

## 3 Installation

### 3.1 Installation Instructions

The location chosen for the water heater must take into consideration the following:

#### Local Installation Regulations

This water heater must be installed in accordance with these instructions, local codes, utility codes, utility company requirements or, in the absence of local codes, the latest edition of the National Electrical Code. It is available from some local libraries or can be purchased from the National Fire Prevention Association, Batterymarch park, Quincy, MA 02169 as booklet ANSI/NFPA 70.

#### Power Requirements

Check the markings on the rating plate of the water heater to be certain the power supply corresponds to the water heater requirements.

#### Location

The water heater and water lines should be protected from freezing temperatures and high-corrosive atmospheres. Do not install the water heater in outdoor, unprotected areas.

Locate the water heater in a clean dry area as near as practical to the area of greatest heated water demand. Long uninsulated hot water lines can waste energy and water. Unit must be installed in a level location. If required, add shims under base of unit to level for proper operation.

Servicing the water heater requires proper installation such that front panels can be removed to permit inspection and servicing. Reference installation instructions found in this manual.

Moving the water heater or other appliances to provide service to the water heater is not covered under warranty.



#### CAUTION

**Risk of Property Damage** The water heater should not be located in an area where leakage of the tank or connections will result in damage to the area adjacent to it or to lower floors of the structure. Where such areas cannot be avoided, it is recommended that a suitable catch pan, adequately drained, be installed under the water heater.

#### Required clearances:

There must be sufficient clearance between any object and the top, rear and sides of the water heater in the event service is needed. The controls and drain at front of unit must have clear access for operation and service. Installations that require minimal clearance on the sides or rear of the water heater for earthquake straps are also acceptable. In these cases, additional clearance should be provided on the opposite side of the unit to allow for service access.



#### NOTICE

This unit is designed for any common indoor installation.

### 3.2 Component Installation

Locate the temperature and pressure relief valve, drain valve, and inlet/outlet fittings in the packaging of your water heater.

Remove and discard all gray colored plugs that were placed in the fitting openings of the water heater for shipping.

Refer to illustrations below for installing each component to the water heater.

After completing installation of all components, make sure to check all connection points for water leaks and correct if required.

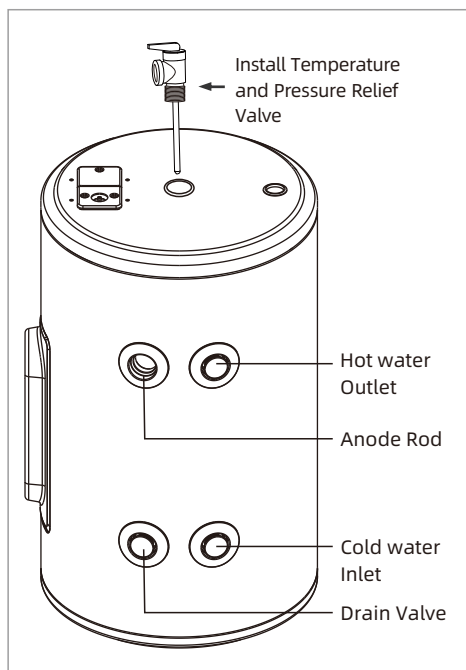
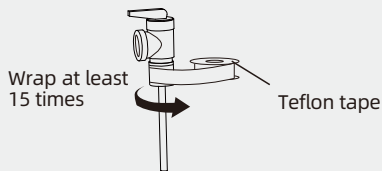
#### Tools needed

- Pipe wrench
- Adjustable wrench
- Pipe Joint Compound or Pipe Thread Sealant Tape



#### NOTICE

Wrap the Teflon tape around the threaded opening of the pressure relief valve at least 15 times (approximately 47.2" (120 cm) in length) in order to prevent water leakage.



### 3.3 Water Supply Connections

Refer to the illustration below for recommended installation. The HOT and COLD water connections are clearly marked and are 4" NPT on all models. When connecting to the inlet/outlet ports, the use of 3/4" female NPT tapered thread fittings with use of thread sealant is recommended. The installation of unions is recommended on the hot and cold water connections so that the water heater may be easily disconnected for servicing if necessary. Piping should be routed to allow anode rod removal.



**NOTICE**

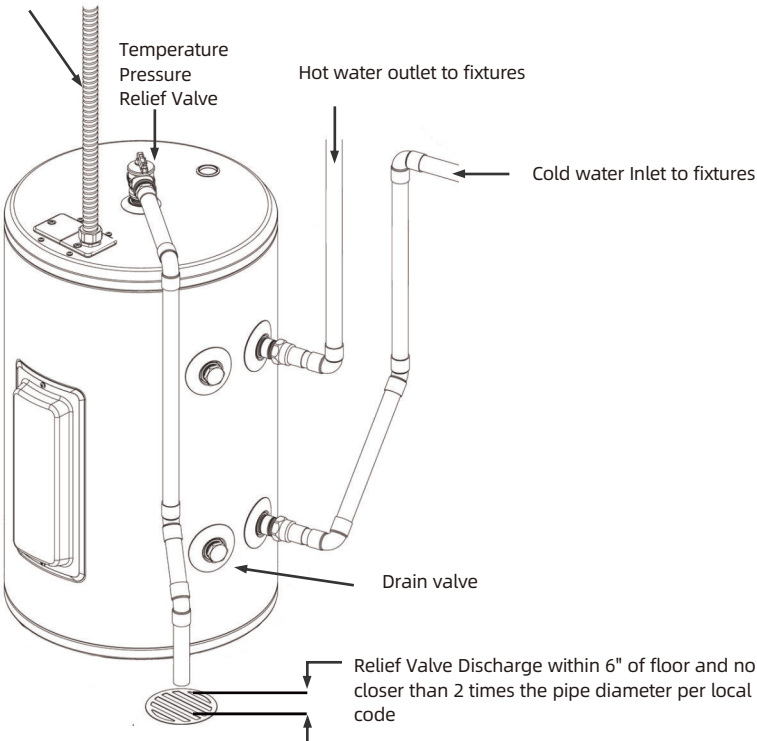
Install a shut-off valve in the cold water line near the water heater. This will enable easier service or maintenance of the unit later.



**WARNING**

Do not apply heat to the HOT or COLD water connections. If sweat connections are used, sweat tubing to adapter before fitting the adapter to the cold water connections on heater. Any heat applied to the hot or cold water connection will permanently damage the internal plastic lining in these ports.

Conduit to Electrical Junction Box or optional power cord installation. (use only copper conductors).



(Model appearance may vary)

### 3.4 Relief Valve



#### WARNING

Risk of Unit Damage -The pressure rating of the relief valve must not exceed 150 PSI (1.03 MPa), the maximum working pressure of the water heater as marked on the rating plate.

A new combination temperature and pressure-relief valve, complying with the Standard for Relief Valves and Automatic Gas Shut-Off Devices for Hot Water Supply Systems, ANSI Z21.22, is supplied and must remain installed in the opening provided and marked for this purpose on the water heater. No valve of any type should be installed between the relief valve and the tank. Local codes shall govern the installation of relief valves.

The BTU/H rating of the relief valve must not be less than the input rating of the water heater as indicated on the rating label located on the front of the heater (1 watt = 3.412 BTU/H).

Connect the outlet of the relief valve to a suitable open drain so that the discharge water cannot contact live electrical parts or persons and to eliminate potential water damage.

Piping used should be of a type approved for hot water distribution. The discharge line must be no smaller than the outlet of the valve and must pitch downward from the valve to allow complete drainage (by gravity) of the relief valve and discharge line. The end of the discharge line should not be threaded or concealed and should be protected from freezing. No valve of any type, restriction or reducer coupling should be installed in the discharge line.



#### CAUTION

To reduce the risk of excessive pressures and temperatures in this water heater, install temperature and pressure protective equipment required by local codes and no less than a combination temperature and pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22. This valve must be marked with a maximum set pressure not to exceed the marked maximum working pressure of the water heater. Install the valve into an opening provided and marked for this purpose in the water heater, and orient it or provide tubing so that any discharge from the valve exits only within 6 inches above, or at any distance below, the structural floor, and does not contact any live electrical part. The discharge opening must not be blocked or reduced in size under any circumstances.

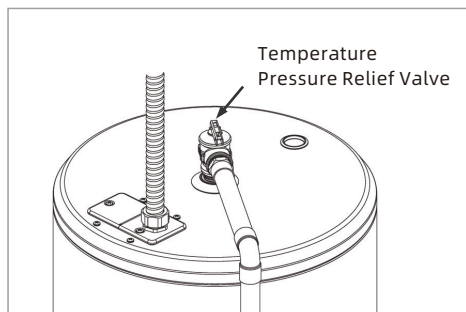
### 3.5 To Fill The Water Heater



#### WARNING

Risk of Unit Damage-The tank must be full of water before heater is turned on. The water heater warranty does not cover damage or failure resulting from operation with an empty or partially empty tank.

- Make certain the drain valve is completely closed. Open the shut-off valve in the cold water supply line. Open each hot water faucet slowly to allow the air to vent from the water heater and piping.
- A steady flow of water from the hot water faucet(s) indicates a full water heater.
- Condensation can form on the tank and fittings when it is first filled with water. Condensation may also occur with a heavy water draw and very cold inlet water temperature.



- This condition is not unusual and will disappear once water is heated. If condition persists, examine fittings for potential leaks and repair, as required.



**NOTICE**

Do not mis-wire electrical connections. 120VAC must be applied to the water heater as shown in 'Water heater junction box' illustration.

### 3.6 Electrical Connections

A separate branch circuit with copper conductors, overcurrent protective device and suitable

disconnecting means must be provided by a qualified electrician.

All wiring must conform to local codes or latest edition of National Electrical Code ANSI/NFPA 70.

The water heater is completely wired to the junction box at the top of the water heater. An opening for 1/2" electrical fitting is provided for field wiring connections. The voltage requirements and wattage load for the water heater are specified on the rating label on the front of the water heater.

**The branch circuit wiring should include either:**

1. Metallic conduit or metallic sheathed cable approved for use as a grounding conductor and installed with fittings approved for the purpose.
2. Nonmetallic sheathed cable, metallic conduit or metallic sheathed cable not approved for use as a ground conductor shall include a separate conductor for grounding. It should be attached to the ground terminals of the water heater and the electrical distribution box.
3. Factory provided power cord included in the packaging with this water heater.

**To connect power to the water heater:**

1. Turn the power off at circuit breaker.
2. Remove the screw/screws holding the junction box top cover.
3. Route the electrical wiring through provided strain relief and opening in the junction box cover.
4. Install Line to Line, Neutral to Neutral and Ground to Ground, per illustration on this page.
5. Reconnect all screws attaching the junction box covers.



**WARNING**

Risk of fire or electrical shock. Ensure both junction box covers and ground screws are securely fastened for proper grounding.



**NOTICE**

Install electric connections according to local codes or latest edition of National Electrical Code ANSI NFPA 70.

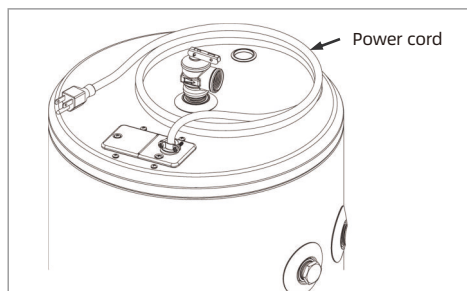
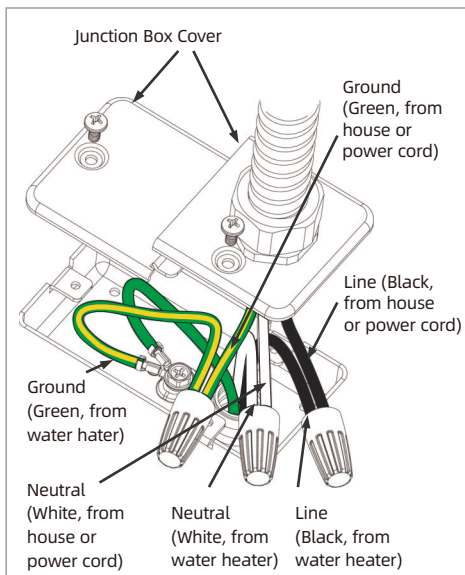


**WARNING**

Proper ground connection is essential. The presence of water in the piping and water heater does not provide sufficient conduction for a ground. Nonmetallic piping, dielectric unions, flexible connectors, etc., can cause the water heater to be electrically isolated. Do not disconnect factory ground.

**This water heater can be installed in two ways:**

1. Using a hard wired connection provided by a qualified electrician
2. Using the factory provided power cord and plugging into an outlet that has been installed by a qualified electrician (see below illustration for reference).

**Water Heater Junction Box Illustration**

The manufacturer's warranty does not cover any damage or defect caused by installation, attachment or use of any type of energy-saving or other unapproved devices (other than those authorized by the manufacturer) into, onto or in conjunction with the water heater. The use of unauthorized energy-saving devices may shorten the life of the water heater and may endanger life and property.

The manufacturer disclaims any responsibility for such loss or injury resulting from the use of such unauthorized devices.

If local codes require external application of insulation blanket kits, the manufacturer's instructions included with the kit must be carefully followed.

**Application of any external insulation, blankets or water pipe insulation to this water heater will require careful attention to the following:**

- Do not cover the temperature and pressure-relief valve.
- Do not cover access panels to the heating elements.
- Do not cover the electrical junction box of the water heater.
- Do not cover the operating or warning labels attached to the water heater or attempt to relocate them on the exterior of the insulation blanket.