

HPN Series

High-pressure air humidifiers



WARNING

Make sure you read and fully understand the user manual before using this device.

Non-observance of these instructions will result in death or serious injury.



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IMPORTANT INFORMATION

Liability and residual risks

ELSTEAM assumes no liability for any damage caused by the following (by way of example; this is not an exhaustive list):

- Installation/use for purposes other than those specified and, in particular, not adhering to the safety provisions set out by current regulations in the country in which the product is installed and/or contained in this manual;
- Use in appliances that do not guarantee sufficient protection against electric shocks, water and dust within the installation conditions created;
- Use in appliances that allow access to hazardous parts without the use of a keyed or tooled locking mechanism when accessing the instrument;
- Tampering and/or modifying the product;
- Installation/use in appliances which do not comply with current regulations in the country in which the product is installed.

The customer/manufacturer is responsible for ensuring their machine complies with these regulations.

ELSTEAM's responsibility is limited to the correct and professional use of the product in accordance with regulations and the instructions contained in this manual and other product support documents.

To comply with EMC standards, observe all the electrical connection instructions. As it depends on the wiring configuration as well as the load and the installation type, compliance must be verified for the final machine as specified by the relevant product standard.

Disclaimer

This document is the exclusive property of ELSTEAM. It contains a general description and/or a description of the technical specifications for the services offered by the products listed herein. This document should not be used to determine the suitability or reliability of these products in relation to specific user applications. Each user or integration specialist should conduct their own complete and appropriate risk analysis, in addition to carrying out a product evaluation and test in relation to its specific application or use. Users can send us comments and suggestions on how to improve or correct this publication.

Neither ELSTEAM nor any of its associates or subsidiaries shall be held responsible or liable for improper use of the information contained herein.

ELSTEAM has a policy of continuous development; therefore, ELSTEAM reserves the right to make changes and improvements to any product described in this document without prior notice.

Terms and Conditions of use

Permitted use

The device should only be used for humidification.

The device must be installed and used in accordance with the instructions provided and, in particular, hazardous live parts must not be accessible nor come into contact with highly pressurised water under normal conditions.

The device must be suitably protected from water and dust with regard to its application and must also only be accessible with the aid of a tool.

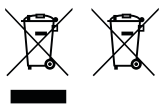
Only qualified personnel may install the product or perform technical support procedures on it.

The customer must only use the product as described in the documentation relating to that product.

Prohibited use

Any use other than those described in the "**Permitted use**" section and in the product support documentation is prohibited.

Disposal



The device must be disposed of in accordance with local regulations regarding the collection of electrical and electronic appliances.

Consider the environment



The company works towards protecting the environment, while taking account of customer requirements, technological innovations in terms of materials and the expectations of the community to which we belong. ELSTEAM places great importance on respecting the environment, encouraging all associates to become involved with company values and guaranteeing safe, healthy and functional working conditions and workplaces.

Please consider the environment before printing this document.

IMPORTANT SAFETY INFORMATION

Please read this document carefully before installation; study all the warnings before using the device. Only use the device in accordance with the methods described in this document. The following safety messages may be repeated several times in the document, to provide information regarding potential hazards or to attract attention to information which may be useful in explaining or clarifying a procedure.

SYMBOLS



This symbol is used to indicate a risk of electric shock.
It is a safety indication and as such, should be observed to avoid potential accidents or fatalities.



This symbol is used to indicate a risk of serious personal injury.
It is a safety indication and as such, should be observed to avoid potential accidents or fatalities.

SAFETY MESSAGES

DANGER

DANGER indicates a situation of imminent danger which, if not avoided, **will lead to death or serious injury**.

WARNING

WARNING indicates a situation of imminent danger which, if not avoided, **may lead to death or serious injury**.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **could cause minor or moderate injury**.

NOTICE

NOTICE indicates a situation not related to physical injuries but which, if not avoided, could damage the equipment.

NOTE: The maintenance, repair, installation and use of the equipment must only be entrusted to qualified personnel.

QUALIFIED PERSONNEL

Only suitably trained and experienced personnel capable of understanding the content of this manual and all documentation regarding the product are authorised to work on and with this equipment. Furthermore, the personnel must have completed courses in safety and must be able to recognise and prevent the implied dangers. The personnel must have suitable training, knowledge and experience at a technical level, and be capable of anticipating and detecting potential risks caused by using the product, as well as changing the settings and modifying the mechanical, electric and electronic equipment for the entire system in which the product is used. All personnel working on and with the product must be entirely familiar with the relevant standards and directives, as well as safety regulations.

STARTUP, MAINTENANCE AND MONITORING

Only suitably trained and experienced personnel capable of understanding the content of this manual and all documentation regarding the product are authorised to perform maintenance and monitoring work on this equipment.

Suitably trained and qualified personnel must be present during system startup and maintenance.

The startup procedure, mainly used in system testing, is also intended to train personnel in proper handling of the equipment, to achieve optimal system efficiency and to minimise or eliminate the need for maintenance due to negligence or incompetency during monitoring.

SAFETY INFORMATION RELATING TO THE PRODUCT

Before carrying out any work on the equipment, read these instructions carefully, making sure you understand everything.

DANGER

RISK OF ELECTRIC SHOCK, EXPLOSION OR ELECTRIC ARC

- Only use electrically insulated measuring devices and equipment.
- Do not install the equipment while the power supply is connected.
- Cut off the power supply to all equipment, including any connected devices, before removing any covers or hatches, or before installing/uninstalling accessories, hardware, cables or wires.
- Provide safety interlocks (isolators) of a suitable size between the power supply and the humidifier.
- Always use a properly calibrated Voltmeter to make sure the system is powered off.
- The maintenance, repair, installation and use of the equipment must only be entrusted to qualified personnel.
- Do not touch the unshielded components or the terminals while they are live.
- Do not open, disassemble, repair or modify the product.
- Do not expose the equipment to liquids or chemicals.
- Make sure there is an effective earth connection.
- Before applying voltage to the equipment:
 - Make sure all protective elements, such as covers, hatches and grilles, are fitted and/or closed.
 - Check all wiring connections.

DANGER

RISK OF ELECTRIC SHOCK AND FIRE

- Do not use the device with loads greater than those indicated in the technical data section.
- Do not exceed the temperature and humidity ranges indicated in the technical data section.
- Provide safety interlocks (isolators) of a suitable size between the power supply and the humidifier.

DANGER

RISK OF ELECTRIC SHOCK, EXPLOSION OR FIRE

- Install the humidifier away from electronic equipment.
- Do not install the humidifier above electronic equipment.

WARNING

MALFUNCTIONING OF THE EQUIPMENT

- Perform the wiring carefully, in compliance with electromagnetic compatibility and safety requirements.
- Carry out a full start-up test.
- Make sure the wiring is correct for the end application.
- Minimise the length of the connections as much as possible, to avoid winding the cables around electrically connected parts.
- Before applying the power supply, check all the wiring connections.
- Do not connect wires to unused terminals and/or terminals marked with the text "No connection" ("N.C").

WARNING

REGULATORY INCOMPATIBILITY

Make sure all the equipment used and systems designed conform to current local, regional and national standards.

1. RECEIVING THE PRODUCT

NOTICE

MALFUNCTIONING OF THE EQUIPMENT

- Droppages and shocks can damage the humidifier beyond repair.
- Tampering with or removing the identification stickers invalidates the warranty.

1.1 CHECKING THE PACKAGING

- Make sure the packaging is intact;
- Make sure the humidifier is intact upon delivery and inform the courier immediately, in writing, of any problems caused by careless or improper transportation (accept the package conditionally).

1.1.1 Opening the packaging

- Take the package to the humidifier installation site;
- Open the cardboard box, removing the polystyrene corner protectors;
- Slide out the humidifier.

1.1.2 Checking the packaging contents

The product package contains:

- **HPN** series humidifier;
- **HPN** series humidifier user manual;
- Inverter user manual;
- Pump user manual;
- Yellow oil cap for operation (with vent).

WARNING

RISK OF ELECTRIC SHOCK, EXPLOSION OR FIRE

Read and follow these instructions carefully.

2. INSTALLATION AND PRELIMINARY PROCEDURES

2.1 INTRODUCTION

Startup is an investment for the customer.

The personnel responsible for operating and servicing the system must actively participate in the startup process.

The startup procedures are used to:

- Test the system;
- Train personnel in proper operational maintenance of the system.

The training is intended to:

- Ensure staff responsible for running and routinely servicing the system are offered the best possible conditions, in terms of operation and safety;
- Achieve maximum system efficiency;
- Prevent costly maintenance and machine downtime caused by negligence and/or inadequate knowledge/training in terms of its operating principles.

2.2 INSTALLATION

The control unit has a protection degree of IP20, therefore it is not suitable for installation in areas exposed to atmospheric conditions.

⚠ WARNING

RISK OF ELECTRIC SHOCK, EXPLOSION OR FIRE

Install the equipment in sheltered areas which are not exposed to atmospheric conditions.

The diffuser rack has a protection degree of IP40, therefore it is not suitable for installation in areas exposed to atmospheric conditions.

⚠ WARNING

RISK OF ELECTRIC SHOCK, EXPLOSION OR FIRE

Install the equipment in sheltered areas which are not exposed to atmospheric conditions.

2.3 PRELIMINARY PROCEDURES

Before switching on the **HPN** humidifier:

- Replace the *red cap* on the pump oil tank with the **yellow cap** (with vent) provided.

2.3.1 Steps

- Check the control unit power supply
- Check the electrical connection between the control unit and the diffuser rack
- Check the electrical connections are tightened in accordance with local regulations
- Check the production capacity of the reverse osmosis system
- Make sure the osmosis water production system is working
- Make sure the water supply pipes before the pump unit have been suitably purged and cleaned of any remnants/evidence of work on the system
- Check the hydraulic connections between the osmosis water production system and the control unit
- Check the hydraulic connection with a pipe suitable for high pressure between the control unit and the diffuser rack
- Make sure there is a control signal on the rack control unit⁽¹⁾
- Start the humidifier and make sure the entire system is working properly in accordance with the instructions in the operating and maintenance manual, and that external regulation is taking place correctly

⁽¹⁾ **NOTE:** With the exception of situations where the system needs to be installed by the Support Centre, which will carry out the startup procedure.

NOTICE

RISK OF ELECTRIC SHOCK, EXPLOSION OR FIRE

The first oil change should take place between 50...150 hours of operation. For subsequent changes, please refer to the operating manual.

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ELSTEAM does not assume any responsibility for potential errors and reserves the right to make any changes, at any time, without the basic functional and safety-related features being affected.

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