

# Turbopower<sup>®</sup>

Non-Condensing Gas, Oil or Combination  
Gas/Oil Storage Water Heater



AquaPLEX<sup>®</sup>  
Engineered Duplex Alloy

199 to 4000 MBH | 150 to 4500 Gallons Tanks | 25-year Warranty

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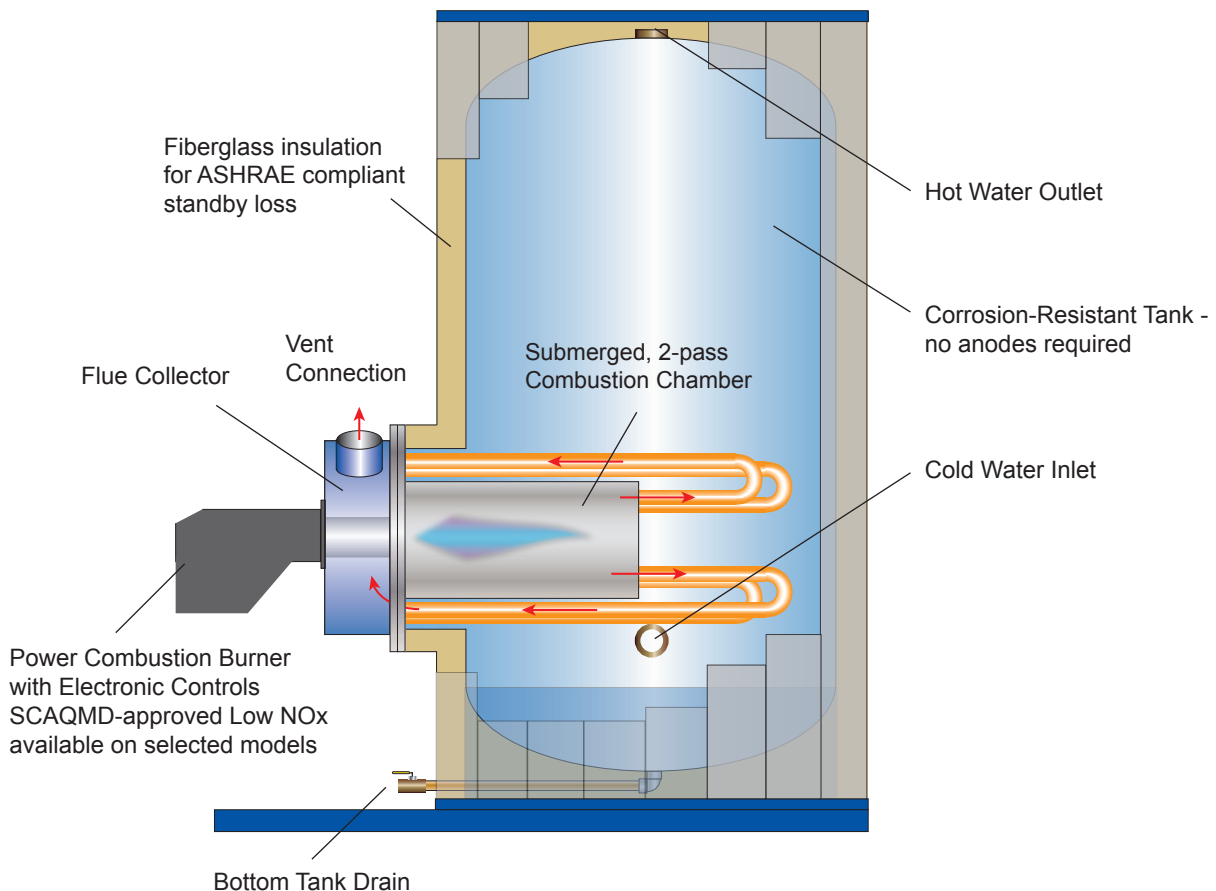


# Ultra Reliable, Solid-Copper Fire Tube Water Heater

Turbopower® is a fire tube, semi-instantaneous or storage non-condensing water heater featuring a two-pass, submerged heat exchanger that bolts to the tank and is completely removable providing unequalled field accessibility and maintainability of both the exchanger and the tank. Proven in more than 22,000 installations worldwide.

## Features and Benefits

- 199 to 4000 MBH
- 150 to 4500 gallons storage
- 83% thermal efficiency
- Gas, oil or combination gas/oil
- Available with certified low NOx emissions
- Rock-solid and time-tested non-condensing design
- No tank lining and no anodes required
- AquaPLEX® duplex stainless steel tank with a 25-year warranty (15 years full, 10 years prorated)
- Removable, two-pass, fire tube heat exchanger fabricated from AquaPLEX with a 10-year warranty (5 years full, 5 years prorated)



# Corrosion-Resistant Tank

## 100% Accessible - 100% Maintainable

The storage tank on Turbopower water heaters is fabricated entirely from AquaPLEX duplex stainless steel. This is a blended alloy of 300- and 400-series stainless that captures the benefits of both materials. The AquaPLEX tank is fully pickle-passivated after complete fabrication and is naturally immune to corrosion in potable water regardless of temperature. As a result, AquaPLEX requires no supplemental tank lining and no anode rods whether sacrificial or impressed current. Because corrosion is not possible, there is simply nothing for an anode rod to do. Compared to 316L or 304L stainless steel, AquaPLEX is better suited for use with potable water due to its resistance to chloride stress corrosion cracking, which can affect 300-series stainless steels if dissolved salts are in the water supply. AquaPLEX is more resistant to chloride corrosion due to its duplex grain structure, a feature not found in 300-series stainless steels.

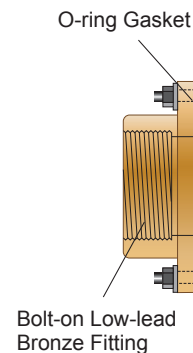


**Comparison of AquaPLEX with Glass Tank Linings (porcelain enamel) and Thermosetting Epoxy Polymers**

	Porosity	Anodes Required?	Suffers at High Temperature?	Complete Waterside Coverage and Protection	Standard Warranty
AquaPLEX	None	No	No	Yes	25 years
Glass Linings	Inherent	Yes	Yes, erodes	No. Exposure at the tank fittings and weld seams	3 or 5 years
Epoxy Polymers	Common	Yes	Yes, degrades	No. Exposure at the tank fittings	3 or 5 years

## Corrosion-Proof Solid-Bronze Tank Fittings

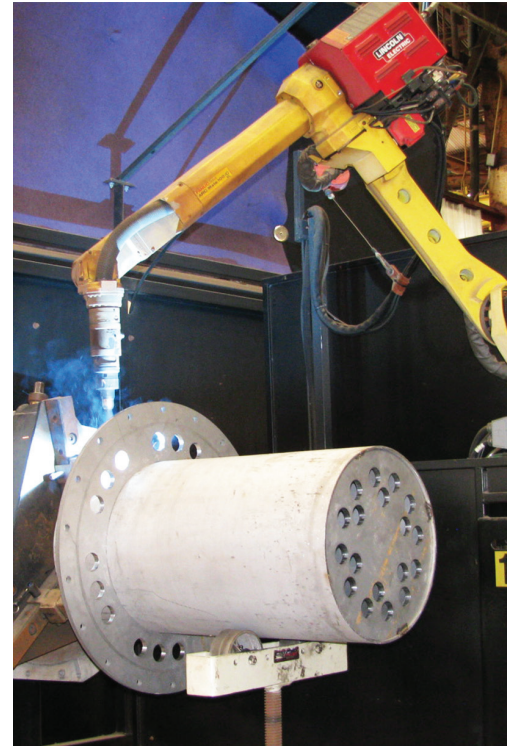
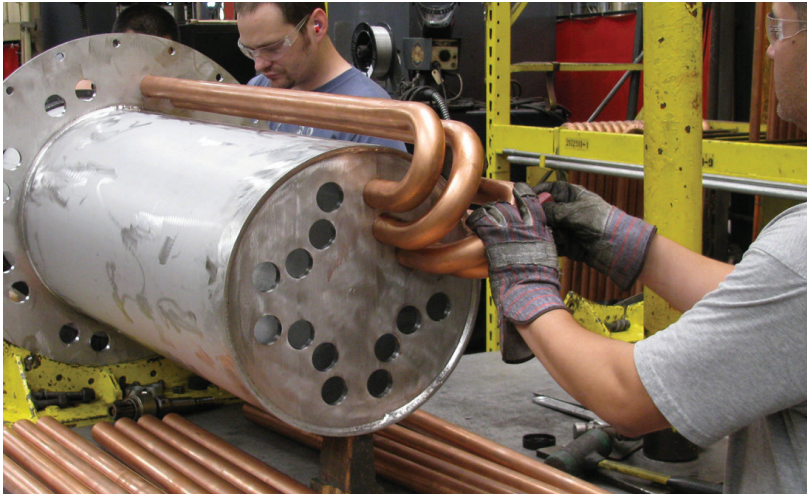
The most obvious advantage of the Turbopower 96 design is an inherently corrosion-proof, non-ferrous fitting where other manufacturers use carbon steel fittings lined with glass or epoxy. Lined fittings provide only temporary corrosion protection as is evidenced by the requirement to use dielectric nipples when connecting their heaters to copper piping.



# Proven Heat Exchanger and Combustion System

## Reliable Heat Exchanger

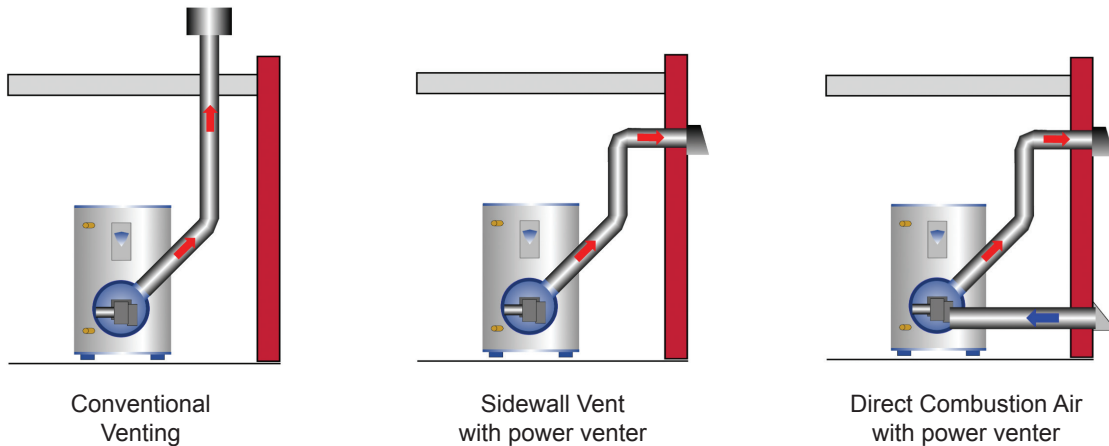
The Turbopower heat exchanger consists of front and rear tube sheets welded to a cylindrical combustion chamber. For ultimate precision, the AquePLEX duplex stainless steel assembly is welded by robot utilizing synergic pulse technology. After the exchanger is welded, it is immersion pickle-passivated. The assembly is completed by mechanically expanding u-bend solid copper fire tubes into the front and rear tube sheets. The exchanger is then pressure tested at 225 psi and ASME stamped for 150 psi working pressure. The heat exchanger features AquaPLEX combustion chamber and needs no additional cladding or coating for corrosion protection.



# Venting and Energy Source Flexibility

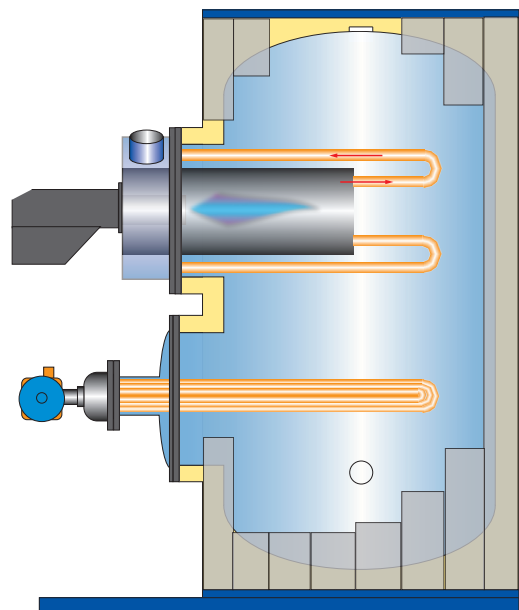
## Venting Options

Turbopower water heaters offer installation flexibility with direct inlet combustion air and through-the-wall venting capability. An ETL-listed outdoor package is also available.



## Turbopower can be Dual-Energy, “Green” Heater

Turbopower can easily be configured for both a primary and secondary energy source. Enabling the heater to pre-heat or generate ‘at-temperature’ domestic hot water from waste energy, solar panels and geothermal loops, or as an emergency backup energy source. Turbopower water heaters can be configured with u-tube bundles for steam or boiler loops, plate exchangers for boiler water, solar or waste heat, electric heating elements or an additional Turbopower module firing a different fuel. Two modules of the same energy can also be combined to provide redundancy or to double the hot water generating capacity up to 4 million BTU.





# Features and Codes

## Electronic Control for BAS

The TempTrac® electronic operating control allows the building's automation system to monitor and control the operation of the Turbopower water heater through built-in Modbus RTU protocol. Network communicated points include operating set point (remotely adjustable), sensed temperature and alarm status. All parameters are fully programmable including night time or weekend temperature adjustment. Custom communication gateways are available for Modbus TCP/IP and BACnet building automation systems.

## Selected Standard Equipment

- 83% Thermal Efficiency per ANSI Z21.10.3
- AquaPLEX® duplex alloy tank ASME stamped for 150 psi operating pressure, 25-year corrosion warranty\* (15 years full, 10 years prorated)
- 10-year AquaPLEX heat exchanger warranty\*
- First-year "Owner Pays Nothing" service, repair, and replacement policy on entire heater\*
- Non-ferrous removable, replaceable tank fittings
- 23" diameter tank access
- Rear heat exchanger /tank access (23" diameter on 1600 to 2000 MBH optional on lower inputs)
- Power combustion burner with UL and FM compliant gas or oil train
- Electronic flame safeguard with spark ignition and pre-purge
- TempTrac® electronic operating control
- Flame status indicating and diagnostic lights ( $\geq 540$  MBH)
- Air proving switch
- Adjustable immersion operating thermostat(s)
- High limit control
- ASME-rated temperature and pressure relief valve
- Drain valve
- Heavy-density fiberglass insulation
- Steel jacket panels with industrial finish
- Steel channel skirts
- Draft regulator
- Lifting lugs (on 400 gallon tanks and larger)
- ETL listed to U.S. and Canadian standards
- FM, ASHRAE 90.1 compliant
- Factory authorized startup

## Optional Equipment

- Low NOx operation, 3<sup>rd</sup> party certified (*selected models*)
- Long-life service policy\*
- CSD-1 compliance
- CSA-rating on temperature and pressure relief valve
- Air intake assembly for direct combustion air (for connection to ductwork supplied by others)
- LP gas operation
- Manual-reset high limit
- Electronic low-water cutoff
- Intra-tank circulator

\*See complete warranty or policy for details

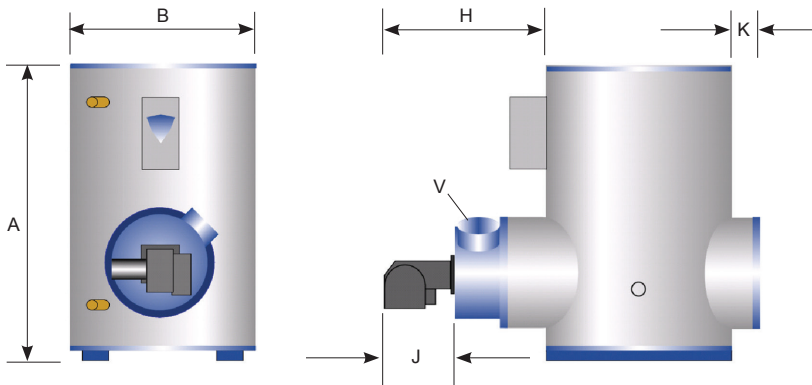


# Specifications and Dimensions

## Input and Recovery Characteristics - Hot Water Generators

Input MBH	Recovery Rate (gallons per hour)			Minimum Inlet Flow Gas Pressure inches W.C.	GPH #2 Fuel Oil	Available Vertical SUPERTANK®
	40 - 120°F	40 - 140°F	40 - 160°F			
199	250	200	167	4.5	1.4	150 to 1250 gal.
399	500	400	333	4.5	2.8	150 to 4500 gal.
600	750	600	500	6	4.3	150 to 4500 gal.
800	1000	800	667	6	5.7	150 to 4500 gal.
1000	1250	1000	833	6	7.2	250 to 4500 gal.
1200	1500	1200	1000	6.5	8.6	400 to 4500 gal.
1600	2000	1600	1333	9	11.4	400 to 4500 gal.
2000	2500	2000	1666	10.5	14.3	400 to 4500 gal.

Higher inputs are available. Contact your PVI representative.



## Standard Gas Pressure Requirements

See charts for minimum required flow pressure. Maximum static gas pressure 10.5" W.C. For gas pressure outside of this range, contact your PVI representative. Oil inlet 1/2" on all models. For dimensions on combination Gas/Oil, consult your PVI representative.

## Storage Dependent Dimensions (in)

Gallons Storage	"A" Height	"B" Width
150	65	34
175	71	34
215	78	34
225	83	34
250	63	46
400	87	46
600	86	56
900	95	67
1250	94	75
1500	106	75

Larger tanks are available. Contact your PVI representative.

## Venting Requirements

Category I - Negative Pressure, Non-condensing. Type B venting (gas) or type L venting (oil) with -.02 to -.06 W.C. draft at the heater. Do not size entire vent system based upon vent connection at the heater. For proper vent sizing, refer to the national fuel gas code under "Fan." For other venting conditions, consult your PVI representative.

## Standard Electrical Requirements

Control voltage: 120V, 2 AMPS.

Motor voltage: (see chart for amps)

1/3 and 1/2 hp are 115V

1-1/2 is 115/230V wired for 115V

## Input Dependent Dimensions (in)

Input MBH	"H" Total Front Extension with tank width...					"K" Total Rear Extension with tank width...					"J" Burner Extension	"V" Vent Connection	Blower Motor		Total Amps 120V	Gas Inlet NPT
	34	46	56	67	75	34	46	56	67	75			hp	amps		
199	27	28	27	27	27						16	4	1/3	8	10	1/2
399	27	28	27	27	27						16	5	1/3	8	10	3/4
600	41	31	30	30	30						16	6	1/3	8	10	1
800	41	31	30	30	30						16	8	1/3	8	10	1-1/4
1000	n/a	48	38	30	30	n/a					16	8	1/2	10	12	1-1/4
1200	n/a	48	38	30	30	n/a					16	8	1/2	10	12	2
1600	n/a	63	53	50	45	n/a	18	16	8	8	27	10	1-1/2	20	22	2
2000	n/a	63	53	50	45	n/a	18	16	8	8	27	10	1-1/2	20	22	2-1/2

PVI reserves the right to change the design and specification without notice.



**Hot Water Solutions**

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