

Conquest[®]

Condensing Gas Water Heater



AquaPLEX[®]
Engineered Duplex Alloy

199 to 300 MBH | 100 Gallon Tank | 15-year Warranty

PVI.com



Advanced Design with Longer Service Life

Conquest® is a compact, condensing, semi-instantaneous, firetube water heater that combines an advanced fuel-saving design with extended product life. It features a submerged combustion chamber and a heat exchanger with a dimpled array of firetubes fabricated entirely from durable, corrosion-resistant AquaPLEX® duplex stainless steel alloy. Built from the best material, Conquest provides superior payback with 3-5 times the warranty of competitors.

Features and Benefits

- 199, 250, 300 MBH
- 100-gallon storage tank
- Small footprint (28" x 75 3/4")
- 97% thermal efficiency from 40°F to 140°F
- 95% thermal efficiency from 70°F to 140°F
- Seamless modulation reduces cycling and improves efficiency up to 99% during low load
- Direct vent design with 4-inch air and vent connections; capable of venting with PVC, CPVC, and Polypropylene
- Less than 20 ppm NOx
- Touch-screen operating control with plain text status and fault diagnostics
- 15-year tank and heat exchanger corrosion warranty (8 years full, 7 years prorated)



AquaPLEX®
Engineered Duplex Alloy

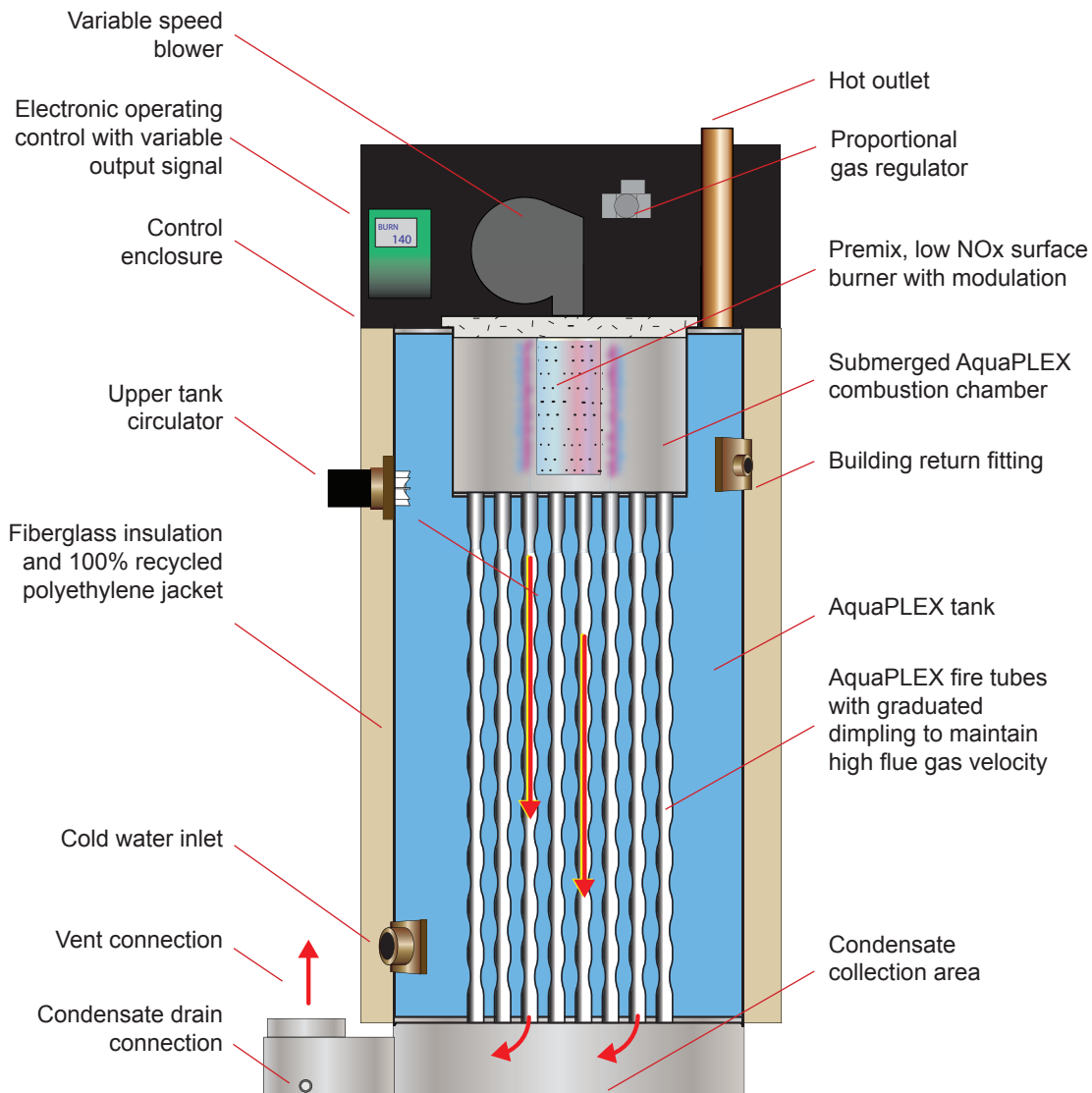
Durable and Efficient

Corrosion Resistant

The AquaPLEX® tank is inherently immune to aqueous corrosion and entirely eliminates the need for a tank lining or anode rods, whether sacrificial or impressed current. Unlike 316L stainless steel, AquaPLEX is immune to chloride stress corrosion cracking, a known failure mode of 316L in hot potable water. AquaPLEX combines the grain structures of both 300 and 400 series stainless steels for unequalled corrosion protection.

Condensing Efficiency

Conquest delivers high efficiency through a completely submerged, single-pass, down-fired design, which includes an array of enhanced fire tubes. Combustion gases are counter-flow to the direction of the potable water. This enables the coolest flue gases to contact the coldest water and raises thermal efficiency up to 99%.



High Efficiency in the Lab and on the Job

Integral Tank Circulator

During burner operation, Conquest energizes a volute-less circulating pump that forces water across the heating surfaces in the hottest part of the tank. More aggressive contact between the water and heating surfaces improves efficiency and the scouring action helps to reduce the buildup of scale. Circulation also helps to equalize tank temperature.

Dedicated Hot Water Return Connection

Circulation of hot water into the cold fitting on a condensing water heater lowers the efficiency. Conquest provides a dedicated fitting for connection to building return loops or side-arm tanks, maintaining two distinct temperature zones and allowing only the coldest water to enter the lower condensing zone of the water heater during a firing cycle to increase efficiency.

ASME Code Construction for Increased Safety

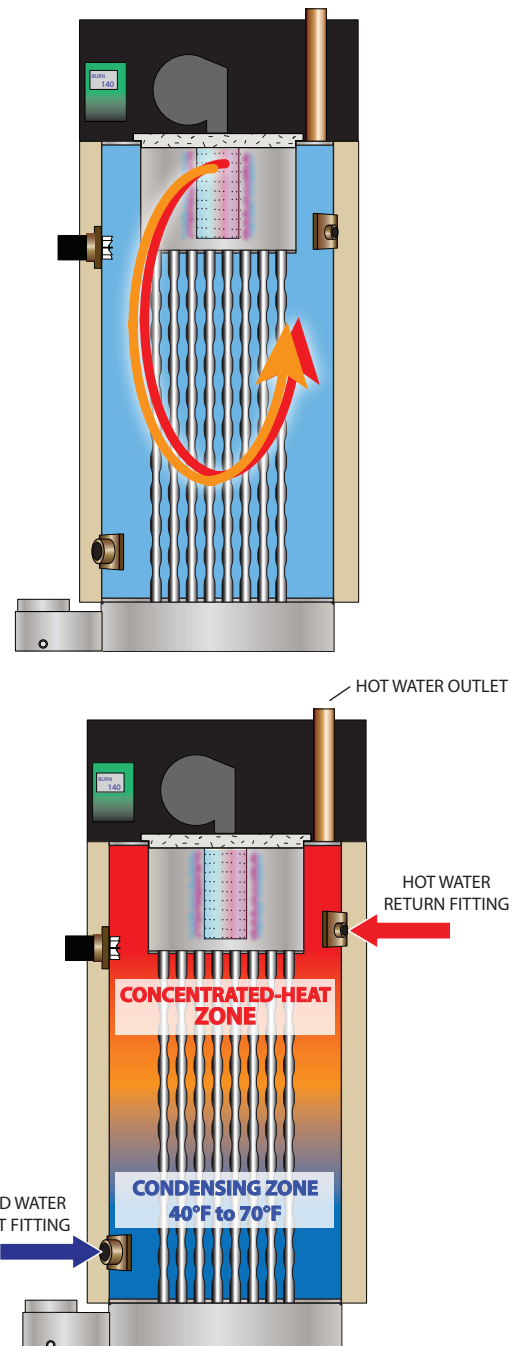
Conquest water heaters are manufactured and stamped to ASME's strict code requirements for construction materials, weld designs and vessel proof testing. Conquest has a safety factor four times greater than the 150 psi stamped working pressure and can safely contain steam at 110% of the vessel's rated working pressure.

Modulation Increases Efficiency and Reduces Cycling During Low Demand

To reduce burner cycling during periods of low hot water demand, Conquest water heaters employ burner modulation with a variable speed blower. This allows low flow conditions to be met with continuous, low BTU input and without short-cycling. The reduction in energy input also improves thermal efficiency up to 99%. During periods when nominal demand is only a few gpm, the at-temperature storage capacity of the Conquest heater can meet the hot water requirement for 20 to 40 minutes before a burner cycle is required.

Low Standby Losses

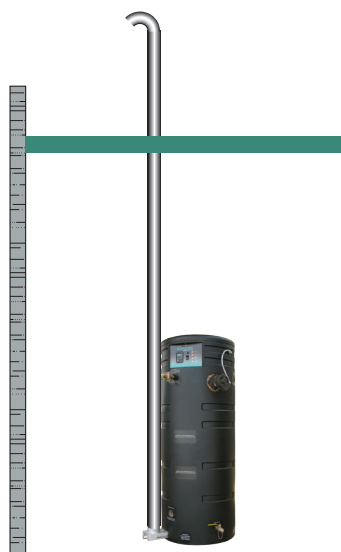
Conquest's fiberglass insulation and a small tank size reduce standby losses far below ASHRAE 90.1 limits averaging about \$50 annually (Energy Star® certification of Conquest required third-party agency testing to an ANSI standard for standby loss).



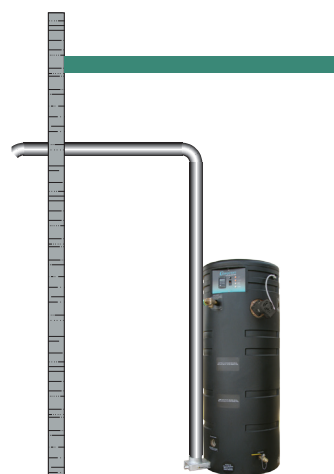
Venting Flexibility

Multiple Positive-Pressure Venting Options

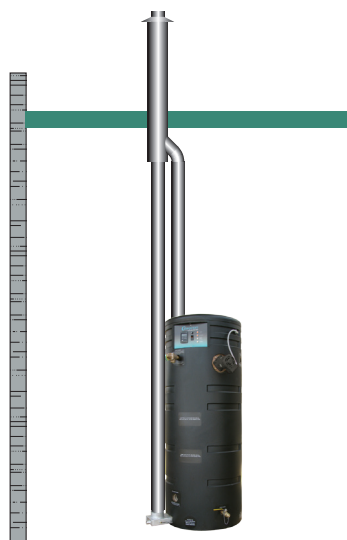
Conquest is a category IV vented product listed for PVC, CPVC, and Polypropylene materials. Capable of sealed combustion with terminations in different pressure zones. Concentric venting is available. Both inlet and exhaust are rated for 100 equivalent feet through 3-inch diameter vent. Longer distances are available through larger diameter.



Room air, vertical vent



Room air, side-wall vent



Concentric (roof or wall)



Individual remote air & vent

Features and Codes

Touch-Screen Operating Control

Conquest's electronic operating control provides a plain-text user interface that indicates heater status, modulation rate, operating parameters and fault status. The control is embedded with Modbus RTU and BACnet MS/TP protocols for connection to a building automation system. The control includes a 15-event fault history that tracks operating safeties and hardware/software points for speed and accuracy in troubleshooting.

Selected Standard Equipment

- Up to 97% thermal efficiency at full fire from 40-140°F
- Up to 99% thermal efficiency at low fire
- < 20 ppm NOx, SCAQMD listed
- Equipped for direct combustion air connection
- Vents through PVC, CPVC or Polypropylene
- 15-year warranty for tank and exchanger (8 years full, 7 years pro-rated)

Pressure Vessel and Heat Exchanger

- ASME stamped for 150 psi maximum allowable working pressure
- AquaPLEX tank (unlined duplex alloy)
- AquaPLEX 100% submerged combustion chamber and single-pass fire tubes
- Temperature and pressure relief valve
- Fiberglass insulation
- 100% recycled, polyethylene jacket
- Removable lead-free bronze tank fittings
- Fire tubes have graduated dimpling to maintain high flue gas velocity

Burner, Operating and Safety Controls

- Pre-mix surface burner with proportional gas/air control
- Modulating burner
- ANSI, UL and FM compliant gas train
- Electronic operating system with integrated ignition and operating controls:
 - Programmable electronic operator with digital temperature readouts, adjustable from 70-180°F
 - Touch-screen interface with plain text status and fault indication with fault history
 - Alarm with remote contacts
 - Visual modulation rate
 - Manual-reset temperature limiting device
 - Modbus RTU and BACnet MS/TP embedded
- Electronic low-water cutoff with test switch
- Relay and proving contact for air louvers

Codes and Standards

- Intertek /ETL listed to ANSI Z21.10.3/CSA 4.3
- Intertek /ELT listed for PVC, CPVC or Polypropylene venting material, NSF-5 and zero clearance installation
- ASHRAE 90.1 compliant
- DOE/EPA Energy Star
- NSF/ANSI 392 low lead certified by ETL



NSF 5
NSF 372 lead-free



Intertek



Intertek

ASHRAE 90.1 - 2013 compliant
SCAQMD compliant

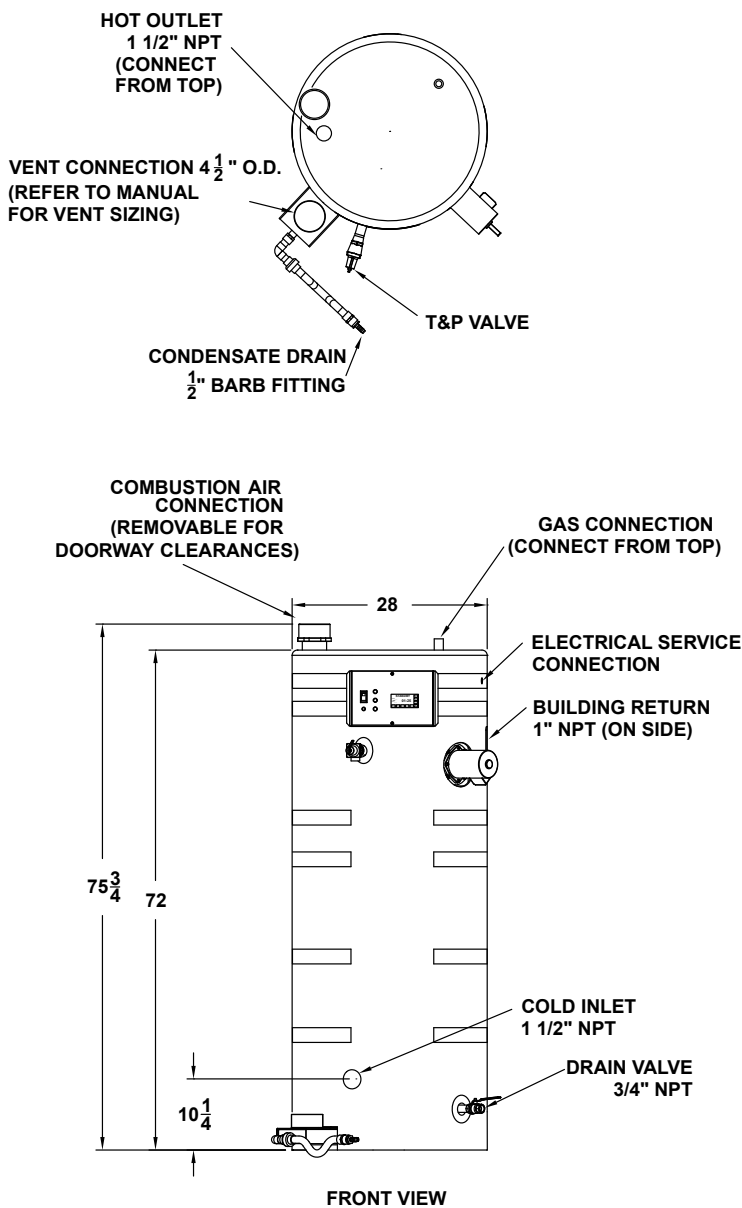
Specifications and Dimensions

Model ▼	Input Btuh	Recovery GPH (thermal efficiency)		Gas Connection NPT	Vent Diameter (ETL listed for longer vents with larger diameter)	Operating Weight (lbs.)
		70°F to 140°F ①	40°F to 140°F ②			
20 L 100A-GCL	199,900	326 (95%)	233 (97%)	3/4	3" @ 100 equivalent ft	1470
25 L 100A-GCL	250,000	408 (95%)	291 (97%)			
30 L 100A-GCL	300,000	490 (95%)	349 (97%)			

① Recoveries and thermal efficiency derived from DOE 10 CFR 431 testing requirements (ANSI Z21.10.3 @ 70°F to 140°F).

② Recoveries and thermal efficiency based upon 40°F entering water temperature.

Empty weight for all models is 635 lbs. Shipping weight is 750 lbs.



Electrical Service

120VAC, 1Ø, 60 Hz. 5 amps

Exhaust Venting

Use a Category IV PVC, CPVC or ETL, UL, ULC or CSA listed stainless steel or Centrotherm InnoFlue SW Polypropylene vent. Minimum vent length 5 eq. feet. Do not size vent based only upon connection diameter at the appliance. Refer to installation manual for sizing.

Inlet Combustion Air Duct

Up to 100 eq. feet using 3-inch PVC or galvanized vent pipe. Longer lengths are ETL listed through larger diameter pipe. Refer to installation manual.

Gas Pressure - Natural

Minimum inlet flow pressure 3.5" W.C.
Maximum static pressure 14" W.C.
For LP gas, refer to installation manual.

Minimum Clearance from Combustibles

Zero clearance for sides and rear, 24" from front. 15" from top. Can be installed directly on a combustible floor.

Recommended Service Clearances

18" from all sides. Check local and national codes for additional requirements.

Emissions

All models < 20 ppm NOx.



Hot Water Solutions

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