



Typical Specifications For DynaMax HS Combination Heating and Domestic Hot Water Boilers Models DM(N,P)C 0083-DM(N,P)C 0803

The boiler shall be a CAMUS DYNAMAX HS model _____ having a modulating input rating of _____ Btu (kW) /hr. an output of _____ Btu (kW)/hr and a recovery capacity of _____ GPH (LPH) at 100°F (56°C) and shall be operated on Natural gas or L.P. Gas. The boiler shall be capable of full modulation firing down to 20% of rated input with turn down ratio of 5 to 1.

The boiler shall be design certified by CSA International and shall meet the requirements of ANSI Z21.13 and CSA 4.9. The boiler shall bear the ASME "H" stamp and shall be national board listed where required.

Performance Overview:

- Boiler shall operate up to 93.0% steady state efficiency
- Heat exchanger shall be a fully condensing counter-flow water tube design with stainless steel construction and all welded design with constant allowable system return temperatures of 40F.
- Fine tuned combustion premix providing homogeneous air and gas combustion mix to a radial burner incorporating a knitted stainless steel wrap ensuring stable light off and efficient clean combustion.
- 5:1 gas input turn down ratio with sustained efficient combustion characteristics throughout entire modulating range
- Factory mounted integral pump, with pre and post purge timing
- Cascade capable integrated control system allowing up to 8 units in lead-lag configuration
- Oxides of Nitrogen (NOx) of 9 ppm corrected to 3% oxygen.
- Category IV venting models: 0083 to 0253
- Category II venting models: 0213 to 0803
- The boiler is fully factory fire tested to obtain optimum combustion characteristics and to establish certified gas input rates.
- System safety and operating devices and controls are fully configured, calibrated and factory tested.
- The boiler shall comply with the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard.
- Stainless steel outer jacket construction with easily removed outer panels for ease of service

Combustion Chamber:

The combustion chamber shall be an all welded stainless steel construction which shall be sealed and completely enclosed, independent of the outer jacket assembly. The Stainless Steel combustion chamber shall be designed to drain condensation to the bottom of the heat exchanger assembly. A condensate collection box shall be employed to trap and neutralize flue product condensate. A window view port shall be provided for visual inspection of the boiler combustion during firing.

Heat Exchangers:

The heat exchanger shall be inspected and tested to A.S.M.E. Section IV requirements. The A.S.M.E. Section IV seal of approval will not be provided as standard for jurisdictions not requiring the A.S.M.E. Section IV seal of approval. The heat exchanger shall be a counter-flow water tube design with multi-pass stainless steel all welded construction heat exchanger with maximum working pressure of 160 PSI (1100 kPa). The heat exchanger design shall be capable of 40°F constant system return temperatures to enable fully condensing operation. A pressure relief valve of _____ lb/hr shall be furnished with the heater. A plate type heat exchanger shall be deployed with the boiler and be utilized to provide domestic hot water service.

Integrated Combustion and Operating Controls:

Standard controls include a SOLA electronic proportional integrated combination ignition limit/operator control accurate to 1°F (0.5°C) having a pulse width modulation signal output for modulating fan speeds. Controls are lead lag "Cascade" ready for control of up to eight boilers c/w Indoor outdoor reset and lead lag control. Control shall be equipped and ready with 4-20 mA remote set point or modulating control, capable with 0-10 VDC remote set point or modulating control. Control is BMS Modbus RTU protocol ready and capable of other alternate protocol conversions with additional optional gateway protocol converter. Control shall be supplied with a mounted multi-line user configurable display which shall also provide for control system configuration and set up, readouts of boiler target, differential and inlet/outlet temperatures as well as accumulated runtime, enunciator diagnostics, and firing rates. The display shall be accessed through a 5-way touchpad high resolution LCD control with shortcut key access with user and installer protected parameters. The boiler safety control string shall be furnished with controls for optional low gas pressure, optional high gas pressure, blocked flue, high limit, stack limit and flow switch. A current transformer is supplied with all models to perform flow switch functionality. Additional control safeties shall include flame rectification, fan speed, and high limit.



**Typical Specifications For DynaMax HS
Combination Heating and
Domestic Hot Water Boilers
Models DM(N,P)C 0083-DM(N,P)C 0803**

Burner:

The burner shall be a premix design and constructed of high temperature Stainless Steel with metal fiber outer covering to provide modulating firing rates. The burner shall provide equal distribution of heat through the entire heat exchanger. A window view port shall be provided for visual inspection of the boiler during firing.

Venting and Air Intake Options

The following venting options shall be utilized:

- Category II Venting – combined vent*
- Category IV Outside Air (Horizontal & Vertical)
- Category IV Through-wall Venting (Horizontal & Vertical)
- Outdoor Venting
- Category IV Direct Venting

* Category II combined vent shall only employ an engineered vent system prepared by a certified vent manufacturer, this can only be used with DynaMax HS floor mount models (DM 213 – 803)

The following category II and IV vent materials shall be utilized

- Stainless or AL29-4C for all system applications
- Polypropylene (PPE) for all system applications
- CPVC for hydronic heating systems
- PVC for select low temperature systems only – consult factory

The boiler shall be vented as a through-wall (vertical or horizontal) Category IV condensing appliance for up to 100 equivalent ft using material approved for use on condensing application under standard ULC S636 or equivalent, or as permitted by the local jurisdiction. The following air intake options shall be utilized: Outside air sealed direct (vertical or horizontal);

- Outside air sealed direct (vertical or horizontal);
- Outside air ducted to jacket flange;
- Indoor air.

Gas Train:

The gas train shall consist of a pressure regulating electro-hydraulic proportional air/gas main gas actuator providing a slow opening, fast closing automatic gas valve and safety shutoff and gas pressure regulator. Optional high and/or low gas pressure switch is available. Models DM 83 – DM 803 operate with a 5:1 turndown ratio.

External Jacket and Fasteners:

The external jacket shall be of 430 stainless steel mirror finish panels and powder coated steel assembled utilizing interference fit locks and minimal non-strip self tap screws for ease of removal and access to the heat exchanger and combustion air / gas control.

SUBMITTAL DATA SHEET – DYNAMAX HS - COMBINATION

Engineer: _____ Job Location: _____ Date: _____

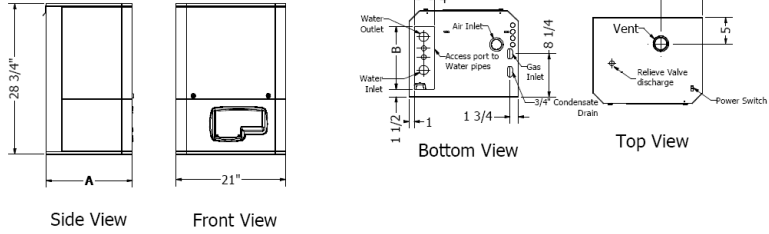
Prepared by: _____ Buyer's Name: _____ Quote #: _____

Job Name: _____ Buyer's Address: _____

Wall Mount Models

Input & Output

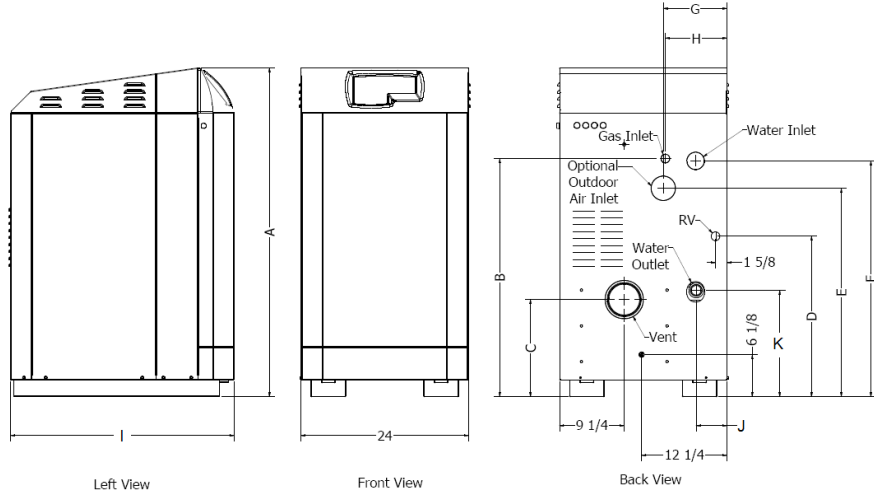
Model	Input Btuh Range	Max Output Btuh
0083	16-80	74.4
0103	20-100	93.0
0153	30-150	139.5
0203	40-200	186.0
0253	50-250	232.5



Floor Mount Models

Input & Output

Model	Input Btuh Range	Max Output Btuh
0213	40-199	186
0263	50-250	232.5
0293	60-299	278
0393	80-399	371
0503	100-500	465
0603	120-600	558
0703	140-700	651
0803	160-800	744



Heat Exchanger Head Loss & Flow

Model	Temperature Rise Across Heat Exchanger			
	30°F		35°F	
	USGPM	ΔP-Ft.	USGPM	ΔP-Ft.
0083	5.0	8.2	4.3	6.2
0103	6.3	12.3	5.4	9.4
0153	9.5	10.4	8.1	7.8
0203	12.6	7.2	10.8	5.8
0213	12.6	7.2	10.8	5.8
0253	15.8	11.5	13.5	8.7
0263	15.8	11.5	13.5	8.7
0293	18.9	9.3	16.2	7.0
0393	25.2	8.4	21.6	6.3
0503	31.5	9.2	27.0	6.9
0603	38.8	17.5	32.0	11.8
0703	45.3	18.2	40.0	14.4
0803	51.8	23.5	43.0	16.0

Recovery Capacity

Model	100°F Rise GPH	56°C Rise LPH	80°F Rise GPH	44°C Rise LPH	60°F Rise GPH	33°C Rise LPH
0083	89	337	112	422	149	562
0103	111	422	139	527	186	703
0153	167	632	209	790	279	1054
0203	223	843	279	1054	372	1405
0213	223	885	293	1106	390	1475
0253	279	1054	348	1317	465	1756
0263	279	1096	362	1370	483	1827
0293	334	1260	417	1575	556	2101
0393	445	1682	556	2102	742	2803
0503	557	2108	697	2634	929	3513
0603	697	2529	836	3161	1115	4215
0703	814	2951	976	3688	1301	4918
0803	930	3372	1115	4215	1487	5620

Dimensions & Specifications

Model	Dim "A" [in.]	Dim "B" [in.]	Dim "C" [in.]	Dim "D" [in.]	Dim "E" [in.]	Dim "F" [in.]	Dim "G" [in.]	Dim "H" [in.]	Dim "I" [in.]	Dim "J" [in.]	Dim "K" [in.]	Length of Vent and Air Intake Pipes at Recommended Diameter [in.]			Cat. II Vent	Water Conn [in.] NPT	Gas Conn. At Boiler [in.] NPT
												over 25' and up to 100'	over 15' and up to 25'	up to 15'			
0083	16 1/2	12	-	-	-	-	-	-	-	-	-	3	3	2	-	1	1/2
0103	16 1/2	12	-	-	-	-	-	-	-	-	-	3	3	2	-	1	1/2
0153	16 1/2	12	-	-	-	-	-	-	-	-	-	3	3	2	-	1	1/2
0203	23 1/2	19	-	-	-	-	-	-	-	-	-	3	3	2	-	1	1/2
0213	42 1/2	25 3/4	14 1/4	23	24 1/4	34 1/4	14 3/4	14 1/4	32	4 3/8	15 1/4	3	3	2	4	1	1/2
0253	23 1/2	19	-	-	-	-	-	-	-	-	-	3	3	2	-	1 1/4	1/2
0263	42 1/2	25 3/4	14 1/4	23	24 1/4	34 1/4	14 3/4	14 1/4	32	4 3/8	15 1/4	3	3	3	4	1 1/4	1/2
0293	47 1/8	34 1/8	14 1/4	23	29 7/8	33 7/8	9 1/8	8 7/8	32	4 3/8	15 1/4	4	3	3	5	1 1/4	3/4
0393	47 1/8	34 1/8	14	23	29 7/8	33 7/8	9 1/8	8 7/8	32	4 3/8	15 1/4	4	3	3	5	1 1/2	1
0503	47 1/8	34 1/8	14	23	29 7/8	33 7/8	9 1/8	8 7/8	32	4 3/8	15 1/4	4	3	3	6	1 1/2	1
0603	47 1/8	36 1/4	14	23	30 3/4	38	9 1/8	10 1/8	40 1/2	3 5/8	14 3/8	4	3	3	6	2	1
0703	47 1/8	36 1/4	14	23	30 3/4	38	9 1/8	10 1/8	40 1/2	3 5/8	14 3/8	4 (Air), 6 (Vent)	4	4	7	2	1
0803	47 1/8	36 1/4	14	23	30 3/4	38	9 1/8	10 1/8	40 1/2	3 5/8	14 3/8	5 (Air), 6 (Vent)	5	5	7	2	1

Heat Exchanger Water Content

Model	Water Content (Gal)	Wetted Heating Surface (Sq. Ft.)
0083	0.71	9.1
0103	0.71	9.1
0153	0.99	12.7
0203/0213	1.69	21.8
0253/0263	1.69	21.8
0293	2.26	29.1
0393	3.28	41.8
0503	3.97	50.8
0603	4.49	58.1
0703	4.49	58.1
0803	5.07	65.3

Voltage Requirement

Model	Voltage Requirement
0083 - 0803	120VAC, 60Hz, 1 Phase

Approximate Shipping Weight

Model	Weight [lbs]
0083	140
0103	140
0153	198
0203	220
0253	230

Approximate Shipping Weight

Model	Weight [lbs]
0213	320
0263	335
0293	380
0393	445
0503	514
0603	650
0703	660
0803	675

Model # _____ # Of Units _____

Type of Gas _____

Total Input _____	BTU/hr	Flow _____	USGPM @ Allowable Pressure Drop _____ ft.
Total Output _____	BTU/hr	Recovery Rate _____	USGPH @ _____ °F

Optional Accessories _____