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Ultimate 299, 399 and 499

High efficient Condensing Boiler

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

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

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

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
299	1 1/2"	1"	4"	228' / 456'	79	6.7
399	1 1/2"	1"	4"	121' / 242'	83	8.3
499	1 1/2"	1"	6"	605' / 1210'	85	10.4

Model	Input Modulation MBH	Gross Output Capacity MBH	AFUE efficiency %	Combustion Efficiency %	Thermal Efficiency %	Heat Exchanger Surface Area Sq. M.
299	59-295	274	95.1%	-	-	1.89
399	80-396	378	-	95.5%	95.4%	2.24
499	98-474	453	-	95.6%	95.1%	3.35

King Heating Products Inc:

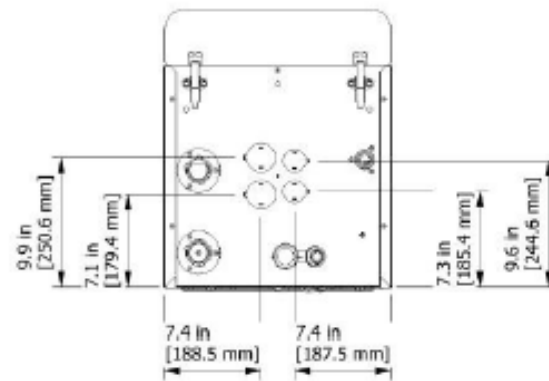
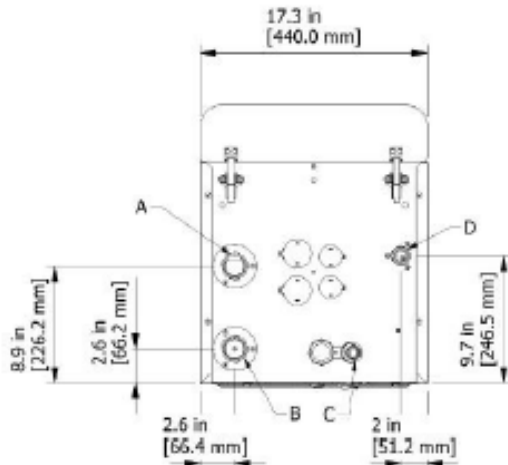
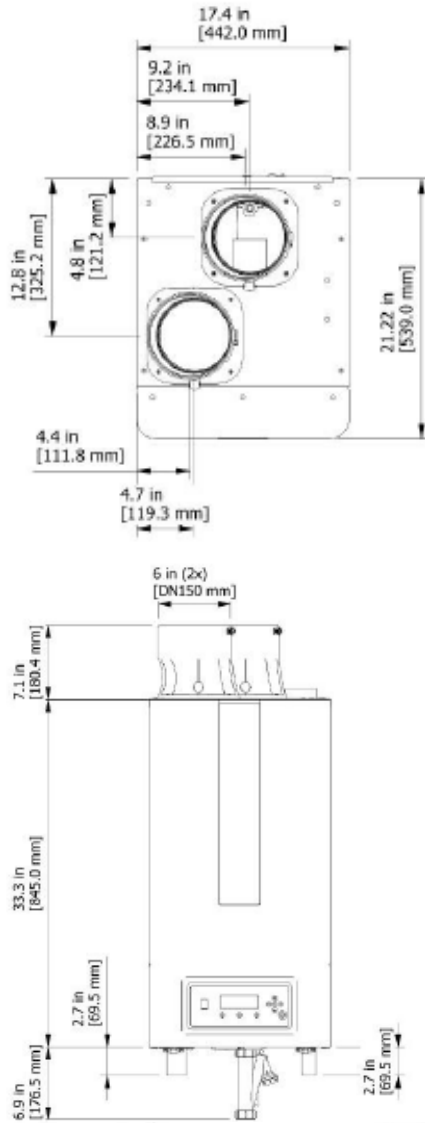
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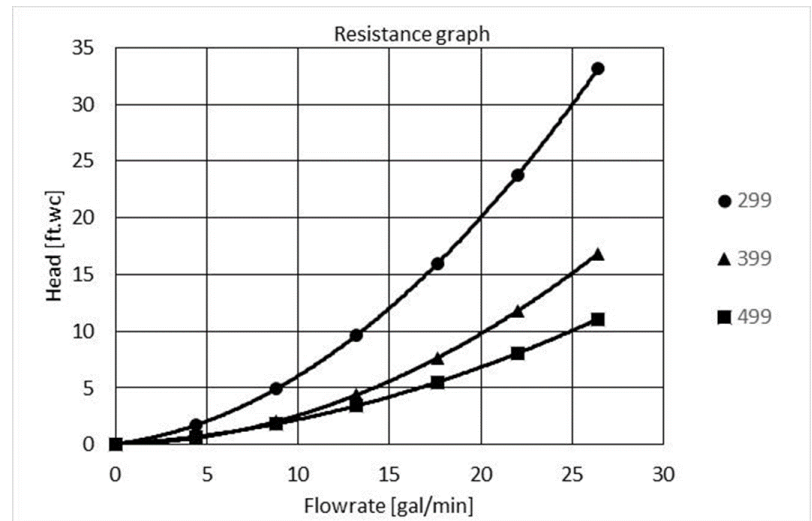


Boiler Dimensions:

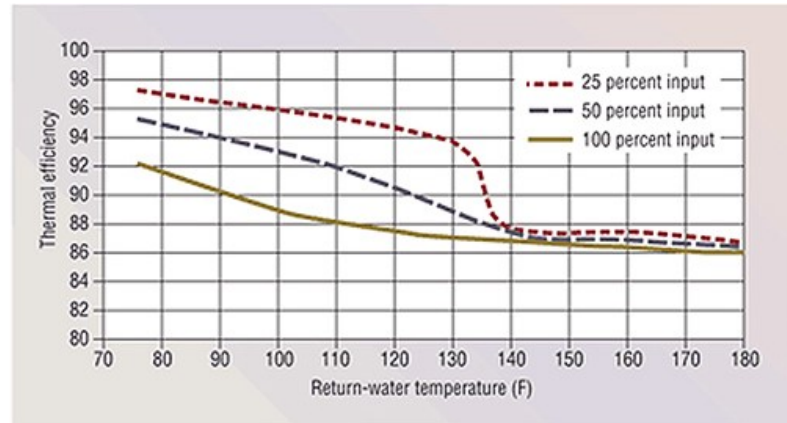
ECO-KING



Pump Sizing Chart



Boiler Efficiency Chart



For more information visit:

www.kingheatingproducts.com

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 Sécurité passer 2	Safety switch 1 Sécurité passer 1	Gas pressure switch Gas la pression passer	LWCO Extern Eau basse coupée à l'extérieur	AL-BUS managing boiler AL-BUS chaudière gérant	Pump control PWM Commande de pompe PWM	Flow switch DHW Interrupteur de débit ECS	0-10 Vdc 0-10 Vcc	On/Off stat or Open therm heating circuit On/Off stat ou circuit de chauffage Open therm	AL-BUS depending boiler AL-BUS chaudière dépendant	Modbus		DHW sensor Capteur DHW	System sensor Capteur de système	Outdoor sensor Capteur extérieur														

HIGH VOLTAGE CONNECTIONS

 MAXIMUM TOTAL OUTPUT 3.5 Amps NOMINAL	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
	DHW PUMP				SYSTEM PUMP				GENERAL PUMP				MAINS SUPPLY			
	DHW TWV (3-WAY) VALVE)				Pompe du système				Pompe générale				Approvisionnement principal			
	Vanne DHW TWV (3 voies)												ALARM Alarme			

Minimum and maximum allowable combined vent and air inlet length:

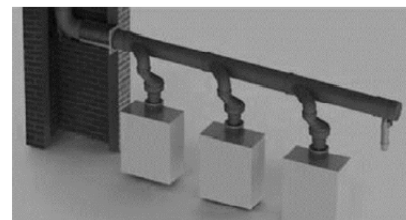
- Minimum venting length: two feet (2 ft) for all boilers
- Maximum venting length: see table below.

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)