



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 .93 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 .93 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.

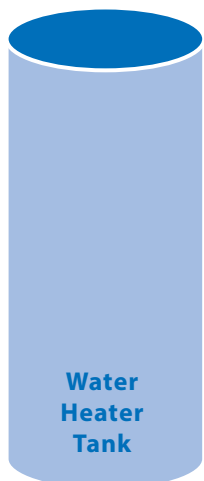


### High Efficiency: Saving money!

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!

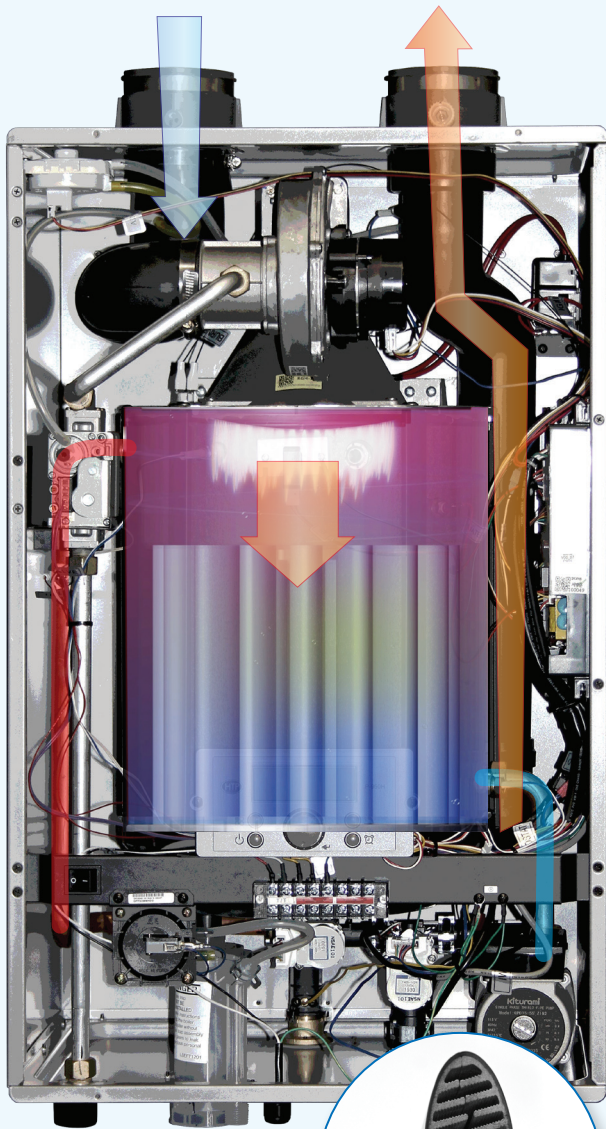


Outdoor Enclosure Kit (for RGH-199):  
Part# 7855P-622 (sold separately)





# 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:

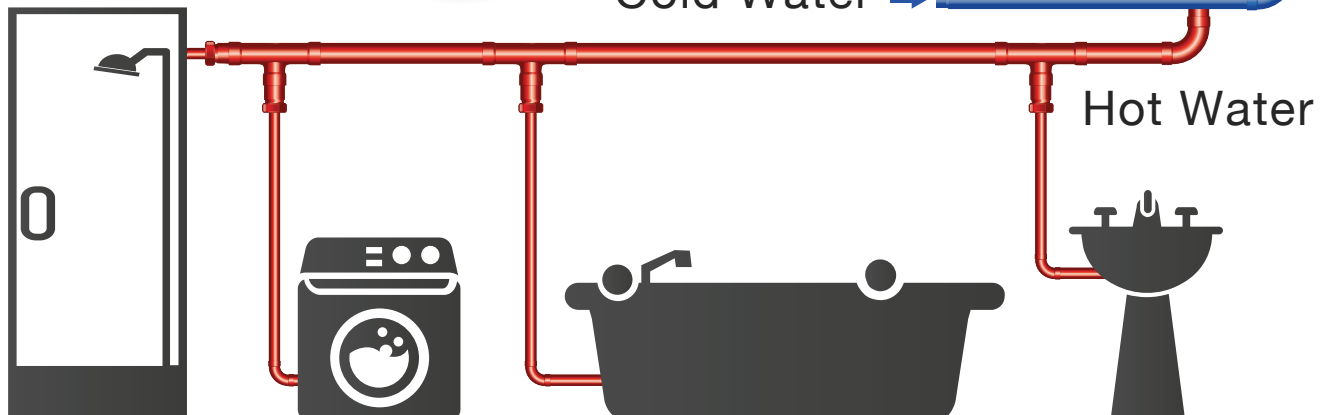
- HTP's Crossover can be used in both residential or commercial applications. The Crossover can be used in several applications, such as recirculation lines, solar water heating and geothermal applications.

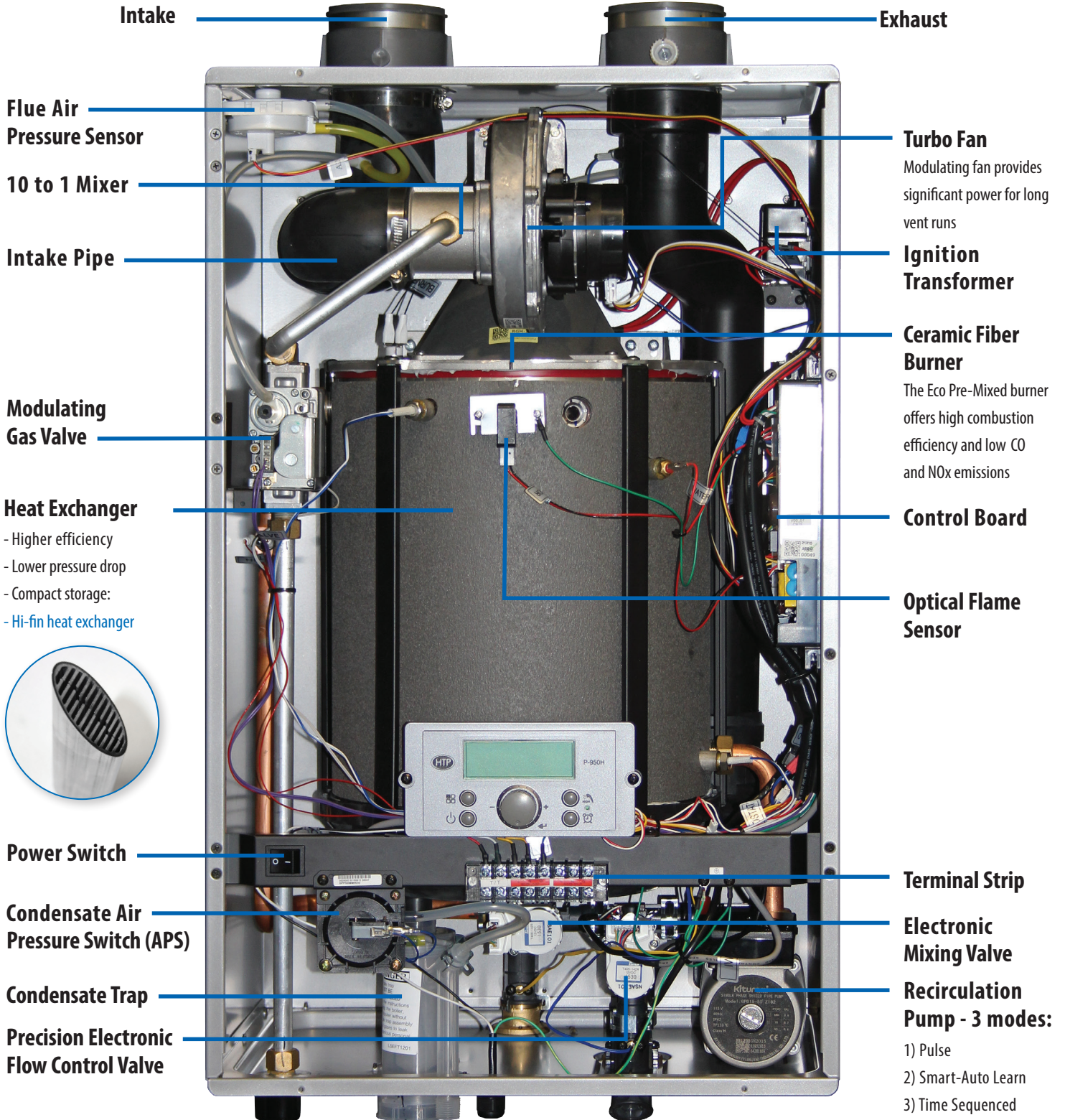
- It vents up to 50' in 2" pipe or up to 100' in 3" pipe.

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



Gas →  
Cold Water →





**Intake**

**Exhaust**

**Flue Air Pressure Sensor**

**Turbo Fan**

Modulating fan provides significant power for long vent runs

**10 to 1 Mixer**

**Ignition Transformer**

**Intake Pipe**

**Ceramic Fiber Burner**

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

**Modulating Gas Valve**

**Control Board**

**Heat Exchanger**

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

**Optical Flame Sensor**

**Power Switch**

**Terminal Strip**

**Condensate Air Pressure Switch (APS)**

**Electronic Mixing Valve**

**Condensate Trap**

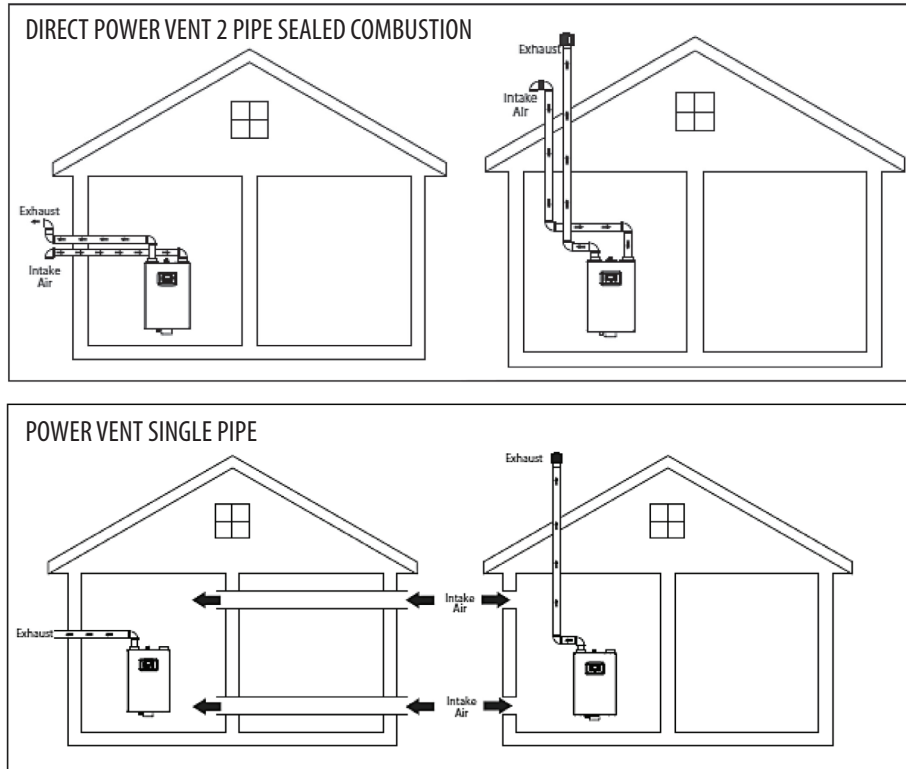
**Recirculation Pump - 3 modes:**

**Precision Electronic Flow Control Valve**

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



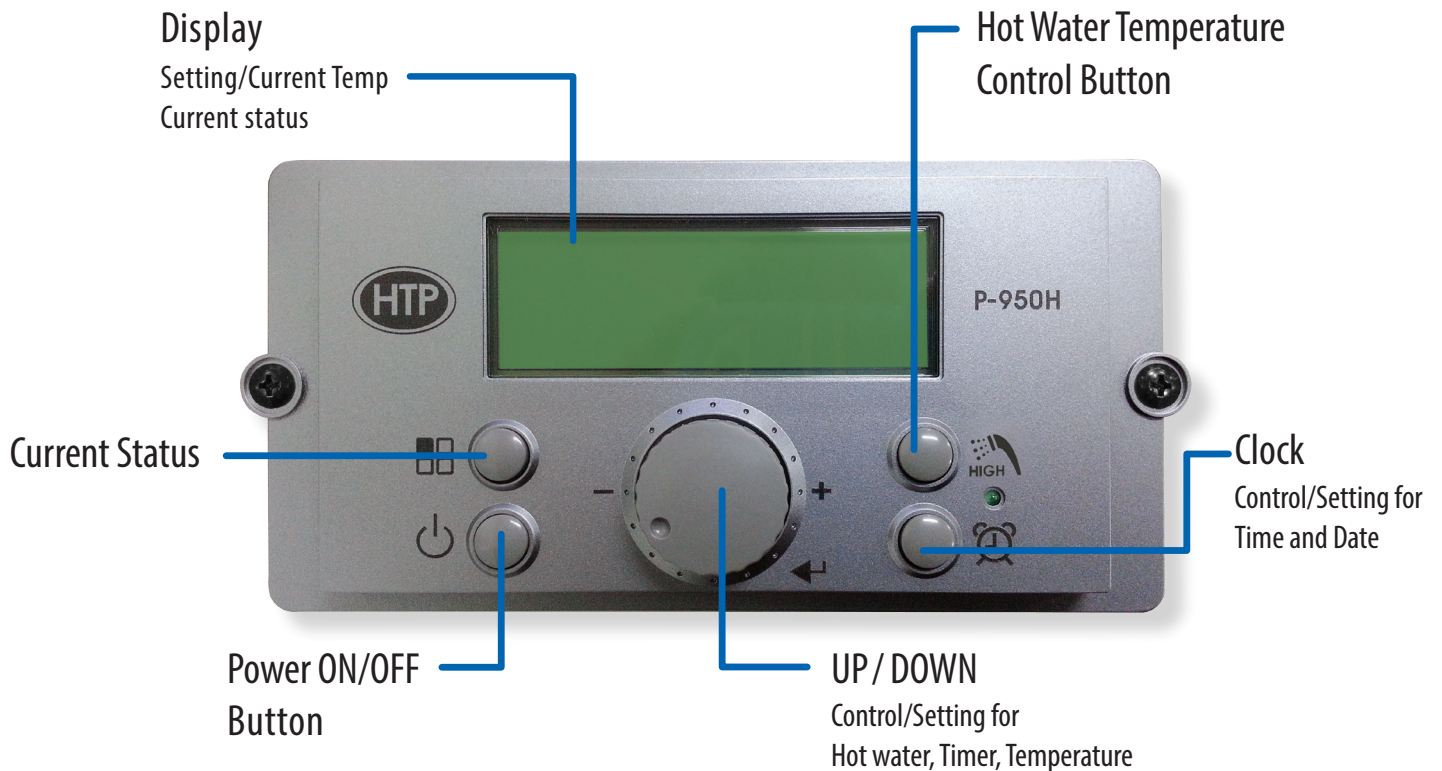
# MULTIPLE VENTING CONFIGURATIONS



## MULTIFUNCTION CONTROL PANEL

### Customized Temperature Control

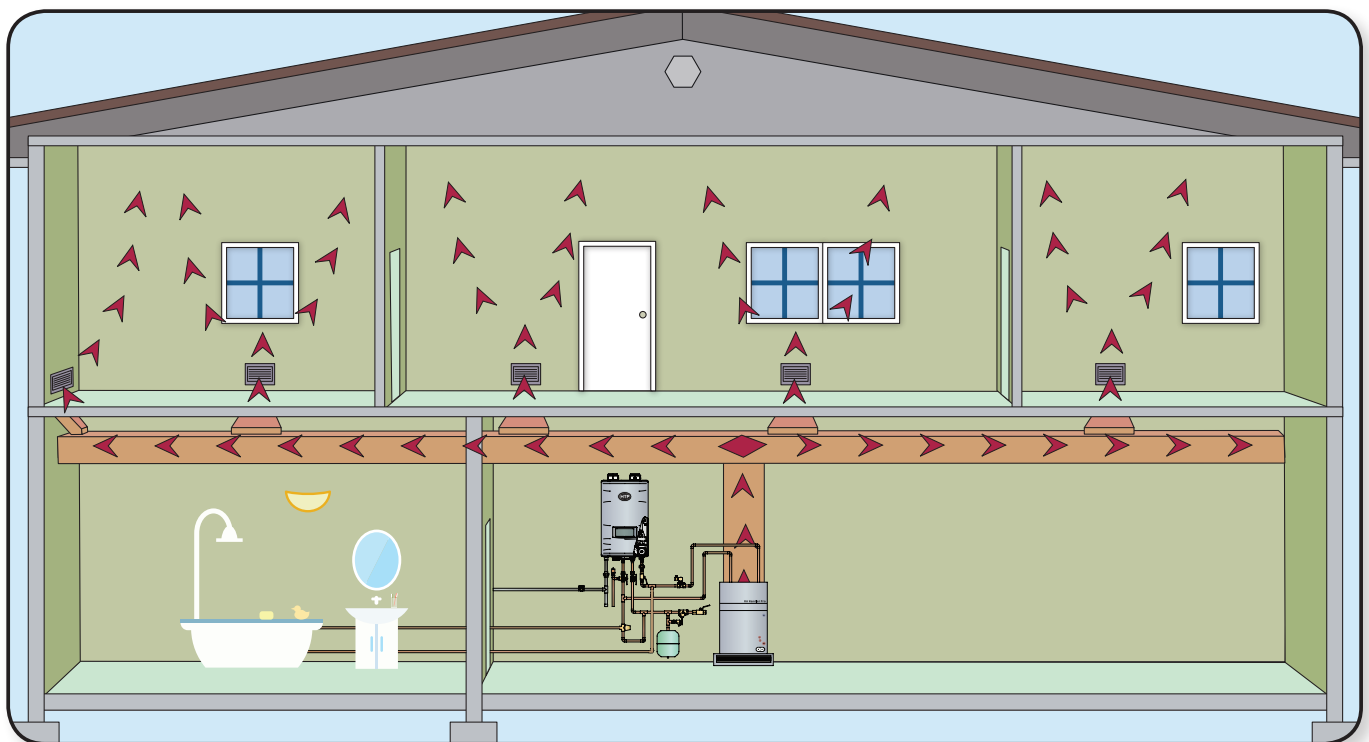
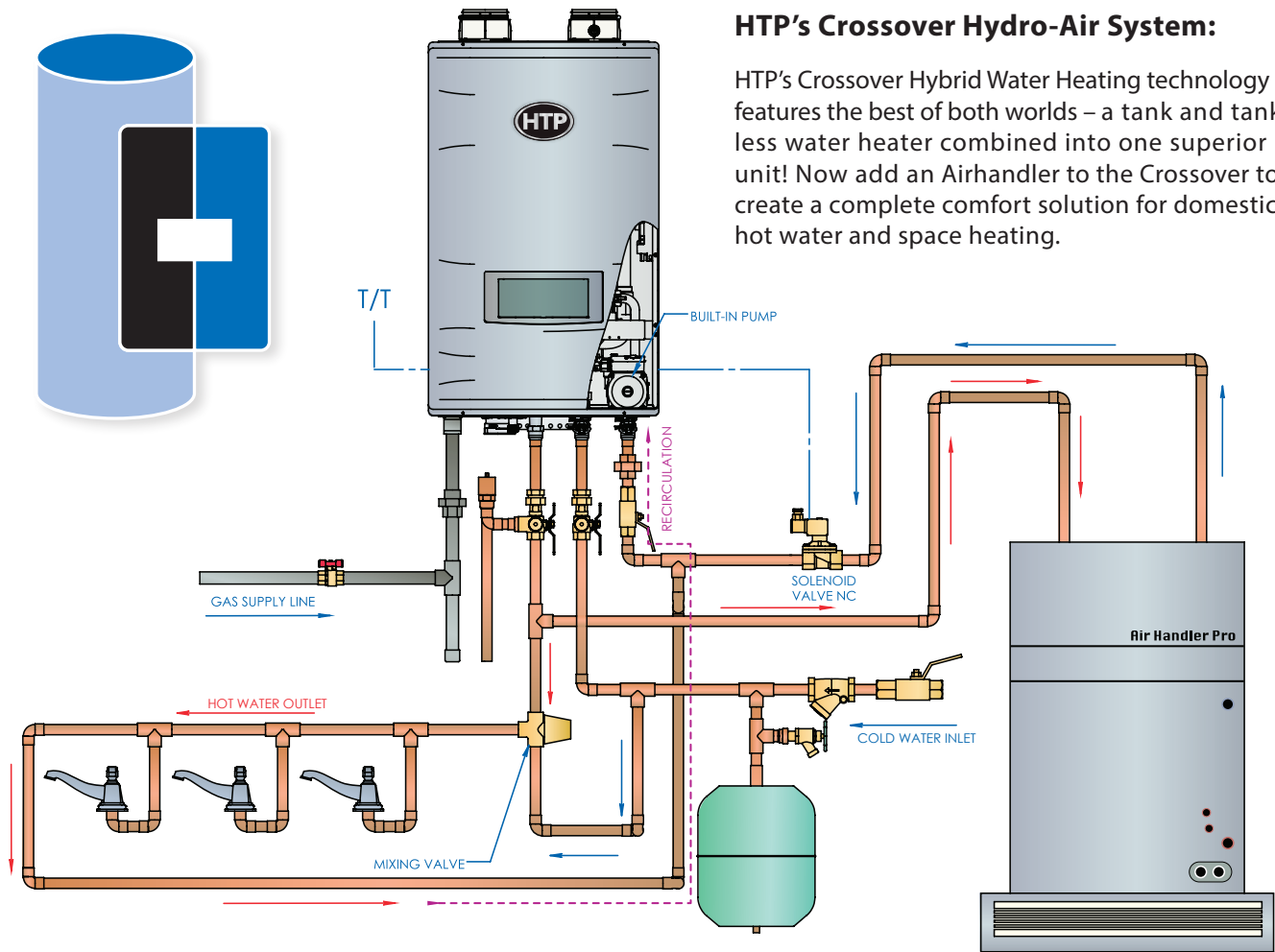
Advanced user friendly technology of FLOW CONTROL, FLOWSENSOR and heat capacity control makes DHW even more comfortable by maintaining constant temperature during usage

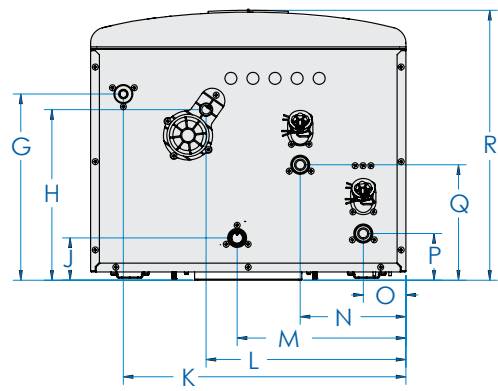
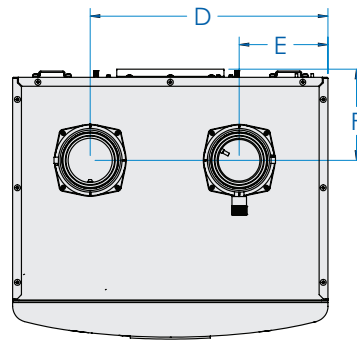
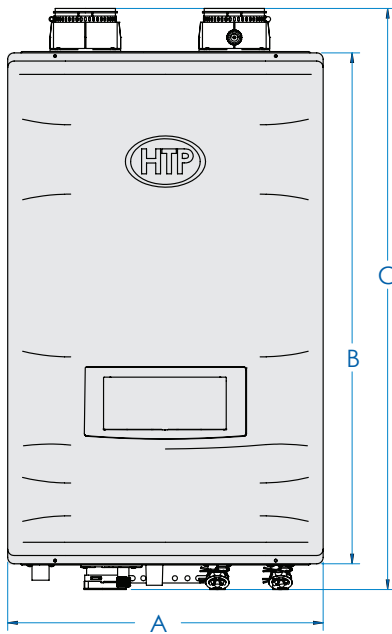


# THE CROSSOVER WITH AN AIR HANDLER (HYDRO AIR): DOMESTIC HOT WATER & SPACE HEATING COMBINATION

## 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.





Model	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R
RGH-150	17.3"	29.9"	34.2"	13.4"	5.5"	4.6"	10.3"	8.8"	3.1"	15.3"	12.6"	10.7"	6.8"	2.8"	3.4"	7.7"	15.4"
RGH-199	19.7"	31.9"	36.3"	14.8"	5.5"	5.7"	11.6"	10.6"	2.6"	17.6"	12.5"	10.5"	6.6"	5.7"	2.9"	7.2"	16.8"

MODEL	RGH-150	RGH-199
<b>Installation</b>	Indoor, Wall Hung, Fully Condensing	
<b>Minimum / Maximum Input (Btuh)</b>	15,000 / 150,000	19,900 / 199,000
<b>Hot Water Capacity</b>	35°F Rise	8.2 GPM
	45°F Rise	6.4 GPM
	77°F Rise	3.7 GPM
<b>Flue System</b>	Sealed Combustion Direct Vent, Power Vent	
<b>Vent Run</b>	2" (50 feet), 3" (100 feet), Schedule 40 PVC, CPVC, PP	
<b>Weight (lbs)</b>	90	100
<b>Orifice Size</b>	NG	7.2 mm (0.284")
	LP	5.5 mm (0.217")
<b>Gas Supply Pressure</b>	NG	3.5" to 14" WC
	LP	3.5" to 14" WC
<b>Manifold Pressure</b>	Min (3")	NG/LP: 0.006
	Max (3")	NG: 0.003" / LP: 0.004" WC NG: -0.19" / LP: -0.20" WC
<b>Power Supply</b>	Main Supply	120V 60 Hz, 6A
	Maximum Power	72W (With Pump 100W)
<b>General Operating Conditions</b>	Temperature 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) Input Ratings Power Supply and Communication (CN4): 14V DC Product Approvals and Requirements EMC: 89/336/EEC - LVD: 73/23/EEC	
<b>Ignition System</b>	Direct Electronic Ignition / Automatic Flame Sensing	
<b>Burner System</b>	Single Orifice Premixed Fuel Modulation / Ceramic Fiber Burner	
<b>Gas Valve System</b>	Air Ratio Valve	
<b>Minimum Flow Rate</b>	0.5 GPM (zero activation with internal recirculation mode active)	
<b>Internal Pipe Material</b>	Copper	
<b>Dimensions</b>	W17.5" – H30" – D15.5"	W 19.7" – H 32" – D 16.3"
<b>Heat Exchanger Water Capacity (DHW)</b>	Under 2.5 Gallons	Under 3.5 Gallons
<b>Control Panel / Main Controller</b>	P-950H / NGTH-10C	
<b>Water Pressure</b>	Min 12 – Max 150 PSI	
<b>DHW Setpoint Temperature Range</b>	100°F – 140°F (35°C – 60°C)	
<b>Connection Sizes</b>	Water Inlet & Outlet / Recirculation Inlet	¾" NPT
	Gas Inlet	¾" NPT
<b>Materials</b>	Cabinet	Cold Rolled Carbon Steel
	Heat Exchanger	316L Stainless Steel
<b>Safety Devices</b>	Optical Flame Sensor, Burner Plate High Limit (392°F), Water Temperature High Limit Sensor (203°F), Water Leak Detection Device, 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	
<b>Thermal Efficiency</b>	95%	96%

## 12 Year Residential & 5 Year Commercial Limited Warranty

In accordance with our company policy of ongoing product improvement, HTP Inc. reserves the right to make changes without prior notice.

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