

# CAMUS

HYDRONICS LTD.



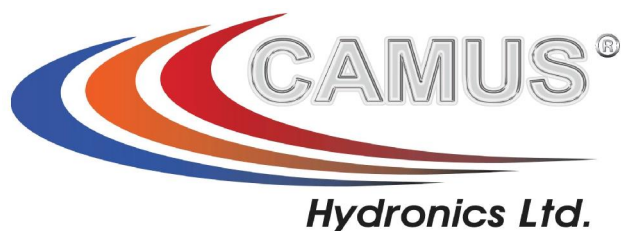
**EXTREMELY  
LOW NO<sub>x</sub>!**

for hydronic heating  
and hot water supply

# DYNAFLAME<sup>®</sup>

*Series*

gas fired commercial copper tube and stainless steel boilers



Rev.01

16 models to choose from.  
Inputs ranging from 500,000  
BTU/hr all the way up to 6 million  
BTU/hr. Copper or Stainless  
Steel Primary Heat Exchanger.  
Non-Condensing, Condensing or  
Near-Condensing. This modu-  
lating boiler has got it all.

# FEATURES & CONTROLS

boiler  
efficiencies

**85%** non-condensing

**88%** near-condensing

**95%** condensing

GET CONNECTED



In a world where we are becoming more connected, the DynaFlame is ready to enter this revolutionary phase in building automation. All DynaFlame boilers are equipped with standard Modbus RTU communication protocol to allow for BMS access to boiler operation. The remote monitoring of a boiler plant allows for complete overview of various boiler-related temperatures, boiler status, pump activation, boiler error codes and more. This is not just limited to read-only parameters, as a BMS is permitted to write setpoint temperatures, enable/disable and remotely send and receive firing rate requests.

To further evolve and adapt to the changing marketplace, the DynaFlame is available with BacnetIP, BacnetMSTP, LonWorks and MetasysN2 protocol support. All the features available in the Modbus RTU realm are carried into these protocol's with the use of a highly advanced, yet user friendly, Fieldserver Protonode. The Fieldserver Protonode is equipped with Ethernet or RS485 connectivity and is BTL (BACnet Testing Laboratory) Certified. This approval assures that we carry only the highest quality products with optimum performance and utmost ease of connectivity.

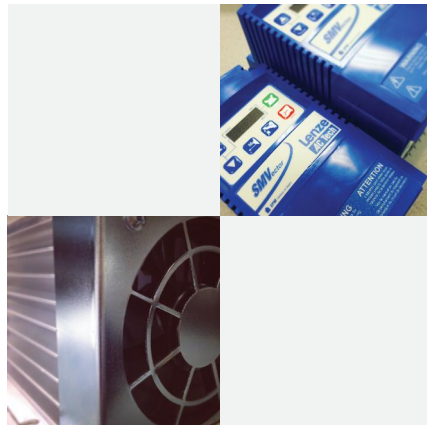
The DynaFlame is controlled by an integrated Honeywell SOLA controller. The 7" color touch screen provides remote operation through the 4-20mA or 0-10Vdc for set point or fire rate control. Paired with the ability to control multiple pump operation along with daisy chain set up for up to 8 boilers, this user friendly control also provides you with a USB output for screenshot capture, as well as password access for service personnel. Up to 8 SOLA devices may be monitored and controlled with one single display.



## standard features

- Single point input adjustment for controlling air and gas
- 1 to 1 air/gas ratio for perfect modulation throughout
- Advanced digital control system with pin point accuracy
- Proven hot surface ignition with soft start, rumble free operation
- 4-20mA for setpoint or modulation control
- Proven pilot ignition on models 3 million BTU/hr and above
- 0-10 VDC Converter (must be specified)
- Lead lag capability up to 8 boilers
- DHW sensor (domestic only) and system sensor (heating only)
- Modbus RTU communication
- Direct ignition up to 2.5 million BTU/hr
- Stainless steel secondary heat exchanger (condensing models only)

Flow switch, pressure relief valve, low gas pressure switch and flame failure contacts are standard on every DynaFlame





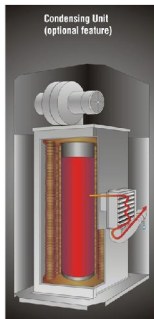
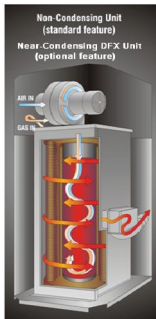
# HEAT EXCHANGER & BURNER

copper...

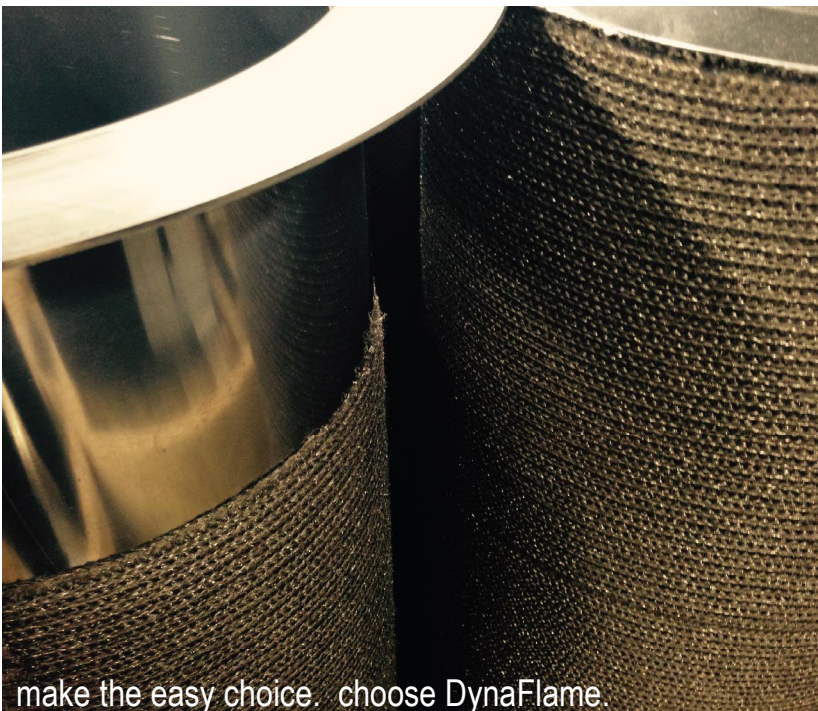
The copper heat exchanger is a four pass design with a maximum working pressure of 160 PSIG and a maximum working temperature of 250°F for heating and 210°F for domestic hot water applications. With its cast bronze headers and copper or cu-ni tubes, this gasket-less sealed design is a Camus trademark. Both the Copper and Stainless Heat Exchangers are vertically oriented which makes it easy to install and service with full access from the top and front of the appliance. Line up multiple units with minimal clearance between appliances.

...or stainless

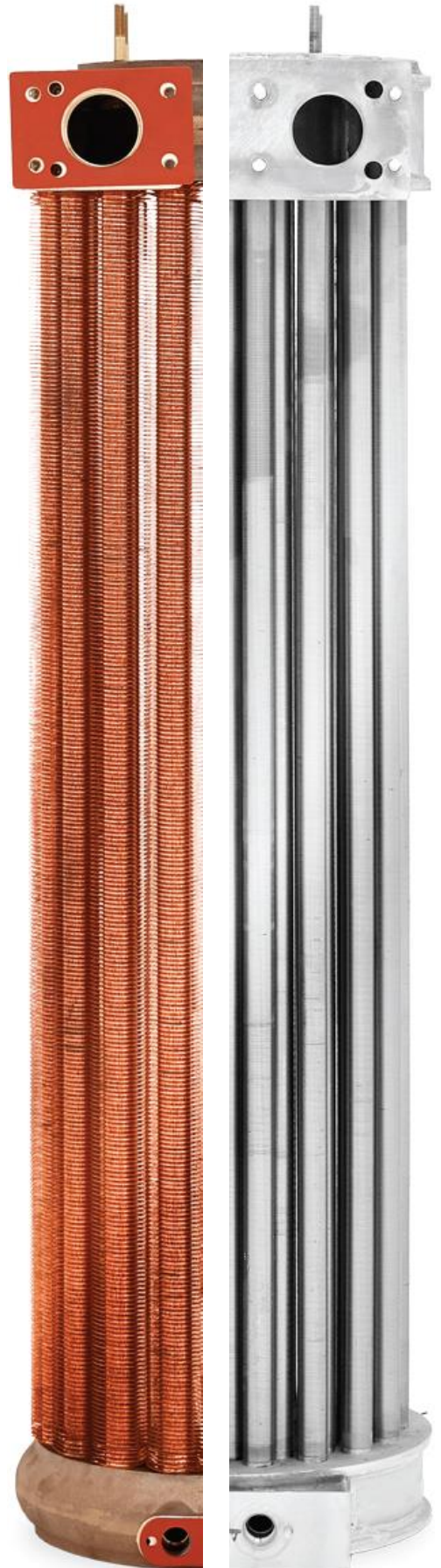
The stainless steel heat exchanger is a six pass design with a maximum working pressure of 160 PSIG and is limited to 210°F maximum outlet temperature for heating and domestic hot water applications. It is a welded 439 grade stainless steel construction with a vertical cylindrical water tube design, complete with integral 439 stainless finned heat transfer tubes and 304/316L waterways.



The DynaFlame burner is 100% stainless steel, vertically mounted and radial fired with a stainless steel knitted metal fiber construction. The burner combusts a precise amount of premixed combustion air and gas to provide equal distribution of heat for heat transfer to the entire heat exchanger. Combustion operates with up to a 5:1 turndown ratio while sustaining combustion characteristics throughout the entire modulating range.



make the easy choice. choose DynaFlame.



# VENTING



## outdoor venting

For all Condensing, Near-Condensing and Non-Condensing models



## thru-wall venting

For all Non-Condensing models: Vents horizontally up to 100 ft. using Cat. III approved vent. Optional 100 ft. of inlet air duct, vertical or horizontal. Optional outdoor air.

For all Condensing & Near-Condensing models: Vents up to 100 equivalent ft. using Cat. IV approved venting. Optional 100 ft. of inlet air duct, vertical or horizontal. Optional outdoor air.



## conventional venting

For all Non-Condensing models: Vents into common breeching as Cat. I. Barometric damper may be used to control excess draft. Optional 100ft. of air duct, vertical or horizontal. Optional outdoor air.



## vertical venting

For all Non-Condensing models: Vents vertically up to 100 ft. using Cat. III approved vent. Optional 100 ft. of inlet air duct, vertical or horizontal. Optional outdoor air.

For all Condensing and Near-Condensing models: Vents vertically using combined Cat. II approved venting system. Optional 100 ft. of air duct, vertical or horizontal. Barometric damper may be used to control excess air. Optional outdoor air.

# INTEGRATED LEAD LAG



High efficiency is being demanded during the design phase or retrofit of building construction and each DynaFlame is equipped with a state of the art lead lag algorithm which provides sequencing for up to 8 appliances using a 3-wire RS485 daisy-chain network. This eliminates the need for costly and complex boiler sequencer panels. An adjustable Base Load Rate parameter ensures that all appliances in the network are firing before modulating in unison up to maximum firing rate. This advanced lead lag algorithm provides maximum thermal efficiency while delivering the desired amount of heat to the building envelope. Run time equalization methodology evenly distributes the operation time across the entire boiler plant through the rotation of lead boilers.

The use of a single system sensor wired to the first boiler dictates the sequencing operation. In the event an unexpected incident occurs where the first boiler is disabled, the remaining boilers will intervene and provide heating based on a pre-defined standalone algorithm. The assurance of fail safe operation provides peace of mind operation and this advanced lead lag functionality is equipped with "shift on the fly" capability where additional appliances are automatically detected and join into the lead lag sequence for optimum efficiency operation.

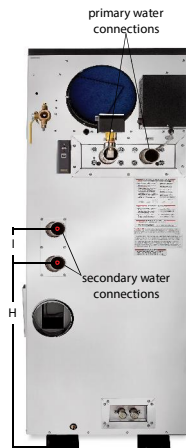
# DIMENSIONS & SPECIFICATIONS



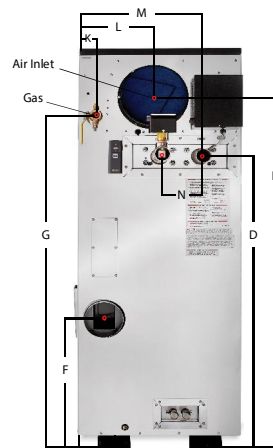
FRONT VIEW



SIDE VIEW



BACK VIEW  
(condensing and near-condensing)



BACK VIEW  
(non-condensing)

Dimensions & Specifications (Inches)

Model	Width "A"	Depth "B"	Height "C"	Water Conn. "D"	Air Inlet "E"	Flue Height "F"	Gas Height "G"	"H"	"I"	"J"	"K"	"L"	"M"	"N"	"P"	Air Inlet Dia. As shipped "W"	Water Conn. Prim. (copper) as shipped "W"	Water Conn. Prim. (s/s) as shipped (Grooved)	Water Conn. Sec. as shipped	Gas Conn. (NPT)
050X	25	27	45 5/8	27	37 1/4	13 1/4	33 5/8	17 3/4	6	4 1/8	2 5/8	11 1/2	18 3/4	6 1/4	5	10	2 NPT	2	1 1/2 Grooved	1
075X	25	27	55	36 3/4	46 5/8	15 3/4	43	25	6	4 1/8	2 5/8	11 1/2	18 3/4	6 1/4	5	10	2 NPT	2	1 1/2 Grooved	1
110X	25	27	68 1/4	49 5/8	59 7/8	22	56 1/4	31 1/8	6	4 1/8	2 5/8	11 1/2	18 3/4	6 1/4	5	10	2 NPT	2	1 1/2 Grooved	1
120X	25	27	68 1/4	49 5/8	59 7/8	22	56 1/4	31 1/8	6	4 1/8	2 5/8	11 1/2	18 3/4	6 1/4	5	10	2 NPT	2	1 1/2 Grooved	1
150X	29 3/8	31 3/4	58 1/8	38 1/4	48 5/8	16 3/8	45 7/8	24 1/2	6	3 7/8	1 7/8	13 1/2	22 3/8	10 1/4	5	10	3 NPT	2 1/2	1 1/2 Grooved	1 1/4
175X	29 3/8	31 3/4	62 5/8	42 5/8	53 1/8	16 3/8	50 3/8	24 1/2	6	3 7/8	1 7/8	13 1/2	22 3/8	10 1/4	5	10	3 NPT	2 1/2	1 1/2 Grooved	1 1/4
200X	29 3/8	31 3/4	66 7/8	46 7/8	57 3/8	20	53 5/8	28 3/4	6	3 7/8	1 7/8	13 1/2	22 3/8	10 1/4	5	12	3 NPT	3	1 1/2 Grooved	1 1/4
250X	29 3/8	31 3/4	73 1/2	52 5/8	63 5/8	25 3/4	60 3/8	34 1/2	6	3 7/8	1 7/8	13 1/2	22 3/8	10 1/4	5 1/2	12	3 NPT	3	1 1/2 Grooved	1 1/2
300X	29 3/8	31 3/4	79 1/2	58 5/8	69 5/8	31 3/4	66 3/8	40 1/2	6	3 7/8	1 7/8	13 1/2	22 3/8	10 1/4	5 1/2	12	3 NPT	3	1 1/2 Grooved	1 1/2
350X	29 3/8	31 3/4	86 1/2	63 5/8	76	24 7/8	72 5/8	32 7/8	20	3 7/8	1 7/8	13 1/2	22 3/8	10 1/4	6	14	3 NPT	3	1 1/2 Grooved	2
400X	29 3/8	31 3/4	91 1/2	68 5/8	81	29 7/8	77 5/8	37 7/8	20	3 7/8	1 7/8	13 1/2	22 3/8	10 1/4	6	14	3 NPT	3	1 1/2 Grooved	2
450X	29 3/8	31 3/4	96 1/2	73 5/8	86	34 7/8	82 5/8	42 7/8	20	3 7/8	1 7/8	13 1/2	22 3/8	10 1/4	31	14	3 NPT	3	1 1/2 Grooved	2 1/2
500X	29 3/8	31 3/4	101 1/2	78 5/8	91	39 7/8	87 5/8	47 7/8	20	3 7/8	1 7/8	13 1/2	22 3/8	10 1/4	31	14	3 NPT	3	1 1/2 Grooved	2 1/2
45X4	35 3/4	39 1/4	83	59 3/4	72 1/4	20 3/4	67 7/8	28 7/8	20	2 1/2	3 1/2	17 7/8	25 5/8	12	31	14	4 Grooved	4	1 1/2 Grooved	2 1/2
50X4	35 3/4	39 1/4	88 1/4	65	77 1/2	26	72 1/4	34 1/8	20	2 1/2	3 1/2	17 7/8	25 5/8	12	31	14	4 Grooved	4	1 1/2 Grooved	2 1/2
60X4	35 3/4	39 1/4	102	75 1/2	91	35 1/2	85 1/2	44 5/8	20	2 1/2	2 3/4	17 7/8	25 5/8	12	31	14	4 Grooved	4	1 1/2 Grooved	3

Primary Heat Exchanger Head Loss & Flow - COPPER LFX

Model	Temperature Rise Across Heat Exchanger			
	30°F		35°F	
	USGPM	ΔP-Ft.	USGPM	ΔP-Ft.
050X	28.00	0.70	24.00	0.50
075X	42.00	1.40	36.00	1.00
110X	61.60	2.70	52.80	2.10
120X	68.00	2.90	58.30	2.20
150X	83.90	1.90	71.90	1.40
175X	97.90	2.90	83.90	2.20
200X	111.90	4.10	95.90	3.10
250X	139.90	6.10	119.90	4.60
300X	167.90	8.40	143.90	7.00
350X	198.10	12.70	169.80	9.50
400X	226.90	17.00	194.50	12.70
450X	254.70	21.90	218.30	16.40
500X	282.90	27.60	242.50	20.70
45X4	254.70	15.30	218.30	11.40
50X4	282.90	19.60	242.50	14.90
60X4	339.50	31.80	291.00	24.10

Primary Heat Exchanger Head Loss & Flow - STAINLESS STEEL

Model	Temperature Rise Across Heat Exchanger			
	20°F		25°F	
	USGPM	ΔP-Ft.	USGPM	ΔP-Ft.
050X	42.00	1.50	33.60	1.00
075X	63.00	3.00	50.40	1.90
110X	92.40	5.90	73.90	4.00
120X	102.00	4.40	81.60	2.80
150X	125.90	8.30	100.70	6.00
175X	135.00	12.50	117.50	8.00
200X	167.90	6.70	134.30	4.50
250X	209.90	8.40	167.90	5.40
300X	251.90	9.90	201.50	6.30
350X	297.20	11.80	237.80	7.40
400X	340.40	17.10	272.30	11.00
450X	382.10	28.40	305.70	17.50
500X	424.40	31.10	339.50	20.00
45X4	382.10	20.40	305.70	13.30
50X4	424.40	23.50	339.50	15.40
60X4	509.30	38.00	407.40	24.50

Secondary Heat Exchanger Head Loss & Flow

Model	Temperature Rise Across Heat Exchanger	
	USGPM	ΔP-Ft.
0502	10.00	0.40
0752	13.00	0.70
1102	22.00	1.80
1202	24.00	2.10
1502	30.00	3.10
1752	35.00	4.20
2002	40.00	5.50
2502	50.00	8.00
3002	60.00	11.50
3502	*40.00	8.50
4002	*46.00	11.00
4502	*52.00	14.00
5002	*57.00	16.50
4524	*52.00	14.00
5024	*57.00	16.50
6024	*68.00	25.00

\*Flow for 15° rise at high flow

Venting (Inches)

Model	Non-Condensing				Condensing & Near-Condensing			
	Outdoor	Cat. III Up to 50 ft.	Cat. III Up to 100 ft.	Cat. I	Outdoor	Cat. IV Up to 50 ft.	Cat. IV Up to 100 ft.	Cat. II
050X	4	4	6	8	4	4	6	5
075X	6	6	8	10	6	6	8	6
110X	6	6	8	10	6	6	8	7
120X	6	6	8	10	6	6	8	7
150X	7	7	10	12	7	7	10	8
175X	7	7	10	12	7	7	10	8
200X	8	8	12	14	8	8	12	9
250X	8	8	12	14	8	8	12	9
300X	8	8	12	14	8	8	12	10
350X	9	9	14	16	9	9	14	12
400X	9	9	14	16	9	9	14	12
450X	10	10	14	16	10	10	14	12
500X	10	10	14	16	10	10	14	12
45X4	10	10	14	16	10	10	14	12
50X4	10	10	14	16	10	10	14	12
60X4	12	12	14	16	12	12	14	12

Input and Output

Model	Maximum Input MBTU/hr	Maximum Output MBTU/hr (Non-Condensing)	Maximum Output MBTU/hr (Near-Condensing)	Maximum Output MBTU/hr (Condensing)
050X	500	425	440	475
075X	750	638	660	713
110X	1100	935	968	1045
120X	1200	1020	1056	1140
150X	1500	1275	1320	1425
175X	1750	1488	1540	1663
200X	2000	1700	1760	1900
250X	2500	2125	2200	2375
300X	3000	2550	2640	2850
350X	3500	2975	3080	3325
400X	4000	3400	3520	3800
450X	4500	3825	3960	4275
500X	4999	4249	4399	4749
45X4	4500	3825	3960	4275
50X4	4999	4249	4399	4749
60X4	6000	5100	5280	5700

Approx. Shipping Weights - LBS

Model	Non-Cond.	Near-Cond.	Cond.
050X	520	520	593
075X	600	600	678
110X	640	640	704
120X	700	700	770
150X	825	825	899
175X	900	900	963
200X	943	943	999
250X	1025	1025	1085
300X	1100	1100	1120
350X	1250	1250	1330
400X	1290	1290	1380
450X	1420	1420	1500
500X	1627	1627	1720
45X4	1525	1525	1610
50X4	1732	1732	1815
60X4	1963	1963	2210

NOTE: For Non-Condensing Heating or Domestic Hot Water, replace X with 0. For Near-Condensing Heating or Domestic Hot Water, replace X with 1. For Condensing Heating or Domestic Hot Water, replace X with 2.





forward thinking

## CONTACT US

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Camus Hydronics is taking a leading role in the development of environmentally friendly products through innovative engineering as we incorporate the very latest technologies designed to create higher efficiency levels while lowering emissions. Our high efficiency units either meet or surpass the standards of both the Canadian and US Green Building Councils.

Camus is continually setting new benchmarks of excellence through skillfully engineered and solidly constructed high-efficiency products designed to provide years of reliable service and comfort.

Additional specifications can be obtained by visiting our website or by calling your local Camus representative.



The Camus Certified seal assures you that reliability, efficiency and serviceability are built into every single unit.

