



Installation and Instruction Manual

***Cascade Rack
System***

Model LT199NXX1 / LT199PXX1
LT199NRX1 / LT199PRX1
RTGS199N1 / RTGS199X1
RTGR199N1 / RTGR199X1

Base Rack : ST1249

Extension Rack : ST1250

FOR YOUR SAFETY: This product must be installed and serviced by a professional service technician, qualified in hot water boiler and heater installation and maintenance. Improper installation and/or operation could create carbon monoxide gas in flue gases which could cause serious injury, property damage, or death. Improper installation and/or operation will void the warranty.



Base Rack : ST1249



Extension Rack : ST1250

STOP! Follow these instructions or warranty will be void!

⚠ WARNING

This installation shall be done by a qualified service agency in accordance with these instructions, the installation manual included with the appliance to be mounted on this rack, all applicable codes, and requirements of the authority having jurisdiction. Failure to follow these instructions could result in substantial property damage, severe personal injury, or death.

■ **Installation Must Comply With:**

- 1. This appliance must be installed in accordance with local codes if any; if not, follow ANSI Z223.1/NFPA 54 or CAN/CSA B149.1, Natural Gas and Propane Installation Code, as applicable.
- 2. Local, state, provincial, and national codes, laws, regulations, and ordinances. This installation shall be done by a qualified service agency in accordance with these instructions, the installation manual included with the appliance to be mounted on this rack, all applicable codes, and requirements of the authority having jurisdiction. Failure to follow these instructions could result in substantial property damage, severe personal injury, or death.

Included with Kit:

No	Description	Quantity	
		Main Rack	Extension Rack
1	Base Foot	2	1
2	Base Support	4	2
3	Angle Support	4	2
4	Vertical Post	2	1
5	Lower Beam	1	1
6	Upper Beam	1	1
7	End Cap	2	1
8	M10 Washer	44	24
9	M10 Hex Screw	22	12
10	M10 Hex Nut	22	12
11	M6 Self Tapping Screw	8	8
12	M6 Hex Screw	4	3
13	M6 Hex Nut	4	3
14	M6 Washer	8	6

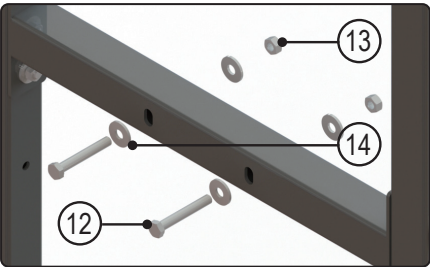
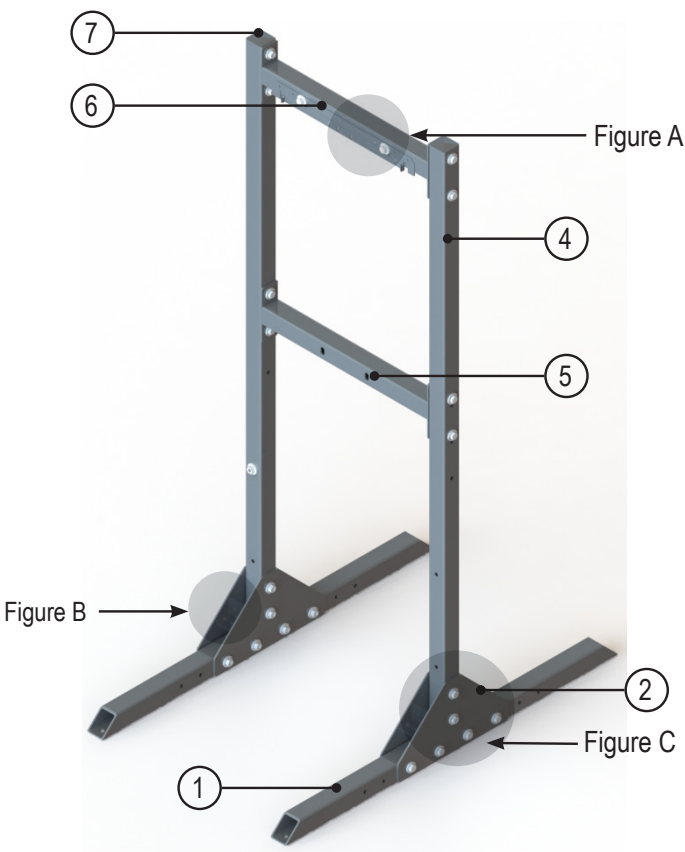


Figure A

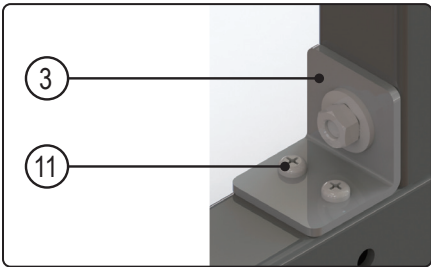


Figure B

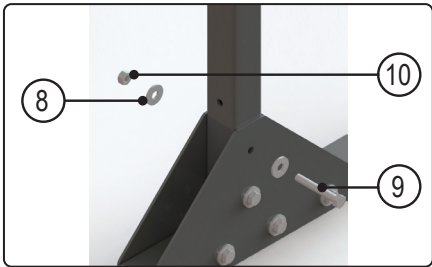


Figure C

⚠ WARNING

Installer - Read all instructions in this manual before installing. Perform steps in the given order. Obey all local codes. Obtain all applicable permits before installing this rack system.

NOTE: Install all components in such a manner that does not reduce the performance of any fire rated assembly.

User - These instructions are for use only by a qualified heating installer / service technician.

FAILURE TO ADHERE TO THE GUIDELINES ON THIS PAGE CAN RESULT IN SUBSTANTIAL PROPERTY DAMAGE, SEVERE PERSONAL INJURY, OR DEATH.

■ **Tools Required (Not Included):**

7mm and 10mm Ratchet, Socket Driver, or Wrench
Phillips Head Screwdriver Rubber Mallet Appropriate
Drill with Assorted Bits M10 or 7/16" Lag or Anchor
Bolts and Washers for Anchoring Rack into Wood or
Concrete

■ **Preparing for Installation:**

Determine the best area to install the rack system. Ensure the location meets building code requirements, and that all safety and clearance requirements for the appliance(s) to be mounted to the rack are met.

⚠ CAUTION

Carefully consider installation when determining rack location. Please read the entire appliance installation manual before installing this rack. Failure to properly take factors such as appliance venting, piping, condensate removal, and wiring into account before installation could result in wasted time, money, and possible property damage and personal injury.

Do not attempt to overtighten any of the bolts as this may damage the threads and prevent the bolts from turning. Replacement bolts are not included in this kit.

■ **Installing the Rack System:**

1. Move the rack components to the installation location. Ensure you have all the components for the installation. NOTE: DO NOT lose these components. Replacements ARE NOT included in this kit.
2. Set the base feet in the installation location. Verify finished installation clearances will meet the service clearance requirements of the appliance(s) to be mounted on the rack.
3. Use a Phillips Head Screwdriver and eight(8) M6 Self Tapping Screws to install the four(4) Angle Supports to the two(2) Base Feet. See Figure 1(a). NOTE: DO NOT fully tighten the screws. Doing so

NOTICE

Remove all items from the packaging and ensure that all parts and accessories are included in the kit. Any claims for damage or shortage in shipment must be filed immediately against the transportation company by the consignee.

⚠ WARNING

This rack system must be properly anchored and secured to the floor BEFORE mounting appliances on it. Failure to follow these instructions could result in substantial property damage, severe personal injury, or death.

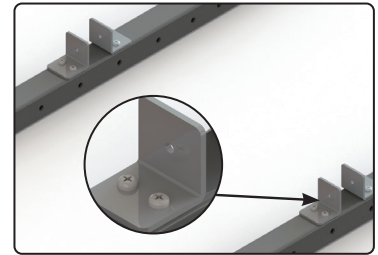


Figure 1(a) - Installed Angle Support

will make it difficult to install the vertical posts and waste time.

4. Use a Phillips Head Screwdriver and four(4) M6 Self Tapping Screws, two(2) M10 Hex Bolt, two(2) M10 Hex Nut, four(4) M10 Washer to install the two(2) Vertical Posts to the Base Feet. See Figure 1(b). Tighten all of the installed M6 Self Tapping

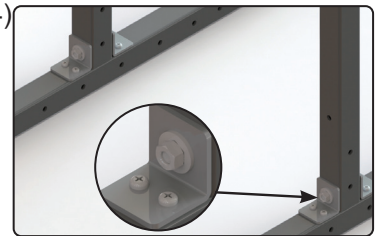


Figure 1(b) - Installed Angle Support

5. Use a 17mm Ratchet/Socket Driver, wrench, and the twelve(12) M10 Hex Bolts with included M10 Washers and M10 Hex Nuts to mount two(2) Base Supports to each Base Foot and Vertical Post assembly. See Figure 2. NOTE: Ensure a M10 Washer is installed between the M10

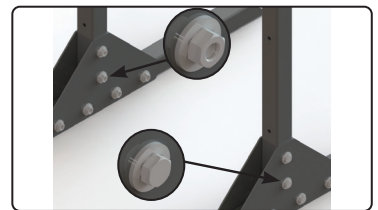


Figure 2 - Installed Base Support

6. Use a 17mm Ratchet or Socket Driver and wrench and the four(4) M10 Hex Bolts with included M10

Washers and M10 Hex Nuts to mount the beam marked "UPPER" to each Base and Post assembly. See Figure 4. NOTE: If installing an Extension Rack, install the bolts on the exterior vertical post from inside the post out, and do not tighten down the bolts. Tighten the nuts by hand to keep the post stable. See Figure 3.

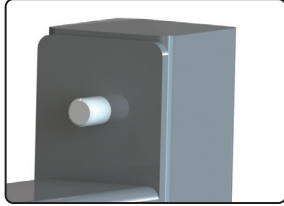


Figure 3 - Open Ended Bolt

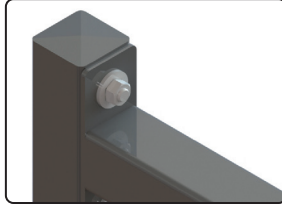


Figure 4 - Installed Upper Beam

7. Observe the posts. Labels marked "ALL TANKLESS WATER HEATERS", "80 – 140kBTU APPLIANCES", and "175 – 199kBTU APPLIANCES" cover the upper lower beam mounting holes. Remove the label that corresponds to the appliance that will be mounted. Then use a 17mm Ratchet or Socket Driver and wrench and the four(4) M10 Hex Bolts with included M10 Washers and M10 Hex Nuts to mount the beam marked "LOWER" to each base and post assembly. NOTE: Ensure the lower beam is mounted in the proper location for the appliance to be installed to the rack. Failure to do so will result in wasted time. NOTE: If installing an Extension Rack, install the bolts on the exterior vertical post from inside the post out, and do not tighten down the bolts. Tighten the nuts by hand to keep the post stable. See Figure 3.

8. Use a rubber mallet to install the two(2) End Caps on the Vertical Posts. See Figure 5.

9. If installing a single Main Rack, rack installation is complete. Ensure all nuts and bolts and screws are tightened.

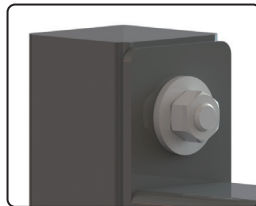


Figure 5 - Installed End Cap

■ Installing an Extension Rack :

1. Move the rack components to the installation location. Ensure you have all the components for the installation. NOTE: DO NOT lose these components. Replacements ARE NOT included in this kit.
2. Set the Base Feet in the installation location. Verify finished installation clearances will meet the service clearance requirements of the appliance(s) to be mounted on the rack.
3. Use a Phillips Head Screwdriver and eight(8) M6 Self Tapping Screws to install the four(4) Angle Supports to the two(2) Base Feet. See Figure 1. NOTE: DO

NOT fully tighten the screws. Doing so will make it difficult to install the vertical posts and waste time.

4. Use a Phillips Head Screwdriver and (4) M6 Self Tapping Screws to install the two(2) Vertical Posts to the Base Feet. See Figure 1. Tighten all twelve(12) of the installed M6 Self Tapping Screws. Be careful not to strip the screws.
5. Use a 17mm Ratchet/Socket Driver, wrench, and the twelve(12) M10 Hex Bolts with included M10 Washers and M10 Hex Nuts to mount two(2) Base Supports to each Base Foot and Vertical Post assembly. See Figure 2. NOTE: Ensure a washer is installed between the bolt and support and between the nut and support. It is considered best practice to install the bolts from the outside in, with the nuts on the interior of the rack.
6. Remove the two(2) M10 Hex Nuts and M10 Washers attaching the Upper Beam to the installed rack. Then use a 17mm Ratchet or Socket Driver and wrench and the those two(2) M10 Hex Nuts and M10 Washers and two(2) M10 Hex Bolts with included washers and nuts from the Extension Rack kit to mount the beam marked "UPPER" to the Extension Rack and installed rack base and post assembly.
7. Remove the two(2) M10 Hex Nuts and M10 Washers attaching the Lower Beam to the installed rack. Remove the label that corresponds to the appliance that will be mounted from the Extension Rack post assembly. Then use a 17mm Ratchet or Socket Driver and wrench and the two(2) removed M10 Hex Nuts and M10 Washers and two(2) M10 Hex Bolts with included M10 Washers and M10 Nuts from the Extension Rack kit to mount the beam marked "LOWER" to the Extension Rack and installed rack base and post assembly. NOTE: Ensure the lower beam is mounted in the proper location for the appliance to be installed to the rack. Failure to do so will result in wasted time.

8. Use a rubber mallet to install the end cap on the vertical post. See Figure 5. If installing a single Extension Rack, rack installation is complete. See Figure 6. Ensure all nuts and bolts and screws are tightened.

9. Repeat the steps included in this Installing an Extension Rack section for each additional Extension Rack.



Figure 6 - Installed Main Rack and Extension Rack

⚠ WARNING

This rack system must be properly anchored and secured to the floor BEFORE mounting appliances on it. Failure to follow these instructions could result in substantial property damage, severe personal injury, or death.

■ General Notes on Securing the Rack to a Concrete Floor :

⚠ WARNING

When locating the rack and preparing to install concrete anchors, IT IS MANDATORY to check for buried electrical cables, gas tubing, and water or radiant heating piping. DO NOT drill into or drive fasteners into concrete slab unless absolutely certain it is safe to do so. If in doubt, CONSULT A PROFESSIONAL to determine and accurately locate buried objects. Failure to follow this warning could result in property damage, serious personal injury, or death.

■ General Rules for Drilling in Concrete :

Concrete drillers must comply with OSHA's general rules. Operators must be adequately trained to use concrete drilling equipment, and the drilling equipment must be maintained in safe operating condition. Operators must wear personal protective equipment (PPE), including goggles, long pants, protective noise equipment, and steel-toed work boots. Operators should wear a respirator whenever exposed to hazardous materials. Adequate ventilation is required whenever drilling in concrete.

■ Utility Precautions

OSHA rules state that concrete drillers should make certain they are not drilling into electrical cables. They should use the services of the underground utility and cable locating companies prior to drilling. Concrete drillers should maintain a minimum distance of 10 feet from high voltage power cables to install the vertical posts and waste time.

⚠ WARNING

If seismic anchoring is required, consult state and local codes for requirements and instructions. If in doubt as to whether seismic anchoring is necessary in your installation location, CONSULT A PROFESSIONAL. Failure to follow this warning could result in property damage, serious personal injury, or death.

■ General Anchoring Instructions :

1. Position the stand in the installation location.
2. Once properly positioned, use a pencil to mark the drill holes for the lag screws / expansion anchors. Then move away the stand.
3. Prepare to drill holes into the mounting surface (either 4" thick minimum Wood Structural Member, or 4" thick minimum Concrete Flooring). Consult lag screw or expansion anchor manufacturer for predrill diameters.
4. After taking appropriate precautions, drill the four anchor holes.
5. Reposition the stand with attached seismic anchors over the newly drilled anchor holes.
6. Install the washers and lag screws or expansion anchors (depending on the installation and code requirements).

■ Installing Appliance(s) on the Rack: :

1. a. If mounting one(1) appliance to the rack, use a 10mm Ratchet or Socket Driver and wrench and two(2) M6 bolts and included washers and nuts to mount the top mounting bracket to the upper beam of the rack. See Figure 7.
1. b. If mounting two(2) appliances to the rack, use a 10mm Ratchet or Socket Driver and wrench and two(2) M6 bolts and included washers and nuts to mount two(2) top mounting brackets to the upper beam of the rack. See Figure 8.
2. Hang the appliance(s) from the top mounting bracket(s). See Figure 7.

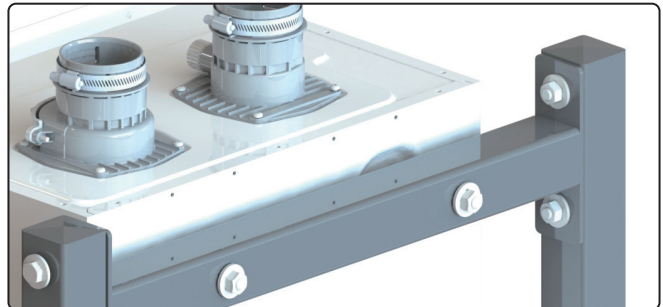


Figure 7 - Single Appliance Mounted on Top Mounting Bracket

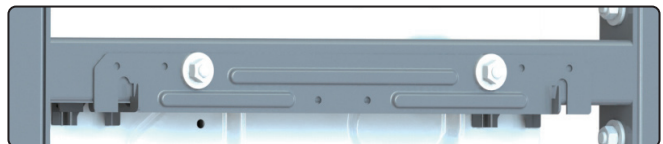


Figure 8 - Secured Top Mounting Bracket for Back to Back Appliance Mounting

3. Use a 10mm Ratchet/Socket Driver and wrench to secure the lower mounting bracket(s) to the lower beam, using the two(2) M6 bolts and the included washers/nuts. See Figures 9 and 10.

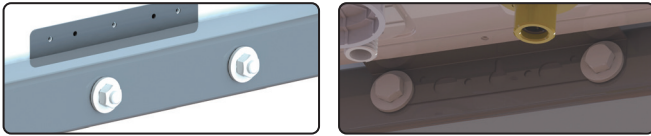


Figure 9 - Single Appliance Secured Lower Bracket

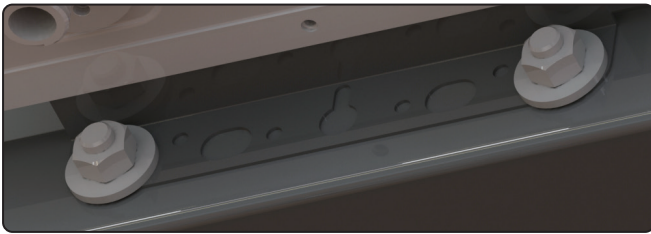


Figure 10 - Secured Lower Bracket for Back to Back Appliance Mounting

4. See Figures 11, 12, 13 for mounted appliance images.
5. Repeat the previous steps for installing additional appliances on Extension Rack(s).

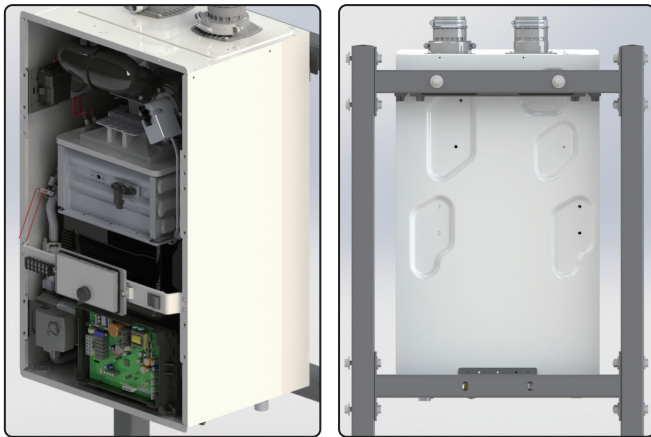


Figure 11 - Mounted Single Appliance

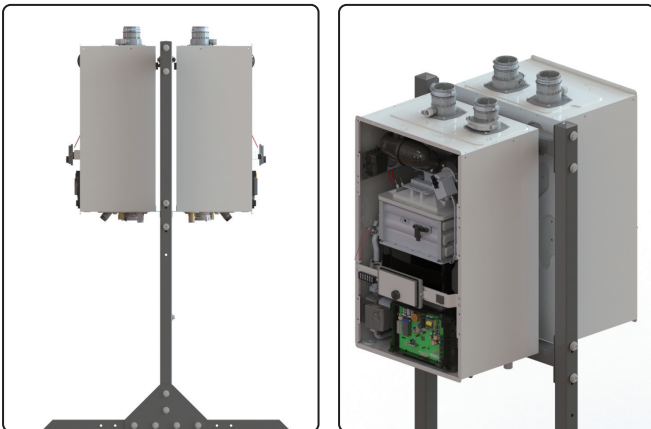


Figure 12 - Mounted Back to Back Appliances



Figure 13 - Mounted Side by Side Appliances (Possible with Extension Rack)

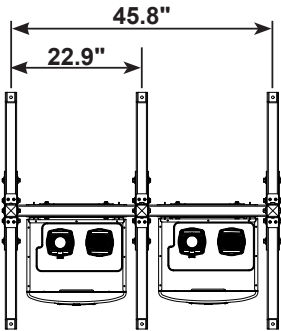
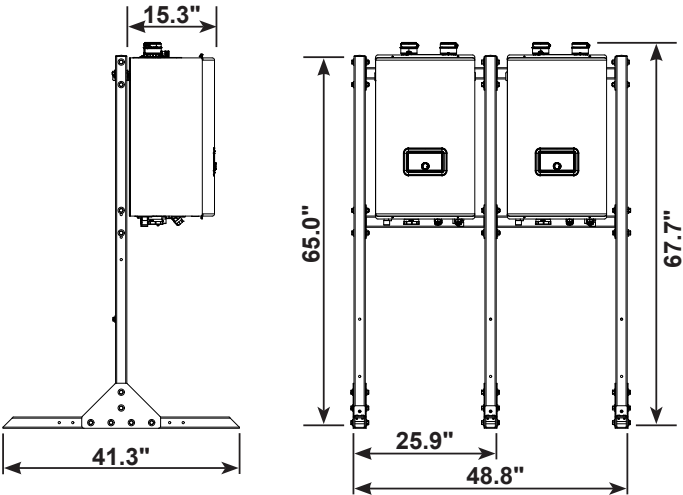


Figure 14 - Rack Dimensions