



# DEMAND DUO™ H-SERIES: DEMAND DUO™ 2 (VERTICAL) SUBMITTAL FORM

## PROJECT DETAILS

Job Name: \_\_\_\_\_

Location: \_\_\_\_\_

Application Type: \_\_\_\_\_  Commercial

Architect / Engineer: \_\_\_\_\_

Wholesaler/ Contractor: \_\_\_\_\_

Gas Fuel Type:  Natural Gas  Liquid Propane Total System BTU/hr: \_\_\_\_\_

Notes: \_\_\_\_\_

## FEATURES AND BENEFITS

### More capacity, longer warranty, better performance, easy installation

Rinnai's Demand Duo™ Commercial Hybrid Water Heating System is the smart choice when it is time to replace a standard tank. Our unique "best of both" system lets your business quickly and easily upgrade to a unit that offers an on-demand and continuous supply of hot water.

- A direct high-efficiency tank replacement solution
- Warranty: Heat exchanger 8 years or 12,000 operation hours, whichever occurs first, tank - 6 years, parts - 5 years, reasonable labor - 1 year
- Built standard Tankless Water Heater:
  - Ultra Low NOx compliant
  - Commercial ENERGY STAR® certified
  - 97% Thermal Efficiency
- Integrated temperature controller provides 98° F - 185° F
- Multiple venting options (PVC, Room Air, Concentric, Common Vent)
- Easy and cost-effective maintenance - all parts field replaceable
- System weight up to 40% lighter than competitive units

## OPTIONS

- CHS398100HV
- CHS398100HVA
- CHS320100HV



**Rinnai America Corporation**  
 103 International Drive | Peachtree City, GA 30269  
 1-800-621-9419 | rinnai.us | rinnai.ca

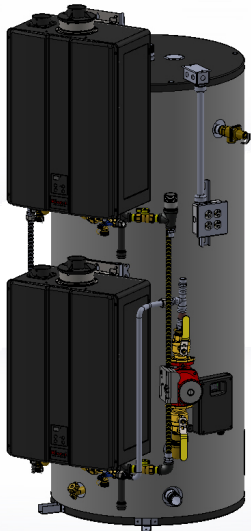




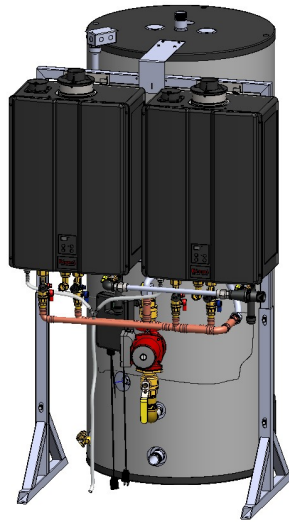
119 Gallon Model



80 Gallon Model



Vertical Double Units



Horizontal Double Units

### OPTIONAL ACCESSORIES

Room Air Screen, Condensate Neutralizer, ScaleCutter, Control-R™ Wi-Fi Module, Wireless Accessories, and many more. Visit [rinnai.us](http://rinnai.us) for a complete list of accessories.

### EASE OF INSTALLATION AND SERVICEABILITY

- Wi-Fi Technology for Remote Monitoring and Management
- Simple Gas Conversion

### SUPER-HIGH-EFFICIENCY (CONDENSING) HYBRID WATER HEATING SYSTEM

Installation Type	Internal (Indoor) Commercial Applications	
Model Numbers	CHS398100HV, CHS398100HVA, CHS320100HV, CHS398100Hi, CHS199100Hi, CHS160100Hi, CHS19980Hi, CHS16080Hi, CHS13080Hi	
Approved Gas Types	Natural and Propane	
Maximum System Gas Consumption	Up to 398,000 BTU/h (See specific models on following pages)	
Efficiency	Ratings Not Certified by AHRI	UEF up to 0.93 Thermal Efficiency: Up to 97%
	High Altitude Approved	Up to 10,200 Ft (3,109 M)
Water Flow Control	Water Flow Sensor, Electronic Water Control and Bypass Control	
Controller	Standard: Integrated Controller Optional: MC-91-2US	
Certifications	AHRI, ANSI Z21.10.3, CSA 4.3, and Energy Star® (Tankless Water Heater)	
Storage Tank	<ul style="list-style-type: none"> <li>• 2" Eco-friendly foam insulation</li> <li>• Glass-lined inner tank</li> <li>• 1-1/2" MNPT dielectric hot and cold connections</li> <li>• Pre-installed temperature &amp; Pressure relief valve</li> <li>• Brass drain valve</li> <li>• Dual magnesium anode rods</li> <li>• Hand hole clean-out</li> </ul>	
Warranty	<ul style="list-style-type: none"> <li>• Heat Exchanger: 8 years or 12,000 operation hours, whichever occurs first</li> <li>• Tank: 6 years</li> <li>• All Other Parts and Components: 5 Years</li> <li>• Reasonable Labor: 1 Year</li> </ul> (Refer to the Installation and Operation Manual for further warranty information.)	
Safety Devices	Flame Failure - Flame Rod, Boiling Protection, Combustion Fan RPM Check, Over Current - Glass Fuse, Remaining Flame (OHS) and Automatic Freeze Protection	
Additional Features	<ul style="list-style-type: none"> <li>• Complies with South Coast Air Quality Management District 14 ng/J or 20 ppm NOx Emission Levels</li> <li>• Ultra Low NOx</li> </ul>	
Venting Options:	<ul style="list-style-type: none"> <li>• Concentric or schedule 40 PVC/CPVC</li> <li>• Direct Vent (Concentric and Twin Pipe)</li> <li>• Non-Direct Vent (Room Air)</li> <li>• Common Vent (Direct Vent and Room Air) Vent lengths up to 150 ft with eight Tankless Water Heater units.</li> </ul>	

#### Maximum Equivalent Vent Lengths:

##### Twin Pipe

Vent Sizes	2 in. (51 mm)	3 in. (76 mm)
Vent Lengths	65 ft (20 m)	150 ft (46 m)

##### Concentric

Vent Sizes	2 in. X 4 in.	3 in. X 5 in.
Vent Lengths	65 ft (20 m)	150 ft (46 m)

Note: Sizes and lengths apply to single engine or non-common vent double engine systems.

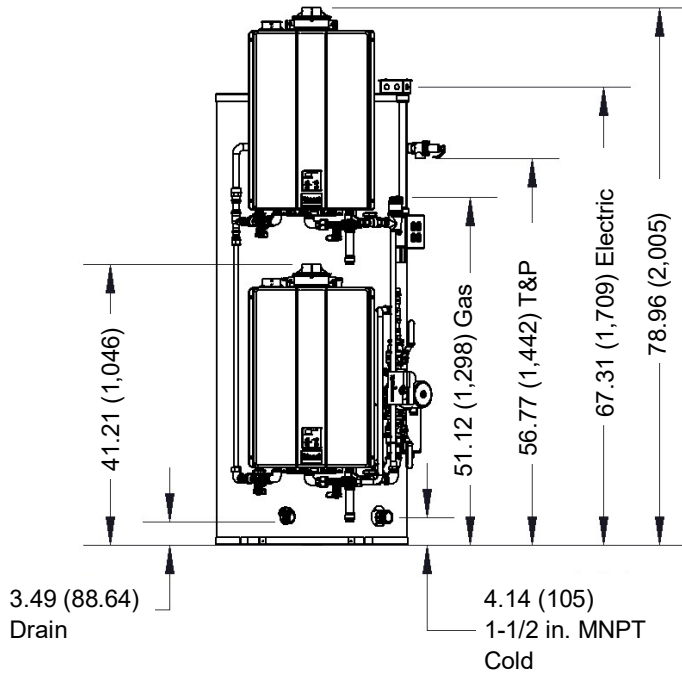


CERTIFIED TO ANSI Z21.10.3 — CSA 4.3

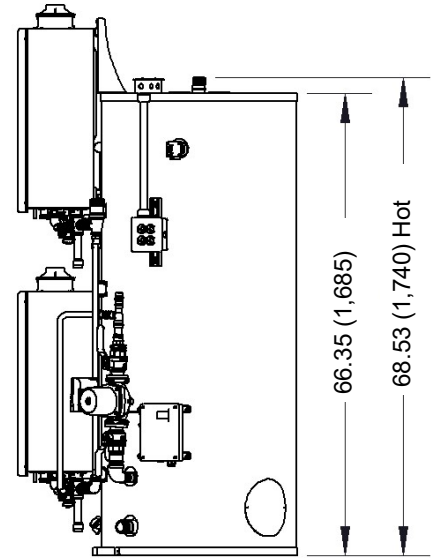
**DIMENSIONS (VERTICAL DOUBLE UNITS)**

IN. (MM)

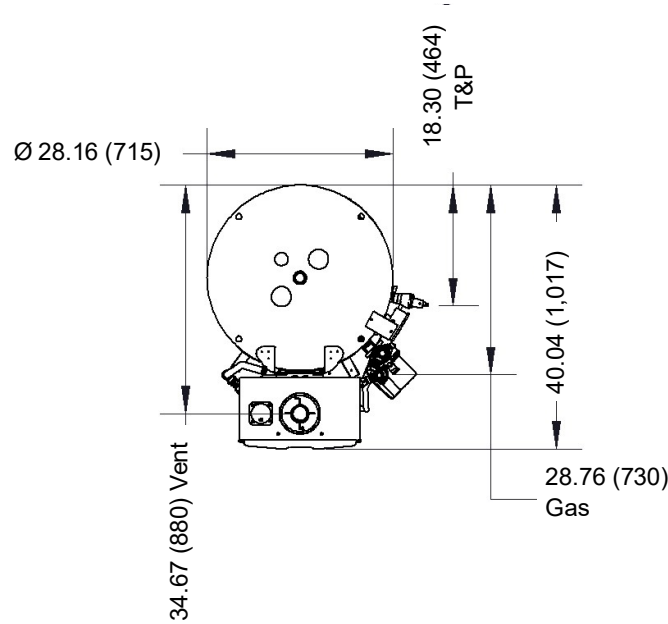
**FRONT**



**RIGHT**



**TOP**



**RECOVERY CAPACITIES**

U.S. Gallons/Hour Liters/Hour at Temperature Rise Indicated													
Tank Capacity	°F	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F	140°F
	°C	17°C	22°C	28°C	33°C	39°C	44°C	50°C	56°C	61°C	67°C	72°C	78°C
119 Gal.	GPH	1,254	941	752	627	537	470	418	376	342	314	289	269
450 Liters	LPH	4,747	3,561	2,848	2,374	2,035	1,780	1,582	1,424	1,295	1,187	1,096	1,017

## TECHNICAL SPECIFICATIONS (For Vertical Double Units)

Model Number	CHS398100HV	CHS398100HVA***	CHS320100HV
Dimensions (Assembled) in. (mm)	w x h x d: 32.4 x 78.8 x 40.2 (822.7 x 2,001.5 x 1,021.1)		
Weight	Tank: 310 lbs (141 kg) Complete System: 530 lbs (240 kg)		
Installation Type	Internal (Indoor) Commercial Applications		
Category and Ignition System	Category IV, Direct Electronic Ignition		
Gas Consumption Btu/h (kW/h)	Minimum: 30,400 (9) Maximum: 398,000 (116.6)		Minimum: 30,400 (9) Maximum: 320,000 (93.7)
Water Supply Pressure	150 PSI (Maximum)		
Temperature Setting	98°F (37°C) to 185°F (85°C)		
Tank Volume	119 Gallons (450 Liters)		
First Hour Delivery Rating*	551 Gallons (2,085 Liters)		460 Gallons (1,741 Liters)
Sound Level (Single unit)	49 dB		48 dB
Electrical Data (Tankless Water Heater)	<b>Normal:</b> 265 W, <b>Standby:</b> 44 W, <b>Freeze Protection:</b> 148 W, <b>Max Current:</b> 5.5 A		<b>Normal:</b> 233 W, <b>Standby:</b> 44 W, <b>Freeze Protection:</b> 148 W, <b>Max Current:</b> 5.5 A
	<b>Fuse:</b> Tankless Water Heater Engine: 10 Amps, Controller: 10 Amps		
Gas Supply Pressure**	Natural: 3.5 - 10.5 in. w.c. Propane: 8.0 - 13.5 in. w.c.		
By-Pass Flow Control	Electronic		
Connections	Gas Supply Inlet: 1-1/2 in. MNPT Hot Water Outlet: 1-1/2 in. MNPT Cold Water Inlet: 1-1/2 in. MNPT		
Electric Connections	Appliance: AC 120 Volts, 60Hz. Integrated Temperature Controller: DC 12 Volts (Digital)		
Water Flow Control	Water Flow Sensor, Electronic Water Control and Bypass Control		
Water Temperature Control	Simulation Feed Forward and Feedback		
Recovery	459 GPH @ 100° ΔT		376 GPH @ 100° ΔT
High Altitude Approved	Up to 10,200 Ft (3,109 M)		
Ultra Low NOx	Yes		
Certifications	AHRI, ANSI Z21.10.3, CSA 4.3 and ENERGY STAR® Certified (CU199i)		
Controller	MCC-91-2US		
Recovery Pump	Grundfos UPS 26-150 (S)F; 3 Speed		
Venting Material	Polypropylene, PVC, CPVC		
Venting Options	Concentric Polypropylene, Twin Pipe, or Common Vent Polypropylene/PVC/CPVC. Vent lengths up to 150 ft.		
Wi-Fi Ready	Yes		

\* First Hour Delivery Rating is a theoretical calculation based on 70% usable tank capacity.  
Tank Capacity x .70 + (recovery) = First Hour Delivery Rating

\*\* Maximum gas supply pressure must not exceed the value specified by the manufacturer.

\*\*\* Model includes an ASME rated tank.