Quick Start Installation Guide

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Quick Start Installation Guide

Atmospheric Steam Lines

Install Requirements
1. Use ONLY copper, stainless steel tube, or Nortec supplied steam line for the atmospheric steam distribution line.
2. Follow recommended steam line materials, size, and length. See tables to right.
3. Slope the steam lines, minimum 2" for every horizontal foot against the flow of steam, 1" for every horizontal foot with the flow of steam.
4. The first vertical 12" of steam line off the top of the humidifier must not have any bends or turns.
5. Insulate copper or steel tube steam lines with 1.0 in. (2.5 cm) pipe insulation.
6. Steam lines must not have any restrictions or condensate trapping which could cause back pressure.
7. Trap condensate (Use full size “T” for Traps) at all low points.
8. Install a condensate trap at every 15 foot / 4.5 meters of steam line.

Recommended Steam Line Material

<table>
<thead>
<tr>
<th>Steam Line Material</th>
<th>Lb/hr (kg/hr)</th>
<th>Steam Line Length</th>
<th>Steam Line Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper Tube</td>
<td>0-100 (0-45)</td>
<td>0-90</td>
<td>1 1/2 in. MED-L Tubing (1.625 in. OD)</td>
</tr>
<tr>
<td></td>
<td>101-250</td>
<td>0-180</td>
<td>3 in. MED-L Tubing (3.125 in. OD)</td>
</tr>
<tr>
<td></td>
<td>251-650</td>
<td>0-260</td>
<td>4 in. MED-L Tubing (4.125 in. OD)</td>
</tr>
<tr>
<td>Stainless Steel Tube</td>
<td>0-100 (0-45)</td>
<td>0-90</td>
<td>1 3/4 inch Tube x .065 inch thick wall</td>
</tr>
<tr>
<td></td>
<td>101-250</td>
<td>0-180</td>
<td>3 inch Tube x .065 inch thick wall</td>
</tr>
<tr>
<td></td>
<td>251-650</td>
<td>0-260</td>
<td><strong>4 inch Tube x .065 inch thick wall</strong></td>
</tr>
<tr>
<td>Nortec Hose</td>
<td>31-100 (45-405)**</td>
<td>&lt;15</td>
<td>Nortec Hose 31-100 (1 1/4&quot;)</td>
</tr>
</tbody>
</table>

Note: ** Use one steam hose per 100 lb/hr (45 kg/hr) of output.
*** Use only stainless steel tube for reverse osmosis and deionized water applications.

Maximum Recommended Length of Steam Line

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>Steam Output Lb/hr (kg/hr)</th>
<th>Steam Outlet and Line Size Copper (BST)</th>
<th>Maximum Length (m)</th>
<th>Possible Loss Lb/hr (kg/hr)</th>
<th>Possible Loss Max. length Lb/hr (kg/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>10 (46)</td>
<td>1 1/2 (1 3/4)</td>
<td>37 (11)</td>
<td>0.11 (0.16)</td>
<td>4 (2)</td>
</tr>
<tr>
<td>100</td>
<td>100 (465)</td>
<td>1 1/2 (1 3/4)</td>
<td>90 (29)</td>
<td>0.11 (0.16)</td>
<td>10 (4.5)</td>
</tr>
<tr>
<td>175</td>
<td>175 (80)</td>
<td>3 (3)</td>
<td>90 (27)</td>
<td>0.16 (0.24)</td>
<td>14 (6.5)</td>
</tr>
<tr>
<td>250</td>
<td>250 (114)</td>
<td>3 (3)</td>
<td>180 (55)</td>
<td>0.16 (0.24)</td>
<td>28 (11)</td>
</tr>
<tr>
<td>375</td>
<td>375 (170)</td>
<td>4 (4)</td>
<td>180 (55)</td>
<td>0.22 (0.33)</td>
<td>39 (18)</td>
</tr>
<tr>
<td>525</td>
<td>525 (239)</td>
<td>4 (4)</td>
<td>220 (67)</td>
<td>0.22 (0.33)</td>
<td>48 (22)</td>
</tr>
<tr>
<td>750</td>
<td>750 (341)</td>
<td>2 1/4 (2 1/2)</td>
<td>260 (79)</td>
<td>0.44 (0.65)</td>
<td>114 (52)</td>
</tr>
<tr>
<td>1050</td>
<td>1050 (477)</td>
<td>2 1/4 (2 1/2)</td>
<td>260 (79)</td>
<td>0.44 (0.65)</td>
<td>114 (52)</td>
</tr>
</tbody>
</table>

Equivalent Length of Some Common Fittings

<table>
<thead>
<tr>
<th>Tube Diameter in.</th>
<th>90 Degree Elbow ft (m)</th>
<th>45 Degree Elbow ft (m)</th>
<th>Side Outlet Tee ft (m)</th>
<th>Gate Valve ft (m)</th>
<th>Globe Valve ft (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 1/2 or 1 1/4</td>
<td>3 (1)</td>
<td>1.75 (0.55)</td>
<td>7 (2.1)</td>
<td>0.8 (2.4)</td>
<td>34 (10)</td>
</tr>
<tr>
<td>2</td>
<td>5 (1.5)</td>
<td>2.5 (0.75)</td>
<td>11 (3.3)</td>
<td>1.1 (3.1)</td>
<td>54 (16)</td>
</tr>
<tr>
<td>2 1/4</td>
<td>8 (2.4)</td>
<td>4 (1.2)</td>
<td>15 (4.5)</td>
<td>1.6 (0.5)</td>
<td>80 (24)</td>
</tr>
</tbody>
</table>
Mounting

Mount either floor mounted or on a mounting stand (stand optional). SE 50 models can also be ceiling mounted with the optional ceiling installation kit, part number 2500346.

1. Install on a level platform in an area with ambient temperature 41-104 °F (5-40 °C) relative humidity 5-95% (non-condensing).
2. Ensure mounting surface is strong enough to support the full weight of the humidifier and accessories.
3. If mounting on the optional stand, assemble stand according to the instructions provided with the stand and secure stand to the floor via the holes in the leg support plates following any local codes or regulations.
4. Install in location where the electrical power, boiler, steam, and drain lines can be connected.

Install Requirements

1. Dedicated external discharge duct must be installed. Fusing must not exceed max circuit protection as indicated on the specification label.
2. An electrical disconnect must be installed within view of the humidifier.
3. Ensure that adequate power is available to carry full humidifier amp draw as indicated on the specification label.
4. All wiring to be in accordance with national and local electrical codes.

Plumbing

1. Install Jam nut and lock washer on globe valve stem. Thread the stem extension onto the globe valve. Install Jam nut and lock washer on globe valve stem.
2. Thread the stem extension onto the globe valve. Mount the actuator to the globe valve and secure to the valve with the mounting nut.
3. Extend the valve stem, fully closing the globe valve. Load the actuator with the provided alien key, two full turns clockwise.
4. Thread the stem extension until the extension pin hole aligns to the actuator pin hole and secure with the connecting pin.
5. Tighten the jam nut against the stem extension.
6. Ensure the valve completely closes when the actuator is not powered.

Water Supply

All water supply and drain line connections must be installed in accordance with local plumbing codes. Nortec accepts no liability for installation code violations.

1. Install water shut off valve and union before humidifier to facilitate servicing.
2. Supply water requirements:
   - 30 - 80 PSIG
   - Hardness 5.7 gpg
   - Chlorides 0-25 ppm
   - Alkalinity 7.5-8.5 pH

Drain Line(s)

1. Drain line should be a minimum of 1 1/4” OD copper, sloped away to allow proper drainage.
2. Drain line must have an air gap installed within three feet of the drain outlet.
3. Auxiliary drain connection with manual shut off valve is recommended for all units. Valve to be left closed on units without freeze protection option installed.
4. Drain Water is very hot, do not use plastic pipe for drain or condensate lines, do not drain to public sink. Route to floor drain or equivalent.

Pressurized Steam Supply

1. The steam supply pressure can be entered into the SETC control software in the ‘Control Settings’ menu to provide an accurate display of unit output. Pressure based on page 56 of the 2502940 SE Install and Operations manual.
2. The SE will operate on supply steam pressures between 5 and 15 psi measured at the globe valve. Pressure exceeding 20 psi will damage the humidifier. If connecting via pressure reducing valve, install a safety relief valve to prevent pressures in excess of 15 psi.
3. Boiler steam supply line must be designed so that that the globe valve is completely open (100% demand). Nortec supplies a globe valve, actuator and wye strainer with each SE humidifier.
4. Boiler steam supply line design is the responsibility of the installer. All water supply and drain line connections must be installed in accordance with local plumbing codes. Nortec accepts no liability for installation code violations.

Electrical

1. The steam distributor location, net output will be reduced 5% for every 500 ft. of steam line. Based on page 56 of the 2552940 SE Install and Operations manual.
2. The steam supply pressure can be entered into the SETC control software in the ‘Control Settings’ menu to provide an accurate display of unit output.

Drain Water is very hot, do not use plastic pipe for drain or condensate lines, do not drain to public sink.

WARNING

Wiring needs to be performed by a licensed Electrician.

All SE humidifiers operate on 120 VAC, single phase, 60 Hz power. Refer to specification label for power requirements.
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Possible Loss

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</tr>
<tr>
<td>Stainless Steel Tube</td>
<td>101-250 (46-113)</td>
<td>0-260 0-79 4 inch Tube x 0.065 inch thick wall</td>
</tr>
<tr>
<td>Stainless Steel Tube</td>
<td>251-650 (114-295)</td>
<td>0-260 0-79 4 inch Tube x 0.065 inch thick wall</td>
</tr>
</tbody>
</table>

Equivalent Length of Some Common Fittings

<table>
<thead>
<tr>
<th>Diamter in. (Unit)</th>
<th>100 lb/hr (45 kg/hr)</th>
<th>250 lb/hr (113 kg/hr)</th>
<th>500 lb/hr (226 kg/hr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4</td>
<td>0.1 (0.05)</td>
<td>0.5 (0.25)</td>
<td>1 (0.5)</td>
</tr>
<tr>
<td>1/2</td>
<td>0.2 (0.1)</td>
<td>1 (0.5)</td>
<td>2 (1)</td>
</tr>
<tr>
<td>3/4</td>
<td>0.4 (0.2)</td>
<td>2 (1)</td>
<td>4 (2)</td>
</tr>
</tbody>
</table>

Recommended Steam Line Material

- Use only stainless steel tube for reverse osmosis and deionized water applications.
- Use 2 x 4 in. steam lines for steam capacities higher than 750 lb/hr (307 kg/hr).
- Use one steam hose per 100 lb/hr (45 kg/hr) of output.

Install Requirements

1. Install a condensate trap at every 15 foot / 4.5 meters of steam line.
2. Condensate drains must be sloped down.
3. Use a full size tee, not a 90 degree elbow for vertical to horizontal transitions.
4. A P Trap is required where the steam lines connect to the humidifier.
5. The first vertical 12" of steam line off the top of the humidifier must not have any bends or turns.
6. Insulate copper or steel tube steam lines with 1.0 in. static pressure reduction for steam pressures higher than 100 psi (7 bar) to prevent condensate trapping which could cause back pressure.
7. Install a condensate trap at every 15 foot / 4.5 meters of steam line.