

## **TRAINING OVERVIEW**

#### **Heat Pump Information**

- Why a Heat Pump?
- What is a Heat Pump?
- When to use a Heat Pump?
- Sizing a Tank
- Specification
- Features
- Main Components

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#### **Heat Pump Installation**

- General Info
- Clearances
- Plumbing Connections
- Electrical Connections
- Filling the Tank
- Setting the Temperature
- · Setting the Mode

# WHY A HEAT PUMP?

Why is Noritz, a gas tankless manufacturer, now offering an electric heat pump tank?

- To offer customers seeking to reduce or even eliminate their reliance on fossil fuels in the home a super efficient way to heat their water.
- To adapt to future regulations regarding the use of natural gas.
- To continue offering our customers efficient and environmentally friendly options to heat their water.



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### WHAT IS A HEAT PUMP?

A heat pump works like a refrigerator in reverse. A refrigerator moves heat from inside the refrigerator and transfers it to the surrounding room whereas a heat pump water heater captures heat from the ambient air and transfers it to the water stored in the tank.

This is much more efficient than an electric tank and doesn't produce any emissions as it's not gas fired.













## WHEN TO USE A HEAT PUMP

- New Construction?
- No Gas Available?
- Replacing an electric tank?
- Eco conscious customers?

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## **GENERAL SIZING CONSIDERATIONS**

Heat pump water heaters don't recover as quickly as their gas fired or electric counterparts, but they do heat the water much more efficiently.

When sizing a tank water heater, the first hour rating is the important bit of info to look for. This is how many gallons of hot water the tank can provide in an hour, starting with a full tank of hot water.

Noritz Heat Pump First Hour Ratings:

NHP50: 58 Gallons

NHP65: 70 Gallons

NHP80: 86 Gallons

NHP120: 105 Gallons



### **GENERAL SIZING CONSIDERATIONS**

- To select the correct size tank, first determine when the peak hour of hot water is used. Is
  it a morning rush as they get ready for work and/or school? Is it in the evening when they
  return from work/school?
- Estimate the maximum hot water usage during this one hour period of the day. Some example hot water uses are:
  - Shower (2gpm x 10 minutes): 20 Gallons
  - Shaving (.5gpm x 4 minutes): 2 Gallons
  - Hand Washing or Food Prep: (2gpm): 3 Gallons
  - Dishwasher: 7 Gallons
  - Washer Top Loader: 25 Gallons
  - Washer Front Loader: 15 Gallons Estimates from Energy.gov

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# SIZING A TANK

	USE	AVERAGE GALLONS OF HOT WATER PER USAGE		TIMES USED DURING 1 HOUR		GALLONS USED IN 1 HOUR
	Shower (2gpm x 10 minutes)	20	×	3	=	60
	Shaving (.05gpm x 4 minutes)	2	×	1	=	2
	Hand dishwashing or food prep (2 gallons per minute)	3	×	1	=	3
	Automatic dishwasher	7	×		=	0
	Washer - Top Loader	25	×		=	0
	Washer - Front Loader	15				
	Estimates from Energy.gov			Total Peak Hour Demand	=	65

### **SIZING A TANK**

Based on the peak demand of 65 gallons, the NHP65 with a first hour rating of 70 gallons would meet the needs of that home. They could go up another size to the 80 gallon which has a first hour rating of 86 gallons if they want to account for having guests over and a higher than normal peak usage.

Another benefit of going a bit larger than you might need is it's less likely the electric elements will be used to heat the water. If you're not using up nearly all the hot water available in the hour, the tank will most likely only use the efficient heat pump to recover the tank.



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### **HEAT PUMP SPECIFICATIONS**

#### Tank

- Vessel: Hydrastone<sup>®</sup> Lined Steel
- Pressure Rating: 150 psi Working Pressure, 300 psi Test Pressure
- Inlet Size: 3/4" Female NPT
- Outlet Size: 3/4" Male NPT
- Drain Size: 3/4" GHT
- Condensate Size: 3/8" Tube
- Relief Valve Size: 3/4" Female NPT
- Relief Valve Type: T&P, 210° F, 150 psi

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#### Electrical

- Voltages: 208-240 Volt AC
- Phase: Single
- Frequency: 60 Hz
- High Fan Power: 680 Watts
- Low Fan Power: 614 Watts
- Elements: 4500 Watt at 240 Volt
- Hi-Limit: 190°F Manual Reset
- Thermostat Range: 50-160°F
- Error Indication: Visual and Audible
- Demand Response Capable: Yes
- Child Lock Capable: Yes

#### **Heat Pump**

- Refrigerant: R134A
- Ozone Depleting Potential: 0
- Global Warming Potential: 1415
- Over Pressure Safety: Manual Reset
- Field Chargeable: No
- Air Flow (High Fan): 450 CFM
- Air Flow (Low Fan): 250 CFM
- Air Filtration: Washable / Removable
- Temperature Range: 35-110°F
- Sound Level: 54db Average @ 3 Feet

## **HEAT PUMP OVERVIEW**

- Low maintenance design
  - Two control boards
  - Hydrastone<sup>®</sup> lined tank
  - Detachable heat pump unit
- Simple installation
- User friendly electronic controller
- Built-in controller logic
- Upgradable remote software

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# **BENEFITS OF HYDRASTONE<sup>®</sup> LINING**

- No water condition limitation
- No temperature limitation
- No dissimilar metals
- · No sacrificial anode rod required
- Minimal maintenance needed
- Allows for greater pressure tolerance and higher operating temperatures than glass lined tanks
- 28 years mean time before failures





## **GENERAL INSTALLATION INFO**

- Install location must have minimum dimension of 10' x 10' x 7' room (700 cubic feet of air space). If smaller, there must be a louver installed to provide sufficient airflow.
- Make sure there is clearance above the unit to remove the top cover so the air can be bled from the bleeder valve.
- Make sure there is clearance around the unit to allow for proper connection of the water lines and for ease of inspection/service in the future.

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## CLEARANCES

- Measure ALL doorways to ensure the water heater will be able to fit through properly.
- The door frame should NOT be included in these measurements.

#### **Clearances:**

- 50 gallon requires 26" minimum.
- 65 / 80 gallon requires 29" minimum.
- 120 gallon requires 31" minimum.





# LOCATION

- Do not place the heater where there is a risk of property damage in the event of a leak.
- The heater should be protected from high temperature and from freezing.
- If heater is placed on blocks to raise it from the floor, be sure to support the entire bottom with at least <sup>3</sup>/<sub>4</sub>" plywood on the top of the blocks.



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## FILLING THE WATER HEATER

- 1. Completely close the drain valve.
- 2. Open the highest hot water faucet to allow all air to escape from piping.
- 3. Open the valve to the cold-water inlet and allow the heater and piping system to completely fill, as indicated by a steady flow of water from the open faucet.
- 4. Close the faucets.
- 5. Lift the top cover of the heat pump unit.
- 6. Carefully open the Air Purge Valve at the top of the heat pump unit to let air escape.
- 7. Fully tighten Air Purge Valve.

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### **ELECTRICAL INSTALLATION**

- 1. Use properly sized wire leads.
- 2. Connect the power leads to wires enclosed in junction box with the supplied wire nuts.
- 3. Connect the ground wire to the installed ground nut.
- 4. All other electrical connections are made at the factory; therefore, no other electrical connections are necessary.

\*Note that overcurrent circuit protection is required. For the standard model, the overcurrent protection must be rated 25 amp minimum.



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# SETTING TEMPERATURE

- From the home screen, press the  $\uparrow$  AND  $\downarrow$  buttons on the controller.
- The setpoint temperature will flash quickly on the display.
- The temperature is adjusted up or down as the  $\uparrow$  or  $\downarrow$  buttons are pressed.
- Pressing and holding the ↑ or ↓ will allow fast scrolling through the temperatures.
- Once the desired temperature setting has been reached, press the 

   AND ↓

   buttons to save the new setpoint. The setpoint will also be saved about 5 seconds
   after single button presses (not after fast scrolling).
- Fully adjustable from 50° to 160°F





# NOTES



