



Raptor 320HB & 399HB Submittal Sheet

Light Commercial High Efficiency
Gas Boilers

RPTR320HB & RPTR399HB

RPTR Wall Mount and Floor Standing Heating Boilers

Wholesaler _____
 Job Name _____
 Mechanical Contractor _____
 Model Number _____ Quantity: _____
 Gas Type _____
 BTU/hr INPUT _____
 BTU/hr OUTPUT _____
 Venting Application _____

Standard Features

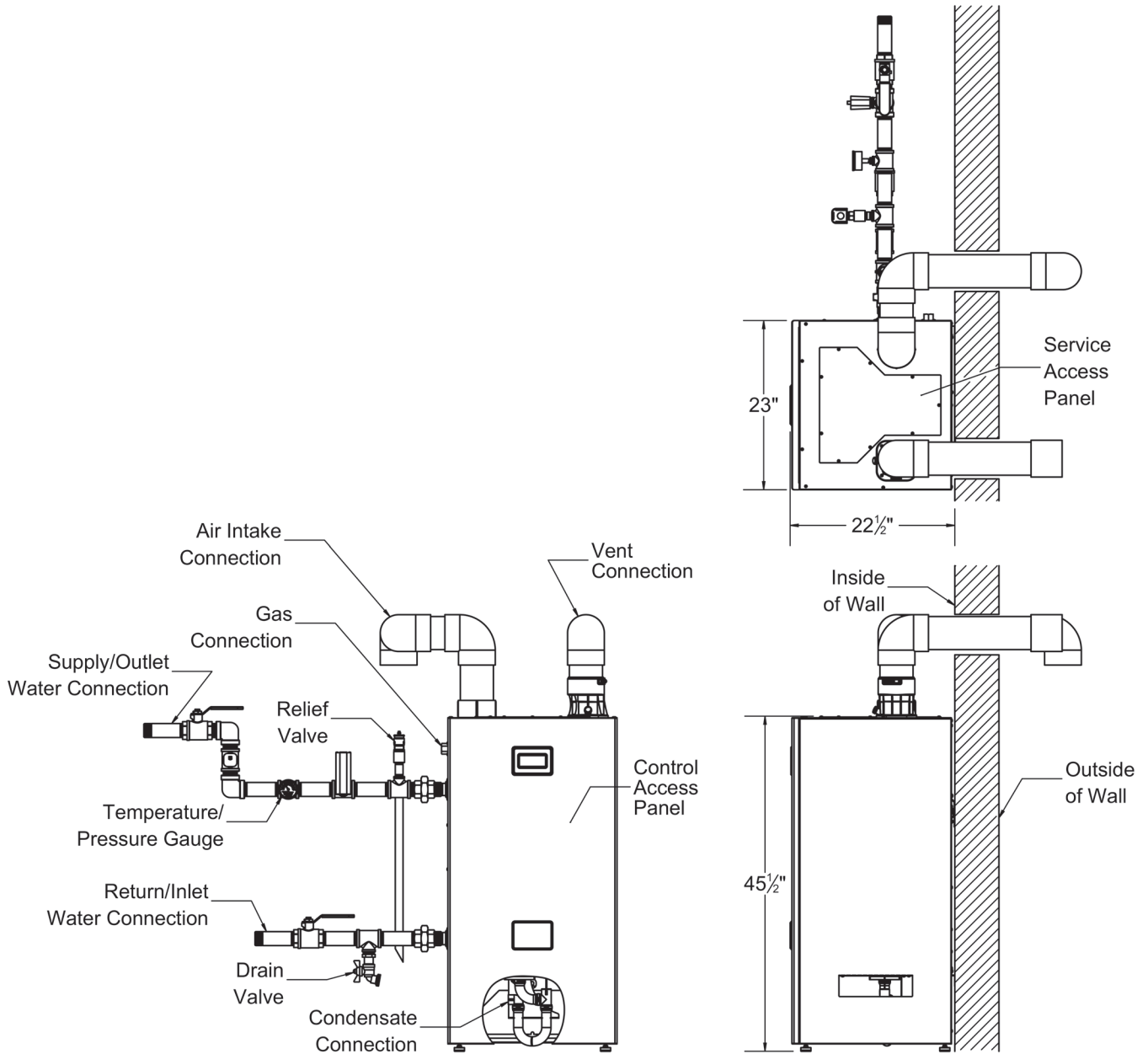
- ASME Constructed Stainless Steel Water Tube Heat Exchanger
- 30 psi Relief Valve, Standard
- 190F Maximum Operating Supply Temperature
- 95.0% Thermal Efficiency
- Fully Modulating Burner System with 10:1 Turndown Ratio
- Field Adjustable for High Altitude with Minimal Derate
- Universal Vent Connection Allows For 3" or 4" CPVC/PVC, Single Wall Polypropylene or Stainless Steel. Venting Options for Concentric Vent Terminals.
 Note: See Installation Manual for a List of Approved Vent Systems, Vent Length Limitations, and Other Installation Requirements.
- Condensate Trap with Float Switch
- Boiler, System & Domestic Hot Water Pump Output Terminals
- Listed for Closet Installation with Tight Clearances to Combustible Material
- Field Convertible to LP Gas with Optional Kit
- Field Adjustable For High Altitude
- LWCO-Ready Electrical Connection (LWCO Optional)
- Microprocessor Based Honeywell Sola Control System with LCD Touch Screen Display.
 User Interface Consisting of:
 - o Self-guided Control Menus
 - o Built-in Self Diagnostics
 - o DHW Priority
 - o Supply, Return and Auto Reset High Limit Water Sensors
 - o Outdoor Reset Including Outside Sensor
 - o Lead/Lag Boiler Sequencing Capable
 - o Warm Weather Shutdown
 - o Easily Connects to Sage Zone Panel
 - o External Limit and Alarm System Terminal Contacts
 - o Built In Sequencer Stages Up to 8 Boilers
 - o Modbus Communications Capable
 - o Terminal Contacts for Optional Header Sensor
 - o Password Security
- 9 Year Limited Heat Exchanger Warranty, 1 Year Warranty On Parts

Optional Equipment

- CPVC starter and PVC Vent Terminations Kit
- Sage Zone Panel
- CSD-1 Kit
- LWCO Auto Reset Kit or Manual Reset Kit
- LP Conversion Kits
- Manual Reset High Limit
- Service Parts Repair Kit

Special Job Notes:

RPTR320HB, 399HB



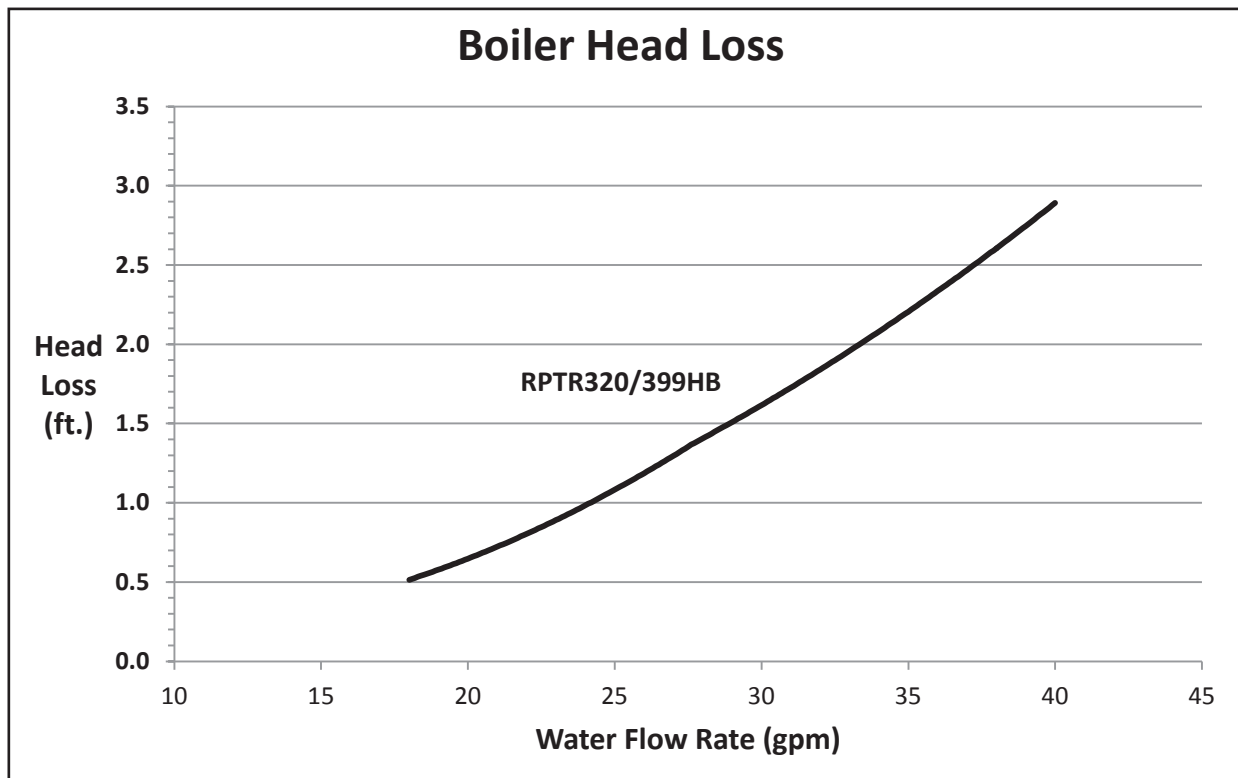
Space Heating Ratings					Additional Specifications									
Model Number	Input (MBH) Min-Max	Heating Capacity, MBH	Net AHRI Water, MBH ¹	Thermal Efficiency %	Water Volume (gal)	Vent Size	Air Inlet	Min. Vent Length	Max. Vent Length	Approx. Derate @ Max Vent (%)	Water Conn. (WPT)	Gas Conn. (NPT)	Approx. Shipping Weight (lbs)	MAWP (PSI)
RPTR320HB	32-320	304	264	95.0	7.0	3"-4"	3"-4"	30"	60ft-3" 135ft-4"	8.2 - 3" 3.7 - 4"	1-1/2"	3/4"	270	80
RPTR399HB	39.9-399	379	330	95.0	6.7	3"-4"	3"-4"	30"	50ft-3" 135ft-4"	5.3 - 3" 2.9 - 4"	1-1/2"	3/4"	275	80

Notes:
 1) The Net AHRI Water Ratings shown are based on a piping and pickup allowance of 1.15. The manufacturer should be consulted before selecting a boiler for installations having unusual piping and pickup requirements, such as intermittent system operation, extensive piping systems, etc.

Venting Note: Sizes noted are for two pipe CPVC/PVC & certain specified two pipe polypropylene and certain specified stainless steel vent systems. Concentric vent terminals permitted on most installations. See installation manual for venting option details.

Flow Limitations

Boiler Model	Min. Pipe Size (in.)	$\Delta T = 35^{\circ}F$		$\Delta T = 30^{\circ}F$		$\Delta T = 25^{\circ}F$		$\Delta T = 20^{\circ}F$	
		Min. Flow (GPM)	Boiler Head Loss (ft)	Flow (GPM)	Boiler Head Loss (ft)	Flow (GPM)	Boiler Head Loss (ft)	Max. Flow (GPM)	Boiler Head Loss (ft)
RPTR320HB	1 1/2	17.0	0.5	19.8	0.6	23.8	1.0	29.8	1.6
RPTR399HB	1 1/2	21.2	0.8	24.7	1.1	29.7	1.6	37.1	2.5



Recommended Taco Circulators for 60 Equivalent ft. Boiler Loop Piping

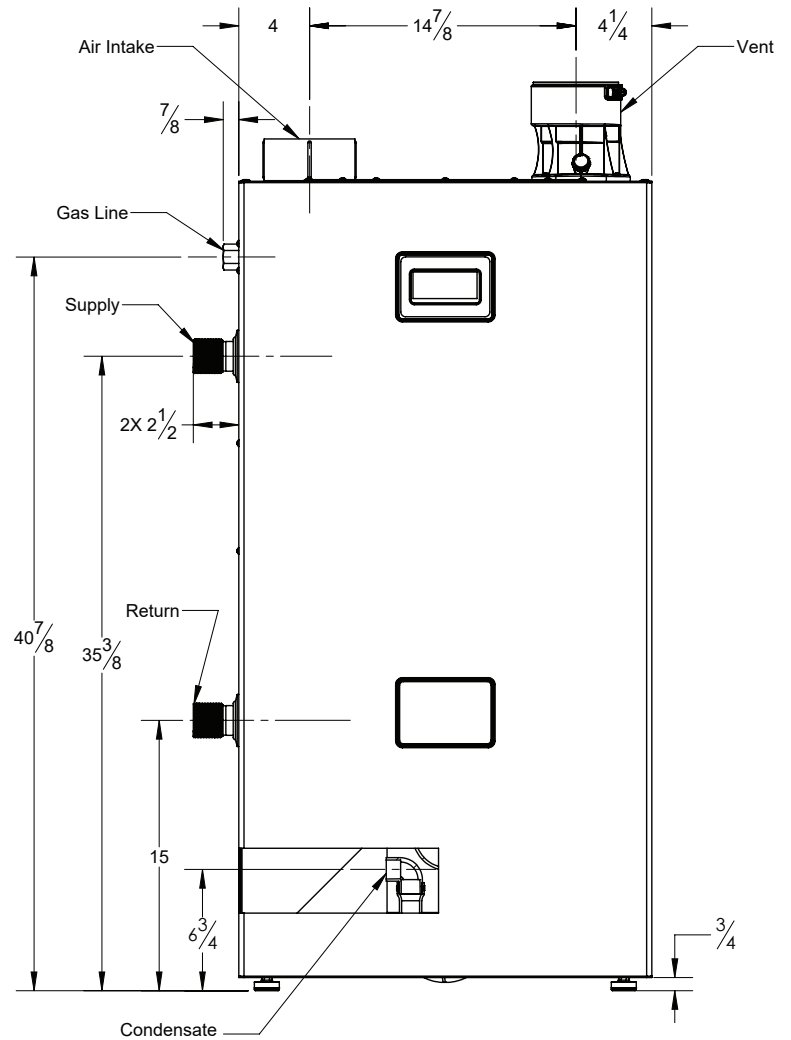
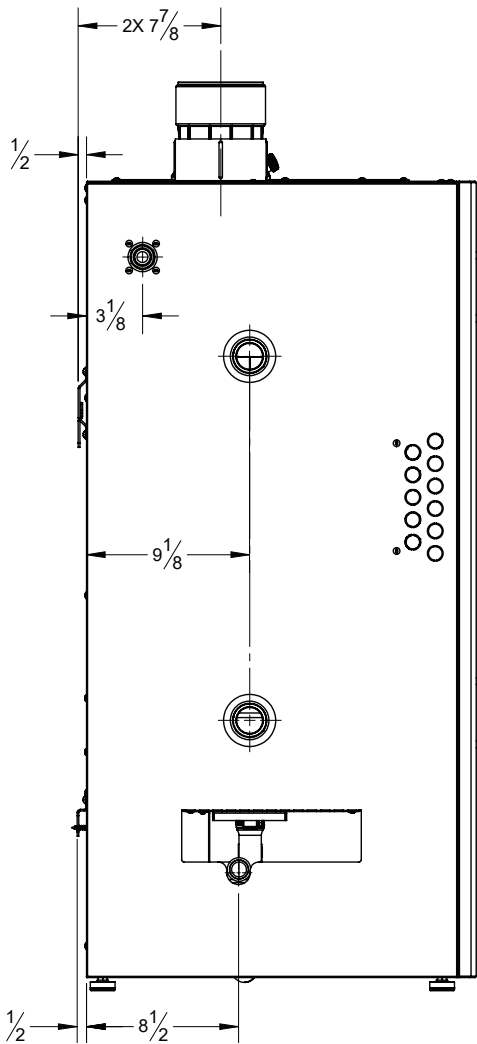
Boiler Model	ΔT = 35°F			ΔT = 30°F			ΔT = 25°F			ΔT = 20°F			
	Minimum Pipe Size (in.)	Flow (GPM)	Boiler & Piping Head Loss (ft)	Circulator Model	Flow (GPM)	Boiler & Piping Head Loss (ft)	Circulator Model	Flow (GPM)	Boiler & Piping Head Loss (ft)	Circulator Model	Flow (GPM)	Boiler & Piping Head Loss (ft)	Circulator Model
RPTR320HB	1 1/2	17.0	1.8	0010	19.8	2.4	0010	23.8	3.5	0014	29.8	5.4	2400-60
RPTR399HB	1 1/2	21.2	2.8	0010	24.7	3.8	0014	29.7	5.4	2400-60	37.1	8.2	2400-65

Recommended Grundfos Circulators for 60 Equivalent ft. Boiler Loop Piping

Boiler Model	ΔT = 35°F			ΔT = 30°F			ΔT = 25°F			ΔT = 20°F			
	Minimum Pipe Size (in.)	Flow (GPM)	Boiler & Piping Head Loss (ft)	Circulator Model	Flow (GPM)	Boiler & Piping Head Loss (ft)	Circulator Model	Flow (GPM)	Boiler & Piping Head Loss (ft)	Circulator Model	Flow (GPM)	Boiler & Piping Head Loss (ft)	Circulator Model
RPTR320HB	1 1/2	17.0	1.8	UPS26-99FC (Spd. 2) MAG-NA1 32-60F	19.8	2.4	UPS26-99FC (Spd. 2) MAG-NA1 32-60F	23.8	3.5	UPS26-99FC (Spd. 2) MAG-NA1 32-60F	29.8	5.4	UPS26-150F (Spd. 2) MAG-NA1 32-60F
RPTR399HB	1 1/2	21.2	2.8	UPS26-99FC (Spd. 2) MAG-NA1 32-60F	24.7	3.8	UPS26-99FC (Spd. 3) MAG-NA1 32-60F	29.7	5.4	UPS26-150F (Spd. 2) MAG-NA1 32-60F	37.1	8.2	UPS26-150F (Spd. 3) MAG-NA1 40-80F

Altitude Adjustments (Above 2,000 ft. only)

Model No.	Fuel	Approximate Derate per 1,000 ft.		
		2,001-6,000 ft	6,001-7,800 ft	7,801-10,100 ft
RPTR320HB	NG	0.0%	0.3%	1.6%
	LP		0.8%	2.1%
RPTR399HB	NG	0.6%	1.5%	
	LP		1.3%	



DIMENSIONS TO CONNECTIONS