



Typical Specifications For DynaMax HS Hydronic Heating Boilers Models DM(N,P)H 0081-DM(N,P)H 0801

The heating boiler shall be a CAMUS DYNAMAX HS model _____ having a modulating input rating of _____ Btu (kW) /hr. and an output of _____ Btu (kW)/hr 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: 0081 to 0251
- Category II venting models: 0211 to 0801
- 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 Exchanger:

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.

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 wall hung models to perform flow switch functionality. A paddle style flow switch shall be provided loose on floor mount models. Additional control safeties shall include flame rectification, fan speed, and high limit.



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Hydronic Heating Boilers
Models DM(N,P)H 0081-DM(N,P)H 0801**

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 211 – 801)

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 safety shutoff valve and gas pressure regulator. Optional high and/or low gas pressure switch is available. Models DM 80 – DM 800 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.

Heat Exchanger Water Content		
Model	Water Content (Gal)	Wetted Heating Surface (Sq. Ft.)
0081	0.71	9.1
0101	0.71	9.1
0151	0.99	12.7
0201/0211	1.69	21.8
0251/0261	1.69	21.8
0291	2.26	29.1
0391	3.28	41.8
0501	3.97	50.8
0601	4.49	58.1
0701	4.49	58.1
0801	5.07	65.3

Voltage Requirement	
Model	Voltage Requirement
0081 - 0801	120VAC, 60Hz, 1 Phase

Approximate Shipping Weight	
Model	Weight [lbs]
0081	135
0101	135
0151	190
0201	210
0251	220

Approximate Shipping Weight	
Model	Weight [lbs]
0211	315
0261	320
0291	376
0391	405
0501	450
0601	490
0701	533
0801	600

SUBMITTAL DATA SHEET – DYNAMAX HS – HYDRONIC HEATING

Engineer: _____

Job Location: _____

Date: _____

Prepared by: _____

Buyer's Name: _____

Quote #: _____

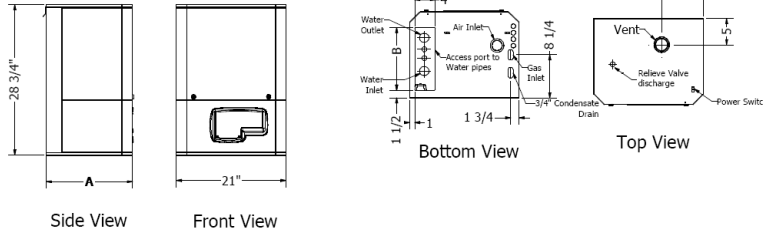
Job Name: _____

Buyer's Address: _____

Wall Mount Models

Input & Output

Model	Input Btuh Range	Max Output Btuh
0081	16-80	74.4
0101	20-100	93.0
0151	30-150	139.5
0201	40-199	186.0
0251	50-250	232.5



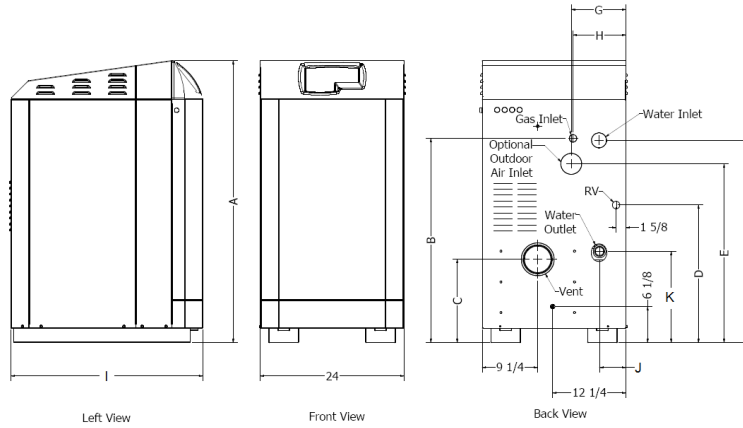
Heat Exchanger Head Loss & Flow

Model	Temperature Rise Across Heat Exchanger			
	30°F		35°F	
	USGPM	ΔP-Ft.	USGPM	ΔP-Ft.
0081	5.0	8.2	4.3	6.2
0101	6.3	12.3	5.4	9.4
0151	9.5	10.4	8.1	7.8
0201	12.6	7.2	10.8	5.8
0211	12.6	7.2	10.8	5.8
0251	15.8	11.5	13.5	8.7
0261	15.8	11.5	13.5	8.7
0291	18.9	9.3	16.2	7.0
0391	25.2	8.4	21.6	6.3
0501	31.5	9.2	27.0	6.9
0601	38.8	17.5	32.0	11.8
0701	45.3	18.2	40.0	14.4
0801	51.8	23.5	43.0	16.0

Floor Mount Models

Input & Output

Model	Input Btuh Range	Max Output Btuh
0211	40-199	186
0261	50-250	232.5
0291	60-299	278
0391	80-399	371
0501	100-500	465
0601	120-600	558
0701	140-700	651
0801	160-800	744



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'			
0081	16 1/2	12	-	-	-	-	-	-	-	-	-	3	3	2	-	1	1/2
0101	16 1/2	12	-	-	-	-	-	-	-	-	-	3	3	2	-	1	1/2
0151	16 1/2	12	-	-	-	-	-	-	-	-	-	3	3	2	-	1	1/2
0201	23 1/2	19	-	-	-	-	-	-	-	-	-	3	3	2	-	1	1/2
0211	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
0251	23 1/2	19	-	-	-	-	-	-	-	-	-	3	3	2	-	1 1/4	1/2
0261	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 1/4	1/2
0291	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
0391	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
0501	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
0601	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
0701	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
0801	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

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 _____