

1 TABLE OF CONTENTS

2 MACHINE AND MANUFACTURER IDENTIFICATION
3 DECLARATION OF CONFORMITY
4 HANDLING AND TRANSPORT
5 GENERAL WARNINGS
6 SAFETY INSTRUCTIONS
7 FIRST AID RULES
8 GENERAL SAFETY RULES
9 TECHNICAL DATA
10 OPERATING CONDITIONS
11 INSTALLATION
12 ELECTRICAL CONNECTIONS
13 PIPING CONNECTIONS
14 EVERY DAY USE
15 MAINTENANCE
16 NOISE LEVEL
17 PROBLEMS AND SOLUTIONS
18 DEMOLITION AND DISPOSAL
19 EXPLODED VIEWS
20 OVERALL DIMENSIONS

2 MACHINE AND MANUFACTURER IDENTIFICATION



Table with 2 columns: AVAILABLE MODELS, MANUFACTURER. Row 1: E140, PIUSI S.p.A.

3 DECLARATION OF CONFORMITY

The undersigned: PIUSI S.p.A. Via Piacinotti s.l.c.m. z.l.Rangavino 46029 Suzzara - (MN) - Italy

Suzzara, 01/02/2019 Otto Varini legal representative

4 MACHINE DESCRIPTION

PUMP Self-Priming, volumetric, rotating electric vane pump, equipped with by-pass valve. MOTOR Asynchronous motor, single-phase and three-phase, 4 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:

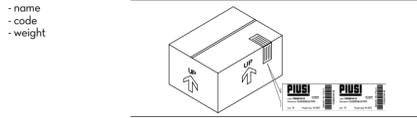


Table with 3 columns: MODEL, WEIGHT (Kg), PACKAGING DIMENSION(mm). Row 1: E140, 19.2, 350 x 250 x 300

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.

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 The text cannot be reprinted without the written permission of PIUSI S.p.A. © PIUSI S.p.A. THIS MANUAL IS THE PROPERTY OF PIUSI S.p.A. ANY REPRODUCTION, EVEN PARTIAL, IS FORBIDDEN.

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

FIRE AND EXPLOSION Use equipment only in well ventilated areas. Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.

ELECTRIC SHOCK This equipment must be grounded. Improper grounding, setup or usage of the system can cause electric shock. Turn off and disconnect power cord before servicing equipment.

Electrocution or death This equipment must be grounded. Improper grounding, setup or usage of the system can cause electric shock. Turn off and disconnect power cord before servicing equipment.

Do not expose to rain. Store indoors. Never touch the electric plug of socket with wet hands. 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. Replace damaged components before operation.

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.

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 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.

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.

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 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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

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.

9 TECHNICAL DATA

Table with 13 columns: Model, Voltage (V), Frequency (Hz), Absorption (A), Power (W), RPM, Nominal Flow Rate (l/min), Operating pressure (bar), Type of Service (S1-continuous, S2-periodic, S3-intermittent), Motor Protection (IP55).

Operating conditions of the declared data Temperature: 20°C Suction Conditions: The tube and the pump position relative to the fluid level is such that a pressure of 0.5 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:

OPERATING CONDITIONS ENVIRONMENTAL CONDITIONS TEMPERATURE min. -4 °F / max. +140 °F min. -20 °C / max. +60 °C max. 90%

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

ELECTRICAL POWER SUPPLY 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".

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

DUTY CYCLE The electrical pump E140 is designed for continuous use under conditions of maximum back pressure.

PERMITTED AND NON-PERMITTED FLUIDS 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.

Table with 2 columns: FLUIDS NOT PERMITTED AND RELATED DANGERS, FIRE - EXPLOSION, INFLAMMABLE LIQUIDS with PM + 55°C, LIQUIDS WITH VISCOSITY > 20 cSt, WATER, FOOD LIQUIDS, CORROSIVE CHEMICAL PRODUCTS, SOLVENTS.

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 manufacturer. - Check that the pump has not suffered any damage during transport or storage.

Check 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.

POSITIONING, CONFIGURATIONS AND ACCESSORIES In the case of installation in the open air, proceed to protect the pump by providing a protection roof.

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

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.

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 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.

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 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.

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 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 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.

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.

CONNECTIONS ELECTRICAL CONNECTIONS 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.

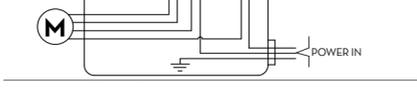
ATTENTION Use cables with minimum sections, rated voltages and installation type that are suitable for the characteristics indicated in paragraph "TECHNICAL DATA" and the installation environment.

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

NOTE 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.

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

SINGLE-PHASE MOTORS 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.



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

12.2 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.

ATTENTION Wrong connection can cause serious pump damage.

PRELIMINARY INSPECTION Check that the machine has not suffered any damage during transport or storage. Clean the inlet and outlet openings, removing any dust or residual packing material.

CONNECTING Before connection, make sure that the tubing and the suction tank are free of dirt and thread residue that could damage the pump and its accessories.

SUCTION TUBING Minimum recommended nominal diameter: 1" 1/2. Nominal recommended pressure: 10 bar. Use tubing suitable for functioning under suction pressure.

DELIVERY TUBING ATTENTION Minimum recommended nominal diameter: 1" Nominal recommended pressure: 10 BAR. Use tubing suitable to resist back pressures of 0.8 bar.

NOTE The use of tubing unsuitable for use with Diesel fuel can damage the pump, injure persons and cause pollution. The use of tubing unsuitable for use with Diesel fuel can damage the pump, injure persons and cause pollution.

ATTENTION To connect the Piusi stem connection flanges, use M8 screws with a torque of 25 Nm.

INITIAL START-UP Check that the quantity of fluid in the suction tank is greater than the amount you wish to transfer.

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.

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.

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:

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.

EVERY DAY USE 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.

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.

LACK OF ELECTRIC POWER A lack of electric power, with the consequent accidental stopping of the pump, can be caused by: - A safety device tripping - A drop in line voltage - In either case, act as follows:

- 1 Close the delivery valve
2 Attach the end of the delivery to the slot provided on the tank
3 Turn the ON/OFF switch to the OFF position.

Resume operations as described in Paragraph DAILY USE, after determining the cause of the stoppage.

15 MAINTENANCE

Safety instructions E140 pump is designed and constructed to require a minimum of maintenance. Before carrying out any maintenance work, disconnect the dispensing system from any electrical and hydraulic power source.

Authorised maintenance personnel ONCE A WEEK: ONCE A MONTH: All maintenance must be performed by qualified personnel. In any case always bear in mind the following basic recommendations for a good functioning of the pump.

NOISE LEVEL In normal operating conditions, noise emissions of all models do not exceed 74 dB at a distance of 1 metre from the electric pump.

17 PROBLEMS AND SOLUTIONS

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.



MADE IN ITALY Installazione uso e manutenzione IT Installation, use and maintenance EN

BULLETIN MO538A ITEN\_00

18 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 Metal Parts Disposal Disposal of electric and electronic components 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.

Disposing of electronic components 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.

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.

PIUSI Fluid Handling Innovation EN: This document has been drawn up with the greatest attention to precision and accuracy of all data provided. Nevertheless, PIUSI S.p.A. denies liability for any possible mistake or omission.

IT: Il presente documento è stato redatto con la massima attenzione circa la precisione dei dati in esso contenuti. Tuttavia, PIUSI S.p.A. non si assume responsabilità per eventuali errori ed omissioni.

