE DESCRIPTION
3.1 DEFINITION OF CLASSIFIED ZONES
3.2 INTENDED USE
3.3 HANDLING AND TRANSPORT
4 GENERAL WARNINGS
5 FIRST AID RULES
6 GENERAL SAFETY RULES
7 TECHNICAL DATA
7.1 PERFORMANCE SPECIFICATIONS
8 ELECTRICAL DATA
9 OPERATING CONDITIONS
9.1 ENVIRONMENTAL CONDITIONS
9.2 ELECTRICAL POWER SUPPLY
9.3 DUTY CYCLE
9.4 FLUIDS PERMITTED
10 INSTALLATION
10.1 POSITIONING, CONFIGURATIONS AND ACCESSORIES
10.2 NOTES ON SUCTION AND DELIVERY LINES
11 CONNECTIONS
11.1 ELECTRICAL CONNECTIONS
11.2 PIPING CONNECTIONS
12 INITIAL START-UP
13 EVERY DAY USE
14 MAINTENANCE
15 NOISE LEVEL
16 PROBLEMS AND SOLUTIONS
17 DEMOLITION AND DISPOSAL
18 EXPLODED VIEWS

1 MACHINE AND MANUFACTURER IDENTIFICATION

EX 50

CE 0722	Ex II 2 G	PIUSI Suzzara (MN) Italy	ELECTRIC FUEL PUMP TYPE EX50 230V
		Ex db II B T4 Gb	L.N.
CESI 12 ATEX 033X		IECEX CES 12.0016X	Date
230V 50/60Hz	0,8 A	2700 RPM	1/8 HP	T.amb. -10° / +40°C
Insulation Class F		Duty min. 30 ON 30 OFF	Qmax 52 l/m - Pmax 1,1 bar

CAUTION: Automatic thermal protected motor - not open when energized

AVAILABLE MODELS: *Ex50 230V/50-60 Hz*

MANUFACTURER: PIUSI S.p.A., Via Pacinotti 16/A – z.i. Rangavino 46029 Suzzara - (MN) - Italy

THE PUMPS COMPLIES WITH THE FOLLOWING MARKING ATEX/IECEX

II	GROUP	Group II comprises appliances intended for use in other environments (other than mining) in which explosive atmospheres are probable.
2	CATEGORY	High protection, Category 2 for AREA 1 GAS and AREA 2 GAS
G	TYPE OF EXPLOSIVE ATMOSPHERE	Gas
Ex	PERMANENT PREFIX	Explosion-proof equipment certified according to the European ATEX directives
db	PROTECTION METHOD	explosion-proof cases (EN 60079-1)
IIB	GAS CLASS	Electrical appliances for potentially explosive environments other than mining, (ethylene)
T4	TEMPERATURE CLASS	The temperature of the pump will not exceed 135°C
Gb	EQUIPMENT PROTECTION LEVEL	equipment for explosive gas atmospheres, haviong a "heigh" level protection, which is not a source of ignition in normal operation or during expected malfunctions

2 CONFORMITY

ATTENTION	SEE "DECLARATION OF CONFORMITY" SHEET

3 MACHINE DESCRIPTION

PUMP SELF-PRIMING, VOLUMETRIC, ROTATING ELECTRIC VANE PUMP, EQUIPPED WITH BY-PASS VALVE.

MOTOR BRUSH MOTOR POWERED BY ALTERNATE CURRENT, WITH INTERMITTENT CYCLE, CLOSED TYPE, IP55 PROTECTION CLASS ACCORDING TO CEI EN 60034-5, FLANGE-MOUNTED DIRECTLY TO THE PUMP BODY.

WARNING	*MOTOR EQUIPPED WITH AUTOMATIC THERMAL OVERLOAD PROTECTION. SHOULD THE PROTECTION ACTIVATE, TURN OFF THE PUMP AND WAIT FOR IT TO COOL DOWN.*

3.1 DEFINITION OF CLASSIFIED ZONES

FOREWORD Definition of zones as shown in directive 99/92/CE

ZONE 0 Place where an explosive atmosphere made up of a mix of air and inflammable substances in the form of gas, vapour or mist is continuously present, either for long periods or frequently.
Note: Generally speaking, said conditions, when they occur, involve the inside of tanks, pipes and containers, etc.

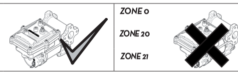
ZONE 1 Place where it is probable that an explosive atmosphere, made up of a mix of air and inflammable substances in the form of gas, vapour or mist, can occur occasionally during normal operation.
Note: Said zone can also include:
- places in the immediate vicinity of zone 0;
- places in the immediate vicinity of supply openings;
- places in the immediate vicinity of filling and and emptying openings;
- places in the immediate vicinity of appliances, protection systems and fragile glass and ceramic components, or components made of other similar materials;
- places in the immediate vicinity of inadequately sealed stuffing boxes, e.g., on pumps and valves with stuffing box.

ZONE 2 Place where it is improbable that an explosive atmosphere, made up of a mix of air and inflammable substances in the form of gas, vapour or mist, can occur during normal operation, but which, if it does occurs, only persists for a short time.
Note: Said zone can include, among others, places surrounding the zones 0 or 1.

ZONE 20 Place where an explosive atmosphere in the form of a cloud of combustible powders in the air is continuously present, either for long periods or frequently.
Note: Generally speaking, said conditions, when they occur, involve the inside of tanks, pipes and containers, etc.

ZONE 21 Place where it is probable that an explosive atmosphere, in the form of a cloud of combustible powders in the air, can occur occasionally during normal operation.
Note: Said zone can include, for example, among others, places in the immediate vicinity of powder loading and emptying points and places where powder layers form or which, during normal operation, could produce an explosive concentration of combustible powders mixed with the air.

ZONE 22 Place where it is improbable that an explosive atmosphere, in the form of a cloud of combustible powders in the air, occur during normal operation but which, if it does occur, only persists for a short time.
Note: This zone can comprise, among others, places near appliances, protections systems and components containing powder, out of which the powder can come out due to leaks with the formation of powder deposits (e.g., milling salt, where the powder comes out of the mills and deposits).



3.2 INTENDED USE

INTENDED USE	*PUMP FOR TRANFERRING FUEL SUITABLE FOR OPERATING IN ZONES CLASSIFIED "1" AND "2", ACCORDING TO DIRECTIVE 99/92/CE. THE DETERMINATION OF THE AREAS (ZONES) IS TO BE CARRIED OUT BY THE USER*
FORBIDDEN USE	Using the appliance for fluids other than those listed at paragraph "L4 – Fluids permitted" and for uses other than those described at the item "authorised use" is forbidden.

PLANT OPERATION RESTRICTIONS IT IS FORBIDDEN:

1. To use the appliance in a construction configuration other than that contemplated by the manufacturer
2. To use the appliance with fixed guards tampered with or removed.
3. To use the appliance in places where there is risk of explosion and/or fires classified in the following zones: 0; 20; 21; 22
4. To integrate other systems and/or equipment not considered by the manufacturer in the executive project.
5. To connect the appliance up to energy sources other than those contemplated by the manufacturer
6. To use the commercial devices for purposes other than those indicated by the manufacturer.
7. Do not use in case of lightnings

3.3 HANDLING AND TRANSPORT

Due to the limited weight and dimensions of the pumps, special lifting equipment is not required to handle them. The pumps are carefully packed before dispatch. Check the packing when receiving the material and store in a dry place.

4 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

WARNING *WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury*

NOTICE *NOTICE is used to address pratices not related to personal injury*

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.

Reproduction rights This manual belongs to Piusi S.p.A., which is the sole proprietor of all rights indicated by applicable laws, including, by way of example, laws on copyrights. All the rights deriving from such laws are reserved to Piusi S.p.A.: the reproduction, including partial, of this manual, its publication, change, transcription and notification to the public, transmission, including using remote communication media, placing at disposal of the public, distribution, marketing in any form, translation and/or processing, loan and any other activity reserved by the law to Piusi S.p.A..

NOTICE	*THIS MANUAL IS VALID ONLY FOR AC PUMPS. ALWAYS USE THE RIGHT VOLTAGES TO CONNECT THE PUMPS*
WARNING	*BEFORE PROCEEDING WITH THE REFUELLING OF THE AIRCRAFT, ENSURE THAT THE SYSTEM INTENDED FOR SUCH ACTION COMPLIES WITH THE REGULATIONS IN FORCE IN THE COUNTRY OF USE*
WARNING	*USE THE PUMP ONLY WITH FLUIDS PERMITTED. DO NOT USE WITH FLUIDS NOT PERMITTED TO AVOID DAMAGING THE PUMP. THE GUARANTEE LAPSES IN CASE OF MISUSE OF THE FLUID.*
	DO NOT USE THE PUMP WITH LIQUID FOOD PRODUCTS AND/OR WATER-BASED FLUIDS.
	DO NOT OPERATE THE PUMP DRY TO AVOID DAMAGE.
	Before connection, make sure that the piping and the suction tank are free of dirt and solid residue that could damage the pump and its accessories. NEVER COLLECT THE FLUID FROM THE BOTTOM OF THE TANK SINCE IT MAY CONTAIN IMPURITIES
	Keep a working fire extinguisher in the work area.
	Do not operate the unit when fatigued or under the influence of drugs or alcohol.
	Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
	Keep children and animals away from work area.
	Comply with all applicable safety regulations.
	Do not use in case of lightnings
	BEFORE USING THE PUMP SWITCH OFF ALL THE ELECTRONIC DEVICES (I.E. MOBILE PHONES, BEEPERS ETC.)

5 FIRST AID RULES

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.

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.

NOTICE	*Please refer to the safety data sheet for the product*
SMOKING PROHIBITED	*DO NOT SMOKE NEAR THE PUMP AND DO NOT USE THE PUMP NEAR FLAMES.*

6 GENERAL SAFETY RULES

USER'S RESPONSIBILITY	*IT IS ESSENTIAL TO GET TO KNOW AND UNDERSTAND THE INFORMATION CONTAINED IN THIS MANUAL.*
	IT IS ESSENTIAL TO GET TO KNOW AND OBSERVE THE SAFETY SPECIFICATIONS FOR FLAMMABLE LIQUIDS.
	BEFORE USING THE PUMP IT'S IMPORTANT TO TRAIN OPERATORS, INSTALLERS AND MAINTENANCE STAFF TO LET THEM WORK IN A PARTICULAR AREA NO. 1 AS MENTIONED BY DIRECTIVE 94/9/EC

Essential protective equipment characteristics IN CASE OF CONTACT WITH THE PRODUCT AND FOR GOOD STANDARD OF BEHAVIOUR, wear protective equipment which is:
- suited to the operations that need to be performed;
- resistant to products used
TO DO SO, PLEASE REFER TO THE RELEVANT TECHNICAL DATASHEETS OF THE FLUID USED.

Personal protective equipment that must be worn safety shoes; close-fitting clothing; protection gloves; safety goggles

Necessary safety devices instructions manual

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

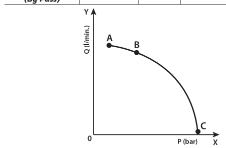
NOTICE	*TO PREVENT ELECTRIC SHOCK AND DETONATION OF SPARKS, ALL PUMPING SYSTEM MUST HAVE PROPER GROUNDING, INCLUDING TANK AND ANY ACCESSORIES.*
WARNING	*ENFORCE REGULATIONS FOR ELECTRICAL INSTALLATION*
	ALL WIRING AND ELECTRICAL CONNECTIONS MUST BE PERFORMED BY AUTHORIZED AND SUITABLY TRAINED PERSONNEL.
	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.
WARNING	*The electrical connection between the plug and socket must be kept well away from water.*
	THE PUMP IS EQUIPPED WITH CURRENT-SENSING PROTECTION. IF IT ACTIVATES TURN OFF THE PUMP IMMEDIATELY.
	THE PUMP IS EQUIPPED WITH PROTECTION AGAINST OVERHEATING AND OVERLOAD RISKS. SHOULD SUCH DEVICES ACTIVATE, THE PUMP SHUTS DOWN AUTOMATICALLY, BUT THE MASTER SWITCH IS NOT TURNED OFF. IT IS IMPORTANT TO STOP THE PUMP USING ITS SWITCH. THE PUMP RESTARTS AFTER ITS NORMAL OPERATING CONDITIONS HAVE BEEN RESTORED.
WARNING	*FAILURE TO OBSERVE THE ABOVE MENTIONED RULES CAN CAUSE SERIOUS ACCIDENTS*
	SHOULD THE HEAT SENSOR ACTIVATE UNDER NORMAL USE CONDITIONS, PLEASE CONTACT THE TECHNICAL SUPPORT.

7 TECHNICAL DATA

7.1 PERFORMANCE SPECIFICATIONS

The performance diagram shows flow rate as a function of back pressure.

Functioning Point	Absorption (A)	Flow Rate (l/min) (gpm)	Back Pressure (bar) (psi)	Typical delivery configuration: 4 meters of 3/4" tube	automatic dispensing nozzle
A (Maximum Flow Rate)	0,7	57 - 15	0,2 - 3		
B (Base system)	0,8	40 - 10,5	0,5 - 7	•	•
C (By-Pass)	1,2	0	1,1	Delivery Closed	



WARNING	*The curve refers to the following operating conditions: Fluid: PETROL, Temperature: 20° C. Suction conditions: The pipe and the pump position relative to the fluid level is such that a low pressure of 0.3 bar is generated at the nominal flow rate. Under different suction conditions higher low pressure values can be created that reduce the flow rate compared to the same back pressure values. To obtain the best performance, it is very important to reduce loss of suction pressure as much as possible by following these instructions: • shorten the suction pipe as much as possible • avoid useless elbows or throttling in the pipes • keep the suction filter clean • use a pipe with a diameter equal to, or greater than, indicated (see Installation).*

8 ELECTRICAL DATA

PUMP MODEL	POWER SUPPLY Voltage (V)	Frequency (Hz)	CURRENT Max (*) (A)
230V - 50 Hz	230	50/60	1,2

(*) Refers to functioning in by-pass mode.

POWER CORD INPUT 1/2" NPT. USE CABLE GLANDS WITH PROTECTION GRADE Ex-d

POWER CORD Minimum section recommended for cables up to 6 m: 1,5 MM^2 or 16AWG. Recommended sheath: H07RN-F T90°; SJT T90°

9 OPERATING CONDITIONS

9.1 ENVIRONMENTAL CONDITIONS

AMBIENT TEMPERATURE	min. +23 °F / max +104 °F; min. -10 °C / max +40 °C
FLUID TEMPERATURE	min. +23 °F / max +104 °F; min. -10 °C / max +40 °C
RELATIVE HUMIDITY	max. 90%
WARNING	*The temperature limits shown apply to the pump components and must be respected to avoid possible damage or malfunction.*

9.2 ELECTRICAL POWER SUPPLY

NOTICE	*The pump must be powered by AC line, the nominal values of which are indicated on the table in the paragraph "ELECTRICAL DATA". The maximum acceptable variations from the electrical parameters are: Voltage: +/- 5% of the nominal value; Frequency: +/- 2% of the nominal value*
WARNING	*Power supply from lines with values that do not fall within the indicated limits could cause damage to the ELECTRICAL AND electronic components.*

9.3 DUTY CYCLE

NOTICE	*The pumps have been designed for intermittent use and a duty cycle of 30 min. ON and 60 min. OFF in conditions of maximum A. TEMPERATURE (40 °C) AND AT NOMINAL TRANSFER CONDITIONS.*
WARNING	*Functioning under by-pass conditions is only allowed for short periods of time (max. 3 minutes).*

9.4 FLUIDS PERMITTED

WARNING	*THE PUMP CAN BE USED ONLY WITH THE FOLLOWING FLUIDS: - DIESEL - KEROSENE - PETROL - PETROL ALCOHOL MIXED MAX 15% - AVGAS 100/100LL (pump only) - JET A / A1 (pump only) - ASPEN 2/4*

10 INSTALLATION

WARNING	*BEFORE ANY OPERATION, ENSURE TO BE OUT OF POTENTIALLY EXPLOSIVE AREAS*
	The pump must never be operated before the delivery and suction lines have been connected.
	TIGHTEN THE ELECTRICAL BOX TO ENSURE PROTECTION AGAINST THE RISK OF EXPLOSION. THE RIGHT CLAMPING SCREWS COUPLE THAT GRANTS THIS PROTECTION IS 10Nm

PRELIMINARY INSPECTION
- 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.
- Install the pump at a height of min. 80 cm.

WARNING	*IF VALVES IN THE CIRCUIT ARE TO BE INSTALLED, MAKE SURE THEY ARE EQUIPPED WITH OVERPRESSURE SYSTEM.*
	CLEAN THE TANK AND MAKE SURE IT IS WELL-VENTILATED (RECOMMENDED OPENING PRESSURE: 3 psi)
WARNING	*APPLY THE QUICK COUPLING TO THE TANK CORRECTLY AND SAFELY*
	DO NOT BLOCK THE DRAINAGE HOLES

10.1 POSITIONING, CONFIGURATIONS AND ACCESSORIES

NOTICE	*The pump must be secured in a stable manner.*
WARNING	*It is the installer's responsibility to provide the line accessories necessary for the safe and proper functioning 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.*
	To maximise performance and prevent damage that could affect pump operation, always demand original accessories.

10.2 NOTES ON SUCTION AND DELIVERY LINES

DELIVERY

The selection of the pump model must be made taking into account the characteristics of the system.
The combination OF: the length of the pipe, the diameter of the pipe, as well as the accessories installed, could create back pressure that are greater than the maximum predicted pressure, thereby causing the pump's electronic controls to intervene and reducing the dispensed flow considerably.
In these cases, to guarantee correct operation of the pump, it is necessary to reduce the resistance of the system using pipes that are shorter or that have a greater diameter, as well as line accessories with smaller resistances (e.g. an automatic dispensing nozzle with greater flow rate capacity).

SUCTION

Self-priming pumps are characterized by excellent suction capacity.
During the start-up phase, when the suction pipe is empty and the pump is wet with the fluid, the electric pump unit is able to suck liquid from a maximum vertical distance of 2m.
It is important to note that it could take up to 1 minute for the pump to prime and that the presence of an automatic dispensing nozzle on the delivery side will prevent the air trapped during the installation from being released and, therefore, the correct priming of the pump. For this reason, it is always advisable to prime the pump without an automatic delivery nozzle, verifying the proper wetting of the pump.
Always install a foot valve to prevent the suction pipe from being emptied and to keep the pump wet at all times. In this way, the pump will always start up immediately the next times it is used.
When the system is in operation, the pump can operate with back pressures of up to 0,5 bars on the suction inlet; beyond this point, the pump may begin to cavitate resulting in a drop of the flow rate and an increase in the noise levels of the system.
In light of this, it is important to guarantee small back pressures on the suction side, by using short pipes with diameters that are equal to or larger than those recommended, reducing bends to a minimum, and using filters with a large cross-section and foot valves with minimum possible resistance on the suction side. It is very important to keep the suction filters clean because, when they become clogged, they increase the resistance of the system.
The vertical distance between the pump and the fluid must be kept as short as possible, and it must fall within the 2m maximum required for priming. If the distance is greater, a foot valve must be installed to allow the suction pipes to fill up and the diameter pipes must be larger. It is however recommended that pump not be installed if the vertical distance is greater than 3m.

WARNING	*If the suction tank is higher than the pump, an anti-siphon valve should be installed to prevent accidental diesel fuel leaks. Dimension the installation in order to control the back pressures due to water hammering*
	It is a good system practice to install vacuum and air pressure gauges right at the inlets and outlets of the pump, which allow verification that operating conditions are within anticipated limits. To prevent the suction pipes from being emptied when the pump stops, a foot valve should be installed.
	THE INSTALLER IS RECOMMENDED TO INSTALL A SUCTION FILTER.

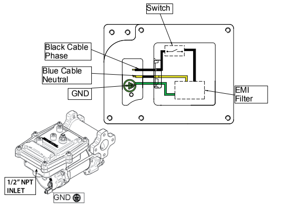
11 CONNECTIONS

11.1 ELECTRICAL CONNECTIONS

WARNING	*BEFORE ANY OPERATION, ENSURE TO BE OUT OF POTENTIALLY EXPLOSIVE AREAS*
	IT IS THE INSTALLER'S RESPONSIBILITY TO CARRY OUT THE ELECTRICAL CONNECTIONS IN COMPLIANCE WITH THE RELEVANT STANDARDS.
WARNING	*Comply with the following (not exhaustive) instructions to ensure a proper electrical connection:*

- During installation and maintenance make sure that power supply to the electric lines has been turned off.
- Use cables with minimum sections, rated voltages and installation type that are suitable for the characteristics indicated in paragraph "ELECTRICAL DATA" and the installation environment.
- Always make sure that the cover of the terminal strip box is closed before switching on the power supply, after having checked the integrity of the seal gaskets that ensure the IP55 protection grade. For those screws use a 10 nm clamping couple

WARNING	*All motors are equipped with a grounding terminal. Make sure all the plant is properly grounded.*
WARNING	*BE SURE TO USE A CABLE GLAND, WITH SUFFICIENT PROTECTION GRADE (Exd)*
NOTICE	*IN THE EVENT OF INSTALLATION IN ZONES WHICH ARE NOT CLASSIFIED, IT IS SUFFICIENT TO OBSERVE THE MINIMUM SAFETY STANDARDS ALREADY MENTIONED IN THIS MANUAL.*
	- THE OWNER HAS THE RESPONSIBILITY TO VERIFY THAT ALL THE LOCAL AND NATIONAL REGULATIONS HAVE BEEN OBSERVED.
	- ENSURE THAT THE CONNECTION CABLE TO THE POWER SUPPLY IS PROTECTED FROM ALL HEAT SOURCES AND SHARP EDGES.
WARNING	*FAILURE TO OBSERVE THE ABOVE MENTIONED RULES CAN CAUSE SERIOUS ACCIDENTS*



11.2 PIPING CONNECTIONS

FOREWORD - Before carrying out any connection, refer to the visual indications i.e. arrow on the pump head, to identify suction and delivery.

WARNING	*Wrong connection can cause serious pump damage.*

PRELIMINARY INSPECTION
- Before connection, make sure that the piping and the suction tank are free of dirt and solid residue that could damage the pump and its accessories. NEVER COLLECT THE FLUID FROM THE BOTTOM OF THE TANK SINCE IT MAY CONTAIN IMPURITIES
- Before connecting the delivery pipe, partially fill the pump body, from delivery side, with the liquid that needs to be pumped in order to facilitate priming.
- Do not use conical threaded fittings, which could damage the threaded inlet or outlet openings of the pump if excessively tightened.

12 INITIAL START-UP

FOREWORD
- Check that the quantity of fluid in the suction tank is greater than the amount you wish to transfer.
- Make sure that the residual capacity of the delivery tank is greater than the quantity you wish to transfer.
- Make sure that the piping and line accessories are in good condition.

NOTICE	*THIS PUMP IS NOT PROVIDED FOR FURTHER REGULATION OF DELIVERY AND PRESSURE*
WARNING	*Fluid leaks can damage objects and injure persons.*
NOTICE	*- Never start or stop the pump by connecting or cutting out the power supply. - Prolonged contact with some fluids can damage the skin. The use of goggles and gloves is recommended.*

IF THE PUMP DOES NOT PRIME Depending on the system characteristics, the priming phase can last from several seconds to a few minutes. If this phase is prolonged, stop the pump and verify:
- that the pump is not running completely dry (fill with fluid from the delivery line);
- that the suction pipe guarantees against air infiltration;
- that the suction filter is not clogged;
- that the suction height is not higher than 2 mt.
- that all air has been released from the delivery pipe.

AT THE END OF THE INITIAL START-UP When priming has occurred, verify that the pump is operating within the anticipated range, in particular:
- that under conditions of maximum back pressure, the power absorption of the motor stays within the values shown on the identification plate;
- that the delivery back pressure does not exceed the maximum back pressure for the pump.

13 EVERY DAY USE

USE PROCEDURE
1. If flexible pipes are used, attach the ends of the piping to the tanks. In the absence of an appropriate slot, solidly grasp the delivery pipe before beginning dispensing.
2. Before starting the pump make sure that the delivery valve is closed (dispensing nozzle or line valve)
3. Turn the ON/OFF switch on
4. Open the delivery valve, solidly grasping the pipe
5. While dispensing, do not inhale the pumped product
6. IF ANY TREATED FLUID LEAKS OUT DURING DISPENSING, TAKE ALL STEPS NECESSARY TO ENSURE THE LEAKED FLUID IS CLEANED UP AND SAFE AS SPECIFIED ON THE PRODUCT TECHNICAL SHEET.
7. Close the delivery valve to stop dispensing
8. When dispensing is finished, turn off the pump

WARNING	*THE WORKING OPERATIONS MUST ALWAYS BE GUARDED BY THE OPERATOR.*
	The by-pass valve allows functioning with delivery closed only for short periods (max. 3 minutes).
	To avoid damaging the pump, after use, make sure the pump is off.
	In case of a power break, switch the pump off straight away.
	Should any sealants be used on the suction and delivery circuit of the pump, make sure that these products are not released inside the pump.
	Foreign bodies in the suction and delivery circuit of the pump could cause malfunctioning and breakage of the pump components.

14 MAINTENANCE

Safety instructions The PUMP IS DESIGNED AND CONSTRUCTED TO require a minimum of maintenance.
Before carrying out any maintenance work, DISCONNECT THE PUMP from any electrical and hydraulic power source.
During maintenance, the use of personal protective equipment (PPE) is compulsory.
In any case always bear in mind the following basic recommendations for a good functioning of the pump

WARNING	*BEFORE ANY OPERATION, ENSURE TO BE OUT OF POTENTIALLY EXPLOSIVE AREAS FOR SAFETY REASONS IT'S NOT ALLOWED TO DISASSEMBLE THESE PARTS : (1) BOTTOM (2) MOTOR PIPE (3) PUMP BODY*
	FOR SAFETY REASONS IT IS FORBIDDEN TO REMOVE THE PARTS "BOTTOM PLATE" (1), "MOTOR TUBE" (2) AND "PUMP BODY" (3).

Authorised maintenance personnel All maintenance must be performed by qualified personnel. Tampering can lead to performance degradation, danger to persons and/or property and may result in the warranty and UL/ATEX CERTIFICATION being voided.

Measures to be taken Check that the labels and plates found on the dispensing system do not deteriorate or become detached over time.

ONCE A WEEK:
- Check that the pipe connections are not loose to prevent any leaks;
- Check and keep the filter installed on the suction line clean.

ONCE A MONTH:
- Check the pump body and keep it clean and free of any impurities;
- Check that the electrical supply cables are in good condition.

15 NOISE LEVEL

Under normal operating conditions, noise emission of all models does not exceed 74 dB at a distance of 1 metre from the electric pump.

16 PROBLEMS AND SOLUTIONS

For any problems contact the authorised dealer nearest to you.

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
THE MOTOR IS NOT TURNING	Lack of electric power	Check the electrical connections and the safety systems.
	Rotor jammed	Check for possible damage or obstruction of the rotating components.
	Motor problems	Contact the Service Department
THE MOTOR TURNS SLOWLY WHEN STARTING	Low voltage in the electric power line	Bring the voltage back within the anticipated limits
LOW OR NO FLOW RATE	Low level in the suction tank	Refill the tank
	Foot valve blocked	Clean and/or replace the valve
	Filter clogged	Clean the filter
	Excessive suction pressure	Lower the pump with respect to the level of the tank or increase the cross-section of the piping
	High loss of head in the delivery circuit (working with the by-pass open)	Use shorter piping or of greater diameter
	By-pass valve blocked	Dismantle the valve, clean and/or replace it
	Air entering the pump or the suction piping	Check the seals of the connections
	A narrowing in the suction piping	Use piping suitable for working under suction pressure
	Low rotation speed	Check the voltage at the pump. Adjust the voltage and/or use cables of greater cross-section
	The suction piping is resting on the bottom of the tank	Raise the piping
INCREASED PUMP NOISE	Cavitation occurring	Reduce suction pressure
	Irregular functioning of the by-pass	Dispense until the air is purged from the by-pass system
	Presence of air in the fluid	Verify the suction connections
LEAKAGE FROM THE PUMP BODY	Seal damaged	Check and replace the seal
THE PUMP DOES NOT PRIME THE LIQUID	Suction circuit blocked	Remove the blockage from the suction circuit
	Malfunction of foot valve fitted on suction circuit	Replace foot valve
	The suction chambers are dry	Add liquid from pump delivery side
	The pump chambers are dirty or blocked	Remove the blockages from the suction and delivery valves
THE HEAT SENSOR ACTIVATES UNDER NORMAL OPERATING CONDITIONS	Operating fault	Contact the technical support.

17 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.

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PIUSI SpA · Suzzara MN Italy

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PIUSI Fluid Handling Innovation

EX50
230V 50/60Hz

MADE IN ITALY

EN
Installaltion, use and maintenance

IT
Installazione uso e manutenzione

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