



TURBOPOWER® 99

ISO 9001

CONDENSING GAS-FIRED WATER HEATER

*500,000 to 2,000,000 Btu/h
330 to 1200 Gallons Storage*



99%
THERMAL
EFFICIENCY
AT FULL RATE

LOWEST
OPERATING
COST OF ANY
GAS WATER
HEATER

UP TO A
20 YEAR
WARRANTY
WITH A
NICKELSHIELD®
PLATED TANK

QUALIFIES FOR
THE MOST
AVAILABLE LEED
POINTS

**THE WORLD'S MOST EFFICIENT
GAS-FIRED WATER HEATER**

ASHRAE 90.1
compliant





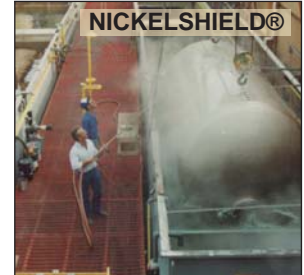
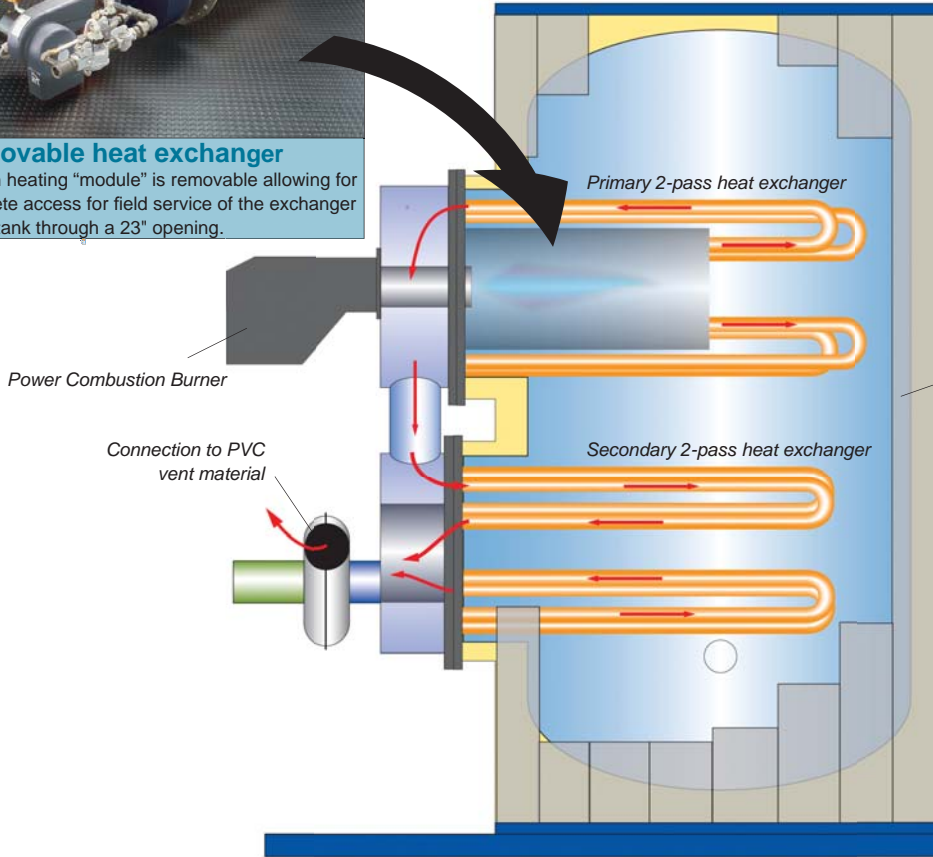
TURBOPOWER® 99

**Condensing Gas-Fired Water Heater
99% Thermal Efficiency at FULL FIRING RATE**



Removable heat exchanger

Bolt-on heating "module" is removable allowing for complete access for field service of the exchanger or the tank through a 23" opening.



Linings So Good, They Allow "Anode-Free" Construction

After all welding is completed, tanks are lined with either NICKELSHIELD; a chemically plated nickel alloy or POLYSHIELD; a thermoplastic, high-temperature polymer.

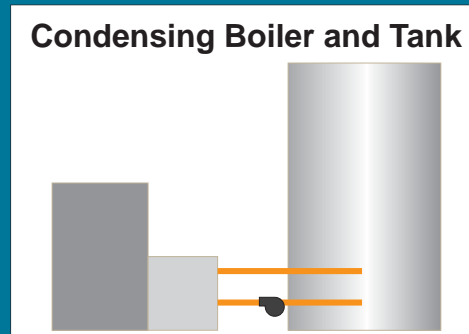


At 99% efficiency, TURBOPOWER 99 can save \$1000's per year for every 1 million Btu installed compared to other gas water heaters, including modulating condensing boilers.



99% thermal efficiency at full fire means that there is no need to modulate to lower firing rates to improve efficiency.

99% thermal efficiency at full fire means that, when the greatest amount of heat is required from the water heater, the heater is operating at its highest efficiency level.



Condensing modulating boilers are most efficient at their lowest firing rate, when generating the least amount of hot water. At high fire, when the boiler is consuming the most energy, efficiency can fall to around 90%.

As a result, condensing boiler systems will consume 5 to 10% more fuel every year when compared to TURBOPOWER 99.

Long Life Design

100% Accessible - 100% Maintainable

All TURBOPOWER 99 water heaters are constructed with two 23"-diameter tank openings. This access to the tank interior allows testing of every square inch of tank lining to the ASTM D-5162 wet electrode standard, which ensures complete lining continuity and integrity.

No TURBOPOWER 99 water heater ships until the lining is proven void-free by passing our thickness and continuity inspections.

This design also enables complete access to the tank and heating surfaces; should it ever be necessary to disassemble the heater in the field. Unlike other fire tube designs, a TURBOPOWER 99 water heater is totally accessible and maintainable.



Wet electrode test ensures lining integrity. All TURBOPOWER 99 tanks are tested and all must pass inspection before shipping.

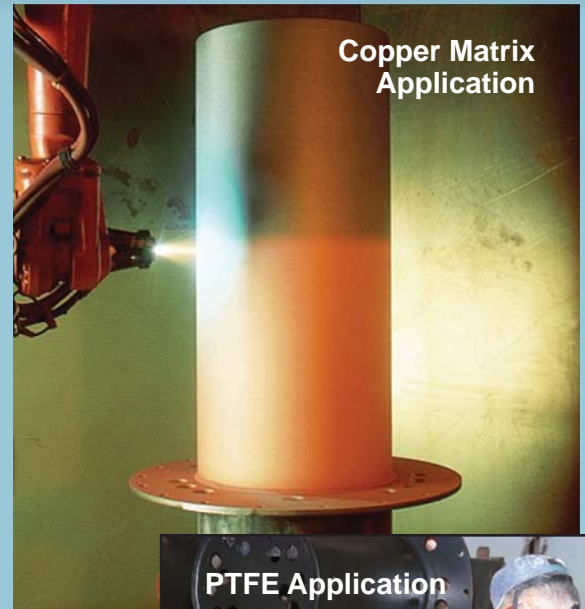
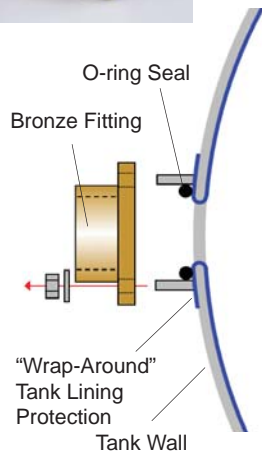


View from 23" rear tank access.

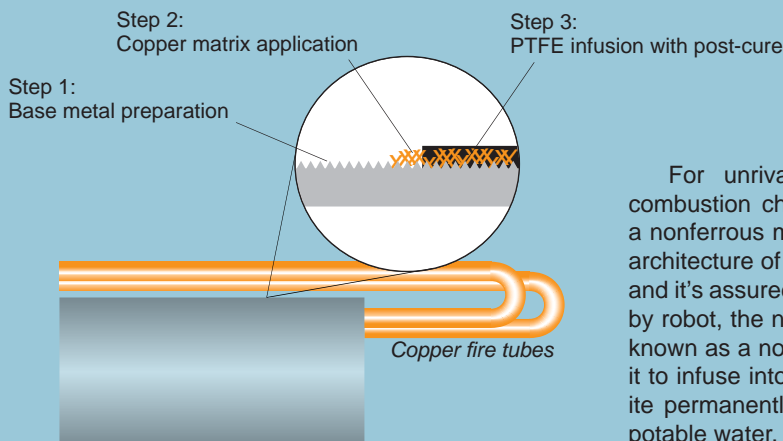


Corrosion-Proof Solid Bronze Tank Fittings

The first advantage of this design is an inherently corrosion-proof bronze fitting where others use steel. Secondly, the design allows the lining to wrap through the opening to the outside of the tank, providing an uninterrupted barrier between the hot water and the steel vessel. In other designs, linings stop at the fittings and invite corrosion.



DURASHIELD® Heat Exchanger Featuring a 3-step Anticorrosion Process



For unrivaled corrosion protection, the steel TURBOPOWER 99 combustion chamber is coated with an exclusive composite consisting of a nonferrous matrix infused with a high-temperature fluoropolymer. Precise architecture of the nonferrous micro-matrix is essential for corrosion control, and it's assured by a 6-axis robot in the application process. After application by robot, the nonferrous micro-matrix is coated with PTFE - a material best known as a non-stick surface. The low viscosity of the fluoropolymer allows it to infuse into the matrix by capillary attraction. When cured, the composite permanently seals the heat exchanger from any possible contact with potable water.

Additional Features

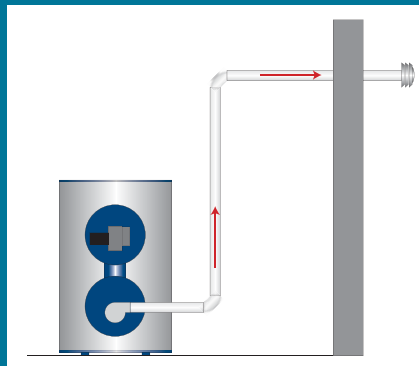
Electronic Operating Control with MODBUS Connectivity

TURBOPOWER 99 features a programmable electronic operating control with digital temperature readouts and BAS connectivity through a MODBUS RTU serial connection for viewing operational status and temperature setback, if desired. An optional alarm on any failure notification can be added to the MODBUS connection.

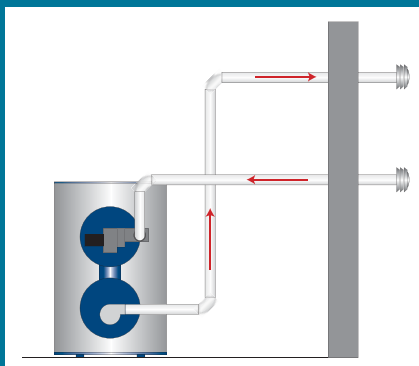


In addition, the control panel includes operational status indicating lights for call-for-heat, air proving, burner on and lock out.

Lowest Cost Venting Options



Positive-pressure, through-the-wall venting with PVC pipe up to 100 equivalent feet. Longer runs are possible with larger diameter vent material.



Direct combustion air up to 100 equivalent feet; or longer with larger diameter vent material.

STANDARD EQUIPMENT

- 99% Thermal Efficiency from 40° to 140°F
- NICKELSHIELD® tank with a 10-year warranty or POLYSHIELD® tank with a 5-year warranty *
- 5-year TURBOPOWER 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)
 - Standard on 1500 to 2000 MBtu/h
 - Optional on 500 to 1000 MBtu/h
- Power combustion burner with UL and FM compliant gas train
- Electronic flame safeguard with spark ignition and pre- and post-purge
- Flame status indicating lights
- Differential air pressure switch
- Electronic operating control with digital temperature readout with MODBUS capability
- 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
- Lifting lugs
- ASME stamped for 188 psi test pressure and 125 psi operating pressure
- ETL listed
- FM compliant
- ASHRAE 90.1 compliant
- Factory authorized startup

SELECTED OPTIONS

- 20-year NICKELSHIELD tank warranty *
- 15-year POLYSHIELD tank warranty *
- Long-life service policy *
- CSD-1 controls (IRI/GEGAP compliance)
- AGA-rated temperature and pressure relief valve
- ASME stamped for 225 psi test pressure and 150 psi operating pressure
- Dial pressure gauge
- Air intake assembly for direct combustion air (for connection to ductwork supplied by others)
- Manual-reset high limit
- Electronic low-water cutoff
- MODBUS serial cable for operating control
- Alarm on any failure with silencing switch. Includes local audible signal, remote alarm switched contacts, and notification through MODBUS (serial cable included)
- Air intake assembly for remote combustion air includes air intake vent termination cap

* see complete warranty or policy for details

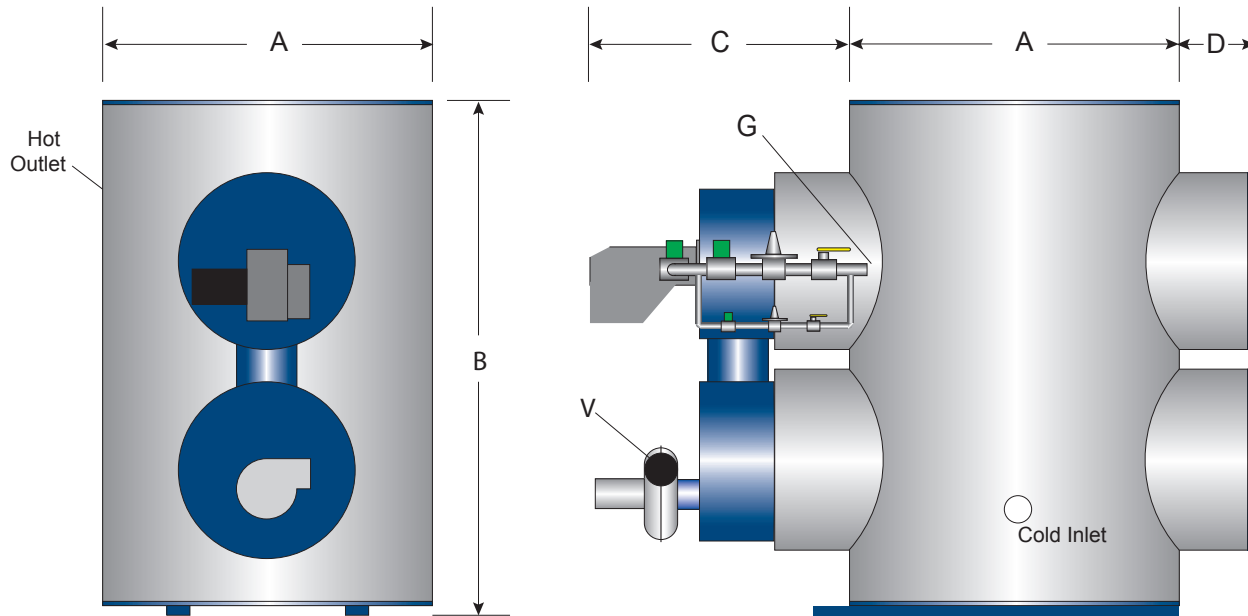
TURBOPOWER 99

TURBOPOWER® 99 Performance and Dimensions

Performance Characteristics			
Input MBtu/h	Recovery Rate (gallons per hour)		Minimum Inlet Flow Gas Pressure inches W.C.
	40 to 120°F	40 to 140°F	
500	742	595	8
1000	1485	1190	11
1500	2228	1785	8
1950	2971	2380	11

Storage Dependent Dimensions (inches)		
Gallons Storage	"A" Width	"B" Height
330	59	90
600	67	95
950	75	95
1200	75	106

Input Dependent Dimensions (inches)											
Input MBtu/h	"C" Total Front Extension with storage capacity...				"D" Total Rear Extension with storage capacity...				"V" Vent Connection	Electrical Requirements amps @ 115V, 1Ø	"G" Gas Inlet NPT
	330	600	950	1200	330	600	950	1200			
500	26	28	34	34	optional 8 inch				4	16	1
1000	33	28	34	34	optional 8 inch				4	16	1-1/4
1500	52	44	40	40	16	13	8	8	5	34	2
1950	52	44	40	40	16	13	8	8	5	34	2-1/2



STANDARD GAS PRESSURE REQUIREMENTS

SEE CHARTS FOR MINIMUM REQUIRED FLOW PRESSURE

MAXIMUM STATIC GAS PRESSURE 14" W.C.

FOR GAS PRESSURE OUTSIDE OF THIS RANGE, CONTACT YOUR PVI REPRESENTATIVE.

VENTING REQUIREMENTS

CATEGORY IV - POSITIVE PRESSURE AND CONDENSING
UL LISTED FOR PVC VENT.
SCH. 40, SOLID-WALL.
ETL, UL, or ULC listed category IV stainless vent is also acceptable.

EXHAUST RATED FOR 100 EQUIVALENT FEET AT DIAMETER INDICATED IN TABLE.

DIRECT INLET AIR UP TO 100 EQUIVALENT FEET THROUGH
6-INCH DIAMETER DUCT (500 AND 999 MBH)
8-INCH DIAMETER DUCT (1500 AND 2000 MBH)
Vent cap to terminate the direct air duct must be supplied by PVI.

FOR LONGER DISTANCES, CONSULT FACTORY.

STANDARD ELECTRICAL REQUIREMENTS

VOLTAGE: 115V, 1Ø, 60 HZ.
PRODUCT IS CONFIGURED FOR SINGLE POINT CONNECTION
CONTROL CIRCUIT IS 2 AMPS.
STANDARD MOTOR VOLTAGE IS 115V/230V, 1Ø, WIRED FOR 115V.
TOTAL AMPERAGE IN ABOVE CHART.

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