IMPORTANT! Read and save these instructions. This manual to be left with the equipment.
Thank you for choosing Nortec

<table>
<thead>
<tr>
<th><strong>Installation date (DD/MM/YYYY):</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Commissioning date (DD/MM/YYYY):</strong></td>
</tr>
<tr>
<td><strong>Site:</strong></td>
</tr>
<tr>
<td><strong>Model:</strong></td>
</tr>
<tr>
<td><strong>Serial number:</strong></td>
</tr>
</tbody>
</table>

**Manufacturer**
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**Liability Notice**
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1   Introduction

1.1   Before You Start!

Thank you for purchasing the Nortec Blower Pack.

Nortec humidifiers and blower packs incorporate the latest technical advances and meet all recognized safety standards. Never-the-less, improper use of the Nortec equipment may result in danger to the user or third parties, and/or damage to property.

To ensure safe, proper and economical operation of the Nortec humidifier and blower pack, please observe and comply with all information and safety instructions contained in this manual as well as all the relevant documentation of components of the installed humidification system.

If you have additional questions, please contact your Nortec representative. They will be glad to assist you.

1.2   General

Limitations

The subject of this manual is the Nortec Blower Pack. The various options and accessories may only be described in-so-far as is necessary for proper installation, operation and maintenance of the equipment. Additional information on available options and accessories can be obtained in the respective instructions that are supplied with them.

This manual is restricted to the installation, operation and maintenance of the Nortec Blower Pack, and is intended for well trained personnel who are suitably qualified for their respective tasks.

Symbols Used in This Manual

⚠️ CAUTION!

The catchword "CAUTION" in conjunction with the general caution symbol is used to provide safety instructions that, if neglected, may cause damage and/or malfunction of the unit or damage to property.

⚠️ WARNING!

The catchword "WARNING" in conjunction with the general warning symbol is used to provide safety instructions that, if neglected, may cause injury to personnel. Other specific warning symbols may also be used in place of the general symbol.

⚠️ DANGER!

The catchword "DANGER" in conjunction with the general danger symbol is used to provide safety instructions that, if neglected, may cause severe injury to personnel or even death. Other specific danger symbols may also be used in place of the general symbol.
Storage of Manual

Keep this manual in a place where it is safe and readily accessible. If the equipment is moved to another location, ensure that the manual is passed on to the new user/operator.

If the manual is lost or misplaced, please contact your Nortec representative for a replacement copy.
2 For Your Safety

General
Every person who is tasked with the installation, maintenance or operation of the Nortec humidifier and blower pack must read and understand this manual and the humidifier manuals before performing any work. Knowing and understanding the contents of this manual is a basic requirement for protecting personnel against any kind of danger, preventing faulty operation, and operating the unit safely and correctly.

All labels, signs and marking applied to the Nortec humidifier and blower pack must be observed and kept in a readable state.

Personnel Qualifications
All procedures described in this manual must only be performed by personnel who are adequately qualified, well trained and are authorized by the customer.
For safety and warranty reasons, any activity beyond the scope of this manual must only be performed by qualified personnel authorized by Nortec.
All personnel working with the Nortec humidifier and blower pack must be familiar with, and comply with the appropriate regulations on workplace safety and prevention of accidents.

Intended Use
The Nortec Blower Pack is intended exclusively for air humidification within the specified operating conditions (refer to "Operating Data" on page 45). Any other type of application, without the express written consent of Nortec, is considered to be NOT conforming to its intended purpose, and may lead to dangerous operation and will void the warranty.

In order to operate the equipment in the intended manner all information contained in this manual, in particular the safety instructions, must be observed closely.

Dangers that may arise from the Nortec humidifier and blower pack:

⚠️ DANGER!
Risk of electric shock!

The Nortec humidifier and blower pack are mains powered. Live parts may be exposed when the door panels/cover are removed. Touching live parts may cause severe injury or even death.

Prevention: The Nortec humidifier and blower pack must be connected to the mains only after all installation work has been completed, checked for correct workmanship, and the door panels/cover are installed and fastened properly. The units must also be disconnected from the mains whenever work must be performed on them.
**WARNING!**
**Risk of severe burns from contact with hot steam vapors!**

The Nortec humidifier and blower pack use hot steam vapors for humidification. Bare skin exposed to hot steam vapours can result in severe burns.

**Prevention:** Wear appropriate personal protective equipment when working near steam vapours.

---

**WARNING!**
**Risk of severe burns from contact with hot surfaces!**

Components of the stream system (including the steam cylinder, steam distributors, etc.) get up to 212 °F (100 °C) during operation. Contact with the hot surfaces can result in severe burns.

**Prevention:** Shut down the humidifier and allow it to cool down before performing any work on the steam system.

---

**Preventing Unsafe Operation**

All personnel working with the Nortec humidifier and blower pack must immediately report to the customer any alterations to the unit that may affect safety, and **secure the Nortec units against accidental power-up.**

---

**Modifications to the Unit Prohibited**

**Modifications are NOT permitted** on the Nortec humidifier and blower pack without the express written consent of Nortec.
3 Receiving and Storage

3.1 Inspection

After receiving the shipment, inspect the goods as follows:

- Inspect the shipping boxes for damage. Report any shipping box damages to the shipping company without delay.

- Check the goods against the packing slip to ensure that all items have been delivered. Report any shortages to your Nortec representative within 48 hours of receipt of the goods. Nortec does not assume responsibilities for any shortages beyond this period.

- Unpack the parts/components and check for any damage. If parts/components are damaged, notify the shipping company immediately.

- Verify the model type on the specification label to ensure that it is suitable for your installation. Refer to Figure 2 on page 8.

3.2 Storage and Transportation

Storage

Store the Nortec Blower Pack in its original packaging inside a protected area that meets the following requirements until it is installed, or if it needs to be stored for an extended period of time:

- Room temperature: 41 to 104 °F (5 to 40 °C)
- Room humidity: 5 to 75% RH

Transportation

For optimum protection always transport the unit and components in their original packaging, and use appropriate lifting/transporting devices.

Packaging

Keep the original packaging of the unit/components for later use. If the packaging needs to be disposed off observe local regulations on waste disposal. Please recycle packaging where possible.
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4 Product Overview

4.1 General Description

The Nortec Blower Pack is used along with an atmospheric steam generating humidifier to distribute steam directly into local areas or into structures that do not have a built-in air distribution system.

The blower pack can be direct-mounted on the Nortec EL series or RS series humidifiers, or mounted remotely with the Nortec EL series, RS series, GS series or the SE series humidifiers. Multiple blower packs can also be installed remotely with large humidifiers. Refer to Figure 1.

Figure 1: Nortec Blower Pack Mounting Configurations

1 Remote-mounted multiple blower packs (on large humidifiers)
2 Direct-mounted blower pack
3 Remote-mounted blower pack
4.2 Identification of the Unit

The specification label on the side of the blower pack shows its model type, serial number and other ratings. Refer to Figure 2.

![Figure 2: Nortec Blower Pack Specification Label](image)

1. Current phase
2. Serial number (7-digit)
3. Frequency rating
4. Year/month of manufacture
5. Maximum current
6. Power consumption
7. Voltage rating
8. Model type

4.3 Options and Accessories

The air filter assembly (P/N 2579375) is the only available option for the Nortec Blower Pack. To order it, please contact your Nortec representative. There are no accessories for the Nortec Blower Pack.

4.4 Functional Description

The blower pack consists of an electrically-driven fan, an optional air filter assembly, a distributor assembly, a steam inlet, a thermostat assembly, a safety relay, fuse and a high/low speed switch. The fan is controlled by the thermostat assembly and the high/low speed switch. Refer to Figure 3 on page 9.

When the blower pack is powered on, the safety relay closes and permits the humidifier to generate steam when it receives a demand signal. The generated steam enters the blower pack through the steam adaptor into the distributor assembly. A normally-open contact in the thermostat assembly closes when the temperature reaches approximately 140 °F (60 °C), at which time the fan starts. Air drawn through the grill in the cover assembly then mixes with the steam and is dispersed into the room/facility through the distributor assembly.

The high/low speed switch controls the speed of the fan, which is set to the specific humidification requirements of the room/facility. Once set, the switch setting should not be altered.

When the steam supply stops, the fan continues to run until the contact in the thermostat assembly opens as its temperature drops down to approximately 122 °F (50 °C).

A security loop cable attached to the back of the blower pack prevents the humidifier from starting if the safety interlock is disabled. A warning message "Blower pack not connected" is displayed on the humidifier.
Figure 3: Nortec Blower Pack Components

1. Air filter assembly (optional)
2. Cover assembly
3. Fan assembly
4. Safety relay
5. Housing
6. Specification label
7. Security loop cable
8. Power cable
9. Fuse
10. High/low speed switch
11. Steam adaptor
12. Distributor assembly
13. Thermostat assembly
This page intentionally left blank
5 Installation

5.1 General

Strictly observe and perform all installation tasks including the mounting of the unit and connection of the water, steam and power supplies as described in this manual.

Observe and comply with all local and national codes dealing with water, steam and electrical installations. Nortec does not accept any liability for installation of humidification equipment by unqualified personnel, or the use of equipment/parts that are not authorized by Nortec.

Personnel Qualifications

All installation work must be performed only by licensed personnel authorized by the customer. It is the customer’s responsibility to verify qualifications of the personnel.

Safety

Some installation work requires removal of the door panels/covers on the blower pack and humidifier. Please note the following:

⚠️ DANGER!
Risk of electric shock!

The Nortec humidifier and blower pack are mains powered. Live parts may be exposed when the door panels/covers are removed. Touching live parts may cause severe injury or even death.

Prevention: The Nortec humidifier and blower pack must be connected to the mains only after all installation work has been completed, checked for correct workmanship, and the door panels/covers are installed and fastened securely.

❗️ CAUTION!
Electrostatic discharge (ESD)!

The electronic components inside the humidifier are sensitive to electrostatic discharge (ESD).

Prevention: Take appropriate measures to protect the electronic components inside the unit against damage caused by electrostatic discharge (ESD). Refer to ANSI/ESD-S20.20.
5.2 Installation Overview

The multi-platform Nortec Blower Pack can be installed remotely with any Nortec EL or RS humidifier, or mounted directly onto the Nortec EL 005-100 humidifiers or the Nortec RS 010-090 humidifiers. Multiple blower packs can also be used remotely with large humidifiers equipped with two steam cylinders. Figure 4 shows typical mounting configurations of the blower pack(s) and humidifier.

Figure 4: Typical Installation of Blower Pack with Nortec EL/RS Humidifier

1 Blower packs (multiple, remote-mounted with large humidifier)  
2 Electrical disconnect switch - heating voltage supply  
3 Drain line (see Note 1 below)  
4 Air gap funnel and trap (see Note 2 below)  
5 Condensate drain connection to cylinder (for remote unit)  
6 Condensate drain connection to drain (for remote unit)  
7 Condensate drain line (alternate, to floor drain)  
8 Condensate drain line (see Note 3 below)  
9 Blower pack (single, remote-mounted)  
10 Steam line (see Note 4 below)  
11 Blower pack (single, direct-mounted)  
12 High limit humidistat (external security loop)  
13 Humidity sensor or controller
**Note 1:** The drain line should have a minimum internal diameter of 1-1/4 in (30 mm), with a constant downslope (minimum 1.2") to the air gap funnel, and must not touch the sides or bottom of the funnel. Use stainless steel or plastic pipe if using DI or RO water.

**Note 2:** The air gap funnel and trap should be located away from the control cabinet in the humidifier to prevent any rising steam from damaging the electrical components in the cabinet.

**Note 3:** Condensate drain line should have a constant downslope (minimum 1.2"), with no restrictions. It must have a trap with a height of 8 in (200 mm). The trap should be located a minimum of 12 in (300 mm) below the blower pack/steam line. Also see note below.

**Note 4:** The steam line should be as short as possible – the maximum length varies depending on the humidifier capacity and material used (refer to Table 2 on page 18). The steam line must have a constant slope (minimum upslope of 10° or minimum downslope of 2°), and have no restrictions in the line. Steam lines must not merge except at the blower pack (and only through a Nortec breakout adaptor). A condensate line must also be installed just before the restriction. On long steam line runs, condensate lines must be installed every 15 ft (4.5 m), and at the lowest point in the steam line. The condensate lines must connect into full-size "Tee" connectors.

In addition, multiple blower packs can also be used remotely with Nortec GS 450/600 and Nortec SE 175-1050 humidifiers with the aid of breakout adaptors. Refer to Figure 5. Contact your Nortec representative for additional details.

---

**Figure 5:** Typical Installation of Multiple Blower Packs with Nortec GS/SE Humidifier

1. Blower packs (multiple, remote-mounted)
2. Floor drain (see Note 1 above)
3. Condensate drain line (see Note 3 above)
4. Breakout adaptor
The direct-mounted blower pack is factory-ready to run just as soon as the Nortec EL/RS humidifier is installed and configured.

To install a remote-mounted blower pack, refer to "Remote-Mounted Blower Pack Installation" on page 23.

5.3 Site Requirements

In preparation for installation of the Nortec Blower Pack, the following site requirements must be satisfied. Report any discrepancies to the site engineer.

Steam and Condensate Lines

☐ The selected location for installation of the blower pack should allow proper routing of the steam and condensate lines as described in "Best Practices for Steam and Condensate Line Installation" on page 16.

☐ The length of the steam line should be kept as short as possible (refer to Table 2 on page 18) to minimize heat loss through the steam line.

Mounting

☐ The selected location for the humidifier and blower pack should meet the requirements described in "Location and Clearances" on page 14.

☐ The blower pack is designed for wall-mounting in protected interiors. The surface (wall, pillar, etc.) to which the blower pack and humidifier are to be mounted must offer a sufficiently high load-bearing capacity, and be suitable for the installation. Refer to "Size and Weight" on page 45.

☐ The blower pack must only be installed and operated in a drip-proof location within buildings, where the permissible ambient temperature and humidity conditions are maintained. Refer to "Operating Data" on page 45 for details.

☐ The blower pack should not be mounted on hot or very cold surfaces, or near vibrating components, or on the floor.

☐ The blower pack should not be used as a ducted blower. The air volume from the blower pack is not sufficient for proper operation in a ducted system.

Power Supply

☐ The available voltage and phase of the power supply should match the requirements for the blower pack, as indicated on the specification label. Refer to Figure 2 on page 8.

5.3.1 Location and Clearances

The installation of the blower pack depends largely on the location of the humidifier as well as clearances required to ensure steam does not come in contact with any surfaces before it is absorbed into the air. Refer to Figure 6 on page 15 and Table 1 on page 15 for blower pack minimum clearance requirements.

The clearance dimensions shown are for reference only, and are the minimums required for the proper functioning of the equipment. Consult local and national installation codes. Nortec does not accept responsibility for violations of installation codes.
Figure 6: Blower Pack Clearance Requirements

1  Direct-mounted blower pack
2  Remote-mounted blower pack

Table 1: Minimum Clearances

<table>
<thead>
<tr>
<th>Blower Pack Capacity</th>
<th>5 lb/h (2.2 kg/h)</th>
<th>10 lb/h (4.5 kg/h)</th>
<th>20 lb/h (9 kg/h)</th>
<th>30 lb/h (13.6 kg/h)</th>
<th>50 lb/h (22.7 kg/h)</th>
<th>75 lb/h (34 kg/h)</th>
<th>100 lb/h (45 kg/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Speed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension &quot;A&quot; (minimum), Low speed</td>
<td>9 in (0.23 m)</td>
<td>18 in (0.46 m)</td>
<td>75 in (1.91 m)</td>
<td>86 in (2.19 m)</td>
<td>174 in (4.42 m)</td>
<td>189 in (4.81 m)</td>
<td>248 in (6.30 m)</td>
</tr>
<tr>
<td>Dimension &quot;B&quot; (minimum), Low speed</td>
<td>12 in (0.31 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension &quot;B&quot; (minimum), High speed</td>
<td>12 in (0.31 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension &quot;C&quot; (approximate)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>86.5 in (2.2 m)</td>
<td></td>
</tr>
<tr>
<td>Dimension &quot;D&quot; (approximate)</td>
<td></td>
<td></td>
<td></td>
<td>12 in (0.31 m)</td>
<td></td>
<td>30 in (0.77 m)</td>
<td></td>
</tr>
<tr>
<td>Dimension &quot;E&quot; (minimum)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>39.5 in (1.0 m)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimension &quot;E&quot; (maximum)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>158 in – Nortec recommends 79 in (4.0 m – Nortec recommends 2.0 m)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
The values in Table 1 are based on the following nominal conditions: 72 °F (22 °C), 40% RH. Blower pack should not be installed near cold surfaces or where dew point may be reached. Higher humidity or lower room temperature may require increased clearances.
5.4 Best Practices for Steam and Condensate Line Installation

Before proceeding with installation, Nortec recommends that you familiarize yourself with the best practices for installing atmospheric steam lines and condensate lines described below. Refer to Figure 7 on page 20.

Steam Lines

– Use rigid steam pipes made of copper or stainless steel (minimum DIN 1.4301) exclusively, and use steam hoses for short distances only. Refer to Table 2 on page 18 for details. Use original steam and condensate hoses from your Nortec representative. Steam and condensate lines made of any other materials may adversely affect the operation of the unit, and will void the warranty.

**WARNING!**
Excessive backpressure can result in serious injury or damage to equipment!

Excessive backpressure in the steam line may affect the proper functioning of the humidifier, and may also cause unexpected release of hot steam vapors. Bare skin exposed to the hot steam vapors can result in severe burns.

Prevention: Minimize the length of the steam line and the number of bends, as the backpressure can rise approximately 0.12 in H2O for every foot (100 Pa for every meter) of steam line, and every 90° elbow.

– The length of the steam line should be kept as short as possible. It should not exceed the maximum equivalent length shown in Table 2 on page 18. Exceeding the maximum length can affect performance of the unit and may void the warranty. **Note:** With oversized steam lines the maximum length can be extended. Use a Nortec steam hose for short distances only.

**IMPORTANT!** When determining the length and routing of steam lines, allowances must be made for thermal expansion. If a steam hose is used, allowances must be made for shrinkage in the length of the hose due to aging.

– The inside diameter of the steam line must match the diameter of the steam adaptor on the humidifier.

– Use long radius elbows for steam pipes – the minimum bend radius is 5× the internal diameter. Steam hoses should have a minimum bend radius of 12 in (300 mm).

– Do not decrease the diameter of the steam line, as it increases the backpressure in the line and condensation of the steam. If necessary, increase the diameter of the steam line on the downslope, and install a condensate line at the lowest point. Once expanded, a reduction in diameter is not permitted except at the blower pack. Install a Nortec steam line reducer at the connection to the blower pack, and install a condensate line just before the restriction. Contact your Nortec representative for details of the reducer.

– If using blower packs with large humidifiers (with dual steam cylinders), do not connect the output from both steam cylinder to a single blower pack. Each blower pack has a maximum capacity of 100 lb/h (45 kg/h).

– For Nortec GS/SE humidifiers use a breakout adaptor to distribute the stream to more than one blower pack – refer to Figure 5 on page 13. For details of steam lines for Nortec GS/SE humidifier models contact your Nortec representative.

– The steam line from the humidifier must lead straight upwards for a minimum of 12 in (300 mm) before continuing to the blower pack. The steam line must have a constant slope (minimum upslope of 10° or minimum downslope of 2°), and have no restrictions in the line.

– Rigid steam pipes can be connected to the blower pack and the humidifier by means of short lengths of steam hoses and secured with hose clamps. If using a steam hose, it must be secured to the blower pack and the humidifier steam outlet with hose clamps.
CAUTION!

Do not over-tighten the hose clamp. The maximum torque for 1-3/4 in (45 mm) gear clamps is 16 in-lbs (180 N·cm).

- To minimize formation of condensation and maximize efficiency, steam lines made of rigid pipes (copper or stainless steel) must be insulated with a minimum of 1 in (25 mm) of pipe insulation over its entire length.
- The weight of the steam line must be supported so there is no load on the humidifier.

WARNING!

Risk of severe burns from contact with hot steam vapours!

Restrictions in the cross-section of the steam line will cause excessive backpressure in the steam cylinder when the unit is operating, which may cause unexpected release of hot steam vapors. Bare skin exposed to the hot steam vapours can result in severe burns.

Prevention: Observe the following:

• Upon completion of the installation, purge the steam line to remove any contaminants and installation materials.
• If using a steam hose make sure there are no kinks in the hose. A heated hose is more likely to kink.
• To prevent condensate pockets, the steam line must not sag. If necessary, support the steam line with pipe clamps, trough, or wall brackets, and install a condensate drain at the lowest point in the steam line.
• Do not install a shutoff valve (e.g. a manually operated shutoff valve, solenoid valve, etc.) in the steam line.
<table>
<thead>
<tr>
<th>Model</th>
<th>Steam Line</th>
<th>Over-sized Steam Line**</th>
<th>Steam Losses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maximum Length</td>
<td>MED-L Copper Tube Diameter</td>
<td>Stainless Steel Tube Diameter</td>
</tr>
<tr>
<td>EL005</td>
<td>7 ft (2 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>EL010</td>
<td>12 ft (3.5 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>EL020</td>
<td>17 ft (5 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>EL030</td>
<td>22 ft (6.5 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>EL050</td>
<td>43 ft (13 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>EL075</td>
<td>47 ft (14 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>EL100</td>
<td>50 ft (15 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>RS010***</td>
<td>24 ft (7.3 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>RS015***</td>
<td>25 ft (7.6 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>RS020***</td>
<td>27 ft (8.2 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>RS030***</td>
<td>30 ft (9.1 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>RS045</td>
<td>35 ft (10.7 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>RS065</td>
<td>45 ft (13.7 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>RS090*</td>
<td>50 ft (15.2 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>RS130*</td>
<td>35 ft (10.7 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
<tr>
<td>RS180*</td>
<td>35 ft (10.7 m)</td>
<td>1-1/2 in (40 mm)</td>
<td>1-3/4 in × 0.065 wall (45 mm × 1.65 mm wall)</td>
</tr>
</tbody>
</table>

Notes:  
* Use a single steam line for each steam cylinder. Do not combine lines except at a distributor, and only if using the humidifiers in parallel.  
** The over-sized lines may require a reducer at the humidifier and the blower pack.  
*** These models will require a reducer at the blower pack.  
§ Please consult factory.
Condensate Lines

- Use 3/8 in (9.5 mm) Nortec condensate hose, or 3/8 in (9.5 mm) stainless steel pipe or 1/4 in (6.5 mm) copper pipe for condensate lines and traps.

**WARNING!** Risk of severe burns from contact with hot fluids or steam!

The condensate lines may be filled with hot fluids or steam. Bare skin in contact with hot fluids or steam can result in severe burns.

**Prevention:** Never plumb the condensate lines to empty into a sink used by personnel. Always connect the lines to a drain according to applicable national and local plumbing codes.

- The condensate drain line from the blower pack must have a constant minimum downslope of 1.2°, with a trap height of 8 in (200 mm). It may be connected to the fill cup port on the top of the humidifier or to the building floor drain with condensate cooler, as required. The condensate trap must be at least 12 in (300 mm) below the condensate port on the blower pack.

- Condensate lines must also be installed at all low points, and at horizontal-to-vertical transitions in the steam line. The condensate drain lines should always connect to full-size "Tee" connectors in the steam line and have a minimum downslope of 1.2°. Install full-size "Tee" connectors for condensate drain lines at all horizontal-to-vertical transitions. The condensate trap must be at least 12 in (300 mm) below the "Tee" connectors.

- For a steam line that is longer than 15 ft (4.5 m) up to the maximum recommended length, install condensate lines and traps at regular intervals. The maximum distance between the condensate lines is 15 ft (4.5 m).

- Make sure that the condensate lines allow proper flow.

- Do not over-tighten the hose clamps on the condensate lines.

**IMPORTANT!** Before starting up the humidifier, prime the condensate traps with water.
Figure 7: Permissible Minimums for Steam and Condensate Lines

A Steam line must run minimum 12 in (300 mm) vertically before continuing to the blower pack.

B The condensate trap must be minimum 12 in (300 mm) below the condensate outlet on the blower pack. The condensate line must have a constant minimum downslope of 1.2°.

C The steam line must have a constant minimum upslope of 10°, or constant minimum downslope of 2°.

D All condensate traps must have a height of 8 in (200 mm).

E If using a steam hose, the minimum bend radius is 12 in (300 mm). For rigid steam pipes use long radius elbows – minimum bend radius is 5× the internal diameter. The steam line/hose must not exceed the length specified in Table 2 on page 18.
5.4.1 Common Steam and Condensate Line Installation Mistakes

Some common steam and condensate line installation mistakes are shown in Figure 8.

*Figure 8: Common Steam and Condensate Line Installation Mistakes*

1. The condensate trap is located less than the required minimum 12 in (300 mm) below the blower pack condensate outlet.
2. The minimum bend radius of 12 in (300 mm) for the steam hose (or 5× the internal diameter for rigid pipes) is not maintained.
3. No condensate trap is installed at the horizontal-to-vertical transition.
4. The required slope (constant minimum upslope of 10°, or constant minimum downslope of 2°) for steam line and (constant minimum downslope of 1.2°) for condensate line is not maintained.
5. The steam line does not run straight up for the required minimum 12 in (300 mm) before continuing to the blower pack.
6. On long steam line runs, condensate lines are required every 15 ft (4.5 m), and must connect into full-size "Tee" connectors in the steam line. The condensate trap must be installed a minimum of 12 in (300 mm) below the steam line.
7. Steam lines are not permitted to merge except at the blower pack (and only through a Nortec adaptor), and must have a condensate line just before the restriction.
5.5 Installation Kit

The Nortec Blower Pack is shipped with an installation kit for all remote blower pack installations. The contents of the installation kit are shown in Table 3 below.

**Note:** The content of the installation kit is site-specific, and may vary for your site.

*Table 3: Installation Kit*

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Steam hose, 1-3/4 in (45 mm) diameter, bulk</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Condensate hose, 3/8 in (9.5 mm), bulk</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Hose clamp, 1-3/4 in (45 mm) steam hose</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Spring clamp, 3/8 in (9.5 mm) condensate hose</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Power cable, 6.5 ft (2 m)</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Tie wrap, 4 in (100 mm)</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>Grommet</td>
<td>2</td>
</tr>
<tr>
<td>8</td>
<td>Installation, operation and maintenance manual</td>
<td>1</td>
</tr>
</tbody>
</table>
Remote-Mounted Blower Pack Installation

Before proceeding with installation, Nortec recommends that you familiarize yourself with "Best Practices for Steam and Condensate Line Installation" on page 16.

1. **Mounting the Blower Pack.** Locate the blower pack according to "Location and Clearances" on page 14, and install it on the mounting surface as follows:
   a. Locate a 2×4 wooden stud or equivalent support in the mounting surface, and mark the attachment points “A” and “B” at the desired position with the help of a level – refer to Figure 9.
   b. Install two #10×3 in wood screws (supplied by others) at attachment points "A". Use longer screws if going through drywall or other structural material into the wooden studs. Allow the heads of the screws to extend 1/4 in (5 mm) from the mounting surface so that the blower pack can be installed on the screws.
   c. Remove the two machine screws and the cover from the blower pack.
   d. Install the blower pack onto the two installed mounting screws.
   e. Align the blower pack with the help of a level, then tighten the two mounting screws.
   f. Install the cover and secure it with the two machine screws.
   g. Install two more #10×3 in wood screws (supplied by others) into the mounting surface at attachment points “B”.

**Figure 9: Wall-Mounted Blower Pack**

1. Machine screw (×2)
2. Cover
3. Blower pack
4. Mounting screw (×4)
2. **Connect Steam and Condensate Lines to Blower Pack.** Plumb the steam line and the condensate drain line to the blower pack as follows:
   a. Plumb the steam line (supplied by others) and connect it to the steam adaptor on the blower pack with a short length of bulk steam hose and two hose clamps (supplied). Refer to *Figure 10 on page 25*. If using a Nortec steam hose, connect it to the steam adaptor with a hose clamp (supplied). Do not over-tighten the hose clamps – maximum torque is 16 in·lbs (180 N·cm).
   b. Plumb the 3/8 in (9.5 mm) condensate drain line (supplied by others) and connect it to the blower pack condensate port with a short length of bulk 3/8 in (9.5 mm) hose and two spring clamps (supplied). If using a Nortec condensate hose, connect it to the condensate port with a 3/8 in (9.5 mm) spring clamp (supplied).

3. **Connect Steam and Condensate Lines to Humidifier.** Connect the steam line and the condensate line to the humidifier as follows:

   **Condensate Line Connection**
   
   a. Connect the 3/8 in (9.5 mm) condensate line from the blower pack to any of the following drain connections. Refer to *Figure 10 on page 25*.
      i. Humidifier cylinder port (if available)
      ii. Humidifier drain port (if available)
      iii. Building floor drain line
   b. Make sure that an 8 in (200 mm) diameter trap is installed in the condensate line, and the trap is located a minimum of 12 in (300 mm) below the condensate outlet on the blower pack.

   **Steam Line Connection**
   
   a. Connect the other end of the steam line to the steam outlet on the humidifier with a short length of bulk steam hose and two hose clamps. If using a Nortec steam hose, connect it to the steam outlet with a hose clamp (supplied). Refer to *Figure 10 on page 25*. Do not over-tighten the hose clamps – maximum torque is 16 in·lbs (180 N·cm).
Figure 10: Steam and Condensate Line Connections on Blower Pack

1 Steam adaptor, 1-3/4 in (45 mm)
2 Hose clamp
3 Steam line, rigid pipe
4 Steam hose, bulk
5 Condensate line, 3/8 in (9.5 mm)
6 Condensate hose, 3/8 in (9.5 mm), bulk
7 Condensate return (cylinder) port on humidifier
8 Condensate drain port on humidifier
4. **Electrical Connections.** Connect the power supply and security loop cables as follows:

**Safety**

The electrical installation work requires removal of the cover/door panels on the blower pack and humidifier. Please note the following:

<table>
<thead>
<tr>
<th>DANGER! Risk of electric shock!</th>
</tr>
</thead>
</table>

**The Nortec humidifier and blower pack are mains powered. Live parts may be exposed when the door panels/covers are removed. Touching live parts may cause severe injury or even death.**

**Prevention:** The Nortec humidifier and blower pack must be connected to the mains only after all installation work has been completed, checked for correct workmanship, and the cover/door panels are installed and fastened securely.

<table>
<thead>
<tr>
<th>CAUTION! Electrostatic discharge (ESD)!</th>
</tr>
</thead>
</table>

**The electronic components inside the humidifier are sensitive to electrostatic discharge (ESD).**

**Prevention:** Take appropriate measures to protect the electronic components inside the unit against damage caused by electrostatic discharge (ESD). Refer to ANSI/ESD-S20.20.

Please also observe the following:

- All electrical installation work must be performed only by a licensed electrician authorized by the customer. It is the customer’s responsibility to verify qualifications of the personnel.
- The electrical connections must be performed according to the wiring diagrams in the humidifier manual and this manual, the instructions in this section, as well as applicable local and national codes.
- Make sure that the available voltage and phase of the power supply match the requirements for the blower pack, as indicated on the specification label. Refer to *Figure 2 on page 8*.
- All cables must lead into the unit through appropriate cable glands and must be secured with clamp straps.
- Cables must be secured with tie wraps (supplied) to prevent rubbing on any components, or become a tripping hazard.
- Observe local and national codes for maximum cable length and required wire sizes for cables.
**DANGER!**
Risk of electric shock!

**Touching live parts may cause severe injury or even death.**

**Prevention:** DO NOT plug the blower pack into a wall outlet until all installation work has been completed and checked.

a. Plug the power cable (supplied) and the security loop cable (supplied by others) into the back of the blower pack, but DO NOT plug the power cable into a wall outlet at this point. Refer to Figure 11.

**Note:** For a Nortec GS/SE humidifier, the other end of the blower pack power cable always plugs into a wall outlet. For a Nortec RS/EL humidifier, the blower pack power cable can be plugged either into a wall outlet or into the humidifier's power supply (using an optional power kit available from your Nortec representative). Connection to the optional power kit is described in Step e on page 28.

*Figure 11: Blower Pack Electrical Connections*

1. Security loop connector
2. Power connector
b. Punch the knockout hole in the top of the humidifier that is located directly below the blower pack power connector. Refer to Figure 12.

c. Install a grommet (supplied) in the knockout hole, and route the security loop cable (and the power cable if using the optional power kit described above) through the grommet, as shown in Figure 12.

![Figure 12: Humidifier Electrical Connections](image)

1. Knockout hole with grommet
2. Low voltage terminal strip
3. Security loop cable
4. Power cable

d. Remove the door panel on the humidifier control cabinet.

e. Run the security loop cable (and power cable, if applicable) along the cable chase and connect the leads to the terminal strips inside the humidifier unit, as shown in Figure 12. Make sure that the line wire in the power cable is connected to "L1", the neutral wire to "N" and the ground wire to "GND" in the terminal strip.

f. For the Nortec EL/RS humidifier connect the security loop cable to pins "8" and "9" in the low voltage terminal strip. **Note:** For the Nortec GS/SE humidifier connect the security loop cable in series to pins "1" and "2" in the low voltage terminal strip.

g. Install the humidifier door panel, and fasten it securely.

5. Perform the checks described in "Post-Installation Checklist" on page 29.
5.7 **Post-Installation Checklist**

Check the following to ensure that the blower pack has been installed correctly:

**Mounting**

- Unit installed according to *Location and Clearances* on page 14?
- Mounting surface stable?
- Unit aligned properly – vertically and horizontally?
- Unit fastened securely?

**Steam Line**

- Line does not exceed maximum length listed in Table 2 on page 18?
- Use long radius elbows (minimum bend radius of 5× internal diameter)? Steam hose (if used) has minimum bend radius of 12 in (300 mm)?
- Steam line has constant slope (minimum upslope of 10° or minimum downslope of 2°)?
- Observed best practices for steam and condensate lines?
- Steam line supported so it does not sag?
- Steam hose attached securely with clamps? Clamps torqued to a maximum of 16 in·lbs (180 N·cm)?
- Allowances for thermal expansion of rigid steam pipe, and shortening of the steam hose (if used) taken into consideration?

**Condensate Line**

- All condensate lines have constant minimum downslope of 1.2°?
- Condensate trap have a loop diameter of 8 in (200 mm) and installed at least 12 in (300 mm) below the condensate port on the blower pack?
- Condensate lines installed at all low points and at horizontal-to-vertical transitions in the steam line?
- Condensate lines connect to full-size "Tee" connectors in steam line? Condensate traps at least 12 in (300 mm) below the "Tee" connectors?
- Maximum distance between condensate lines 15 ft (4.5 m)?
- Condensate traps primed with water?
- Condensate hoses not kinked, and secured properly?

**Electrical**

- Supply voltage meet the voltage requirements on the specification label?
- All wiring done according to the wiring diagram?
- Electrical installation meet the applicable local and national codes?
- All cables free of tension and pass through cable glands?
- All cables fastened securely?
- All covers and panels installed and fastened securely?
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6 Commissioning

6.1 General

The Nortec Blower Pack and humidifier must be commissioned and operated only by personnel who are adequately qualified and familiar with the Nortec humidifier and blower pack. It is the customer’s responsibility to verify the qualifications of personnel.

6.2 First-time Commissioning

The unit must always be commissioned for the first time by a service technician from your Nortec representative, or by personnel who are well trained and authorized by the customer. For this reason, this manual only provides an outline, and not the details of the commissioning protocol.

The steps are in the following order:

1. Inspect the mounting of the unit.
2. Inspect the steam line/hose installation.
3. Inspect the condensate drain line installation.
4. Inspect the electrical installation.
5. Configure the blower pack and humidifier.
6. Conduct performance tests, including controls.
7. Filling out the commissioning protocol documents.
7 Operation

7.1 Controls

There are no separate user controls on the Nortec Blower Pack, except for the speed switch. The blower pack is interlocked with the Nortec humidifier, which controls its operation. Refer to Figure 13.

Note: The speed switch is set to the specific humidification requirements of the room/facility during installation, and should not be altered.

![Nortec Blower Pack](image)

Figure 13: Nortec Blower Pack

7.2 Starting and Stopping

When the Nortec humidifier and blower pack are powered on, the contact in the blower pack safety relay closes, which allows the humidifier to produce steam when there is a demand for humidity.

Note: If the safety relay is open, or the security loop cable is disconnected the humidifier will not generate steam.

As steam enters the blower pack the contact in the thermostat assembly closes, at which time the fan starts.

When the demand for steam is satisfied, the humidifier stops producing steam. The fan continues to run until the thermostat assembly cools down, at which time the contact in the thermostat assembly opens and the fan stops.
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8 Maintenance

8.1 General

Strictly observe all safety precautions, and perform only those maintenance tasks described in this manual. Use only original Nortec replacement parts.

Personnel Qualifications

All maintenance work must be performed only by licensed personnel authorized by the customer. It is the customer’s responsibility to verify proper qualifications of the personnel.

Safety

The maintenance work may require removal of the cover on the blower pack. Please note the following:

<table>
<thead>
<tr>
<th>DANGER! Risk of electric shock!</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Nortec blower pack is mains powered. Live parts may be exposed when the cover is removed. Touching live parts may cause severe injury or even death.</strong></td>
</tr>
<tr>
<td><strong>Prevention:</strong> Disconnect the power supply cable from the back of the blower pack before performing any maintenance work inside the blower pack.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WARNING! Risk of severe burns from contact with hot surfaces!</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The internal parts in the Nortec blower pack may be hot to the touch. Bare skin in contact with hot surfaces can result in severe burns.</strong></td>
</tr>
<tr>
<td><strong>Prevention:</strong> Wait for the unit to cool down before opening up the blower pack.</td>
</tr>
</tbody>
</table>
8.2 Maintenance List

Perform the following maintenance tasks at the intervals specified in Table 4. For the components referenced in the table refer to Figure 14 on page 39.

Table 4: Maintenance List

<table>
<thead>
<tr>
<th>Task/component</th>
<th>Frequency</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check for water leaks</td>
<td>Regular intervals</td>
<td>Check the humidifier and blower pack for water leaks, stains and calcium deposits. If present, identify the source of the leak and tighten or replace components, as required.</td>
</tr>
<tr>
<td>Vacuum dust</td>
<td>Regular intervals</td>
<td>Vacuum the dust from the top of the blower pack including the optional filter (if installed). Dust accumulation can affect performance of the unit.</td>
</tr>
<tr>
<td>Replace air filter element</td>
<td>Regular intervals</td>
<td>Replace the element in the optional air filter if it is dirty.</td>
</tr>
<tr>
<td>Check for loose wiring</td>
<td>Regular intervals</td>
<td>Visually inspect external electrical wiring for loose connections or damage to the wiring. Repair as appropriate.</td>
</tr>
<tr>
<td>Clean the distributor assembly</td>
<td>Regular intervals</td>
<td>Use a wet cloth to remove any scale, dust or debris that may have accumulated at the outlet of the distributor assembly. Remove any dust and debris from the perforated plates and louvers.</td>
</tr>
<tr>
<td>Replace steam inlet O-ring</td>
<td>Every two years</td>
<td>Replace the steam inlet O-ring every two years, or whenever the steam adaptor is replaced.</td>
</tr>
</tbody>
</table>
## 9 Fault Isolation

### 9.1 General Troubleshooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Probable Cause</th>
<th>Corrective Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blower pack fan not operating.</td>
<td>1. Normal operation – the fan turns on only when humidifier is generating steam.</td>
<td>1. Check power connection.</td>
</tr>
<tr>
<td></td>
<td>2. No power to blower pack.</td>
<td>2. Check the fuse in the blower pack.</td>
</tr>
<tr>
<td></td>
<td>3. Make sure that the humidifier operates, and there is a demand for humidity.</td>
<td>3. Make sure that the humidifier operates.</td>
</tr>
<tr>
<td>Blower pack fan not operating, but humidifier is generating steam.</td>
<td>1. Steam line installed improperly leading to insufficient steam to the blower pack.</td>
<td>1. Make sure that all installed steam hoses do not sag.</td>
</tr>
<tr>
<td></td>
<td>2. Thermostat stuck in the open position.</td>
<td>2. Make sure all condensate traps are correctly installed, primed properly and flowing.</td>
</tr>
<tr>
<td></td>
<td>3. Jumper on blower pack security loop, and no power to the blower pack.</td>
<td>3. Remove top panel, locate the thermostat assembly, and measure the continuity between terminals – must indicate a closed circuit.</td>
</tr>
<tr>
<td></td>
<td>4. Faulty 8 μF capacitor.</td>
<td>4. Check that the security loop cable from the blower pack is connected to the humidifier.</td>
</tr>
<tr>
<td></td>
<td>5. Thermostat stuck in the open position.</td>
<td>5. Make sure that the security loop jumper wire is removed from the plug on the terminal strip.</td>
</tr>
<tr>
<td></td>
<td>6. Thermostat stuck in the closed position.</td>
<td>6. Check the 8 μF capacitor.</td>
</tr>
<tr>
<td></td>
<td>7. Blower pack fan not operating.</td>
<td>7. See also “Blower pack fan not operating”.</td>
</tr>
<tr>
<td>Blower pack fan running, but humidifier is not generating steam.</td>
<td>1. Normal operation – it takes time for thermostat to cool down and open.</td>
<td>1. Blower pack will run until thermostat cools down to 122 °F (50 °C).</td>
</tr>
<tr>
<td></td>
<td>2. Very high ambient temperature.</td>
<td>2. Reduce ambient temperature to below 122 °F (50 °C).</td>
</tr>
<tr>
<td></td>
<td>3. Thermostat stuck in closed position.</td>
<td>3. Check that the thermostat opens when the blower pack cools below 122 °F (50 °C).</td>
</tr>
<tr>
<td>Humidifier not running, and displaying the warning message: &quot;Security Loop Open&quot;.</td>
<td>1. Security loop cable between the blower pack and humidifier is missing.</td>
<td>1. Connect the security loop cable to the blower pack.</td>
</tr>
<tr>
<td></td>
<td>2. No power to the blower pack.</td>
<td>2. Check power connection to the blower pack.</td>
</tr>
<tr>
<td></td>
<td>3. Blown internal fuse in the blower pack.</td>
<td>3. Check the blower pack internal fuse.</td>
</tr>
<tr>
<td></td>
<td>4. Faulty safety relay, or power failure.</td>
<td>4. Check safety relay contacts close.</td>
</tr>
<tr>
<td></td>
<td>5. See also “Blower pack fan not operating”.</td>
<td>5. See also “Blower pack fan not operating”.</td>
</tr>
<tr>
<td>Blower pack fan does not operate properly in the low speed setting.</td>
<td>1. Faulty high/low speed switch, or the 20 μF capacitor.</td>
<td>1. Check the high/low speed switch and the 20 μF capacitor.</td>
</tr>
</tbody>
</table>
This page intentionally left blank
Figure 14: Nortec Blower Pack Replacement Parts

Table 5: Nortec Blower Pack Replacement Parts List

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2579375</td>
<td>Filter assembly (includes filter element), optional</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2579670</td>
<td>Filter element only, optional</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>2579532</td>
<td>Cover assembly</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>2579531</td>
<td>Fan assembly, 115V</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>2579528</td>
<td>Safety relay assembly, 115V</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>2579529</td>
<td>Capacitor assembly, 8 μF</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2579530</td>
<td>Capacitor assembly, 20 μF</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>2579391</td>
<td>BP hardware and safety connector</td>
<td>1</td>
</tr>
<tr>
<td>Item</td>
<td>Part Number</td>
<td>Description</td>
<td>Quantity</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>----------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>9</td>
<td>2579390</td>
<td>Power connector assembly (includes receptacle)</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>2579392</td>
<td>Fuse assembly</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>2582281</td>
<td>Speed switch</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>2579533</td>
<td>Spacer assembly (optional)</td>
<td>1</td>
</tr>
<tr>
<td>13</td>
<td>2581248</td>
<td>Steam adaptor kit, 1-3/4 in (45 mm) (includes O-ring)</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>2579681</td>
<td>O-ring, steam inlet</td>
<td>3</td>
</tr>
<tr>
<td>15</td>
<td>2579384</td>
<td>Distributor assembly (includes O-ring)</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>2579527</td>
<td>Thermostat assembly</td>
<td>1</td>
</tr>
</tbody>
</table>
Figure 15: Nortec Blower Pack Internal Wiring Diagram


12 Decommissioning

12.1 General

If the Nortec Blower Pack needs to be replaced or removed from service for disposal, strictly follow the instructions in this section.

Personnel Qualifications

All decommissioning work must be performed only by a qualified service technician authorized by the customer. It is the customer’s responsibility to verify proper qualifications of the personnel.

Safety

The decommissioning work will require removal of the covers/door panels on the blower pack and humidifier. Please note the following:

⚠️ DANGER!

Risk of electric shock!

The Nortec humidifier and blower pack are mains powered. Live parts may be exposed when the door panels/covers are removed. Touching live parts may cause severe injury or even death.

Prevention: The Nortec humidifier and blower pack must be disconnected from the mains prior to disconnecting any components.

⚠️ WARNING!

Risk of severe burns from contact with hot surfaces!

The internal parts in the Nortec humidifier and blower pack may be hot to the touch. Bare skin in contact with hot surfaces can result in severe burns.

Prevention: Wait for the units to cool down before removing the cover/door panels.

⚠️ WARNING!

Risk of severe burns from contact with hot fluids!

The steam and condensate lines may be filled with hot fluids. Bare skin in contact with hot fluids can result in severe burns.

Prevention: Wait for the units to cool down, and wear appropriate personal protective equipment if necessary.

⚠️ CAUTION!

Electrostatic discharge (ESD)!

The electronic components inside the humidifier are sensitive to electrostatic discharge (ESD).

Prevention: Take appropriate measures to protect the electronic components inside the unit against damage caused by electrostatic discharge (ESD). Refer to ANSI/ESD-S20.20.
12.2 Removing Unit from Service for Disposal

Remove the blower pack from service for disposal as follows:

1. Shut down the humidifier and disconnect the Nortec humidifier and blower pack from the mains.
2. If necessary, wait for the units to cool down to room temperature.
3. Disconnect the power and security loop connections from the terminal strips in the humidifier. Refer to Figure 12 on page 28.
4. Disconnect the steam and condensate lines and empty out all fluids.
5. Remove the blower pack from its mounting surface.

12.3 Disposal/Recycling of the Unit

The blower pack and its components must not be disposed off in domestic waste, and should only be disposed off in accordance with local regulations at authorized collection facilities.

If you have any questions, please contact the appropriate local authorities or your local Nortec representative.
13 Product Specifications

13.1 Technical Data

Table 6: Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum steam output (per blower pack)</td>
<td>100 lb/h (45 kg/h)</td>
</tr>
<tr>
<td>Power supply</td>
<td>110-120 V, 60 Hz</td>
</tr>
<tr>
<td>Power consumption</td>
<td>108 W</td>
</tr>
<tr>
<td>Sound power level</td>
<td>53.8 dB(A)*</td>
</tr>
<tr>
<td>Ingress protection rating</td>
<td>IP21</td>
</tr>
</tbody>
</table>

* Based on low speed setting with filter on, measured from a distance of 3 ft (1 m) from the front of the unit.

13.2 Operating Data

Table 7: Operating Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permissible ambient temperature</td>
<td>41-104 °F (5-40 °C)</td>
</tr>
<tr>
<td>Permissible ambient humidity</td>
<td>5-95% RH (non-condensing)</td>
</tr>
<tr>
<td>Condensate water temperature</td>
<td>140-212 °F (60-100 °C)</td>
</tr>
</tbody>
</table>

13.3 Size and Weight

Table 8: Size and Weight

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall dimensions</td>
<td>15.75 in × 16.59 in × 10.17 in (400 mm × 421 mm × 258 mm)</td>
</tr>
<tr>
<td>Weight</td>
<td>28 lb (12.7 kg)</td>
</tr>
</tbody>
</table>

Refer to Figure 16 on page 46 for dimensions.
**Figure 16: Overall Dimensions**

Dimensions in inches, and values in brackets in millimeters.
Warranty

Nortec Humidity Inc. and/or Nortec Humidity Ltd. (hereinafter collectively referred to as THE COMPANY), warrant for a period of two years after installation or 30 months from manufacturer’s ship date, whichever date is earlier, that THE COMPANY’s manufactured and assembled products, not otherwise expressly warranted (with the exception of the cylinder), are free from defects in material and workmanship. No warranty is made against corrosion, deterioration, or suitability of substituted materials used as a result of compliance with government regulations.

THE COMPANY’s obligations and liabilities under this warranty are limited to furnishing replacement parts to the customer, F.O.B. THE COMPANY’s factory, provided that the defective part(s) is returned freight prepaid by the customer. The replacement parts are warranted for the balance of the term of the warranty on the original humidifier or 90 days, whichever is longer.

The warranties set forth herein are in lieu of all other warranties expressed or implied by law. No liability whatsoever shall be attached to THE COMPANY until said products have been paid for in full and then said liability shall be limited to the original purchase price for the product. Any further warranty must be in writing, signed by an officer of THE COMPANY.

THE COMPANY’s limited warranty on accessories, not manufactured by the COMPANY, such as controls, humidistsats, pumps, etc., is limited to the warranty of the original equipment manufacturer from date of original shipment of humidifier.

THE COMPANY makes no warranty and assumes no liability unless the equipment is installed in strict accordance with a copy of the catalog and installation manual in effect at the date of purchase, and by a contractor approved by THE COMPANY to install such equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for consequential damage or damage resulting directly from misapplication, incorrect sizing or lack of proper maintenance of the equipment.

THE COMPANY makes no warranty and assumes no liability whatsoever for damage to the humidifier, supply lines, drain lines, or steam distribution systems caused by freezing.

THE COMPANY reserves the right to change the design, specifications and performance criteria of its products without notice or obligation.
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