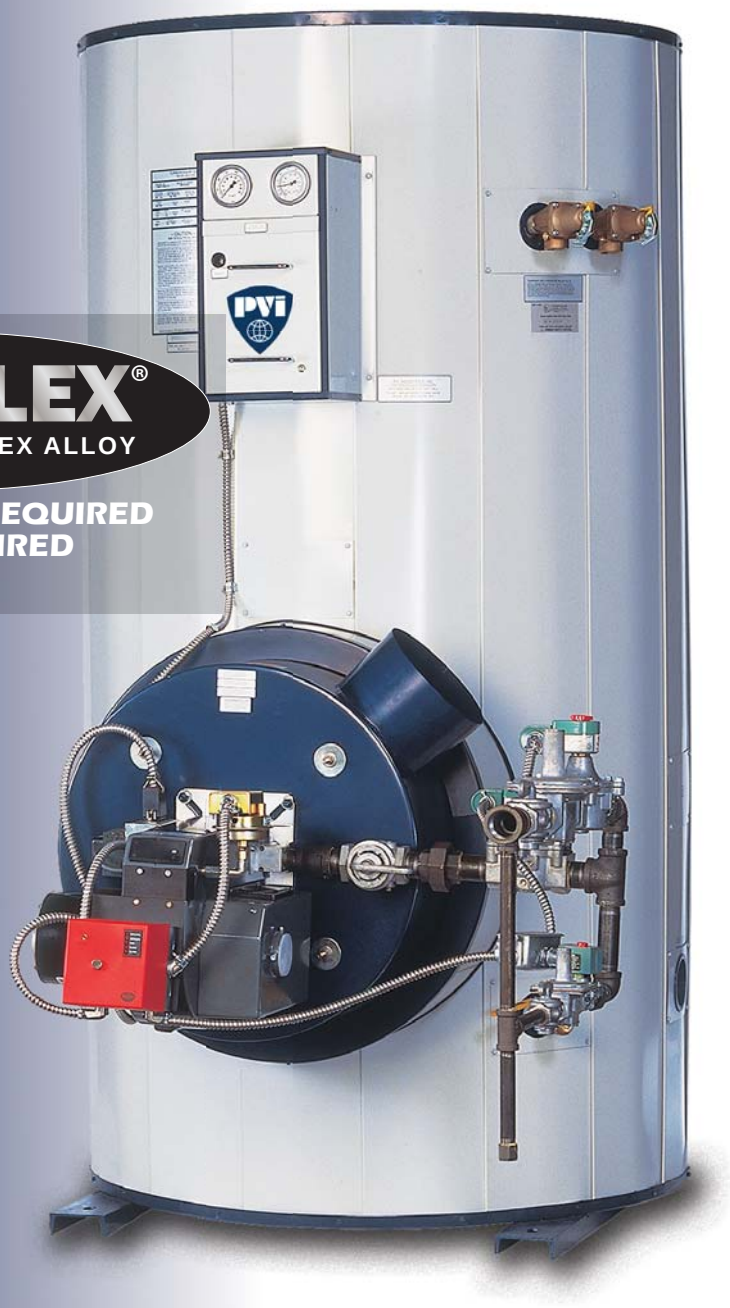
TURBOPOWER®

ISO 9001

COMMERCIAL DOMESTIC HOT WATER GENERATOR

Gas, Oil or Combination Gas/Oil

199,000 to 4,000,000 Btu/h
150 to 4500 Gallons Storage



AquaPLEX®
ENGINEERED DUPLEX ALLOY

NO TANK LINING REQUIRED
NO ANODES REQUIRED

AquaPLEX® DUPLEX STAINLESS STEEL TANK WITH A 25-YEAR WARRANTY

83% THERMAL EFFICIENCY

REMOVABLE TWO-PASS FIRE TUBE HEAT EXCHANGER FABRICATED FROM AquaPLEX WITH A 10-YEAR WARRANTY

AVAILABLE WITH CERTIFIED LOW NOx EMISSIONS

ROCK-SOLID and TIME-TESTED
NON-CONDENSING DESIGN

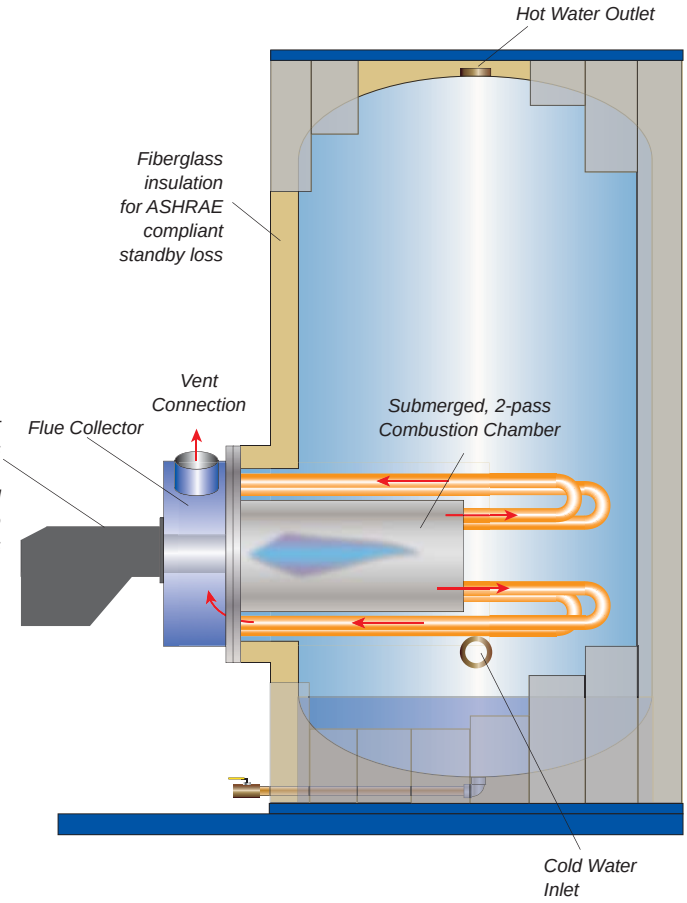
ASHRAE 90.1 compliant

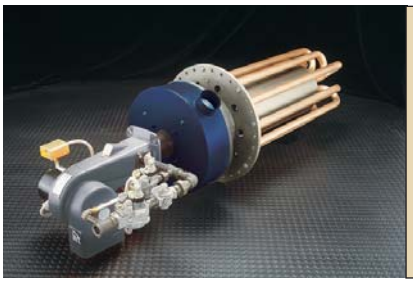
HLW

Intertek

TURBOPOWER®

Trusted in More than 22,000 Installations Worldwide





Field Removable Fire Tube Heat Exchanger

Bolted flange connection allows for heat exchanger removal and complete field access to all heating surfaces. With the exchanger removed, the entire tank interior is accessible through a 23" diameter opening. An additional tank opening is available.

Heat exchanger features AquaPLEX combustion chamber and tube sheets and copper fire tubes.

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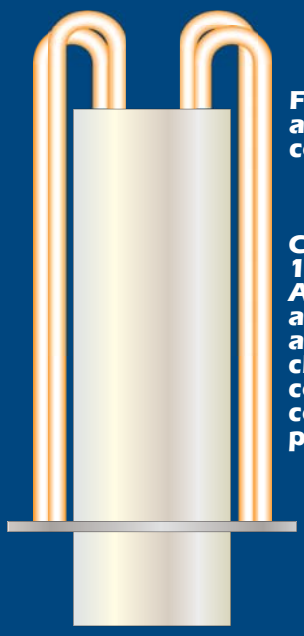


Fire tubes are solid copper.

Chamber is 100% AquaPLEX and needs no additional cladding or coating for corrosion protection.

10-Year Heat Exchanger Warranty

The TURBOPOWER heat exchanger consists of front and rear tube sheets welded to a cylindrical combustion chamber. For ultimate precision, the 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 copper 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.

A Tank Material So Good, that Linings are Not Required

AquaPLEX® ENGINEERED DUPLEX ALLOY

AquaPLEX® - duplex stainless steel

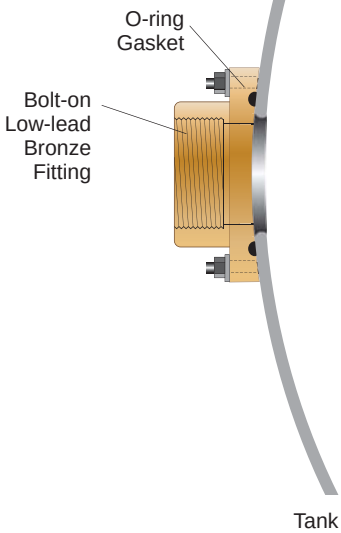
The storage tank on TURBOPOWER water heaters is fabricated entirely from AquaPLEX duplex stainless steel. This is a blended alloy of 300- and 400-series stainless that captures the benefits of both materials.

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 are Standard

The most obvious advantage of this 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.

More than one-quarter million of these removable bronze fittings are in service!

Optional Electronic Controls for BAS Communication

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, BacNet and Lonworks building automation systems.

Independently Verified High Efficiency and Low Standby Losses

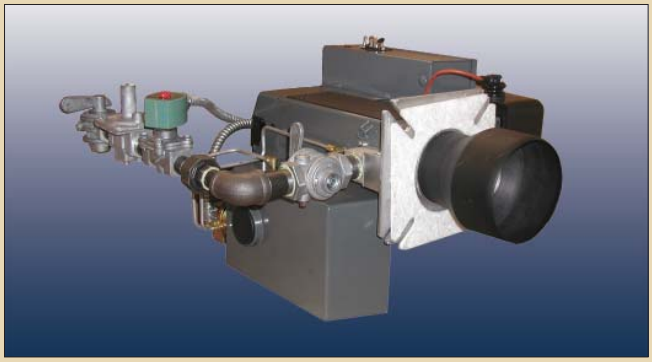
TURBOPOWER utilizes a completely submerged, 2-pass combustion chamber and firetube design that eliminates the refractory-lined combustion chambers found in the typical water heater and hot water supply boiler. This patented combustion chamber design captures the radiant heat that travels in all directions from a point of combustion. In TURBOPOWER, radiant heat is absorbed directly into the water and not into refractory material. Since there is no refractory-related heat loss, operating costs are significantly reduced.

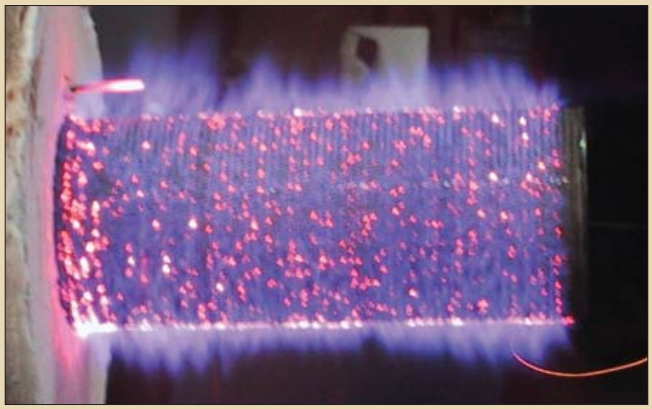
Testing by UL, ETL, and AGA to the ANSI Z21.10.3 water heater standard verified that TURBOPOWER operates at 83% thermal efficiency. When TURBOPOWER was tested to the ANSI standard established for finned-tube hot water supply boilers (Z21.13), the AGA documented an efficiency of 86%.

Still another test by ETL revealed that TURBOPOWER easily meets the ASHRAE 90.1-2013 standby heat and electrical loss requirements for storage water heaters. In fact, ASHRAE 90.1-2013 requirements were met when TURBOPOWER was first introduced in 1982.

Power Burners Engineered Exclusively for the TURBOPOWER Concept

Since 1979, PVI has been designing and building power combustion burners and has since shipped tens of thousands of our FIREPOWER burners worldwide. In the range of 199,000 to 3,200,000 Btu/h, PVI ranks as one of America's largest manufacturers of packaged end-shot burners. Each burner is specifically engineered for maximum combustion efficiency in its matching TURBOPOWER combustion chamber, while being highly reliable and easy to maintain.





SCAQMD-compliant emissions are accomplished with a pre-mix, metal surface burner developed by PVI Research.

STANDARD EQUIPMENT

- 83% Thermal Efficiency per ANSI Z21.10.3
- AquaPLEX® duplex alloy tank ASME stamped for 150 psi operating pressure with a **25-year corrosion warranty** *
- 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 MBtu/h
  - 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
- Flame status indicating and diagnostic lights (≥ 540 MBtu/h)
- 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 skids
- Draft regulator
- Lifting lugs (on 400 gallon tanks and larger)
- ETL listed to U.S. and Canadian standards
- FM compliant
- ASHRAE 90.1 compliant
- Factory authorized startup

OPTIONAL EQUIPMENT

- TempTrac® electronic operating control
- Low NOx operation, 3rd party certified (selected models)
- Long-life service policy *
- CSD-1 compliance
- CSA-rating on temperature and pressure relief valve
- Dial pressure gauge
- 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

Input and Recovery Characteristics - TURBOPOWER Hot Water Generators

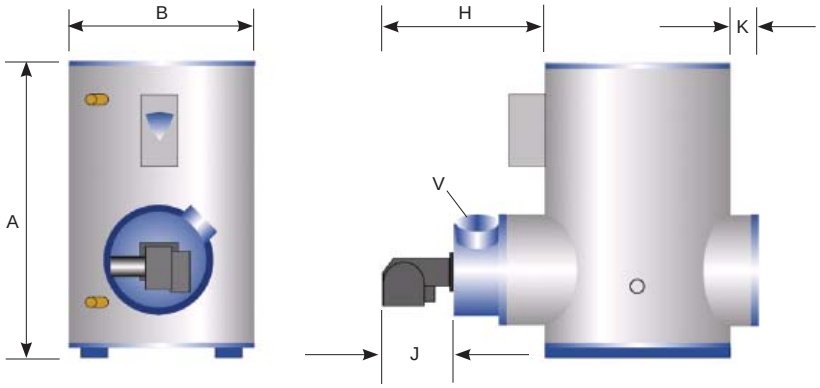
Input MBtu/h	Recovery Rate (gallons per hour)			Minimum Inlet Flow Gas Pressure inches W.C.	GPH #2 Fuel Oil	Available Vertical SUPERTANK®
	40 to 120°F	40 to 140°F	40 to 160°F			
199	250	200	167	4.5	1.4	150 to 1250 gallons
399	500	400	333	4.5	2.8	150 to 4500 gallons
600	750	600	500	6	4.3	150 to 4500 gallons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

Higher inputs are available. Contact your PVI representative.

Storage Dependent Dimensions (inches)

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 and horizontal tanks are available.
Contact your PVI representative.



Input Dependent Dimensions (inches)

Input MBtu/h	"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

Optional 8" Extension

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 PVI.

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, CONTACT FACTORY.

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

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