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MACHINE AND MANUFACTURER IDENTIFICATION

AVAILABLE MODELS: By-pass 3000 12 - 24 Vdc Carry 3000 Battery kit 3000
CODE PRODUCT: Piusi F00335000 BYPASS 3000
MODEL: 12V/24V/3000
TECHNICAL DATA: DANGER
MANUFACTURER: Piusi S.p.A. Via Pacinotti 16/A, Z.I. Rangavino 46029 Suzzara (Mantova) Italy

FACSIMILE COPY OF EU DECLARATION OF CONFORMITY

The undersigned Piusi S.p.A. Via Pacinotti 16/A, Z.I. Rangavino 46029 Suzzara - Mantova - Italy
HEREBY STATES under its own responsibility that the equipment described below:
Description: PUMP INTENDED FOR DIESEL FUEL TRANSFER
Model: BY-PASS 3000 12 - 24 VDC / CARRY 3000 / BATTERY KIT 3000
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

MACHINE DESCRIPTION

PUMP: Self-priming, volumetric, rotating vane pump, equipped with by-pass valve.
MOTOR: Brush motor, DC, low tension with intermittent cycle, closed type in protection class IP55 according to CEI-EN 60034-5, directly flanged to the pump body.
4.1 MOVING AND TRANSPORT: Due to the limited weight and dimensions of the pumps, special lifting equipment is not required to handle them.
STORAGE: Store in a covered and dry place.
PACKAGING: The pump is equipped comes packed suitably for shipment.
MANUAL: The pump is equipped with a manual.

GENERAL WARNINGS

Warnings: To ensure operator safety and to protect the dispensing system from potential damage, workers must be fully acquainted with this instruction manual before attempting to operate the dispensing system.
Symbols used in the manual: 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.
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 IS THE PROPERTY OF Piusi S.p.A. ANY REPRODUCTION, EVEN PARTIAL, IS FORBIDDEN.

SAFETY INSTRUCTIONS

ATTENTION: You must avoid any contact between the electrical power supply and the fluid that needs to be FILTERED.
Before any checks or maintenance work are carried out, disconnect the power source.
To help prevent fire and explosion: Use equipment only in well ventilated areas.
FIRE AND EXPLOSION: flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode.
ELECTRIC SHOCK: Electrocutation or death.
EQUIPMENT MISUSE: Misuse can cause death or serious injury.

Do not operate the device when fatigued or under the influence of drugs or alcohol.
Do not leave the work area while device is energized or under pressure.
Turn off all device when not in use.
Do not alter or modify the device. Alterations or modifications may void agency approvals and create safety hazards.

FIRST AID RULES

When operating the dispensing system and in particular during refuelling, do not smoke and do not use open flame.
Wear protective equipment that is suited to the operations that need to be performed; resistant to cleaning products.
Safety shoes.
Close-fitting clothing.
Protective gloves.
Safety goggles.
Instruction manual.
Prolonged contact with the treated product may cause skin irritation; always wear protective gloves during dispensing.

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TECHNICAL DATA

9.1 PERFORMANCE SPECIFICATIONS
The performance diagram shows flow rate as a function of back pressure.
Flow Rate (l/min) vs Back Pressure (bar)
A (Maximum Flow Rate): 50 l/min at 0 bar
B (High Flow Rate): 48 l/min at 0.5 bar
C (Rated Conditions): 46 l/min at 1 bar
D (By pass): 0 l/min at 1 bar

The curve refers to the following operating conditions: Fluid: Diesel Fuel; Temperature: 20°C; Suction Conditions: The tube and the pump position relative to the fluid level is such that a pressure of 0.3 bar is generated at the nominal flow rate.
Under different suction conditions higher pressure values can be created that reduce the flow rate compared to the same back pressure values.

ELECTRICAL SPECIFICATIONS

PUMP MODEL, FUSES, ELECTRICAL POWER, CURRENT
VERSION 12V: 25 DC, 12V, 22W
VERSION 24V: 15 DC, 24V, 22W

OPERATING CONDITIONS

TEMPERATURE: min. +23°F / max. +104°F; min. -5°C / max. +40°C
RELATIVE HUMIDITY: max. 90%
ATTENTION: IN INADEQUATE ENVIRONMENTAL CONDITIONS, SOME PARTS OF THE PUMP MAY PRESENT ANY SIGNS OF OXIDATION WHICH DO NOT AFFECT THE CORRECT FUNCTIONING OF THE PUMP.

ELECTRICAL POWER SUPPLY

N.B. THE PUMP SHOULD BE POWERED BY A SAFE SOURCE: BATTERY OR POWER SUPPLY 12/24V WITH SAFETY TRANSFORMER.
In accordance with the model, the pump must be powered by a direct current line, the nominal values of which are indicated on the table in the paragraph "ELECTRICAL SPECIFICATIONS".

DUTY CYCLE

The pumps have been designed for intermittent use and a 30-minute duty cycle under conditions of maximum back pressure.

FLUIDS PERMITTED / FLUIDS NOT PERMITTED

- DIESEL FUEL at a viscosity of from 2 to 5.35 cSt (at a temperature of 37.8°C). Minimum Flash Point (PM): 55°C, according to UNI EN 590
Paraffinic HVO/XTL-EN 15940
ONLY FOR BIO DIESEL VERSIONS F00342BXX (BIO):
- BIO DIESEL B0 (B10) according to UNI EN 14214
- BIO DIESEL B20/B30 according to EN 16709
FLUIDS NON PERMITTED AND RELATED DANGERS:
- GASOLINE - FIRE - EXPLOSION
- INFLAMMABLE LIQUIDS with PM > 55°C - FIRE - EXPLOSION
- LIQUIDS WITH VISCOSITY > 20 cSt - MOTOR OVERLOAD
- WATER - PUMP OXIDATION
- FOOD LIQUIDS - CONTAMINATION OF THE SAME
- CORROSIVE CHEMICAL PRODUCTS TO PERSONS - PUMP CORROSION - INJURY
- SOLVENTS - FIRE - EXPLOSION - DAMAGE TO GASKET SEALS

INSTALLATION

- 12.1 PRELIMINARY INSPECTION
1. Verify that all components are present. Request any missing parts from the manufacturer
2. Check that the machine has not suffered any damage during transport or storage
3. Carefully clean the suction and delivery inlets and outlets, removing any dust or other packaging material that may be present
4. Make sure that the motor shaft turns freely
5. Check that the electrical data corresponds to those indicated on the data plate
6. Always install in an illuminated area
7. Install the pump in ventilated place to avoid any vapours accumulation
8. We recommend that a suction filter be used

POSITIONING THE PUMP

The pumps can be installed in any position (with pump axis in vertical or horizontal position).
The pump must be securely attached by means of the provided fixing bracket and fixing screws.
THE MOTORS ARE NOT OF THE ANTI-EXPLOSIVE-TYPE. DO NOT install them where inflammable vapours could be present.
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.

NOTES ON SUCTION AND DELIVERY LINES

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, the flow rate of the diesel or other liquid, as well as the accessories installed on the line, 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

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.
It is always advisable to prime the pump without an automatic delivery nozzle, verifying the proper wetting of the pump.

SUCTION

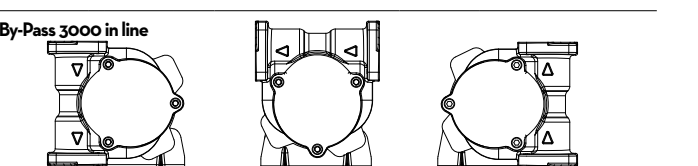
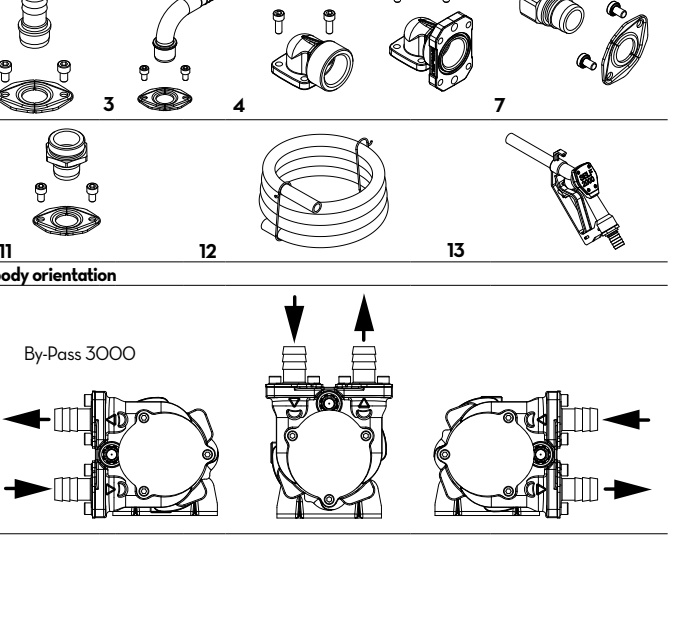
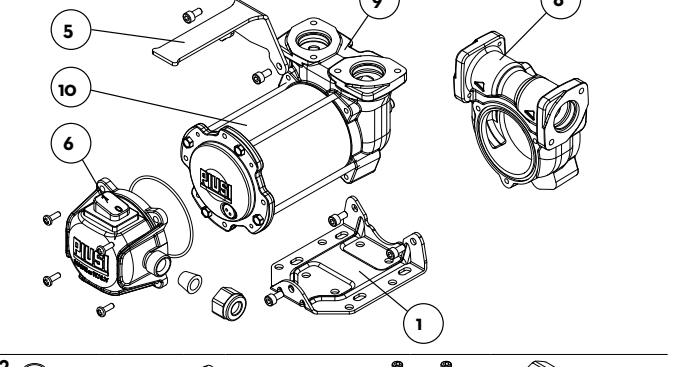
Always install a foot valve to prevent the suction pipe from being emptied and to keep the pump wet at all times.
In this way, the pump will always start up immediately the next time it is used.
When the system is in operation, the pump can operate with back pressures of up to 0.5 bars on the suction 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.

SUCTION

If the suction tank is higher than the pump, an anti-siphon valve should be installed to prevent accidental product leaks.
Size the installation to contain the back pressures caused by water hammering.
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 prevent the suction pipes from being emptied when the pump stops, a foot valve should be installed.

CONFIGURATION AND ACCESSORIES

- 1 Fixing bracket
2 Straight hoselets
3 90° Curved hoselets
4 Coupling 90° with flange 1"
5 Handle
6 Kit terminal box (with or w/out switch). If the terminal board kit is present and the switch is in position "O", the pump is switched OFF while if the switch in position "T", the pump is working.
7 Straight hose connector 3/4" G for horizontal openings
8 BP3000 body with horizontal openings
9 BP3000 body with vertical openings
10 Pump motor
11 Straight, flanged coupling
12 Rubber hose
13 Self 2000 nozzle



LINE ACCESSORIES

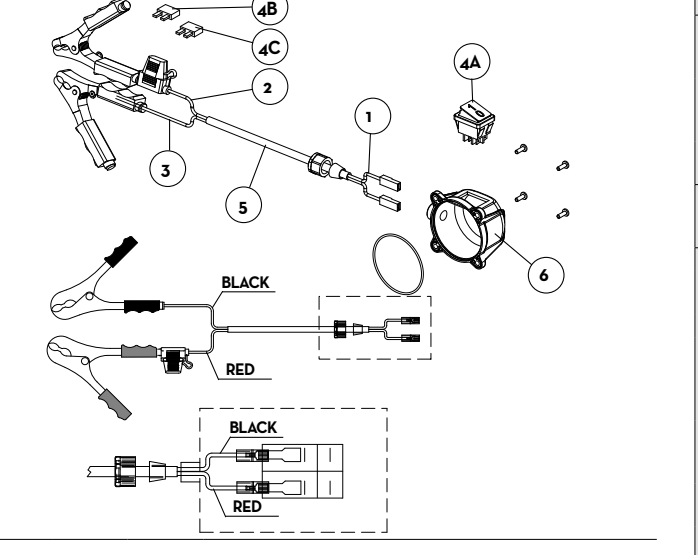
It is the responsibility of the installer to provide the necessary line accessories to ensure the correct and safe operation of the pump. The accessories that are not suitable to be used with the indicated material could damage the pump or cause injury to persons, as well as causing pollution.
IT IS THE INSTALLER'S RESPONSIBILITY TO APPLY THE FOLLOWING SIGNALS ON THE MACHINE ANYWHERE PUMP WILL BE USED.

CONNECTIONS

13.1 ELECTRICAL CONNECTIONS
GENERAL WARNING: Comply with the following (not exhaustive) instructions to ensure a proper electrical connection.
1 Before installation and maintenance make sure that power supply to the electric lines has been turned off.
2 Use cables with minimum cross-sections, rated voltages and installation type that are suitable for the characteristics indicated in paragraph "ELECTRICAL SPECIFICATIONS".
3 Always close the cover of the terminal strip box before switching on the power supply, after having checked the integrity of the seal gaskets that ensure the IP55 protection grade.
For connection the installer shall have to use a cable of adequate diameter for the cable gland to ensure protection grade IP55.

CONNECTIONS

IT IS THE RESPONSIBILITY OF THE INSTALLER TO CARRY OUT THE ELECTRICAL CONNECTIONS IN COMPLIANCE WITH THE APPLICABLE REGULATIONS. DO NOT INVERT FUSES TO AVOID ANY MOTOR DAMAGE OR MALFUNCTION. 25A FUSE CAN BE FITTED ONLY ON 12V PUMP 15A FUSE CAN BE FITTED ONLY ON 24V PUMP



CONNECTING THE PIPING

FOREWORD: Before any connections, please refer to the indications (sticker on the pump) to detect suction and delivery univacally.
1 Before connecting, make sure that the pipes and the suction tank are free of dirt and thread residue, which could damage the pump and accessories.
2 Before connecting, make sure that the pipes and the suction tank are free of dirt and thread residue, which could damage the pump and accessories.
3 Do not use conical threaded fittings, which could damage the threaded inlet or outlet openings of the pumps if excessively tightened.
4 If not already fitted, fit a suction filter. Recommended minimum nominal diameter: 3/4" nominal recommended pressure: 10 bar use pipes that are suitable for operation with back pressure Recommended minimum nominal diameter: 3/4" nominal recommended pressure: 10 bar

INITIAL START-UP

- GETTING STARTED: 1. Check that the quantity of diesel fuel in the suction tank is greater than the amount you wish to transfer. 2. Make sure that the residual capacity of the delivery tank is greater than the quantity you wish to transfer. 3. Do not run the pump dry. This can cause serious damage to its components. 4. Make sure that the tubing and line accessories are in good condition. Diesel fuel leaks can damage objects and injure persons. Do not operate switches with wet hands.
ATTENTION: Extreme operating conditions with working cycles longer than 30 minutes can cause the motor temperature to rise, thus damaging the motor itself. Each 30-minute working cycle should always be followed by a 30-minute power-off cooling phase.
In the prime phase the pump must blow the air initially present in the entire installation out of the delivery line. Therefore it is necessary to keep the outlet open to permit the evacuation of the air. If an automatic type dispensing nozzle is installed at the end of the delivery line, the evacuation of the air will 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 dispensing nozzle be temporarily disconnected during the initial start-up phase.
PRIMING: The priming phase can last from several seconds to a few minutes, as a function of the characteristics of the system. If this phase is prolonged, stop the pump and verify:
- That the pump is not running completely dry
- That the suction tubing is not allowing air to seep in
- That the suction filter is not clogged
- That the suction height does not exceed 2 m. (if the height exceeds 2 m, fill the suction hose with fluid)
- That the delivery tube is allowing the evacuation of the air.

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 suction pressure is not greater than 0.5 bar
- That the back pressure in the delivery line is not greater than the maximum back pressure foreseen for the pump.

DAILY USE

- FOREWORD: This pump is for professional use only.
USE PROCEDURE: 1. If using flexible tubing, attach the ends of the tubing to the tanks. In the absence of an appropriate slot, solidly grasp the delivery tube before beginning dispensing. 2. Before starting the pump make sure that the delivery valve is closed (dispensing stop or line valve). 3. Turn the ON/OFF switch on. The by-pass valve allows functioning with delivery closed only for brief periods. 4. Open the delivery valve, solidly grasping the end of the tubing. 5. While dispensing, do not inhale the pumped product. 6. Should you spill any fluid while dispensing, bank it with earth or sand to absorb it and limit its spreading. 7. Close the delivery valve to stop dispensing. When dispensing is finished, turn off the pump.
ATTENTION: After use, make sure the pump is turned off. In case of a power break, switch the pump off straight away.

MAINTENANCE

MAINTENANCE must be performed only by authorized and properly trained personnel.
Thanks to the design, the pump requires simple 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:
- Check that the pipe connections are not loose to prevent any leaks
- Check and keep the filter installed on the suction line clean
- Check the pump body and keep it clean and free of any impurities
- Check that the electrical supply cables are in good condition
- Do not put your fingers into the pump openings while the pump is working

NOISE LEVEL

Under normal working conditions the noise emission from all models does not exceed the value of 70 db at a distance of 1 meter from the electric pump.

PROBLEMS AND SOLUTIONS

Table with 3 columns: PROBLEM, POSSIBLE CAUSE, CORRECTIVE ACTION.
PROBLEM: THE MOTOR IS NOT TURNING. POSSIBLE CAUSE: Lack of electric power. CORRECTIVE ACTION: Check the electrical connections and the safety systems.
PROBLEM: THE MOTOR TURNS SLOWLY WHEN STARTING OR NO FLOW RATE. POSSIBLE CAUSE: Low voltage in the electric power line. CORRECTIVE ACTION: Bring the voltage back within the anticipated limits.
PROBLEM: INCREASED PUMP NOISE. POSSIBLE CAUSE: Cavitation occurring. CORRECTIVE ACTION: Reduce suction pressure.

DEMOLITION AND DISPOSAL

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:
- The packaging consists of biodegradable cardboard which can be delivered to companies for normal recycling of cellulose.
- Metal parts, whether point-finished or in stainless steel, can be consigned to scrap metal collectors.
- These must be disposed of by companies that specialize in the disposal of electronic components, in accordance with the indications of directive 2012/19/EU (see text of directive below).
European Directive 2012/19/EU requires that all equipment marked with this symbol on the product and/or packaging not be disposed of together with non-differentiated urban waste.
Information regarding the environment for clients residing within the European Union: 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 specializing in the disposal of industrial waste.

Piusi Fluid Handling Innovation
BY-PASS CARRY BATTERY KIT 3000
Manuale di Installazione uso e manutenzione
MADE IN ITALY
Installazione, uso and maintenance manual
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