



ETERNAL HYBRID™

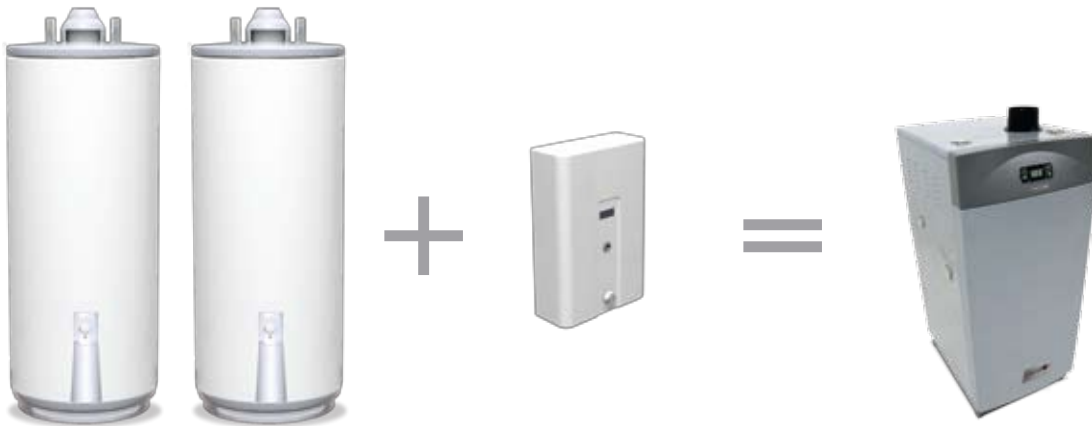


ADVANCED WATER HEATING



ETERNAL HYBRID™ IS THE ONLY WATER HEATING SYSTEM THAT COMBINES THE BEST OF TANK AND TANKLESS FEATURES IN ONE.

The patented, powerful design is engineered to replace multiple tanks, use less energy and space than one tank and produce endless hot water for multiple applications at once.



TANK + TANKLESS = ETERNAL HYBRID™

3



CONVENTIONAL WATER HEATERS



HOW IS THE ETERNAL HYBRID™ DIFFERENT FROM CONVENTIONAL SINGLE-PASS WATER HEATERS?

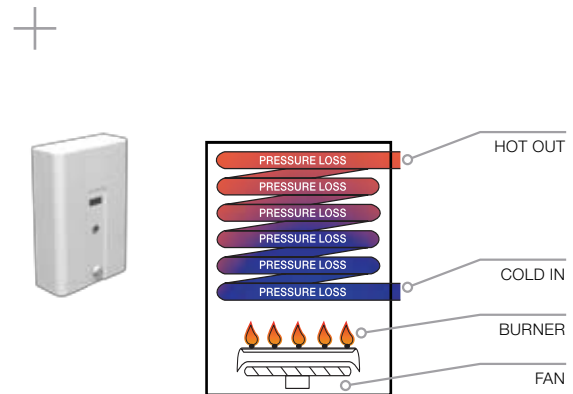
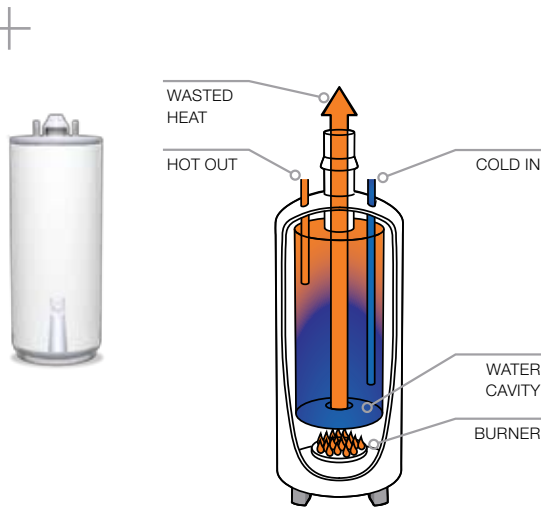
TANK

Tank water heaters utilize a single-pass heat exchanger. Heat is produced from the bottom, then rises through 50–100 gallons of cold water and exhausts through the top. Heat and energy is transferred just once and wasted in the form of high temperature fumes.

Cold water is deposited from the top and rests at the bottom, resulting in sediment build-up that erodes efficiency, durability and performance with each use. The design limits a tank's ability to produce endless hot water.

TANKLESS

Tankless water heaters also exhaust heat with a single-pass process. Heat produced by the bottom burner rises through slow moving cold water. Heat and energy is transferred just once and wasted in the form of high temperature fumes similar to a conventional tank. Water pressure is reduced as water winds through the coiled copper heat exchanger and the copper pipes eventually fail due to scale build-up. The design limits the ability of the tankless to provide consistent hot water to multiple applications.



ADVANCED : ETERNAL HYBRID™ SYSTEM



Eternal hybrid is a more effective water heating system. The advanced multi-pass heat exchanger drives heat downward then recycles it through 44 baffled stainless steel pipes for maximum efficiency. Water spreads thinly and evenly around the 44 heating pipes to absorb heat quickly. Cold water flows from the bottom up to prevent sedimentation build-up associated with other designs and the straight water-flow design eliminates pressure loss associated with coiled pipes. And because water flows around the pipes — not through them — there is no risk of build-up inside the pipes.

- » Patented counter-flow technology maintains 86% efficiency and delivers hot water faster than tankless units for multiple applications at once
- » Half the size of a 50 gallon tank water heater with 300% higher output
- » Built-in reservoir eliminates cold water sandwich and allows you to build a recirculation system with no external electric tank
- » Multistage safety features
- » Extremely low exhaust temperature allows Eternal to be PVC vented for easier, more economical installs
- » Near zero greenhouse gas emissions means Eternal is one of the cleanest burning appliances on the market
- » Stainless steel reservoir is self cleaning, maintenance free and backed with a 20 year no-leak warranty on stainless steel heat exchanger tank for residential, 10 year warranty for commercial
- » Limited 3 year warranty on all other parts
- » 1 year warranty on reasonable labor



Eternal hybrid works on-demand and uses a state-of-the-art modulating infrared burner that is triggered by water-flow or thermostat. This premium stainless steel burner is a key to Eternal hybrid's precise, safe and clean performance

The advanced multi-pass heat exchanger drives heat downward then recycles it through 44 baffled pipes for maximum efficiency

Water fills the reservoir from bottom up and spreads evenly around the 44 heating pipes; producing endless hot water with consistent pressure and temperature



ADVANCED : SAFETY & PRECISION

ON-BOARD INTELLIGENCE MONITORS PERFORMANCE AND RESPONDS TO CHANGING CONDITIONS TO ENSURE SAFE, RELIABLE AND PRECISE OPERATION. ETERNAL DOES THE WORRYING AND TROUBLESHOOTING SO YOU DON'T HAVE TO.

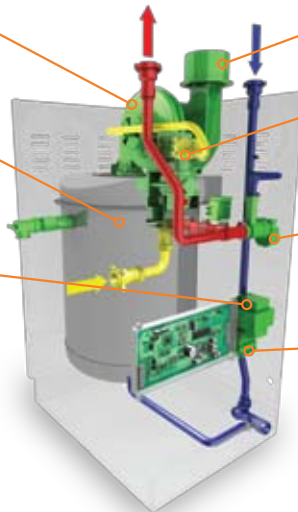
- » Triple stage overheat protection
- » Oxygen depletion sensor
- » Double stage gas valve
- » Combustion fan rpm check
- » Vent blockage detection
- » Temperature and pressure relief valve
- » Computer controlled temperature sensors
- » Computer controlled mixing valve
- » Precise digital temperature settings from 100 to 167°F in 15 steps
- » Error code display for easy troubleshooting



TURBO: The fan pressure injects perfectly premixed air and fuel into the Eternal combustion chamber. This process creates far fewer by-products and better heat output than conventional methods

HEAT EXCHANGER TANK: The powerful and compact design produces an endless flow of hot water at your specified temperature setting

DC TRANSFORMER: The transformer filters out surges from A/C current and provides steady power to the system. The system also has a power-out memory feature so you won't need to reset the system after a blackout



SIROCCO EXHAUST

DOUBLE STAGE GAS VALVE: The two stage design ensures your safety. If one stage fails, the second stage will shut down the flow of gas in case of emergency

MIXING VALVE: This electronically controlled valve will draw cold water to lower the temperature of the water flowing to the outlet if the system determines the temperature to be higher than desired setting

LEAKAGE BREAKER: This protective device is wired directly to the transformer. Any electricity leakage will cause the breaker to shut the system down at the power source

- HOT WATER FLOW
- COLD WATER FLOW
- GAS FLOW

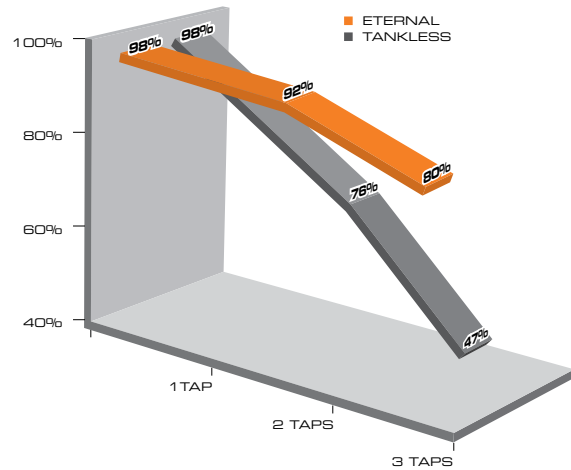


ETERNAL HYBRID™ IS ENGINEERED TO OUT-PERFORM ALL OTHER WATER HEATERS ON THE MARKET.



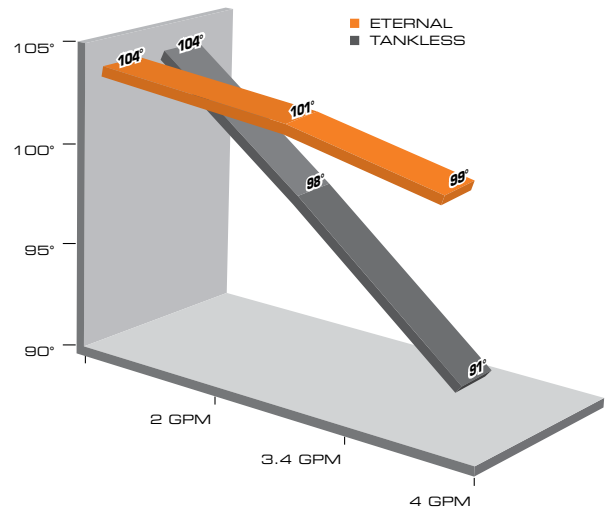
PRESSURE MAINTAINED AT HOT OUTLET

This graph illustrates the difference of inlet and outlet pressures between Eternal and tankless. Note that as demand increases, the tankless unit starts to lose pressure at the outlet.



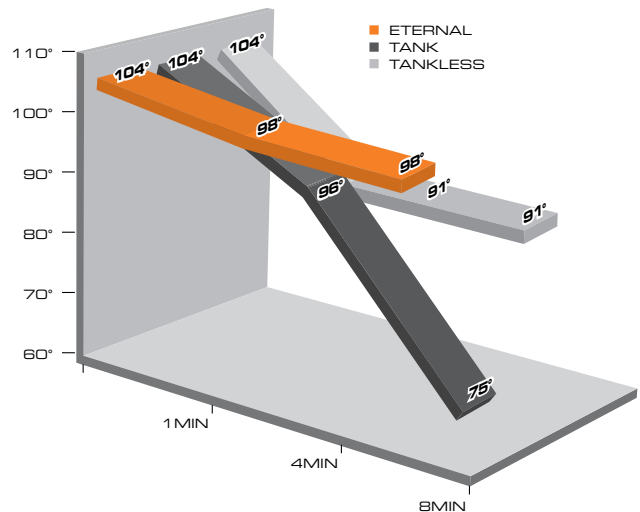
TEMPERATURE VARIATION OVER FLOW (°F)

The temperature variation across different flow rates of mixed hot and cold water usage mimics the pressure drop pattern seen above. Note that under higher demand, the shower temperature cooled by 13 degrees with the tankless.



TEMPERATURE VARIATION OVER TIME (°F)

This graph shows how all 3 types of water heaters perform over time. Only shower tap is used for the first 3 minutes and additional taps are opened at 4 minutes. The temperature variation is most noticeable on the tankless; however, as time progresses, the storage tank water heater runs out of hot water.





Did you know that home appliances are the fastest growing group of pollution emitters after automobiles? The Union of Concerned Scientists has stated if homes in the US replaced their existing appliances with more efficient models, 175 million tons of heat-trapping gases would be eliminated. Nitrous Oxide (NOx) is identified by the EPA as one of the six main pollutants, and is a contributor to global warming, acid rain, as well as other environmental and respiratory problems. According to SCAQMD, (South Coast Air Quality Management District) a water heater should have 55ppm NOx under maximum combustion. At its lowest, Eternal hybrid emits 5ppm NOx. The low emissions mean Eternal is a highly efficient product that keeps our environment clean and rewards you with energy savings.



CERTIFIED TO MEET SCAQMD
LOW EMISSIONS STANDARD



ETERNAL HYBRID



TANKLESS



TANK

KEY CONSTRUCTION MATERIAL

Stainless Steel

Copper

Steel

EFFICIENCY

86%

Avg. 80%

Avg. 60%

NITROUS OXIDE EMISSIONS (PPM)

5 – 30

30 – 40

60 – 90

CARBON MONOXIDE EMISSIONS (PPM)

40 – 45

190 – 200

200 – 250

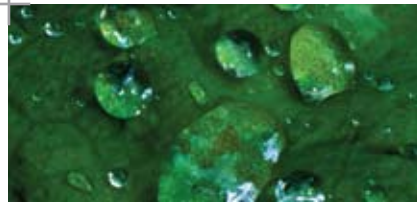
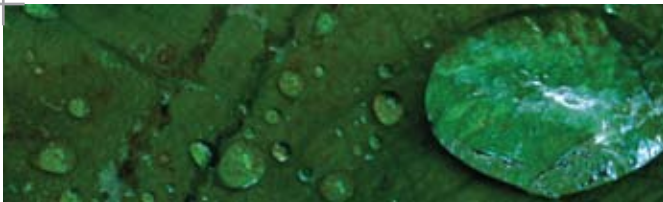
EXHAUST TEMP (°F)

128 – 155

390 – 410

480 – 500

COMPARISONS SHOWN ARE AVERAGED BASED ON TYPICAL TANK AND TANKLESS UNITS



INSTALLATION REQUIREMENTS



A LICENSED PLUMBER FAMILIAR WITH TANK WATER HEATERS CAN INSTALL ETERNAL EASILY. ETERNAL IS PRE-SET FOR NG (OPTIONAL LP CONVERSION KIT AVAILABLE FOR PV MODELS, LP CONVERSION KIT INCLUDED FOR DV MODELS) AND CAN BE INSTALLED INDOORS OR OUTDOORS (OUTDOOR KIT REQUIRED) FOR MAXIMUM FLEXIBILITY ON THE JOBSITE.

GAS SUPPLY

Requires a $\frac{3}{4}$ " gas connection and sufficient gas supply for optimal performance; Sufficient BTU supply is crucial to proper installation and operation of the unit.

WATER SUPPLY

Requires $\frac{3}{4}$ " water connections. A Thermal Expansion Tank may be required by your local code.

ELECTRICITY SUPPLY

Requires 120VAC (60Hz) 0.7A electrical supply and must be grounded to operate properly. Includes 5' cord with standard 3-prong connector.

COMBUSTION AIR SUPPLY

Eternal draws combustion air from its surrounding. Please ensure sufficient air flow as shown in the Operator's Manual and install Eternal in accordance with code ventilation requirement.

UNIT CLEARANCE

Install Eternal in accordance with code requirement and the manufacturer's recommended clearance as shown in the Operator's Manual and labeled on the unit itself.

VENTING MATERIAL

Eternal can be installed with either 4" Schedule 40 PVC, CPVC or ABS venting. Termination can be either horizontal or vertical.

RECIRCULATION

Built-in reservoir tank makes Eternal ideal for closed loop systems.

TYPICAL INSTALLATION

PV MODEL

3/4" GAS SUPPLY

TEMPERATURE AND PRESSURE
RELIEF VALVE

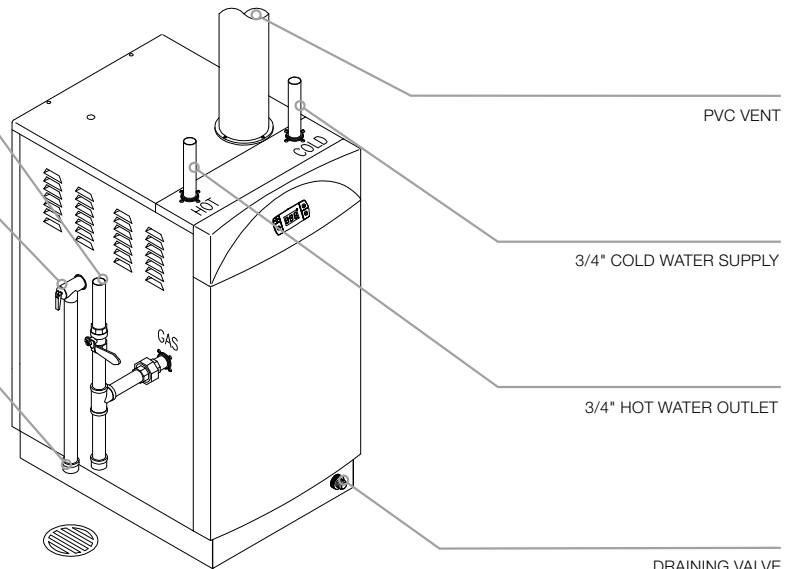
RELIEF VALVE DISCHARGE

PVC VENT

3/4" COLD WATER SUPPLY

3/4" HOT WATER OUTLET

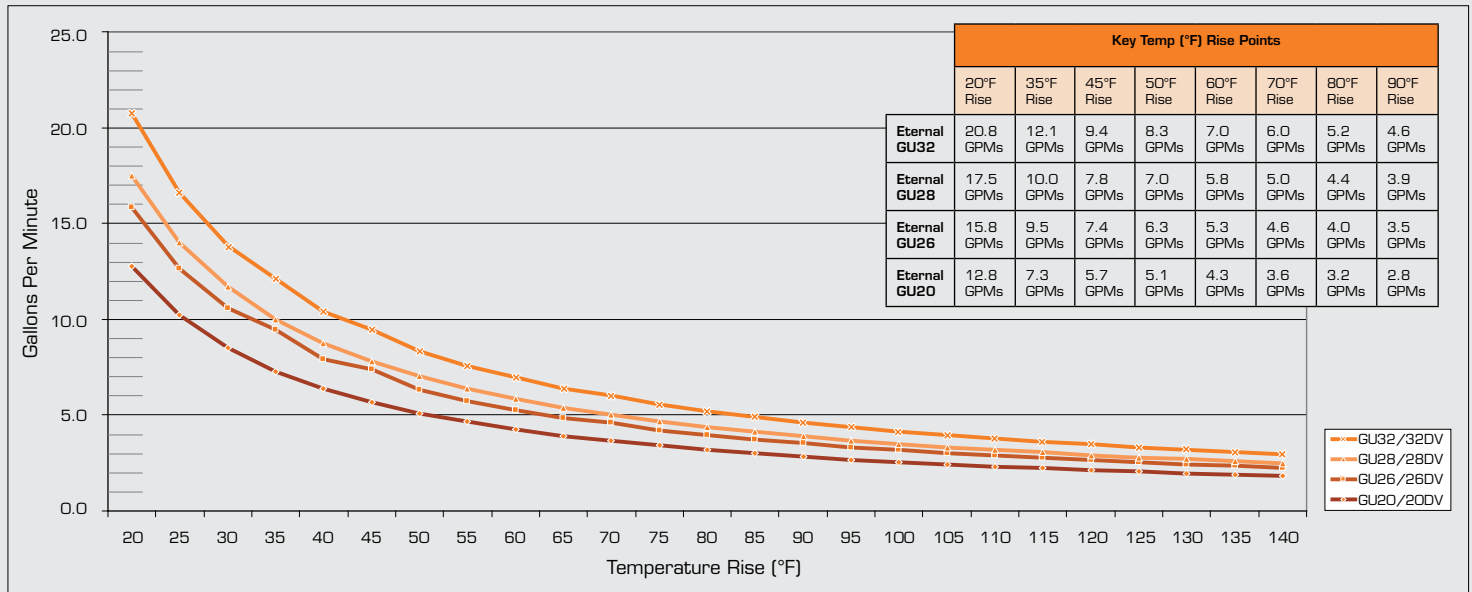
DRAINING VALVE



PRODUCT SPECIFICATIONS

		ETERNAL GU32	ETERNAL GU28	ETERNAL GU26	ETERNAL GU20	ETERNAL GU32DV	ETERNAL GU26DV
THERMAL EFFICIENCY		86%					
INSTALLATION		Indoor/Outdoor (outdoor kit req., sold separately)				Indoor Only	
FLUE SYSTEM		Forced Exhaust Power Vent				Sealed Combustion Direct Vent	
CONNECTION REQUIREMENTS	GAS	3/4" Female					
	WATER	3/4" Female, 15 to 150 Psi					
	VENT	4" Schedule 40 PVC, CPVC or ABS					
	ELECTRICITY	120VAC (60 Hz) 0.7A. Includes 5' cord with standard 3-prong connector, Standby - 8 watts, Maximum - 105 watts					
GAS TYPE		Pre-set for NG / LP conversion kit sold separately				Pre-set for NG / LP conversion kit included	
MAXIMUM / MINIMUM GAS RATE (INPUT BTU'S)		236,000 / 47,500	199,000 / 47,500	180,000 / 47,500	145,000 / 47,500	236,000 / 47,500	180,000 / 47,500
RESERVE TANK SIZE (GAL)		6.4		3.8		6.4	3.8
GAS PRESSURE REQUIREMENT		NG: 3.5" – 10.5" W.C. LP: 8" – 14" W.C.					
GPM CAPACITY RANGE		0.1 – 20.8	0.1 – 17.5	0.1 – 15.8	0.1 – 12.8	0.1 – 20.8	0.1 – 15.8
IGNITION SYSTEM		Electronic Direct Ignition					
TEMPERATURE RANGE		100 – 167 in 15 steps					
UNIT WEIGHT (LBS)		172.9		145.6		180.2	151.8
DIMENSION (HxWxD)		40.9" x 17.3" x 22.8"		33.5" x 17.3" x 22.8"		40.9" x 17.3" x 22.8"	33.5" x 17.3" x 22.8"

ETERNAL HOT WATER FLOW RATE DATA



ETERNAL CERTIFICATIONS & INDUSTRY ASSOCIATIONS



US Patent No 6,945,197 / © 2008 Grand Hall · In the interest of product development, ETERNAL product designs, features and specifications are subject to change without notice.
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