



## Typical Specifications For DynaFlame Hydronic Heating Boilers Models DF(N),(P)H 3500 - 5000 Models DF(N),(P)H 3502 - 5002

The heating boiler shall be a CAMUS DYNAFLAME model \_\_\_\_\_ having an input rating of \_\_\_\_\_ Btu (kW) /hr. and \_\_\_\_\_ Btu (kW)/hr output for hydronic heating.

The heating boiler shall be design certified by CSA International and shall meet the requirements of ANSI Z21.13 and CSA 4.9. The heating boiler shall be vented as a Category I non-condensing appliance or Category II condensing appliance.

### **Combustion Chamber:**

The combustion chamber shall be fully enclosed by a stainless-steel chamber inside of which is assembled a cylindrical copper-nickel coil Heat Exchanger having a maximum allowable working pressure of 160 psig (1100 kPa). An access door shall be provided for ease of service and inspection of the Heat Exchanger.

### **Burner:**

The burner shall be constructed of stainless steel. 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.

### **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 four-pass heat exchanger with maximum working pressure of 160 psig (1100 kPa). The heat exchanger is of cylindrical design, with integral copper-nickel finned tube  $\frac{7}{8}$ " I.D., 0.064" minimum wall thickness, 7 fins per inch, with nominal fin height of  $\frac{3}{8}$ ". Each end of the tubes shall be expanded by mechanical rolling process into the headers. The heat exchanger shall be gasket-less. All header castings shall be bronze. A pressure relief valve of \_\_\_\_\_ lb/hr shall be furnished with the heater.

### **Controls:**

Standard controls include an electronic proportional integrated combination limit/operator control accurate to 1<sup>o</sup>F (0.5<sup>o</sup>C) having a 4-20 mA output signal suitable for control of a variable frequency motor drive. The control shall also provide readouts of boiler target, differential and inlet/outlet temperatures as well as accumulated runtime. On/off switch, and full diagnostic light package shall be provided. The complete control package shall be mounted on the front panel with hinged door for easy access to all control modules. A flow switch shall be provided loose.

### **Firing Mode:**

The burner shall operate as fully modulating down to 20% for condensing and 35% for non-condensing application. Light off shall be at no more than 50% input to assure rumble free soft start.

### **Venting Options**

The following venting options shall be utilized: 1. Standard Venting. 2. Horizontal & Vertical Outside air Venting. 3. Through-Wall Venting. 4. Outdoor Venting. 5. Direct Venting.

### **Gas Train:**

The gas train shall consist of a gas valve with a pressure regulating electro-hydraulic actuator to provide slow opening, fast closing, safety shutoff and air/gas ratio control. A factory pre-set combination metering valve and orifice shall be provided for setting combustion parameters.

### **Ignition Module:**

The ignition module shall employ a proved igniter with 3 tries for ignition followed by lockout. Trial for ignition shall be 10 seconds with 15 seconds between retrieals.

### **External Jacket and Fasteners:**

The external jacket shall be of stainless steel mirror finish panels assembled utilizing interference fit locks and minimal non-strip self tap screws.

# SUBMITTAL DATA SHEET

## DYNAFLAME (HEATING) 3500-5000 and 3502-5002

Engineer: \_\_\_\_\_ Job Location: \_\_\_\_\_ Date: \_\_\_\_\_  
 Prepared by: \_\_\_\_\_ Buyer's Name: \_\_\_\_\_ Quote #: \_\_\_\_\_  
 Job Name: \_\_\_\_\_ Buyer's Address: \_\_\_\_\_

**Input & Output (MBTUH)**

Model	Non Condensing		Condensing	
	Input	Output	Input	Output
3500/3502	3500	2975	3500	3325
4000/4002	4000	3400	4000	3800
4500/4502	4500	3825	4500	4275
5000/5002	5000	4250	5000	4750

**Shipping Weight (lbs.)**

Model	Non Cond.	Cond.
3500/3502	1030	1105
4000/4002	1140	1215
4500/4502	1250	1325
5000/5002	1350	1425

**DynaFlame Non-Condensing**

Model	Vent ("V") Diameter Inches			
	Outdoor	Cat III Up to 50 ft	Cat III Up to 100 ft	Cat I
3500	9	9	14	16
4000	9	9	14	16
4500	10	10	14	16
5000	10	10	14	16

**DynaFlame Condensing**

Model	Vent ("V") Diameter Inches			
	Outdoor	Cat IV Up to 50 ft	Cat IV Up to 100 ft	Cat II
3502	9	9	14	12
4002	9	9	14	12
4502	10	10	14	12
5002	10	10	14	12

**Dimensions Non-Condensing**

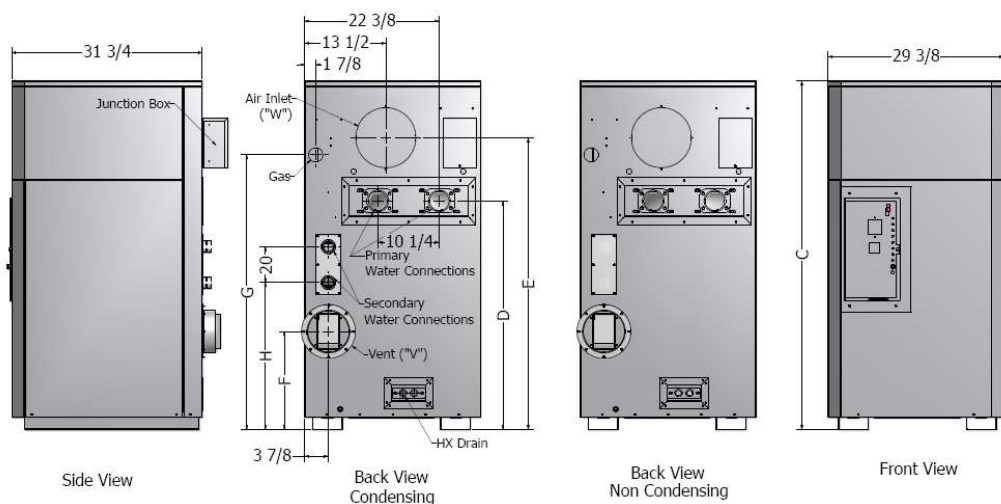
Model	Height Dim. "C"	Water Conn. "D"	Air Inlet "E"	Flue Height "F"	Gas Height "G"	Air Inlet Dia. "W"	Water Conn. Prim. †	Gas Conn. (NPT)
3500	86 1/2"	63 5/8"	76"	24 7/8"	72 5/8"	14"	4" NPT	2"
4000	91 1/2"	68 5/8"	81"	29 7/8"	77 5/8"	14"	4" NPT	2"
4500	96 1/2"	73 5/8"	86"	34 7/8"	82 5/8"	14"	4" NPT	2 1/2"
5000	101 1/2"	78 5/8"	91"	39 7/8"	87 5/8"	14"	4" NPT	2 1/2"

†For models 3500 - 5000 appliance inlet/outlet connections are 3" NPT.

**Dimensions Condensing**

Model	Height Dim. "C"	Water Conn. "D"	Air Inlet "E"	Flue Height "F"	Gas Height "G"	"H"	Air Inlet Dia. "W"	Water Conn. Prim. †	Water Conn. Second. (Grooved)	Gas Conn. (NPT)
3502	86 1/2"	63 5/8"	76"	24 7/8"	72 5/8"	32 7/8"	14"	4" NPT	1 1/2"	2"
4002	91 1/2"	68 5/8"	81"	29 7/8"	77 5/8"	37 7/8"	14"	4" NPT	1 1/2"	2"
4502	96 1/2"	73 5/8"	86"	34 7/8"	82 5/8"	42 7/8"	14"	4" NPT	1 1/2"	2 1/2"
5002	101 1/2"	78 5/8"	91"	39 7/8"	87 5/8"	47 7/8"	14"	4" NPT	1 1/2"	2 1/2"

†For models 3500 - 5000 appliance inlet/outlet connections are 3" NPT.



**Primary Heat Exchanger Head Loss & Flow**

Model	ΔT Across Heat Exchanger			
	30°F		35°F	
	USGPM	ΔP - Ft.	USGPM	ΔP - Ft.
3500/3502	198.1	12.7	169.8	9.5
4000/4002	226.9	17.0	194.5	12.7
4500/4502	254.7	21.9	218.3	16.4
5000/5002	282.9	27.6	242.5	20.7

**Secondary Stainless-Steel Heat Exchanger Head Loss & Flow**

Model	*USGPM	ΔP - Ft.
3502	40.0	8.5
4002	46.0	11.0
4502	52.0	14.0
5002	57.0	16.5

\*Flow for 15°F rise at high fire

**Current drawn by Boiler @ 230 Volts single phase 60 Hz**

Models	Max Amps Draw - Boiler Only
3500 thru 4002	16 Amps
4500 thru 5002	24 Amps

Model # \_\_\_\_\_ # Of Units \_\_\_\_\_ Type of Gas \_\_\_\_\_

Total Input _____ BTU/hr	Flow _____ USGPM @ Allowable Pressure Drop _____ ft.
Total Output _____ BTU/hr	

Optional Accessories \_\_\_\_\_