Quick Installation Guide

Step 1 Before Installing

Read the Installation & Operation Manual before installing.

This product must be installed and serviced by a licensed plumber, a licensed gas fitter, or a professional service technician. Navien is not liable for any damages or defects resulting from improper installation.

**WARNING**

Follow all local codes and/or the most recent edition of the National Fuel Gas Code (ANSI Z223.1/NFPA 54) in the USA, or the Natural Gas and Propane Installation Code in Canada (CAN/CGA B149.1).

Safety

DO NOT install the boiler in areas with excessively high humidity.

Step 2 Installing

1. Unpacking

Installation & Operation Manual
User’s Information Manual
Vent terminators
Wall flanges
Spare Parts
Tapping screws and anchors
Wall mounting bracket
Air vent
Conversion Kit
Pressure Relief Valve (Heating)
Outdoor Temperature Sensor and Cable
Air Vent Bushing (3/4” to 1/2”)

2. Checking the Rating Plate

This boiler is configured for Natural Gas from the factory. If conversion to Propane Gas is required, the conversion kit supplied with the boiler must be used.

**WARNING**

• Before connecting the gas supply, determine the gas type and pressure for the boiler by referring to the rating plate. Use only the same gas type indicated on the rating plate. Using a different gas type will result in abnormal combustion and malfunction of the boiler. Gas supplies should be connected by a licensed professional only.

• The appliance and its gas connection must be leak tested before placing the appliance in operation.

• This boiler cannot be converted from natural gas to propane or vice versa without a Navien gas conversion kit. Do not attempt a field conversion of this boiler without a Navien gas conversion kit. Doing so will result in dangerous operating conditions and will void the warranty.

Navien America Inc. is not liable for any property damage and/or personal injury resulting from improper conversions.

3. Mounting on the Wall

CAUTION

Do not install the boiler on dry walls without proper reinforcement.

Drill in the supplied anchor bolts after considering where the vent termination will be located.

Secure the mounting bracket to the wall with the tapping screws and anchors.

Lift up the boiler, rest the unit on the hooks provided on the wall bracket on the wall.

Then, install 2 fix screws through the bottom bracket to secure the boiler to the wall.

4. Removing the Front Cover

Remove the 4 screws
**5 Gas Piping Connections**

The gas meter capacity must be greater than the total gas capacity of connected appliances.

Gas Supply Line

Gas in the system may cause malfunctions and system overheating.

**6 Water Piping Connections**

**Space Heating System**

A pressure relief valve must be installed when installing pipings for a heating system.

Install the included 3/4 in, maximum 30 psi pressure relief valve on the space heating supply.

An ASME approved HV pressure relief valve for space heating system is supplied with the boiler.

You may install the pressure relief valve on the space heating supply of the Navien Manifold System, or on the top connection along with the air vent (and an external LWCO, if required).

- Do not solder piping directly onto the water connections, as the heat may cause damage to internal components. Use threaded water connections only.

**System Fill Connection**

Before filling the boiler, remove the air vent cap to allow the system to fill properly. Replace the cap when the system is full.

The Navien NHB boilers have a top connection for an air vent. An air vent must be installed to purge air from the boiler system.

When installing the air vent, install the air vent bushing between the air vent and the top connection.

**7 Condensate Drain Connection**

A condensate drain pipe must be connected to the 1/2 in condensate outlet fitting at the bottom of the unit and water must be poured into the exhaust connection to fill the condensate trap.

The end of the 1/2 in (NPT) plastic piping should drain into a laundry tub or into a floor drain.

Do not submerge the end of the pipe in water.
Vent Termination Options

Horizontal Vent Termination

Vertical Vent Termination

Sidewall Vent Termination

Concentric Vent Termination

Exhaust Vent Piping Materials

- All Navien boilers are Category IV appliances.
- The venting system should be approved for use with Category IV appliances (typically Type BH Special Gas Vent approved by UL 1738-S636).
- Venting requirements in the USA and Canada are different (see below).

Navien recommended venting materials

<table>
<thead>
<tr>
<th>Locale</th>
<th>Recommended Vent Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>• PVC Schedule 40 (solid core) • PVC Schedule 40 or 80 (solid core) • Approved Polypropylene</td>
</tr>
<tr>
<td>Canada*</td>
<td>• Type BH Special Gas Vent Class IIA (PVC) • Type BH Special Gas Vent Class IIB (CPVC) • Type BH Special Gas Class IIC (CPVC)</td>
</tr>
</tbody>
</table>

* For installation in Canada, field-supplied plastic vent piping must comply with CAN/CGA B149.1 (latest edition) and be certified to the Standard For Type BH Gas Venting Systems, ULC-S636. Components of this list system must not be intermixed with other vent systems or unlisted pipes or fittings. All plastic components and specified primers and glues of the certified vent system must be from a single system manufacturer and must not be intermixed with another system manufacturer's parts. The supplied vent connector and vent termination are certified as part of the boiler.

In systems with 2 in. vents, if the exhaust temperature exceeds 149°F (65°C), CPVC pipe (field supplied) must be used for the first 3 feet of equivalent pipe length. For systems with 3 in. vents, if the exhaust temperature exceeds 149°F (65°C), CPVC pipe (field supplied) must be used for the first 5 in. of equivalent pipe length.

9 Electrical Connections

External LWCO Connection (if required by local codes)

**Safety**

- Disconnect the power to the boiler before installing any wire connections on the main PCB.

**Power Connection**

- 120 VAC 60 Hz
- Min. 2 Amp current with proper grounding

**Confirmation of Panel DIP Switch Settings**

### PCB Dip Switch 1 (6 switch unit)

<table>
<thead>
<tr>
<th>SW</th>
<th>Function</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>Operation Status</td>
<td>Normal Operation 1-ON 2-OFF</td>
</tr>
<tr>
<td>3-stage MAX</td>
<td>2-ON</td>
<td></td>
</tr>
<tr>
<td>1-stage MIN</td>
<td>1-ON 2-ON</td>
<td></td>
</tr>
<tr>
<td>1-stage MAX</td>
<td>1-ON 2-ON</td>
<td></td>
</tr>
</tbody>
</table>

### Front Panel Dip Switch 1 (10 switch unit)

<table>
<thead>
<tr>
<th>SW</th>
<th>Function</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Temperature Unit</td>
<td>°C (Celsius) 4-ON</td>
</tr>
<tr>
<td>4/5</td>
<td>High Altitude</td>
<td>1,909 ft (600 m) 4-ON</td>
</tr>
<tr>
<td>6/7</td>
<td>High Altitude</td>
<td>3,078–3,657 ft (934–1,110 m) 4-ON</td>
</tr>
<tr>
<td>8/9</td>
<td>High Altitude</td>
<td>6,100–10,100 ft (1,859–3,083 m) 4-ON</td>
</tr>
</tbody>
</table>

### PCB Dip Switch 2 (8 switch unit)

<table>
<thead>
<tr>
<th>SW</th>
<th>Function</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 &amp; 2</td>
<td>Space Heating Temperature Control</td>
<td>Supply Temperature 1-ON 2-ON</td>
</tr>
<tr>
<td>3</td>
<td>DHW Tank Control</td>
<td>System Supply Temperature 6-ON</td>
</tr>
<tr>
<td>4/5</td>
<td>DHW System Supply Temperature</td>
<td>5-ON</td>
</tr>
<tr>
<td>6/7</td>
<td>DHW System Supply Temperature</td>
<td>6-ON</td>
</tr>
</tbody>
</table>

### Front Panel Dip Switch 2 (2 switch unit)

<table>
<thead>
<tr>
<th>SW</th>
<th>Function</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Gas Type</td>
<td>Natural Gas 2-OFF</td>
</tr>
<tr>
<td>3</td>
<td>Propane Gas</td>
<td>2-OFF</td>
</tr>
</tbody>
</table>
STEP 3  After Installing

1 Opening All the Valves

Gas Valve

<table>
<thead>
<tr>
<th>Closed</th>
<th>Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drip rig</td>
<td></td>
</tr>
</tbody>
</table>

Space Heating System Valves

Shut-off Valves

2 Operating the Boiler

Power ON

- When the power is on, the boiler supply water temperature will appear on the front panel display at 5 second intervals.

Adjust Temperatures

- Press the Mode button once. The space heating icon turns on.
- Press the + (Up) or – (Down) buttons until the desired temperature appears on the display.

View Basic Information

- Press the Mode button three times. "INFO" will appear on the display.
- Press the + (Up) or – (Down) buttons to switch between the information types.

Resetting the Boiler

- If an error message appears, you can try resetting the boiler to resolve the problem.
- If resetting does not solve the problem, refer to the troubleshooting section of the User’s Information Manual or contact the service center.

3 Measuring the Inlet Gas Pressure

1. Turn on the boiler. On the Front Panel press the Diagnostics button for over 5 seconds until "1.PAR" is displayed.
2. Press the + (Up) button two times to change the display to "3.OPR".
3. Press the + (Up) button until "MAX2" is displayed.
4. Press the Reset button twice to return to normal operation mode.
5. Run space heating. The gas in the gas supply line will be purged.
6. Leave the boiler on until the boiler shuts down due to a lack of gas supply, and then turn off the boiler.

4 Installing the Front Cover

6 Re-open the manual gas valve and check for leaks.

- Operate multiple zones that to ramp the boiler up to its maximum firing rate.

7 Check the inlet gas pressure reading on the manometer.

Recommended Gas Pressure Settings:

- NG: 3.5” – 10.5” WC
- LP: 8.0” – 13.5” WC

If it is out of the range, adjust the inlet gas pressure with gas regulator.

5 Final Check

A trial run should be performed in accordance with the Installation checklist listed in the boiler’s Installation & Operation Manual.