

StorMaxx-NP

Installation Manual

This manual contains installation instructions for the SunMaxx Solar non-pressurized tanks used for thermal storage.





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WARNINGS

- **This tank is designed for indoor, not outdoor use.**
- **Tanks must be installed on a sufficiently strong surface to accommodate the weight of the tank and water combined. Note: Water weighs 8.33 pounds per gallon.**
- **DO NOT store objects on top of the tank. The lid is not designed to hold weight.**
- **Avoid installation in an area where water could potentially freeze.**
- **The water must be maintained at a level within the boundaries of the orange tape that surrounds the tank.**
- **Petroleum products will damage the EPDM liner.**
- **Temperatures above 180 Degrees Fahrenheit may damage the tank liner.**
- **Check your water pH before filling the storage tank. The pH of the water must be maintained at between 8.2 and 8.6. If you have a water supply with a pH lower than this, you must raise the pH to an acceptable level. You can do this with pH plus for pools.**
- **Water with dissolved ions can act as an electrolyte causing electrolysis and resultant corrosion of copper pipes. Copper heat exchangers should be properly grounded for protection.**
- **Installing a sacrificial anode rod similar to those used in hot water heaters can add another level of protection if your water has dissolved ions.**
- **Surface or well water not coming from a municipal system should be tested for substances corrosive to copper such as cyanides and ferric, cupric, and ammonium salts. A different water source should be used if any of these substances are present.**
- **The warranty does not cover any on-site installation accidents or occurrences, including but not limited to: the liner being damaged during set-up, the aluminum outer skin of the tank being dropped onto the liner, the liner ripping while forcing the tank through a tight opening or while positioning the heat exchange coils on the tank bottom without properly lifting the coils into place.**

Applications

- The SunMaxx StorMaxx non-pressurized water tank is used where a buffer tank is necessary to eliminate cycling and storage of thermal energy produced during day time hours, while still keeping sufficient water temperature for night time hours.

Uses Include

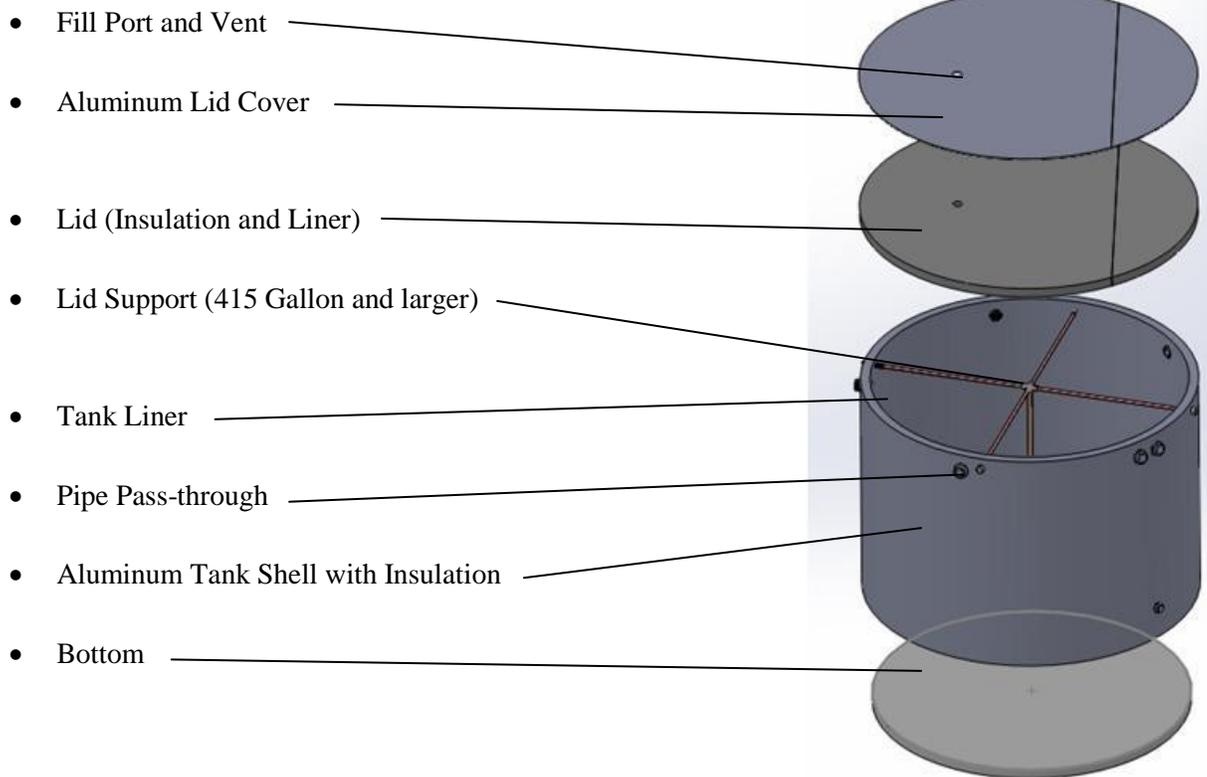
- **Warm Water Baseboarding.** A hydronic baseboard can heat an entire building if properly calculated and designed. It takes a greater number of baseboards for warmer water applications. According to the water temperature chart, a hydronic baseboard will deliver 228Btu's of energy per foot with 120 degree F. water, 274Btu's per foot at 130 degrees F., or 225Btu's per foot with 140 Degree F. water.
- **Warm Air Furnaces and Heat Pump Systems.** In a warm air application, larger sized ducts are required to move energy at a adequate CFM. The SunMaxx in tank heat exchangers and duct water to air exchangers are designed to provide home heating down to water temperatures of 120 Degrees F., at design outdoor temperatures.
- **Radiant Floor Heating.** Floor heating, when combined with heat storage is a very efficient method to heat a home, or similar building since tank temperatures can be as low as 95 Degrees F. and still provide all of the designed heating load. This means that the necessary storage tank can be smaller than the equivalent tank for a higher temperature application. Additional benefits of radiant floor heating include increasing efficiency of 20 to 35 percent compared to conventional distribution.

Crate Contents

- Storage tank shell with insulation
- Tank lid and bottom (located inside the storage tank)
- Aluminum tank lid cover [comes in 2 pieces for 328 gallon and larger] (located on the outside of the tank between the tank and wrapping)
- Lid trim
- Copper lid support pipes, fittings (415 gallon and larger tanks only)
- Hardware bag for lid support: 4 Qest nut, ring, and cone assemblies, 4 white caps (415 gallon and larger tanks only)
- Silicone Sealer
- Bag of screws for the lid cover and trim

Exploded View

NP Tank View





Tank Dimensions

<u>SKU</u>	<u>Volume (Gallons)</u>	<u>Dimensions (Dia. x Height)</u>	<u>Weight (lbs)</u>
StorMaxxNP-184	184	40 x 48	124
StorMaxxNP-228	228	44 x 48	134
StorMaxxNP-275	275	48 x 48	163
StorMaxxNP-328	328	52 x 48	170
StorMaxxNP-415	415	58 x 48	176
StorMaxxNP-512	512	64 x 48	193
StorMaxxNP-533	533	58 x 60	184
StorMaxxNP-620	620	70 x 48	198
StorMaxxNP-659	659	64 x 60	214
StorMaxxNP-738	738	76 x 48	215
StorMaxxNP-798	798	70 x 60	232
StorMaxxNP-806	806	64 x 72	235
StorMaxxNP-822	822	80 x 48	237
StorMaxxNP-949	949	76 x 60	268
StorMaxxNP-957	957	86 x 48	272
StorMaxxNP-975	975	70 x 72	284
SunMaxxNP-1160	1160	76 x 72	296
StorMaxxNP-1205	1205	96 x 48	308
StorMaxxNP-1504	1504	86 x 72	381
StorMaxxNP-1550	1550	96 x 60	369
StorMaxxNP-1900	1900	96 x 72	491
StorMaxxNP-2000	2000	100 x 72	502
StorMaxxNP-2500	2500	120 x 60	539

Installation Instructions

Please Note

- If at all possible, the tank should be moved into position in the crate.
- If the tank must be moved around corners or through tight spaces, remove the wooden crate and other components. Maneuver the shell with insulation separately. Keep the bubble wrap on while maneuvering. If you are going to move the tank down stairs, tape cardboard to the bottom of the tank for protection.

Uncrating the Tank

1. Remove the stretch wrap from the crate.
2. Remove the top and vertical crate supports.
3. Remove the aluminum lid cover located on the outside of the tank.
4. Remove the pieces that can easily be reached from inside the tank liner.



5. Leave the bubble wrap on. Lay the tank down on its side. Remove the crate bottom.



6. With the tank is on its side, push the liner inside the tank. This protects the liner while moving the tank into position.



7. Clean the floor at the desired tank location.
8. Make sure the floor is level. **Note:** If the floor is not level, the tank will not be round at the top and the lid will not fit properly. If this is the case, shim the low spots on the aluminum tank shell. The shims can later be removed once the tank is full and the lid is in place.



9. Move the tank to the desired location. **NOTE:** Do not drag the liner or lay the shell on the liner while maneuvering the tank.

Construction of the Tank

1. Open the tank out into a circle. Measure to ensure a circular shape.



2. Lay the tank bottom on the ground with the blue Styrofoam side facing down.
3. Lift one side of the tank and slide the bottom under the tank. **Note:** Make sure the tank's liner does not get caught between the tank's wall and bottom.



4. Fit the tank shell around the bottom, making sure the shell insulation falls around the edges. It will be a tight fit. Work your way around the shell pulling out and pushing down. **Note:** It may be necessary to get inside the tank, pushing out on the shell to accomplish this.

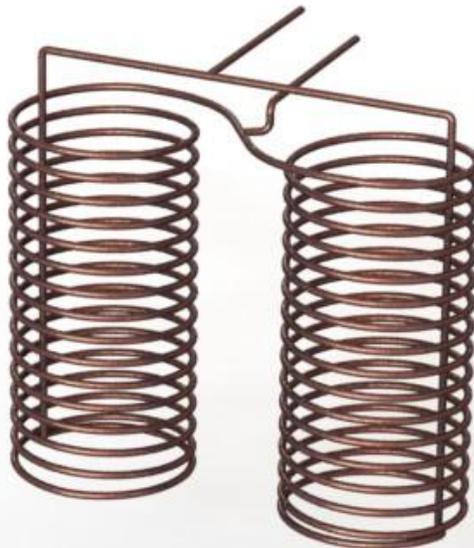


5. Climb inside the tank. Be careful not to damage the liner. Straighten out the pleats of the rubber liner.

Installing the Tank Heat Exchanger(s)

Notes:

- Dripping solder will not damage the tank EPDM.
 - Hot supply or return lines are plumbed to the tops of coils. Cold supply or return lines are plumbed to the bottoms.
 - Coils should be placed so they can be easily plumbed to the tank pass-throughs.
 - Multiple coils must be plumbed together in parallel, not series. Position the coils to optimize this plumbing. The diagram below shows coils piped in parallel.
 - Hot water supply pipes from the tank should be plumbed with a mixing or antiscaid valve.
 - Bullhead tees reduce head pressure and increase flow rates. Bullhead tees are required for any application with over 50,000BTUs of heat loss.
1. Inspect the coil(s) for any shipping damage.
 2. Lower the coil(s) into the tank, gently setting the base blocks onto the liner.
 3. Plumb the coils according to the individual job piping scheme.
 4. Seal all pipe pass-throughs with high temperature silicone sealer. Be sure to clean all copper pipe in the pass-throughs beforehand to ensure a good bond with the silicone sealer.
 5. Pressure check all solder joints before putting water in the tank.
 6. Ground the pipes.



Installing The Copper Lid Supports (415 gallons and larger)

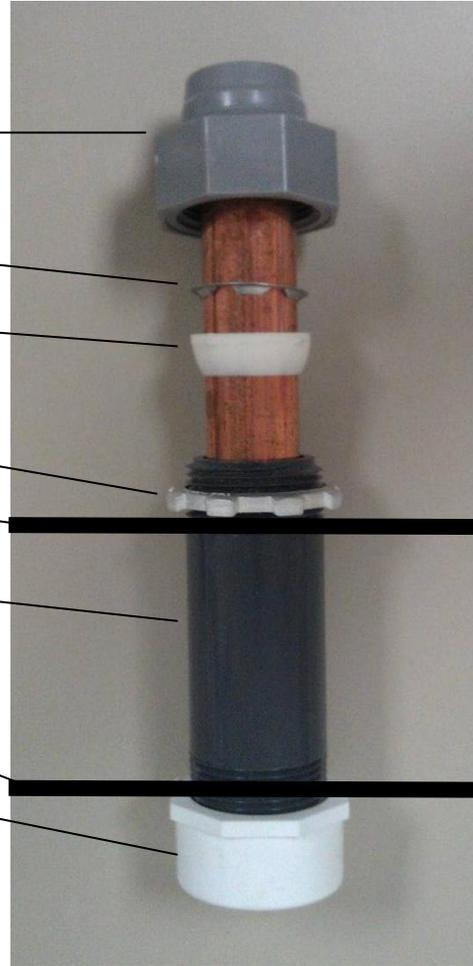


1. Pick out the lid support center post. The photos above show the top and bottom of the center post.
2. There are four $\frac{3}{4}$ " pass-throughs positioned at right angles around the perimeter of the tank. Find them.
3. Fully insert the copper lid supports into the cross fitting at the top of the center post and into the pass-throughs in the tank shell.
4. The tank shell is flexible. Pull each lid support out of its pass-through and assemble the Qest nut, ring, and cone on the pipe according to the photo diagram on the next page.
5. Slide each pipe back into its pass-through and loosely tighten the nut.
6. Each branch of the cross should be equal in length and the tank should be circular. Measure to ensure this is true.
7. Hand tighten each of the nuts to secure the support. **DO NOT** use a wrench.
8. Apply a thick seam of silicone to seal the gap between the liner and nut. This ensures that water condensing on the pipe above the water line will not leak into the insulation or down the outside of the tank.



Lid Support Pass-Through Exploded View

- Qest Nut
- Ring
- Cone
- Lock Nut
- Inner Tank Wall
- Raceway
- Outer Tank Wall
- Cap



Fill The Heat Storage Tank With Water

- Piping should have already been pressure checked at this point.
- Water chemistry questions should have already been addressed at this point.
 1. Fill the tank with cold water up to the **BOTTOM OF THE ORANGE TAPE. DO NOT OVERFILL.**
 2. Test the pH of the water. The pH should be between 8.2-8.6. Use Ph plus for pools to raise the pH if necessary.

Placing The Lid On The Tank

1. Do not try to insert the lid yet. Place it on top of the tank, liner facing down. The overcut edge of the liner should come up over the shell.
2. Push the lid down 1” evenly across the entire tank, making sure the overcut lid liner ends up between the lid and shell liner.
3. Apply silicone to the seam where the lid liner and tank liners meet.
4. Push the lid all the way in until it rests on the brackets or lid supports.
5. Apply more silicone to the liner seam. This will prevent condensation from forming under the lid cover.

Placing the Aluminum Lid Cover and Trim

1. If the lid cover has come in 2 pieces, use the sheet metal screws provided to put the pieces together.
2. The lid comes with vent cap installed. Unscrew the vent cap and set it aside.
3. Place the lid cover on the tank, fitting the precut hole over the PVC port nipple and lining up the edge of the lid cover with the shell.
4. Apply Teflon tape to the threads of the PVC nipple. This will prevent water condensing on the inside of the cap from running down into the lid insulation.
5. Screw the vent cap back on.
6. Position the crimped aluminum trim pieces around the outside of the lid cover and tank shell, covering the entire perimeter seam.
7. Secure the trim to the lid cover with the sheet metal screws provided.
DO NOT FASTEN ANY SCREWS INTO THE TANK SHELL.

Owner Maintenance Checklist

1. Check for leaks on a regular basis. Contact the installer if a leak is detected.
2. Once a year, check the tank's water level. Remove the white cap from the access port and use a long wood dowel to check the water level. The water level should be within the orange tape around the tank. When determining the water level, remember the tank bottom insulation is 1-½" thick. Water can be added through the access port. Remove the old Teflon tape and put new tape on the threads each time the cap is removed.