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2 MACHINE AND MANUFACTURER IDENTIFICATION



Table with 2 columns: AVAILABLE MODELS, MANUFACTURER. Includes model 12-24V DC and manufacturer PIUSI S.p.A.

3 DECLARATION OF CONFORMITY

The undersigned: PIUSI S.p.A. Via Pacinotti 16/A - z.l. Rangovino 46029 Suzzara (MN) Italy

Hereby states under its own responsibility, that the equipment described below:

Description: Dispenser Pump for the transfer of Ad-Blue® - AUS32 - WATER - Antifreeze Model: Diaphragm pump
The documentation is at the disposal of the competent authority following motivated request at PIUSI S.p.A. or following request sent to the e-mail address: doc.te@piusi.com

Suzzara, 20/04/2016 Otto Varini legal representative

4 MACHINE DESCRIPTION

PUMP MOTOR: Five-chamber positive-displacement diaphragm pump. Brush motor, DC, low tension with intermittent cycle, closed type in protection class IP55 according to CEI-EN 60034-5, directly fanged to the pump body.

4.1 HANDLING AND TRANSPORT

Foreword: 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. Store the unit away from dirt and vibration.

PACKAGING: The pump is equipped comes packed suitably for shipment.

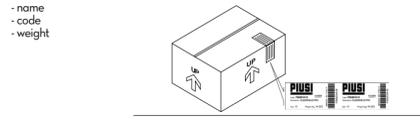


Table with 3 columns: MODEL, WEIGHT (Kg), PACKAGING DIMENSION(mm). Rows for Versione 12V and Versione 24V.

5 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.

NOTE: This symbol indicates useful information. This manual should be complete and legible throughout.

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6 SAFETY INSTRUCTIONS

ATTENTION: You must avoid any contact between the electrical power supply and the fluid that needs to be FILTERED.

Maintenance control: Before any checks or maintenance work are carried out, disconnect the power source.

FIRE AND EXPLOSION: Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.

Ground all equipment in the work area. Stop operation immediately if static sparking occurs or if you feel a shock.

Electrostatic discharge: This equipment must be grounded. Improper grounding, setup or usage of the system can cause electric shock.

Connect only to a grounded electrical outlets. Use only 3 wire extension cords in accordance with local electrical codes.

Do not turn the dispensing system on if the power connection cord or other important parts of the apparatus are damaged, such as the inlet outlet plumbing, dispensing nozzle or safety devices.

Before each use check that the power connection cord and power plug are not damaged. If damaged, have power connection cord replaced before use by a qualified electrician.

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

Unsuitable extension leads can be hazardous, 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 an earth-leakage circuit breaker (max 30 mA).

Electrical connections must use ground fault circuit interrupter (GFCI).

Installation operations are carried out with the box open and accessible electrical contacts. All these operations have to be done with the unit isolated from the power supply to prevent electrical shock!

Do not operate the unit when fatigued or under the influence of drugs or alcohol.

Do not leave the work area while equipment is energized or under pressure.

Turn off all equipment when equipment is not in use. Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.

Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.

Do not kink or over bend hoses or use hoses to pull equipment. Keep children and animals away from work area.

Comply with all applicable safety regulations. To avoid severe burns do not touch hot fluid or equipment.

Burn Hazard: Equipment surfaces and fluid that is heated can become very hot during operation.

Toxic Fluid or Fumes Hazard: Read MSDSDs to know the specific hazards of the fluids you are using. Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

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

7 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 AUS32/DEF/Ad-Blue®/Antifreeze.

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.

NOTE: Please refer to the safety data sheet for the product.

8 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.

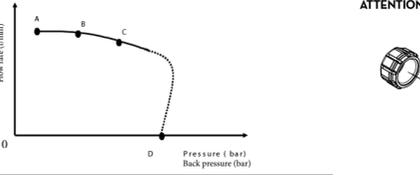
Personal protective equipment that must be worn: safety shoes; close-fitting clothing; protection gloves; safety goggles; instructions manual.

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

9 TECHNICAL DATA

9.1 PERFORMANCE SPECIFICATIONS

Table showing Flow Rate, Voltage (V), Absorption (A), and Typical Delivery Configuration for different functioning points (A, B, C, D).



ATTENTION: The curve refers to the following operating conditions: Fluid: AUS32 - DEF - Ad-Blue® - Antifreeze 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).

10 ELECTRICAL DATA

Table with 4 columns: PUMP MODEL, POWER SUPPLY, CURRENT. Rows for 12V version and 24V version.

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

11 OPERATING CONDITIONS

11.1 ENVIRONMENTAL CONDITIONS

TEMPERATURE: min. +23°F / max. +104°F min. -5°C / max. +40°C max. 90%

RELATIVE HUMIDITY: max. 90%

ATTENTION: The temperature limits shown apply to the pump components and must be respected to avoid possible damage or malfunction.

11.2 ELECTRICAL POWER SUPPLY

NOTE: 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 DATA".

The maximum acceptable variations from the electrical parameters are: Voltage: +/- 10% of the nominal value.

ATTENTION: Power supply from lines with values that do not fall within the indicated limits could cause damage to the electrical components and reduction of working performance.

11.3 DUTY CYCLE

NOTE: The pumps have been designed for intermittent use and a 20-minute duty cycle under conditions of maximum back pressure.

ATTENTION: Functioning under by-pass conditions is only allowed for short periods of time (max. 3 minutes).

11.4 PERMITTED AND NON-PERMITTED FLUIDS

- FLUIDS PERMITTED: AUS32 (DEF, AD-Blue®), WATER, ANTIFREEZE, DIESEL FUEL, PETROL, INFLAMMABLE LIQUIDS, CORROSIVE CHEMICAL PRODUCTS, SOLVENTS, LIQUIDS WITH VISCOSITY >20 cSt.
- OXIDATION OF PUMP
- FIRE
- EXPLOSION
- CORROSION AND INJURY TO PERSONS
- DAMAGE TO GASKET SEALS
- MOTOR OVERLOAD

12 INSTALLATION

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

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.

12.1 POSITIONING, CONFIGURATIONS AND ACCESSORIES

NOTE: In the case of installation in the open air, proceed to protect the pump by providing a protection roof.

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

The pump must be secured in a stable way using the holes on the bed of the motor and vibration damping devices.

THE MOTORS ARE NOT OF THE ANTI-EXPLOSIVE-TYPE. DO NOT install them where inflammable vapours could be present.

The broad range of pump accessories make it suitable for many different uses, installations and applications.

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



12.2 NOTES ON SUCTION AND DELIVERY LINES

DELIVERY EFFECTS ON FLOW RATE: Length and diameter of pipe, flow rate of dispensed liquid, accessories fitted, can create back pressures above those allowed.

HOW TO REDUCE EFFECTS ON FLOW RATE CHARACTERISTICS OF DELIVERY PIPES: The delivery pipe must have the following technical characteristics:

- recommended minimum nominal diameter: 3/4"
- recommended nominal pressure: 10 bar

SUCTION FOREWORD

Diaphragm positive-displacement pumps are self-priming and feature good suction capacity.

During the start-up phase, when the suction pipe is empty and the pump is wet, the electric pump unit is able to suck liquid from a maximum vertical distance of 2 mt.

Priming time can last a few minutes. We suggest performing priming operations without automatic nozzle and making sure the pump is properly wet.

WARNING: 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.

HOW TO PREVENT CAVITATION: The pump is able to work with vacuums of up to 0.5 bar at the suction mouth.

WARNING: The vertical distance between the pump and the fluid must fall within the 2 mt. maximum required for priming.

ATTENTION: If the suction tank is higher than the pump, an anti-siphon valve should be installed to prevent accidental product leaks.

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.

CHARACTERISTICS OF THE SUCTION PIPES: The suction pipe must have the following technical specifications:

- recommended minimum nominal diameter: 3/4";
- recommended nominal pressure: 10 bar;
- use pipes suitable for low pressure operation (e.g. with metal core)

13 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.

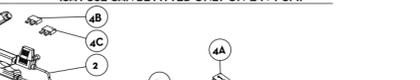
ATTENTION: For connection the installer shall have to use a cable of adequate diameter for the cable gland to ensure protection grade IP55.

SPECIFICATIONS

- 1 Cables with faston connector coupling for connection to the power supply line
2 RED cable: positive pole (+)
3 BLACK cable: negative pole (-)
4 Terminal strip box (protection class IP55 in conformance with the directive EN 60034-5-97) complete of:
4A ON/OFF switch;
4B Safety fuse against short circuits and overcurrent, 15a fuse for 12v models
4C Safety fuse against short circuits and overcurrent, 25a fuse for 24v models
5 power cable complete of pins for connection to the battery

ATTENTION: IT IS THE RESPONSIBILITY OF THE INSTALLER TO CARRY OUT THE ELECTRICAL CONNECTIONS IN COMPLIANCE WITH THE APPLICABLE REGULATIONS.

NOTE: 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



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

ATTENTION: Wrong connection can cause serious pump damage.

PRELIMINARY INSPECTION: 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.

NOTE: Do not use conical threaded fittings, which could damage the threaded inlet or outlet openings of the pump if excessively tightened.

NOTE: If not already fitted, fit a suction filter

NOTE: REFER TO THE NORM ISO22241-3 TO MAKE THE SYSTEM SUITABLE FOR USE.

14 INITIAL START-UP

FOREWORD: Check that the quantity of liquid in the suction tank is greater than the amount you wish to transfer.

ATTENTION: Do not run the pump dry for more than 20 minutes. This can cause serious damage to its components.

NOTE: Fluid leaks can damage objects and injure persons. Never start or stop the pump by connecting or cutting out the power supply.

ATTENTION: Prolonged contact with some fluids can damage the skin. The use of goggles and gloves is recommended.

NOTE: Extreme operating conditions with duty cycles longer than 20 minutes can cause the motor temperature to rise thus damaging the engine.

ATTENTION: During the priming phase, the pump must discharge all the air that is initially present from the delivery line. Therefore it is necessary to keep the outlet open to permit the evacuation of the air.

NOTE: If an automatic type dispensing nozzle is installed on 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.

WARNING: Depending on the system characteristics, the priming phase can last from several seconds to a few minutes.

ATTENTION: When priming has occurred, verify that the pump is operating within the anticipated range, in particular:

- 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.

ATTENTION: 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 delivery back pressure does not exceed the maximum back pressure for the pump.

AT THE END OF THE INITIAL START-UP

15 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 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.

8 When dispensing is finished, turn off the pump.

ATTENTION: 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.

In case of prolonged dry-running of the pump, the suction circuit may be empty and suction may become difficult. If so, fill the suction circuit with demineralised water.

16 MAINTENANCE

Safety instructions: The dispensing system was designed and built to require a minimal amount of maintenance.

Before carrying out any maintenance work, disconnect the dispensing system from any electrical and hydraulic power source.

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.

Authorised maintenance personnel: All maintenance must be performed by qualified personnel.

Measures to be taken: Whenever there is risk of frost, empty the circuit and the pump, taking care to place the pump in an environment where the temperature is no lower than 0°C/32°F.

ONCE A WEEK: Check that the labels and plates found on the dispensing system do not deteriorate or become detached over time.

ONCE A MONTH: Check that the pipe connections are not loose to prevent any leaks.

Long periods without the pump being used: Whenever it is thought that the system will remain unused for at least 15 days, it must be emptied in order to prevent the product from crystallising inside. This shall be followed by a washing cycle.

In any case, it is recommended to wash the pump with demineralised water.

17 NOISE LEVEL

In normal operating conditions, noise emissions of all models do not exceed 70 dB at a distance of 1 metre from the electric pump.

18 PROBLEMS AND SOLUTIONS

For any problems contact the authorised dealer nearest to you.

Table with 3 columns: PROBLEM, POSSIBLE CAUSE, CORRECTIVE ACTION. Rows include: THE MOTOR IS NOT TURNING, THE MOTOR TURNS SLOWLY WHEN STARTING, LOW OR NO FLOW RATE, INCREASED PUMP NOISE, LEAKAGE FROM THE PUMP BODY, THE PUMP DOES NOT PRIME THE LIQUID.

DIAPHRAGM PUMP 12/24V



MADE IN ITALY

Installazione uso e manutenzione IT

Installation, use and maintenance EN

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