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2 MACHINE AND MANUFACTURER IDENTIFICATION



AVAILABLE MODELS: PANTHER 56 • PANTHER 72 • PANTHER 90

MANUFACTURER: PIUSI S.p.A. Via Pacinotti 16/A - Z.I. Rangavino - 46029 Suzzara (Mantova) Italy

3 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: PANTHER 56; PANTHER 72; PANTHER 90 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_tec@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.

FILTER Inspectable suction filter.

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.

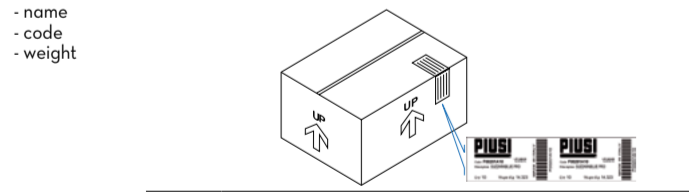
STORAGE

- 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:



MODEL	WEIGHT (Kg)	PACKAGING DIMENSION(mm)
PANTHER 56	7.4	345 x 175 x 255
PANTHER 72	7.9	345 x 175 x 255
PANTHER 90	8.2	345 x 175 x 255

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.

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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6 SAFETY INSTRUCTIONS

Mains - preliminary checks before installation **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 **WARNING** When 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 **WARNING** Electrocuting or death

Electrocuting or death **WARNING** Connect only to a grounded electrical outlets.

Electrocuting or death **WARNING** Ensure ground prongs are intact on power and extension cords.

Electrocuting or death **WARNING** Outdoors, use only extensions suitable for the specific use, in accordance with the regulations in force.

Electrocuting or death **WARNING** The connection between plug and socket must remain away from water.

Electrocuting or death **WARNING** Never touch the electric plug of socket with wet hands.

Electrocuting or death **WARNING** 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.

Electrocuting or death **WARNING** For safety reasons, we recommend that, in principle, the equipment be used only with an earth-leakage circuit breaker (max 30 mA).

Electrocuting or death **WARNING** Electrical connections must use ground fault circuit interrupter (GFCI).

Electrocuting or death **WARNING** 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!

Electrocuting or death **WARNING** Do not operate the device when fatigued or under the influence of drugs or alcohol.

Electrocuting or death **WARNING** Do not leave the work area while device is energized or under pressure.

Electrocuting or death **WARNING** Turn off all device when is not in use.

Electrocuting or death **WARNING** Do not alter or modify the circuit. Alterations or modifications may void agency approvals and create safety hazards.

Electrocuting or death **WARNING** Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.

Electrocuting or death **WARNING** Do not kink or over bend hoses or use hoses to pull device. Keep children and animals away from work area.

Electrocuting or death **WARNING** Comply with all applicable safety regulations.

Electrocuting or death **WARNING** 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.

Electrocuting or death **WARNING** Use fluids and solvents that are compatible with the wet 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.

Electrocuting or death **WARNING** Check the device every day. Immediately repair or replace worn or damaged parts only with original spare parts of the manufacturer.

Electrocuting or death **WARNING** Make sure the equipment is classified and approved compliant with the standards of the environment where it is used.

Electrocuting or death **WARNING** Use the equipment only for the intended use. Contact your distributor for more information.

Electrocuting or death **WARNING** Keep hoses and cables far from traffic areas, sharp edges, moving parts and hot surfaces.

Electrocuting or death **WARNING** Read MSDS's to know the specific hazards of the fluids you are using.

Electrocuting or death **WARNING** Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

Electrocuting or death **WARNING** Prolonged contact with the treated product may cause skin irritation: always wear protective gloves during dispensing.

7 FIRST AID RULES

Electrocuting **WARNING** 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.

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

8 GENERAL SAFETY RULES

Essential protective equipment characteristics **WARNING** 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 **WARNING** Wear the following personal protective equipment during handling and installation:

- safety shoes;
- close-fitting clothing;
- protective gloves;
- safety goggles;

Other equipment **WARNING** instruction manual

Protective gloves **WARNING** DO NOT SMOKE NEAR THE PUMP AND DO NOT USE THE PUMP NEAR FLAMES.

9 TECHNICAL DATA

Voltage/Frequency (V/Hz)	PANTHER 56					PANTHER 72					PANTHER 90								
	230/50	230/60	120/60	110/50	400/50	400/60	230/50	230/60	120/60	110/50	400/50	400/60	230/50	230/60	120/60	110/50	400/50	400/60	
Absorption (A)	3.0	3.9	7.5	5.5	1.3	1.4	4.2	1.6	4.9	1.3	1.4	4.2	1.6	4.9	1.3	1.4	4.2	1.6	4.9
Power (W)	350	500	600	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
RPM	2900	3400	3450	2800	2900	3400	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900	2900
Nominal Flow Rate (l/min)	56	68	56	56	56	68	72	72	90	72	72	72	72	72	72	72	72	72	72
Max Back Pressure (bar)	1.5	1.5	1.5	1.4	1.5	1.5	1.3	1.3	2	1.5	1.5	1.3	1.3	2	1.5	1.5	1.3	1.3	2
Type of Service (S1-continuous; S3-periodic intermittent)	S1	S1	S1	S1	S1	S1	S1	S1	S3	S1	S1	S1	S1	S3	S1	S1	S1	S1	S1

Operating conditions of the declared data **ATTENTION** Fluid: Diesel Fuel 20°C

Operating conditions of the declared data **ATTENTION** Temperature: 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.

Operating conditions of the declared data **ATTENTION** 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 useless elbows or throttling in the tubes
- Keep the suction filter clean
- Use a tube with a diameter equal to, or greater than, indicated (see Installation)
- The operating pressure of the pump is of 3 bar.

10 OPERATING CONDITIONS

10.1 ENVIRONMENTAL CONDITIONS

TEMPERATURE min. -4°F / max. +122°F min. -20°C / max. +50°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 § 4.8.8.

ATTENTION **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".

NOTE The maximum acceptable variations from the electrical parameters are: Voltage: +/- 5% of the nominal value Frequency: +/- 2% of the nominal value

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

10.3 DUTY CYCLE

NOTE The electrical pumps Panther 56 and Panther 72 are designed for continuous use under conditions of maximum back pressure. The electrical pump Panther 90 is designed for alternating use with duty cycle 30' ON and 30' OFF.

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

ATTENTION **ATTENTION** 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.

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

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

ATTENTION **ATTENTION** Never start or stop the pump by connecting or cutting out the power supply.

ATTENTION **ATTENTION** Single-phase motors are provided with an automatic thermal protection switch.

ATTENTION **ATTENTION** Extreme operating conditions can raise the motor temperature and, consequently, cause the thermal protection switch to stop it. Turn off the pump and wait for it to cool before resuming use. The thermal protection automatically turns off when the motor is sufficiently cool.

ATTENTION **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.

ATTENTION **ATTENTION** 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. It is recommended that the automatic nozzle be temporarily removed during initial start-up.

ATTENTION **ATTENTION** 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; 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.

ATTENTION **ATTENTION** Disposing of RAE equipment as household wastes is strictly forbidden. Such wastes must be disposed of separately.

ATTENTION **ATTENTION** 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.

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

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

ATTENTION **ATTENTION** 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.

ATTENTION **ATTENTION** Before starting the pump make sure that the delivery valve is closed (dispensing nozzle or line valve).

ATTENTION **ATTENTION** Turn the ON/OFF switch to ON. The by-pass valve allows functioning with the delivery closed for only brief periods.

ATTENTION **ATTENTION** Open the delivery valve, solidly grasping the end of the tubing.

ATTENTION **ATTENTION** Close the delivery valve to stop dispensing.

ATTENTION **ATTENTION** When dispensing is finished, turn off the pump.

ATTENTION **ATTENTION** To avoid damaging the pump, after use, make sure the pump is off.

ATTENTION **ATTENTION** In case of a power break, switch the pump off straight away. Functioning with the delivery closed is only allowed for brief periods (2-3 minutes maximum). After use, make sure the pump is turned off.

ATTENTION **ATTENTION** THE MOTORS ARE NOT OF THE ANTI-EXPLOSIVE-TYPE. Do not install them where inflammable vapours could be present.

NOTE

NOTE 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.

NOTE 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 | SUCTION |
| - Automatic dispensing nozzle | - Foot valve with filter |
| - Manual dispensing nozzle | - Rigid and flexible tubing |
| - Meter/Flexible tubing | |

ATTENTION **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.

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

ATTENTION **ATTENTION** The choice of pump model must be made keeping the characteristics of the system in mind.

EFFECTS ON FLOW RATE 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.

HOW TO REDUCE EFFECTS ON 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).

SUCTION Foreword 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.

NOTE **NOTE** 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.

WARNING **WARNING** 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.

CAVITATION **WARNING** 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.

HOW TO PREVENT CAVITATION 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

WARNING **WARNING** 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 refilling 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.

ATTENTION **ATTENTION** 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.

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

