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Ultimate 299, 399 and 499

High efficient Condensing Volume Water Heater

Submittal Sheet

Job Name: _____ Date: _____

Location: _____

Engineer: _____

Contractor: _____

Model Number: _____ Gas Type: _____

Product Features:

- Certified to ANSI Z21.13/CSA 4.9-2017 gas-fired boiler standard
- SA240-S43932 Stainless Steel Heat Exchanger
- ASME “H” stamped boiler designed and constructed in compliance with the ASME Boiler and Pressure vessel code Section IV
- CSD-1 compliant, low NOx operation and direct spark ignition
- Fully modulating burner, 6 to 1 turndown ratio
- Vents via 3 in 1 included adapter: CPVC, PVC, PP or Stainless Steel
- Convertible from NG to LP (field replaceable orifice required)
- Direct vent sealed combustion or indoor intake air compatible
- Max operation pressure and temp: 80psi and 185°F
- **Maximum vent lengths: 228’ per side on a CHB 299, 605’ on a CHB 499**
- Cascade venting approved in Canada

Control Features:

- Manual Reset High Limit (CSD-1)
- Manual Reset LWCO (CSD-1)
- External Alarm connection
- Domestic hot water priority via tank sensor or aquastat
- Outdoor reset & Cascade up to 16 units
- Freeze protection and Time and Date input
- 3 circulator outputs
- Two temp output: one for DHW and one for CH
- Integrated Modbus RTU for connection to BMS gateways
- Integrated 0-10v connection, error history with time & date

Included Items: 10k Outdoor sensor, 45psi ASME relief valve

Optional Features: Wifi control with mobile app and extra accessory, Racking systems for 1,2, 3 or 4 boilers with or without low loss header

Model	Water Connections Inlet & Outlet	Gas Connection NPT, inches	Exhaust / air-intake Pipe diam. inches	Max Vent length per side, ft / Total combined length	Approx weight empty, lbs	Water content, usg
HWB 299	1 1/2"	1"	4"	228' / 456'	79	6.7
HWB 399	1 1/2"	1"	4"	121' / 242'	83	8.3
HWB 499	1 1/2"	1"	6"	605' / 1210'	85	10.4

Model	Input Modulation MBH	Gross Output Capacity MBH	Recovery Rate gal/hr	Thermal Efficiency %
299	59-295	274	319	96.8%
399	80-396	378	428	95.6%
499	98-474	453	513	97.4%

Performance Specs

King Heating Products Inc

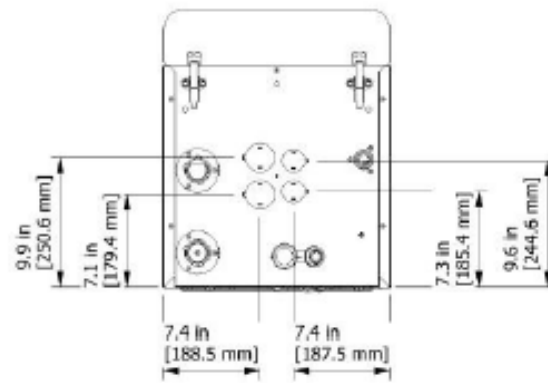
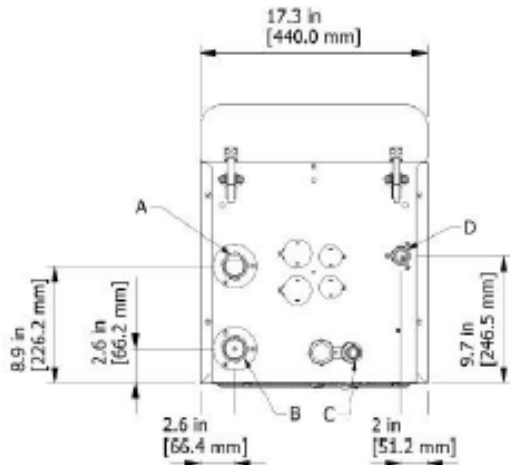
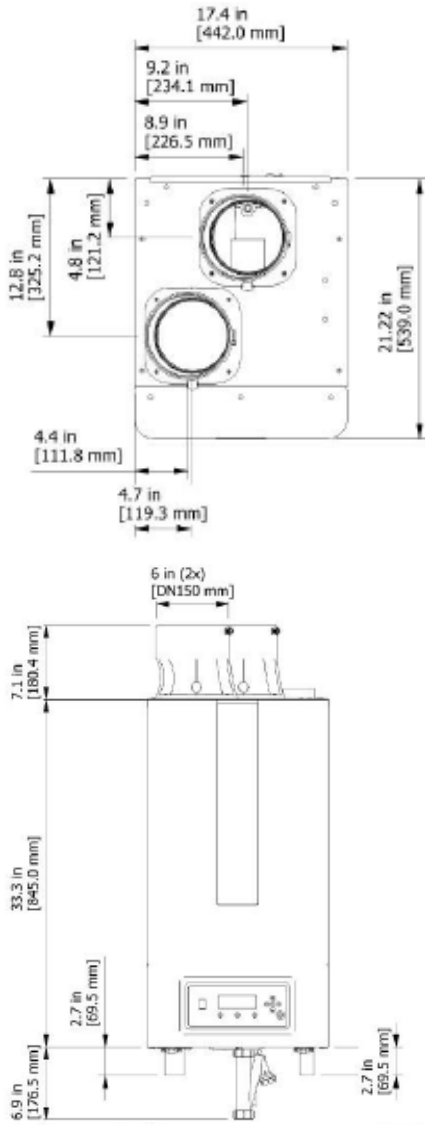
UNit103-2567 192 St.
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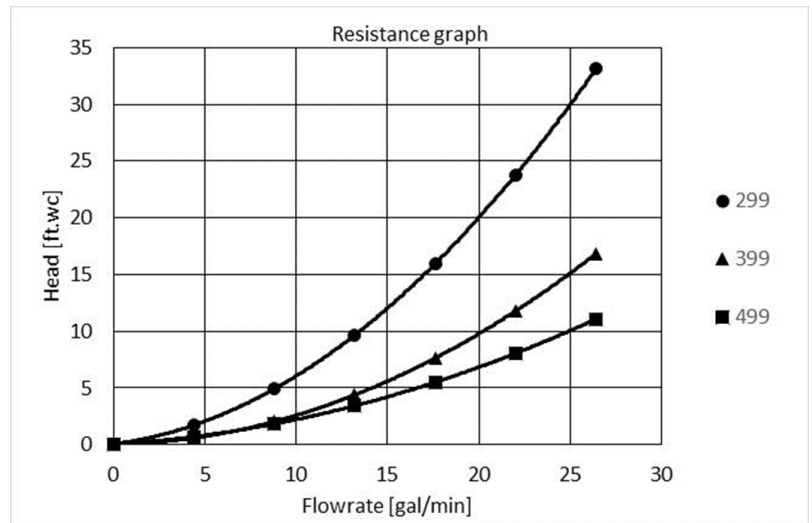


Boiler Dimensions:

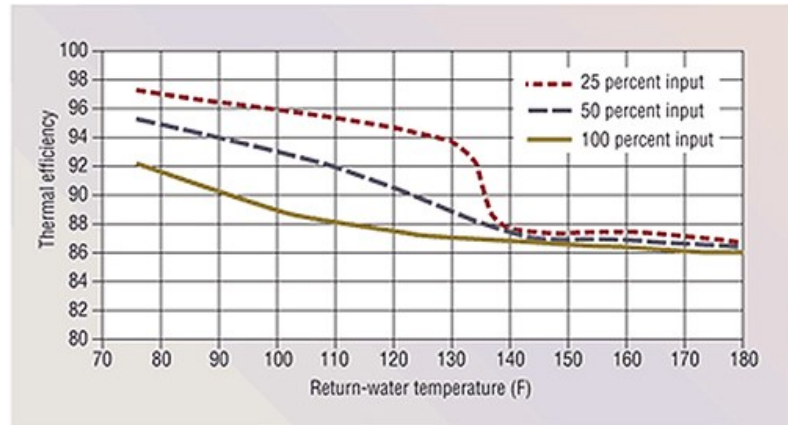
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Pump Sizing Chart



Boiler Efficiency Chart



For more information visit:

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Electrical Connections:

LOW VOLTAGE CONNECTIONS

29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
						-	+	-	+	Gnd				-	+			-	+	B	A	Gnd							
Safety switch 2	Safety switch 1	Gas pressure switch	LWCO Extern	AL-BUS managing boiler	DO NOT USE	Flow switch DHW	DO NOT USE	DO NOT USE	AL-BUS depending boiler	Modbus			DHW sensor	System sensor	DO NOT USE														
Interrupteur de sécurité 2	Interrupteur de sécurité 1	Interrupteur de pression de gaz	Eau basse coupée à l'extérieur	AL-BUS chaudière gérant	NE PAS UTILISER	Interrupteur de débit ECS	NE PAS UTILISER	NE PAS UTILISER	AL-BUS chaudière dépendant				Capteur ECS	Capteur de système	NE PAS UTILISER														

HIGH VOLTAGE CONNECTIONS

<p>MAXIMUM TOTAL OUTPUT 3.5 Amps NOMINAL</p>	1	2	3	PE	4	5	PE	6	7	PE	8	9	PE	PE	10	11	
	L1	N	L2	PE	L	N	PE	L	N	PE	L	N	PE	PE	L	N	
	DO NOT USE				DO NOT USE				GENERAL PUMP			MAINS SUPPLY				ALARM	
	NE PAS UTILISER				NE PAS UTILISER				Pompe générale MAX 2 Amps			Alimentation secteur				Alarme MAX 50W	

Minimum and maximum allowable combined vent and air inlet length:

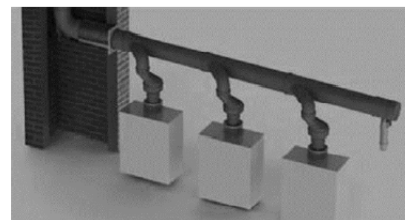
- Minimum venting length: two feet (2 ft) for all boilers
- Maximum venting length: see table below.

Venting Lengths:

	Maximum Exhaust Length / Maximum Combustion Air Intake Length		
	CHB-299	CHB-399	CHB-499
4"	228' / 228'	121' / 121'	92' / 92'
5"			359' / 359'
6"			605' / 605'

Cascade Vent

The 299 & 399 have an internal flue gas valve for an overpressure system according to the table below. This device is needed to prevent recirculation of the flue gases. The 499 has no internal flue gas valve and needs to be calculated for a nil pressure common flue system or a separated flue system. If separated flue systems cannot be applied, ask a flue gas supplier to calculate a nil pressure common flue system.



10.1.1 CALCULATION CHB (VALID FOR PARTS SUPPLIED BY DURAVENT (M&G)).

Maximum vertical length in feet (m).					
Type of boiler	Number of appliances	DN150	DN150/200	DN200	DN200/300
CHB-299	3	100 ft (30 m)	100 ft (30 m)	100 ft (30 m)	100 ft (30 m)
	4	36 ft (11 m)	100 ft (30 m)	100 ft (30 m)	100 ft (30 m)
	5		100 ft (30 m)	100 ft (30 m)	100 ft (30 m)
	6		16 ft (5 m)	100 ft (30 m)	100 ft (30 m)
CHB-399	3	85 ft (26 m)	100 ft (30 m)	100 ft (30 m)	100 ft (30 m)
	4		100 ft (30 m)	100 ft (30 m)	100 ft (30 m)
	5		16 ft (5 m)	100 ft (30 m)	100 ft (30 m)
	6			100 ft (30 m)	100 ft (30 m)
CHB-499	3		100 ft (30 m)	100 ft (30 m)	100 ft (30 m)
	4		65 ft (20 m)	100 ft (30 m)	100 ft (30 m)
	5			20 ft (6 m)	100 ft (30 m)
	6				100 ft (30 m)