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2 MACHINE AND MANUFACTURER IDENTIFICATION



AVAILABLE MODELS: E80, E120
MANUFACTURER: PIUSI S.p.A.
Via Pacinotti 16/A - Z.L. Rangavino - 46029 Suzzara (Mantova) Italy.

3 FACSIMILE COPY OF EU DECLARATION OF CONFORMITY

The undersigned PIUSI S.p.A. Via Pacinotti 16/A z.l. Rangavino 46029 Suzzara - Mantova - Italy
HEREBY STATES under its own responsibility that the equipment described below: Description: PUMP FOR THE TRANSFER OF DIESEL FUEL Model: E80 - E120
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
complies with the following legislation:
- Machinery Regulations
- Electromagnetic compatibility
The technical file 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.tee@piusi.com
THE ORIGINAL DECLARATION OF CONFORMITY IS PROVIDED SEPARATELY WITH THE PRODUCT

4 MACHINE DESCRIPTION

PUMP: Self-Priming, volumetric, rotating electric vane pump, equipped with by-pass valve.
MOTOR: Asynchronous motor, single-phase and three-phase, 2 pole, closed type (protection class IP55 in conformance with EN 60034-5-86 regulations) self-ventilated, directly flanged 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. The pumps are carefully packed before dispatch. Check the packing when receiving the material and store in a dry place.

STORAGE

Store in a covered and dry place. Store the unit away from dirt and vibration
ENVIRONMENTAL CONDITIONS: Storage humidity: Max 90% Storage temperature: min -10 °C Max +50 °C

PACKAGING: The pump is equipped comes packed suitably for shipment. On the packaging a label shows the following product information:

Table with 3 columns: MODEL, WEIGHT (Kg), PACKAGING DIMENSION(mm). Rows for E 80 and E120.

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: 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.
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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6 SAFETY INSTRUCTIONS

Mains - preliminary checks before installation: 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.

To help prevent fire and explosion: Use equipment only in well ventilated area.

Flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode.

Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.

Ground all equipment in the work area.

Stop operation immediately if static sparking occurs or if you feel a shock. Do not use equipment until you identify and correct the problem.

Keep a working fire extinguisher in the work area.

This device must be grounded. Improper grounding setup or usage of the system can cause electric shock.

Turn off and disconnect power cord before servicing equipment.

Connect only to a grounded electrical outlets.

Ensure ground prongs are intact on power and extension cords.

Outdoors, use only extensions suitable for the specific use, in accordance with the regulations in force.

The connection between plug and socket must remain away from water.

Never touch the electric plug of socket with wet hands.

Do not turn the device 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.

Replace damaged components before operation.

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 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 is not in use.

Do not alter or modify the device. 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 device.

Keep children and animals away from work area.

Comply with all applicable safety regulations.

Do not exceed the maximum operating pressure or the temperature of the part with lower nominal value of the system. See Technical Data in all equipment manuals.

Use fluids and solvents that are compatible with the wetted part of the system. See Technical Data in all equipment manuals.

Read the manufacturer's instructions of the fluids and solvents. For more information on the material, request the safety data sheet (MSDS) from the distributor or dealer.

Check the device every year. Immediately repair or replace worn or damaged parts only with original spare parts of the manufacturer.

Make sure the equipment is classified and approved compliant with the standards of the environment where it is used.

Use the equipment only for the intended use. Contact your distributor for more information.

Keep hoses and cables far from traffic areas, sharp edges, moving parts and hot surfaces.

Do not bend or overbend the hoses or tie the hose to pull the device.

Read MSDS 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.

When operating the pump and in particular during refueling, do not smoke and do not use open flame.

7 FIRST AID RULES

Electrocution: disconnect the unit from the mains, or use a dry insulator as protection while moving the electrocuted person far from any conductor. Do not touch the electrocuted person with bare hands until he/she is far from any conductor. Ask qualified and trained people for help immediately.

When operating the pump and in particular during refueling, do not smoke and do not use open flame.

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; 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.

9 TECHNICAL DATA

Table with 5 columns: Voltage/Frequency (V/Hz), Absorption (A), Power (W), RPM, Nominal Flow Rate (l/min), Operating pressure (bar), Type of Service (S1-S5), Motor Protection (IP55).

ATTENTION: Operating conditions of the declared data

Fluid: Diesel Fuel
Temperature: 20°C
Suction Conditions: The tube and 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. 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 tube as much as possible
- Avoid elbows, valves or throttling in the tubes
- Keep the suction filter clean
- Use a tube with a diameter equal to, or greater than, indicated (see installation)

10 OPERATING CONDITIONS

10.1 ENVIRONMENTAL CONDITIONS

TEMPERATURE: min. -4 °F / max +140 °F min. -20 °C / max +60 °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.

10.2 ELECTRICAL POWER SUPPLY

NOTE: Depending on the model, the pump must be supplied by a single-phase alternating current line whose nominal values are shown in the table in Paragraph "TECHNICAL DATA". The maximum acceptable variations from the electrical parameters are: Voltage +/- 5% of the nominal value Frequency +/- 2% of the nominal value

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

ATTENTION: Do not exceed the maximum operating pressure or the temperature of the part with lower nominal value of the system. See Technical Data in all equipment manuals.

10.3 DUTY CYCLE

NOTE: The electrical pumps E80 and E120 are designed for continuous use under conditions of maximum back pressure.

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

10.4 PERMITTED AND NON-PERMITTED FLUIDS

FLUIDS PERMITTED: DIESEL FUEL at a viscosity of from 2 to 5.35 cSt (at a temperature of 57.8°C), Minimum Flash Point (PM): 55°C, according to UNI EN 590
Paraffinic HVO/ATL EN 5940

ONLY FOR BIO DIESEL VERSIONS: FOD326BXX (B100); BIO DIESEL B100 (FAME) 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 TO PERSONS

SOLVENTS - FIRE - EXPLOSION - DAMAGE TO GASKET SEALS

11 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 supplier.

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.

Always install in an illuminated area.

Make sure that the motor shaft turns freely.

11.1 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. The supporting base can be positioned in different ways.

The pumps are furnished without line accessories. Following is a list of the most common line accessories whose use is compatible with the proper functioning of the pumps.

DELIVERY: Automatic dispensing nozzle - Foot valve with filter
Manual dispensing nozzle - Rigid and flexible tubing
Meter flexible tubing - Pump suction filter

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.

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

11.2 NOTES ON SUCTION AND DELIVERY LINES

DELIVERY Foreword: The choice of pump model must be made keeping the characteristics of the system in mind.

Length and diameter of pipe, flow rate of dispensed liquid, accessories fitted, can create back pressures above those allowed. In this case, the pump mechanical control (bypass) will trip to reduce the flow rate.

To avoid these problems, system flow resistances must be reduced using shorter and/or larger diameter pipes, as well as line accessories with low resistances (e.g., automatic nozzle for higher flow rates).

HOW TO REDUCE EFFECTS ON FLOW RATE: The pumps are self-priming and characterized by good suction capacity. During the start-up phase, with an empty suction tube and the pump wetted with fluid, the electric pump unit is capable of suctioning the liquid with a maximum difference in height of 2 meters.

It is important to point out that the priming time can be as long as one minute and the presence of an automatic dispensing nozzle on the delivery line prevents the evacuation of air from the installation, and, therefore, prevents proper priming.

For this reason, it is always advisable to prime the pump without an automatic delivery nozzle, verifying the proper wetting of the pump.

The installation of a foot valve is recommended to prevent the emptying of the suction tube and keep the pump wet. In this way, the pump will subsequently always start up immediately.

When the system is functioning, the pump can work with pressure at the inlet as high as 0.5 bar, beyond which cavitation phenomena can begin, with a consequent loss of flow rate and increase of system noise and pump damage.

It is important to ensure low vacuums at suction mouth by using:
- short pipes with larger or identical diameter to that recommended
- reduce bends to the utmost
- use large-section suction filters
- use foot valves with minimum possible resistance

Keep the suction filters clean because, when they become clogged, they increase the resistance of the system.

The difference in height between the pump and the fluid level must be kept as small as possible and, at any rate, within the 2 meters anticipated for the priming phase. If this height is exceeded, it will always be necessary to install a foot valve to allow for the filling of the suction tube and provide tubing of wider diameter. It is recommended that the pump not be installed at a difference in height greater than 3 meters.

In the case that the suction tank is higher than the pump, it is advisable to install an anti-siphon valve to prevent accidental diesel fuel leaks. Dimension the installation in order to control the back pressures due to water hammering.

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12 CONNECTIONS

12.1 ELECTRICAL CONNECTIONS

ATTENTION: 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 "TECHNICAL 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.

All motors are equipped with a grounding terminal that is to be connected to the ground line of the electrical system.

Verify that the terminal strip blades are positioned according to the diagram provided for the available power supply voltage.

Verify the correct direction of rotation of the motor (see the paragraph overall dimensions), and, if not correct, invert the connection of the two cables in the power supply plug or on the terminal strip.

The pumps are supplied without electrical safety equipment such as fuses, motor protectors, systems to prevent accidental restarting after power failures or others. It is indispensable to install an electric panel upstream from the pump's power supply line, equipped with an appropriate residual current operated circuit breaker. It is the installer's responsibility to perform the electrical connections with respect for the applicable regulations.

The characteristics of the capacitor are shown on the identification plate for each pump model. He switch has the sole function of starting/ stopping the pump and cannot in any way substitute for the main circuit breaker provided for in the applicable regulations.

Verify that the terminal strip blades are positioned according to the diagram provided for the available power supply voltage.

Single-phase motors are supplied with a pre-existing 2 - meter cable with electric plug. To change the cable, open the terminal strip cover and connect the line according to the following diagram.

Single-phase motors are supplied with a bi-polar switch and capacitor wired and installed inside the terminal strip box (see diagram).

Three-phase motors are supplied with a terminal strip box and terminal strip. To connect the electric motor to the electric power line, open the terminal strip cover and connect the cables according to the diagram.

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