



Voltex[®] 120V Plug-In Heat Pump Water Heaters

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A. O. Smith is one of the world's leading providers of water heating and water treatment solutions





Water Heating

Water Treatment




















Topics

- What is a Heat Pump Water Heater / How Does it Work?
- Installation Considerations
- 240V vs 120V Best Practices
- 120V Sizing
- Voltex 120V Features



What is a Heat Pump Water Heater?

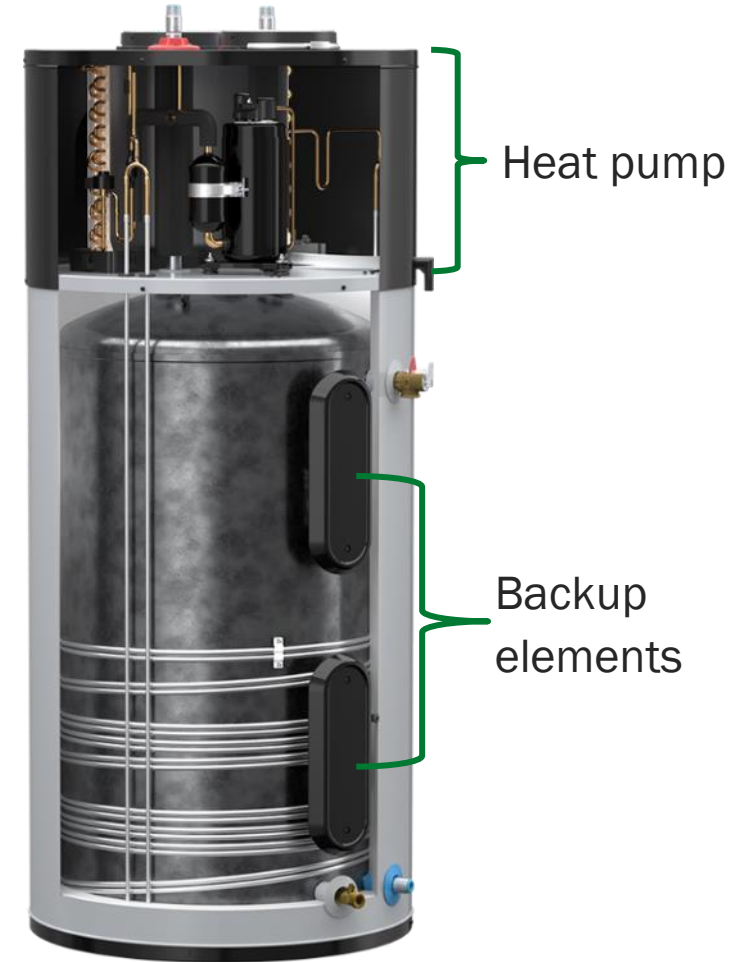
What is a Hybrid Electric Heat Pump Water Heater?

Hybrid Electric = Multiple Heat Sources

- Heat Pump
- Standard electric heating elements as backup

Up to 4x More Efficient

- Transfers heat from the ambient air to heat water
- Uses up to 78% less electricity than a standard electric



How Does A Heat Pump Water Heater Work?

A heat pump water heater works like an air conditioner or refrigerator by transferring heat from one place to another using refrigerant cycling between gas and liquid states.

- 1 Fan circulates air
- 2 Heat is absorbed in an evaporator coil
- 3 Compressor raises the temperature and pressure
- 4 Hot gaseous refrigerant transfers heat to the water
- 5 Backup electric elements can supplement for faster recovery (240V models)



Installation Considerations

Installation Considerations

- **Voltex is Designed for Easy Installation**
 - Contractor preferred top water connections
 - Zero clearance required on sides and back
 - 120V models can plug into a standard wall outlet (shared circuit \geq 15 amps)
 - Generally install like a standard water heater



Installation Considerations – Operating Sound

Heat pumps produce sound

- Different than other water heaters
- Fan and compressor produce sound
- Consider the location of the water heater
- Voltex 120V is rated at 45 dBA



Installation Considerations – Footprint

- HPWH are larger
- Integrated design mounts the heat pump components on top of the storage tank



HPWH vs Gas

- Recommend upsizing for similar hot water availability
- Typically 4-6” larger diameter and 3-8” taller



HPWH vs Electric

- Typically 2-3” larger diameter and 3-4” taller



Installation Considerations – Location

450 ft³ for proper HP operation

- Garage is a very common installation location
 - Plenty of air volume
 - Generally warm
 - Operating sound is less impactful

Designed to be installed in conditioned and semi-conditioned spaces

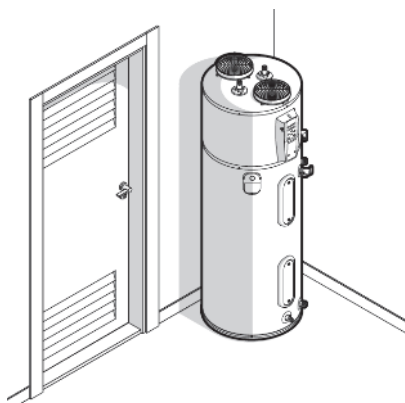
- Exterior closet or enclosure is possible if it protects from elements and meets other clearance and ventilation requirements



Installation Considerations – Confined Spaces

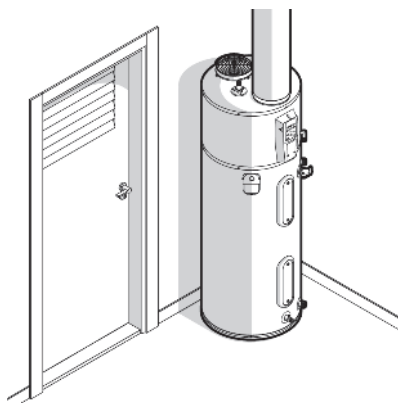
Several options to provide ventilation for smaller installation spaces

Large Closets
(84-449 ft³)

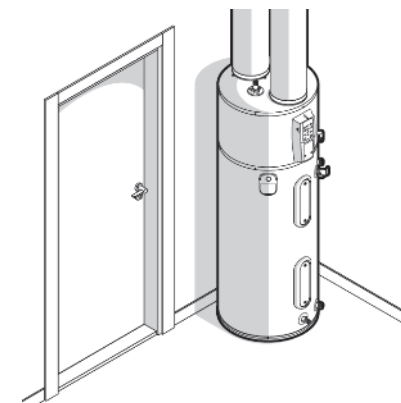


- a) Louvered door
- b) Double louver
- c) Single louver and undercut door

Smaller Spaces (<84 ft³)



- Inlet or Outlet ducting and
- a) Single louver
 - b) Undercut door



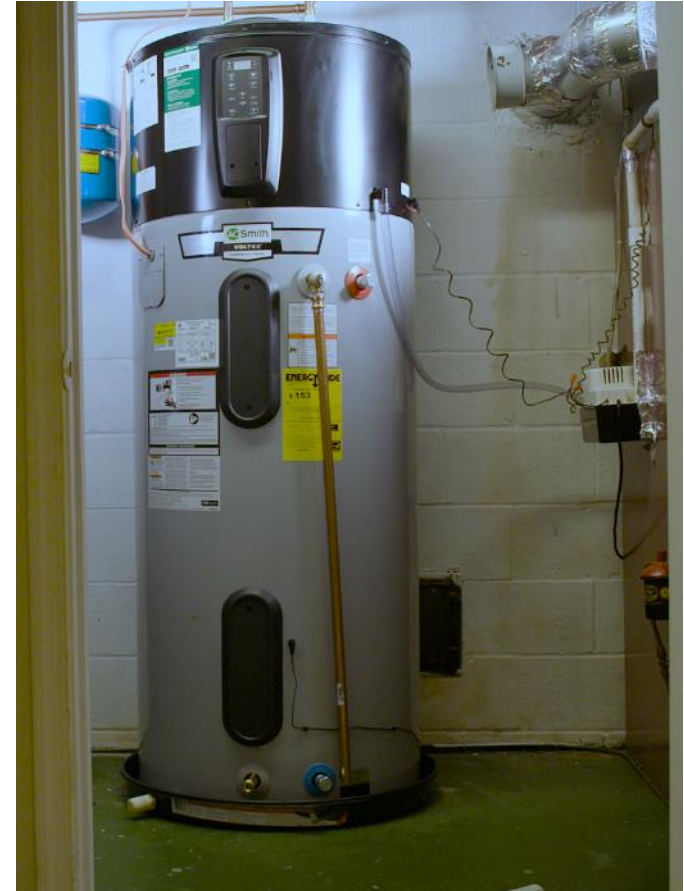
Inlet and Outlet ducting

Integrated duct collars make connecting ducting easily without needing an accessory kit

Installation Considerations - Condensate

Heat Pumps Produce Condensate

- Non-acidic and does not need to be treated or neutralized before disposal
- Condensate drain fitting and flexible tubing come pre-installed from the factory
- Designed to gravity drain - condensate pump can be used if a floor drain is not available



240V vs 120V Best Practices

240V vs 120V Application Best Practices

240V (Voltex AL, MAX)



- New construction
- Replacing standard electric water heaters
- Higher UEF efficiency
- Backup heating elements accommodate higher hot water usage
- Requires 240V/30A dedicated circuit

120V



- Replacing gas water heaters
- Easy installation without electrical work
- Plugs into standard 120V outlet on a 15A or larger shared circuit

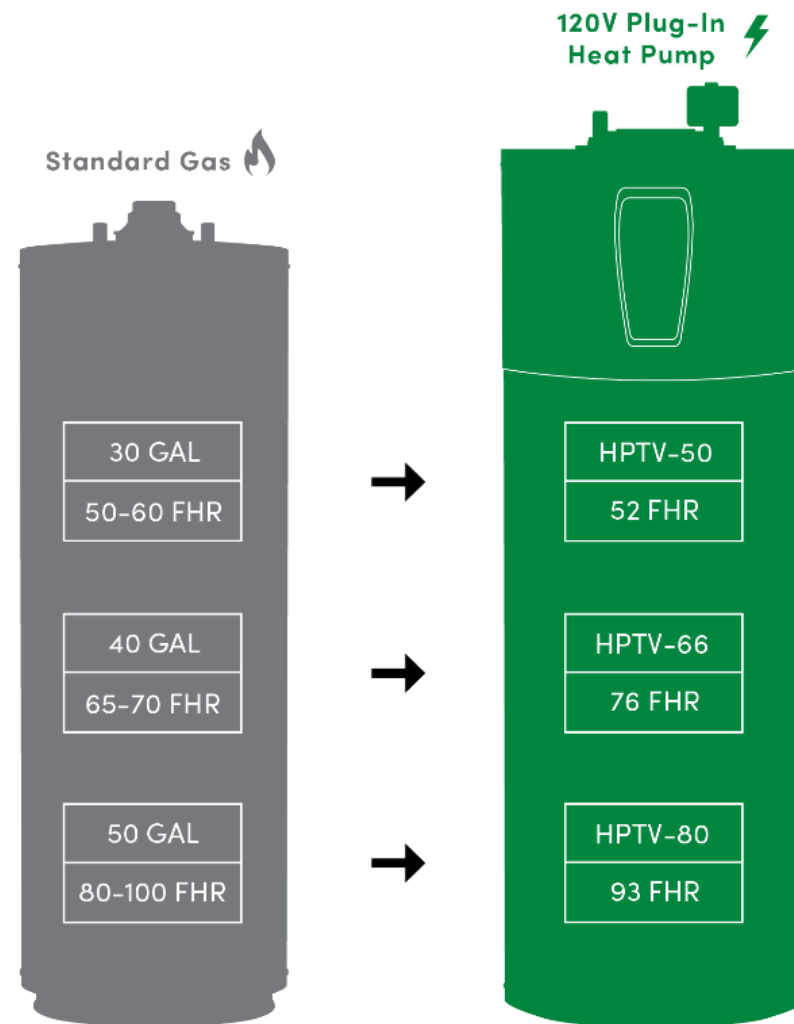
120V Sizing

Education Before Electrification

Proper sizing is critical when replacing a gas water heater with a heat pump. Heat pump water heaters are significantly more efficient but are slower to heat water than a gas water heater. A customer should upsize to ensure they receive equivalent hot water delivery.

Voltex 120V models are sized to provide comparable first hour ratings to 30, 40 and 50 gallon gas water heaters.

240V models are recommended if replacing a standard electric water heater or for use in new construction.

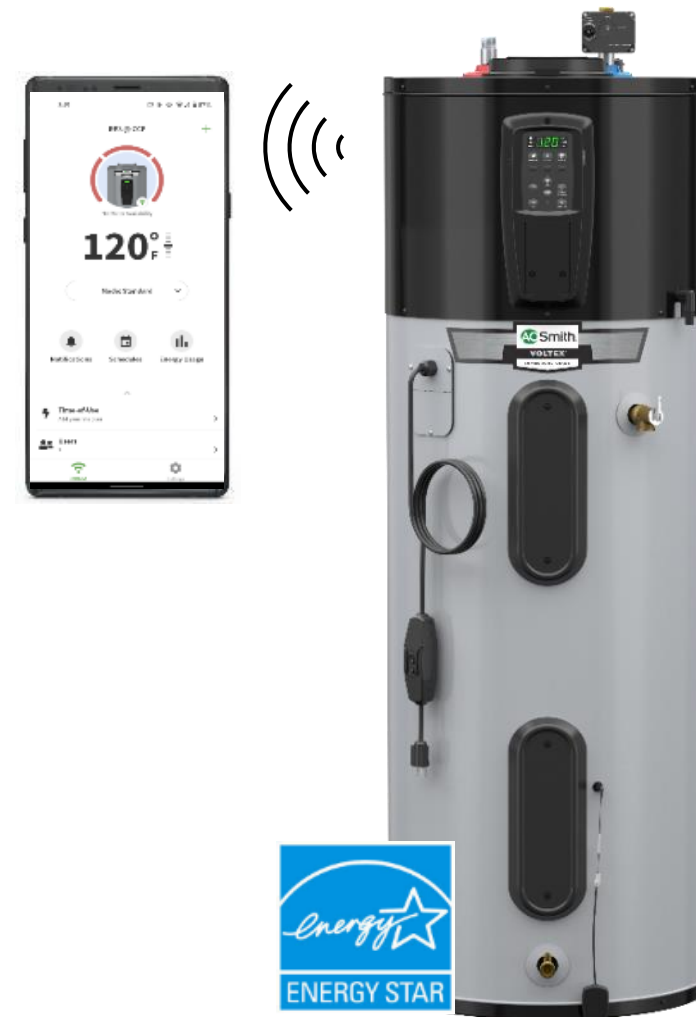


Voltex 120V Features

Voltex[®] 120V Plug-In Heat Pump

Electrification Made Easy

- **Easy Installation**
 - Plugs into standard 120 volt wall outlet (15A or larger shared circuit)
 - Zero clearance design (sides/back)
 - 450 ft³ space requirement is smaller than other manufacturers
- **Top Water Connections**
- **Whisper-Quiet Operation (45 dBA)**
- **Digital Temperature Control**
- **iCOMM™ Smart Connectivity & Other Advanced Features**



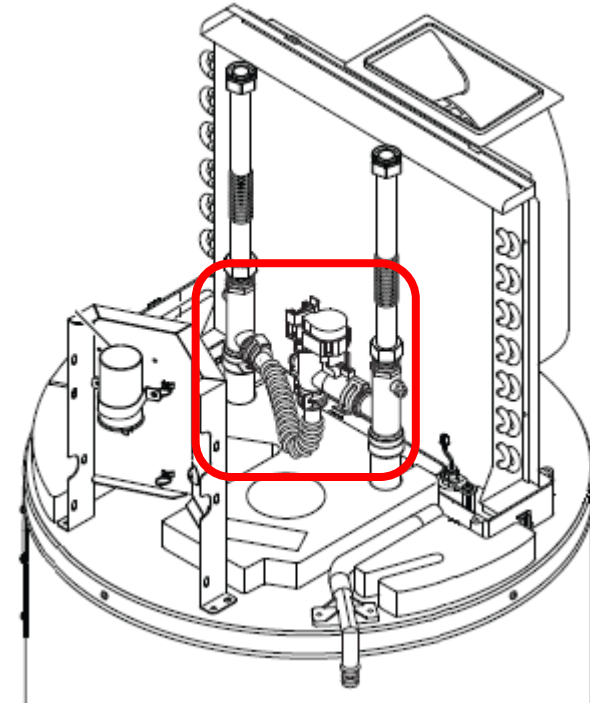
Voltex 120V Power Requirements

- 10 ft power cord with GFCI
- Max 7.5A draw
 - Permits installation on a 15A or larger shared circuit
- Backup Heating Elements
 - Dual backup elements can provide hot water if the heat pump can not run such as if the ambient temperature is below 37°F
 - Elements can not be used simultaneously with the heat pump (as is common on 240V models) to fit within power limits



Voltex 120V Hot Water Performance

- Comparable First Hour Rating to Gas
- **Integrated Digitally Controlled Smart Valve**
 - Easily set the desired outlet temperature on the display or in the free app
 - Enables the Voltex 120V to have higher first hour ratings in line with gas water heaters



Advanced Features

- **Peace of Mind**
 - Leak detection and automatic water shut-off valve as standard features.
- **Reduced Carbon Footprint**
 - 120V uses R-513A refrigerant that has a 56% lower global warming potential (GWP) than the standard refrigerant used in other heat pump water heaters.
- **Advanced Utility Capabilities**
 - Easily load a utility time of use rate plan to prioritize heating when electricity is inexpensive.
 - Capable of Advanced Load Up demand response command.
 - 120V certified to ASSE 1082 to meet TECH Clean California, California Title 24 JA13 and other incentive program requirements.

Voltex[®] Heat Pump Water Heater Family

Three Exciting New Additions to the Voltex Family



Voltex AL (240V)

- Versatile design with Top & Front water connections
- Anti-Leak capabilities



Voltex MAX (240V)

- New Hot Water+ and Guest modes to provide more hot water
- New 40-gallon size



Voltex 120V

- Plugs into a standard wall outlet
- Great for quick and easy replacement of gas water heaters

Questions