



Advanced Heating  
& Hot Water Systems

# HIGH EFFICIENCY Crossover



## Hybrid Water Heater

The Best Features of Both a Tank & Tankless  
Water Heater Combined into 1 Superior Unit



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# Top 10 Features



Advanced modulating  
10 to 1 turndown ratio

Beautiful design

Durable 316L stainless steel w/  
up to 3.5 gallon fire tube heat  
exchanger - Zero Flow Activation  
& Scale Prevention Technology

Endless hot  
water - advanced  
temperature control

Available in  
LP and Natural Gas

Eco-friendly and low  
NOx combustion system

Bottom connections

Internal & external  
recirculation modes:  
Pulse, Smart-Auto Learn & Time Sequenced

Air handler application:  
Combination heating  
and DHW

Advanced hi-fin heat exchanger  
design for superior performance up to  
96% thermal efficiency & up to .94 UEF

# The Crossover



incorporates the best of both worlds in one unit with its tank and tankless components. The result is one appliance that exceeds all of your hot water needs

The Crossover allows you to enjoy the benefits of a high efficiency unit without surrendering your need for endless hot water and an abundance of water pressure.

### Endless benefits:

- Holds up to 3.5 gallons in the built-in fire tube 316L stainless steel tank/heat exchanger
- Wall mounted unit
- Built in building recirculation pump
- Bottom connections
- Up to 96% thermal efficiency & up to .94 UEF
- Zero flow activation
- Can be installed outside with enclosure kit (only for the RGH-199 • sold separately)

### Performance:

Immediate start up & endless hot water: HTP's integrated system delivers hot water on demand, when you need it most! Additionally, because some hot water is stored, the Crossover does not burn unnecessary gas when small amounts of water are needed.

The hybrid design prevents spontaneous bursts of cold water, which are typical for most tankless water heaters. As user demand increases, the Crossover can provide hot water at higher pressures for multiple fixtures.



### High Efficiency: Saving money!

The Crossover has up to 96% thermal efficiency rating, meaning that for every dollar spent on fuel, 96 cents is used to heat your hot water. That is great savings! The industry average is as low as 70% for standard tanks and 84% for tankless heaters.

The unit's self-cleaning design allows for extremely low maintenance operation.

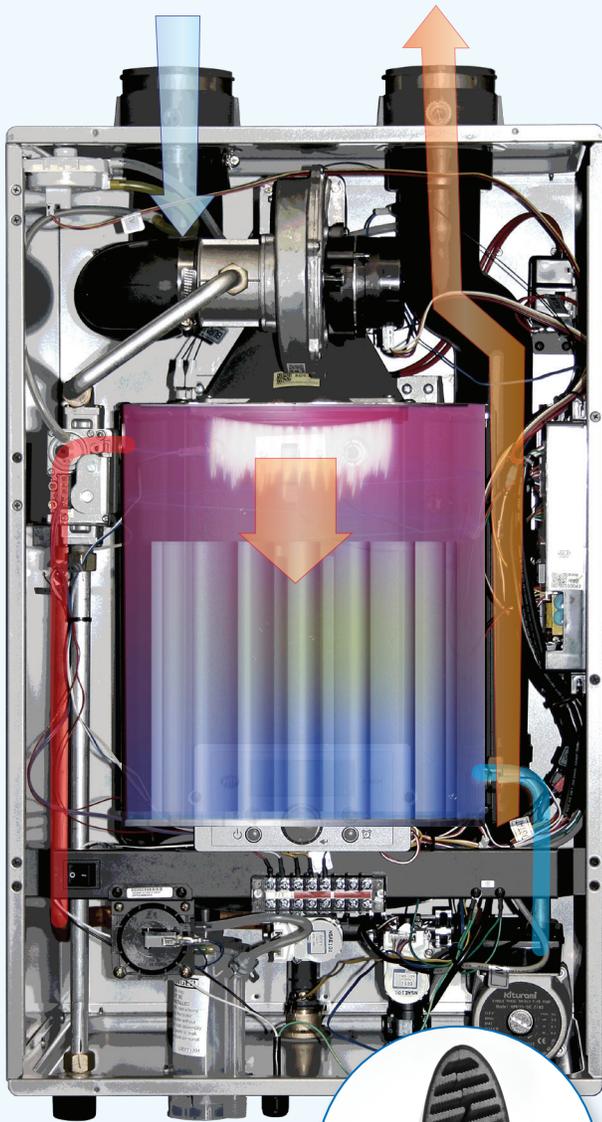
This modulating unit allows for higher efficiencies, which saves energy and money!



Outdoor Enclosure Kit (for RGH-199):  
Part# 7855P-622 (sold separately)



# HOW THE CROSSOVER WORKS



Hi-fin heat exchanger tubes

The HTP Crossover works on a counter flow design. Cold water enters from the bottom of the unit up which serves as a self-cleaning method while heat moves its way through numerous transfer pipes

## Heating Process:

- The Flow Sensor detects hot water demand
- Hot water starts flowing from the interior storage while the burner ignites

## The Crossover is Key:

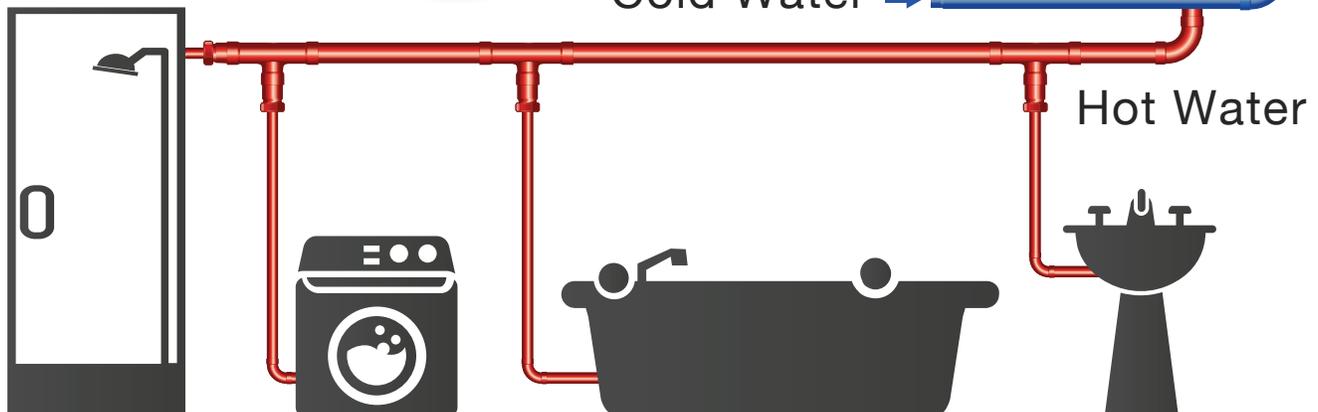
- HTP's Crossover can be used in both residential or commercial applications. The Crossover can be used in several applications, such as recirculation lines, solar water heating and geothermal applications.

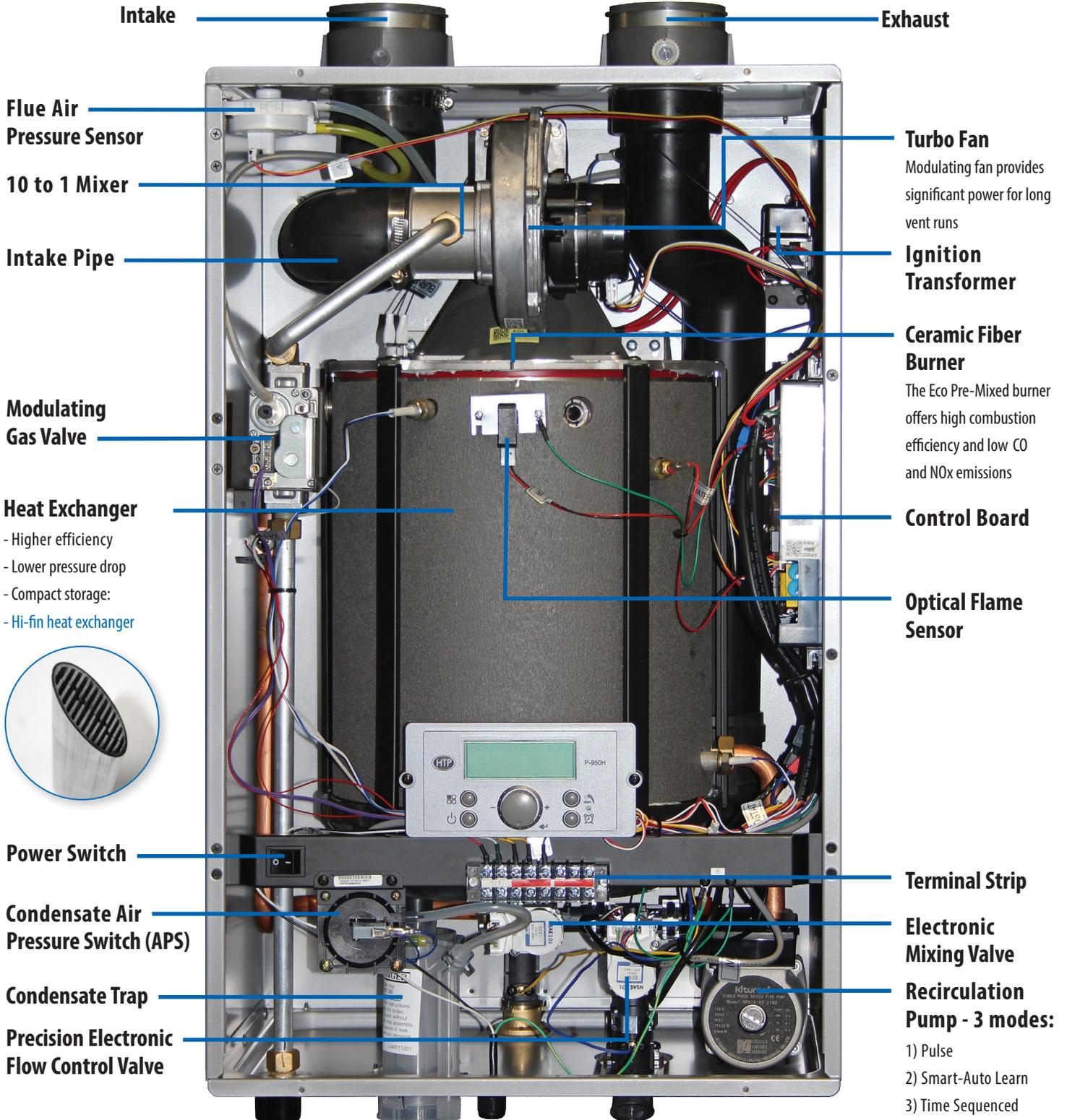
- It vents up to 50' in 2" pipe or up to 100' in 3" pipe.

Green  
technology  
that doesn't  
have to  
cost a lot of  
Green



Gas →  
Cold Water →





Intake

Exhaust

Flue Air  
Pressure Sensor

10 to 1 Mixer

Intake Pipe

Modulating  
Gas Valve

Heat Exchanger

- Higher efficiency
- Lower pressure drop
- Compact storage:
- Hi-fin heat exchanger



Power Switch

Condensate Air  
Pressure Switch (APS)

Condensate Trap

Precision Electronic  
Flow Control Valve

Turbo Fan

Modulating fan provides significant power for long vent runs

Ignition Transformer

Ceramic Fiber Burner

The Eco Pre-Mixed burner offers high combustion efficiency and low CO and NOx emissions

Control Board

Optical Flame Sensor

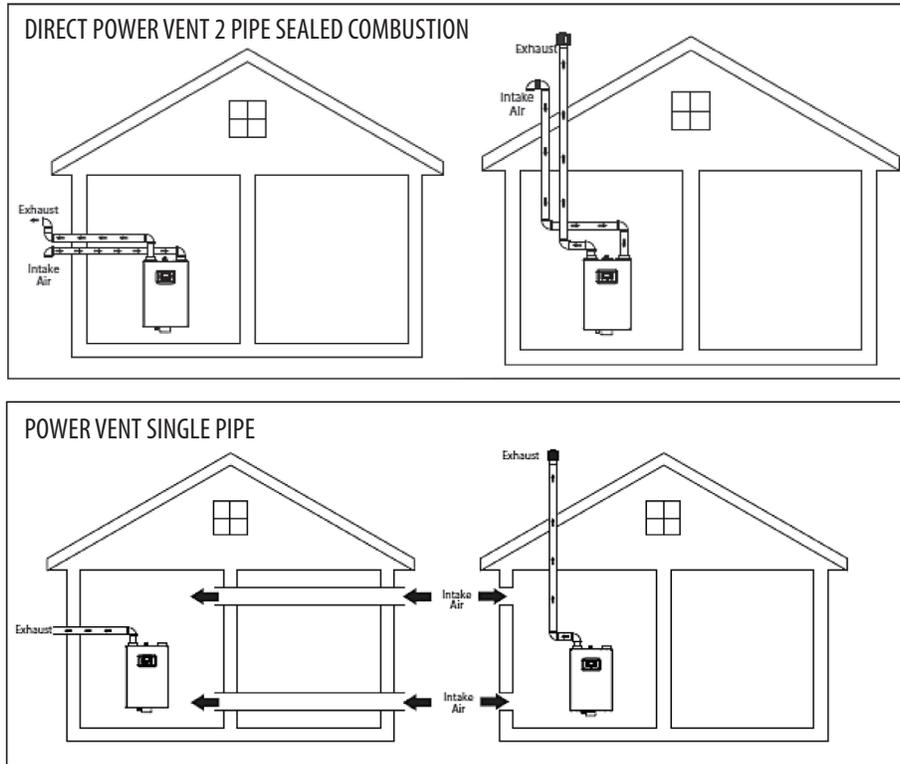
Terminal Strip

Electronic Mixing Valve

Recirculation Pump - 3 modes:

- 1) Pulse
- 2) Smart-Auto Learn
- 3) Time Sequenced

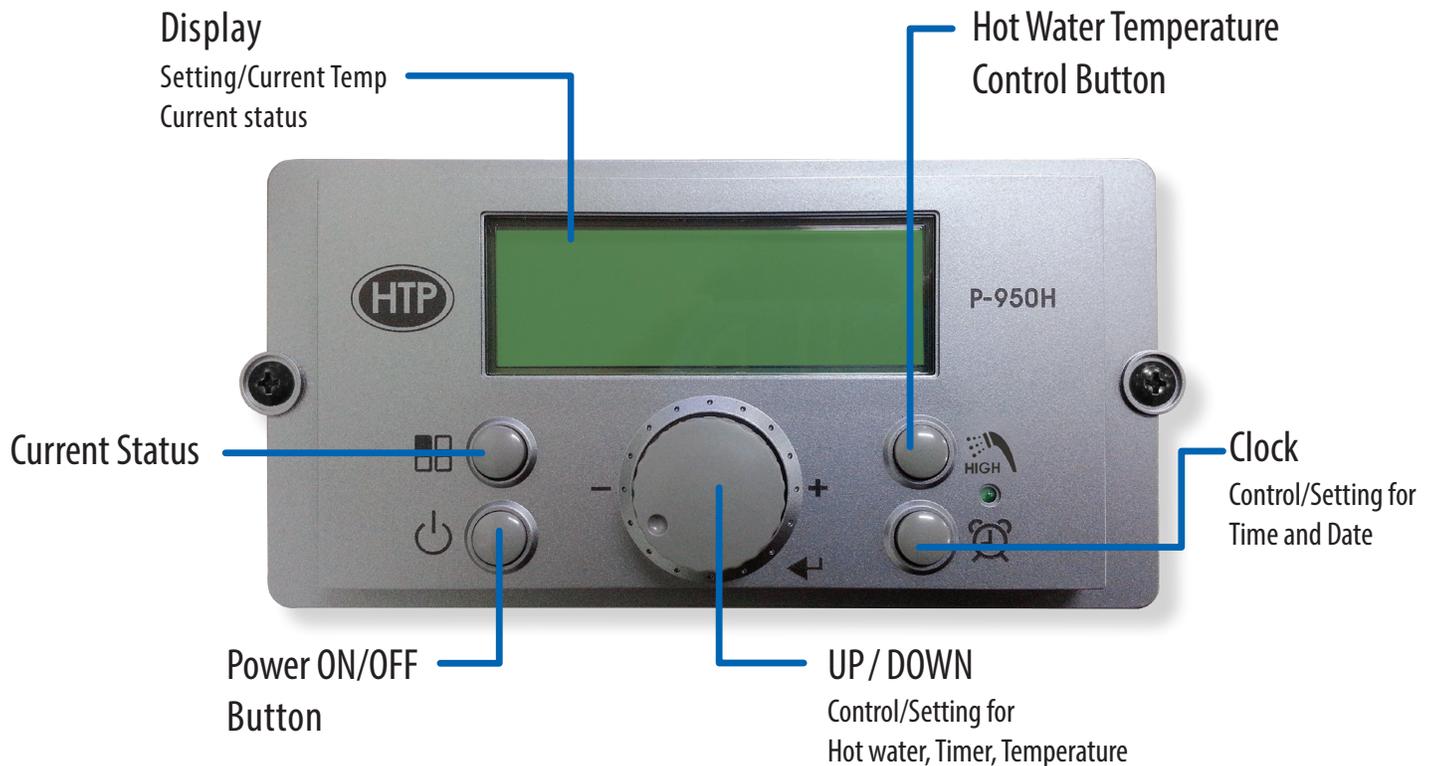
# MULTIPLE VENTING CONFIGURATIONS



## MULTIFUNCTION CONTROL PANEL

### Customized Temperature Control

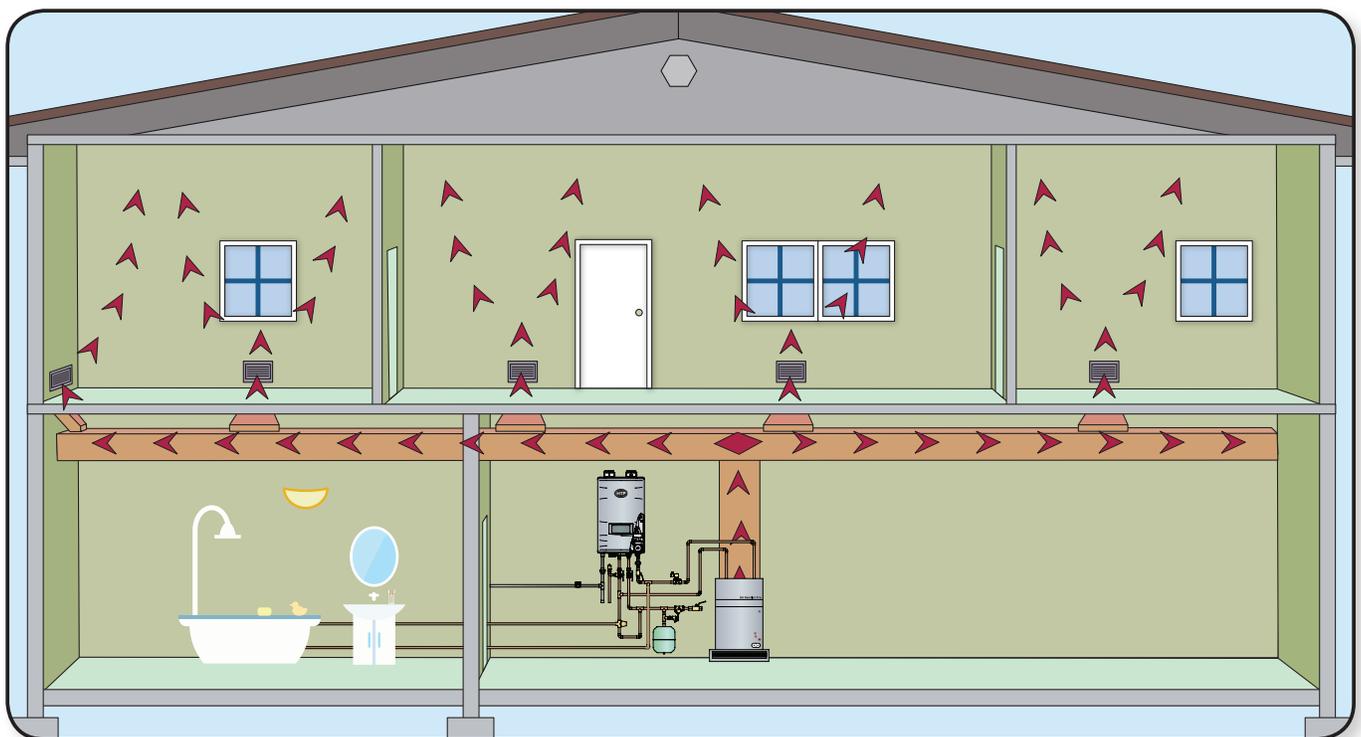
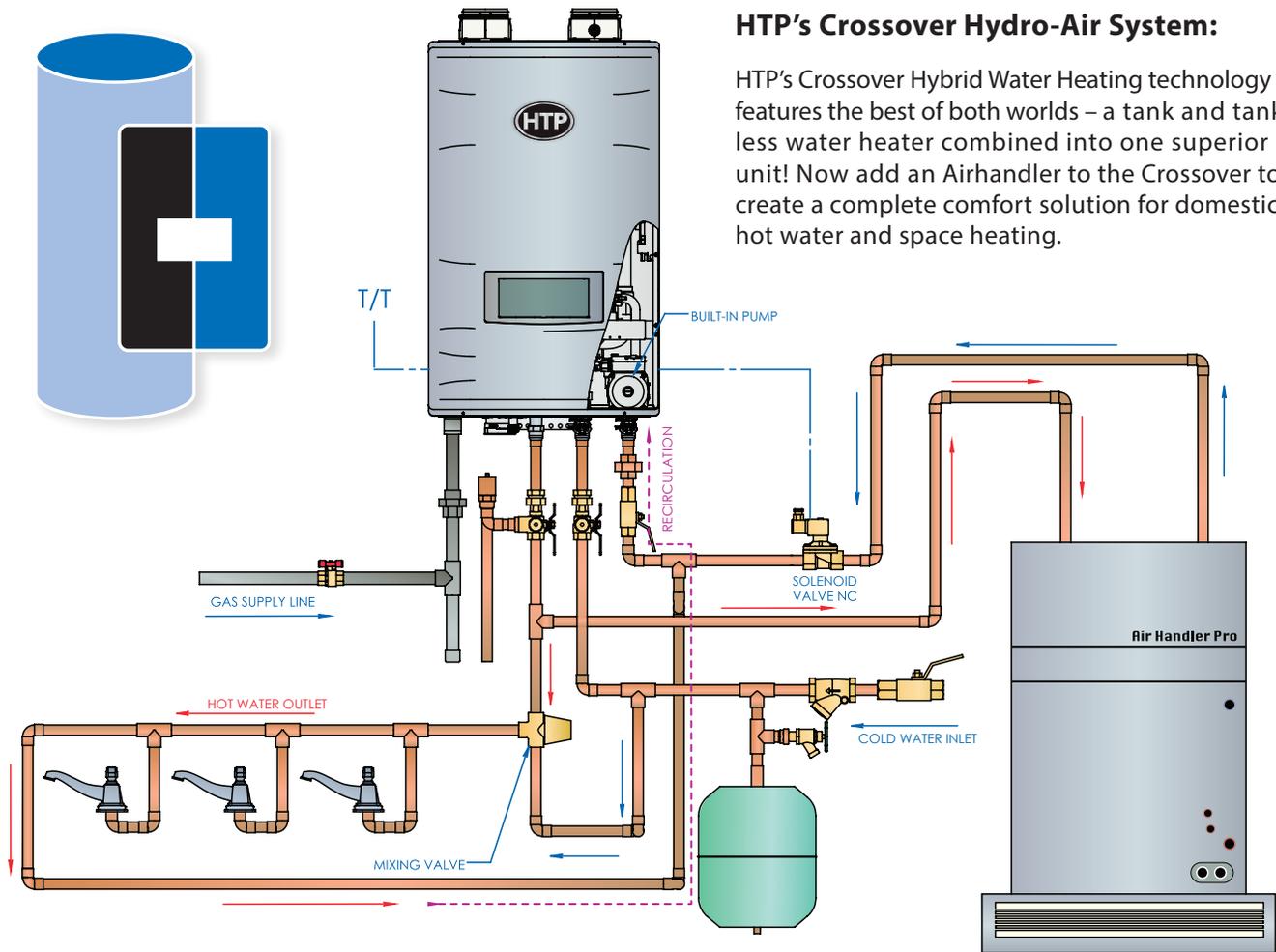
Advanced user friendly technology of FLOW CONTROL, FLOWSENSOR and heat capacity control makes DHW even more comfortable by maintaining constant temperature during usage

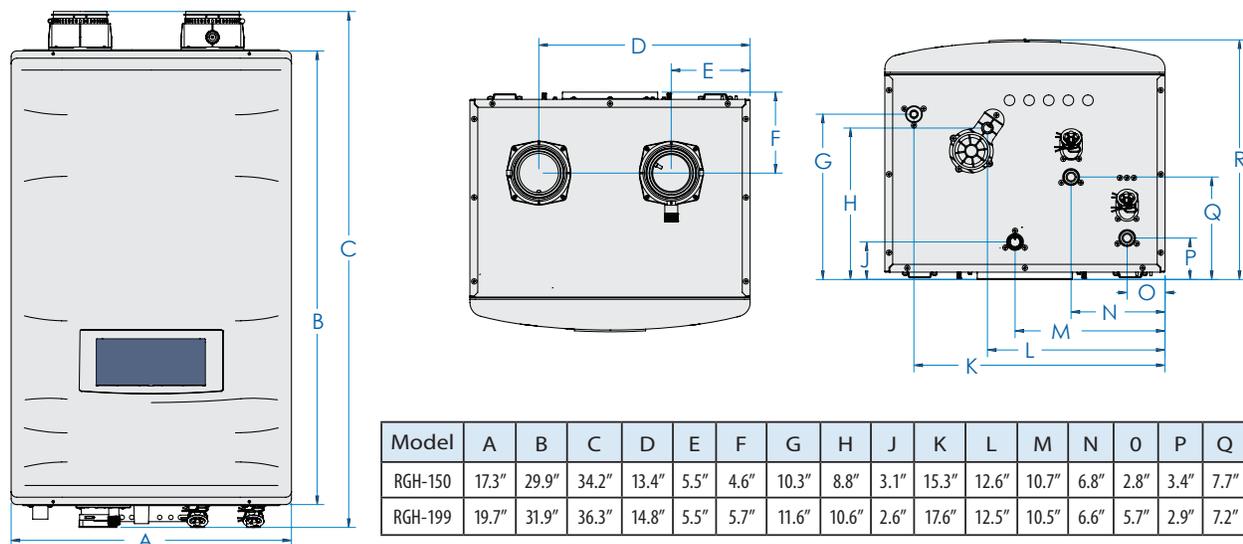


# THE CROSSOVER WITH AN AIR HANDLER (HYDRO AIR): DOMESTIC HOT WATER & SPACE HEATING COMBINATION

## HTP's Crossover Hydro-Air System:

HTP's Crossover Hybrid Water Heating technology features the best of both worlds – a tank and tank-less water heater combined into one superior unit! Now add an Airhandler to the Crossover to create a complete comfort solution for domestic hot water and space heating.





12 Year Residential & 5 Year Commercial Limited Warranty

MODEL		RGH-150	RGH-199
Installation		Indoor, Wall Hung, Fully Condensing	
Minimum / Maximum Input (Btuh)		15,000 / 150,000	19,900 / 199,000
DOE Rated Storage Volume		2.3 gallons	3.5 gallons
UEF (Uniform Energy Factor) / Thermal Efficiency		.94 / 95%	.92 / 96%
Recovery Efficiency		97%	95%
Max GPM Rating Bin / Max GPM		High / 4.4	High / 5.8
Hot Water Capacity	35°F Rise	8.2 Gal. Per Minute	11 Gal. Per Minute
	45°F Rise	6.4 Gal. Per Minute	8.5 Gal. Per Minute
	77°F Rise	3.7 Gal. Per Minute	5 Gal. Per Minute
Weight (lbs)		90	100
Flue System		Sealed Combustion Direct Vent; Power Vent	
Vent		2" (50 ft), 3" (100ft) Schedule 40 PVC, CPVC, PP	
Orifice Size	NG (Orifice/Needle)	.284" (7.2 mm)	.374" (8.3 mm)
	LP (Orifice/Needle)	.217" (5.5 mm)	.240" (6.2 mm)
Gas Supply Pressure	NG	3.5" to 14" WC	
	LP	3.5" to 14" WC	
Manifold Pressure	Min (3")	NG / LP: 0.006" WC	NG: 0.003" / LP: -0.04" WC
	Max (3")	NG / LP: -0.13" WC	NG: -0.19" / LP: -0.20" WC
Power Supply	Main Supply	120V 60Hz, 6A	
	Max power Consumption	72W (With Pump 100W)	
General Operating Conditions		<b>Temperature</b> Ambient Temperature Range: 33 – 104°F (0.6 – 40°C) Operating Relative Humidity: Up to 90% at 104°F (40°C) Shipping and Storage Temperature Range: -4 – 176°F (-20 – 80°C) <b>Input Ratings</b> Power Supply and Communication (CN4): 14V DC Product Approvals and Requirements EMC: 89/336/EEC - LVD: 73/23/EEC	
Ignition System		Direct Electric Ignition / Automatic Flame Sensing	
Burner System		Single Orifice Premixed Fuel Modulation / Ceramic Fiber Burner	
Gas Valve System		Air Ratio Valve	
Internal Pipe Material		Copper	
Dimensions (W x H x D)		W17.5" – H30" – D15.5"	W 19.7" – H 32" – D 16.3"
Heat Exchanger Water Capacity		Under 2.5 Gallons	Under 3.5 Gallons
Control Panel/Main Controller		P-950H / NGTH-10C	
Water Pressure		Min 12 – Max 150 PSI	
Connection Sizes	Water inlet & Outlet Recirculation Inlet	3/4" NPT	
	Gas Inlet	3/4" NPT	
Materials	Cabinet	Cold Rolled Carbon Steel	
	Heat Exchange	316L Stainless Steel	
Safety Devices		Optical Flame Sensor, Burner Plate High Limit (392°F), Water Temperature High Limit Sensor (203°F), Freeze Protection (Three Stage Operation - Activates at 46°F – See Freeze Protection in Installer Menu for Details), Exhaust Temperature High Limit Sensor (190°F), Blocked Flue and Intake Sensor, Condensate Switch, Built-In Low Water Cut-Off Probe	