

CAMUS HYDRONICS LTD.

# DYNAFORCE<sup>®</sup>

for hydronic heating  
and hot water supply

Efficiencies  
up to 99%

5:1  
turndown  
ratio

Extremely  
low NOx

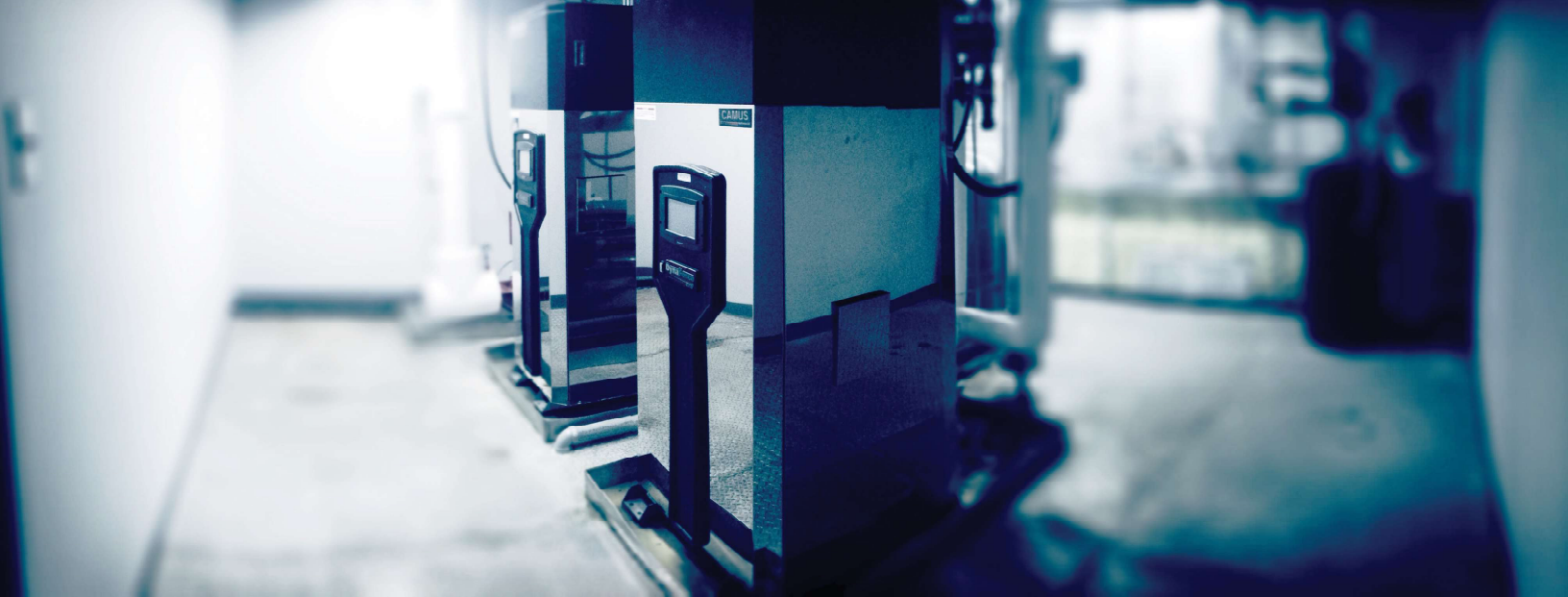


gas fired stainless steel condensing boilers

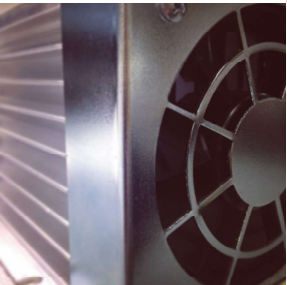


Hydronics Ltd.

Rev.02



## standard features



- 5:1 turndown ratio with a minimum 20% firing rate
- Single point input adjustment for controlling air and gas
- 1 to 1 air/gas ratio for perfect modulation throughout
- Advanced integrated Honeywell SOLA control with touch screen interface
- Cascade up to 8 individual appliances in daisy-chain formation
- Main burner test firing valve
- Proven pilot ignition on models above 3 million BTU/hr
- Direct ignition up to 2.5 million BTU/hr
- Return water temperatures down to 40°F
- Inlet regulator for incoming gas pressures up to 14" w.c.
- Flue temperature monitoring
- Modbus RTU communication

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

## control panel

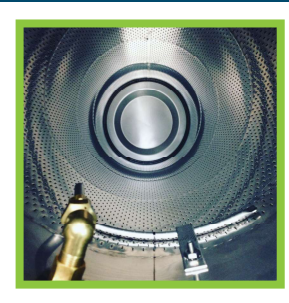


The Dynaforce is controlled by an integrated Honeywell SOLA controller. The 7" color touch screen provides remote operation through the 4-20mA or 0-10Vdc for set point or fire rate control. Paired with the ability to control multiple pump operation along with daisy chain set up for up to 8 boilers, this 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.



# forward thinking

# heat exchanger and burner



The burner is 100% stainless steel and vertical mounted 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 a 5:1 turndown ratio while sustaining combustion characteristics throughout the entire modulating range.

The Dynaforce Heat Exchanger is a vertical cylindrical counter-flow water tube design. Constructed of 439 grade stainless steel, this welded heat exchanger features a 12 pass design with a maximum working pressure of 160 psig (1100 kPa) and a vertical cylindrical counter-flow water tube design complete with integral 439 grade stainless steel finned heat transfer tubes and waterways. The heat exchanger design is capable of 40°F constant system return temperatures for fully condensing operation and comes complete with condensate trap and drains.



In a world where we are becoming more connected, the Dynaforce is ready to enter this revolutionary phase in building automation. All Dynaforce 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 Dynaforce is available with BacnetIP, BacnetMSTP, LonWorks and MetasysN2 protocol support. All the features available in the Modbus RTU realm are carried into these protocols 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.



get  
connected

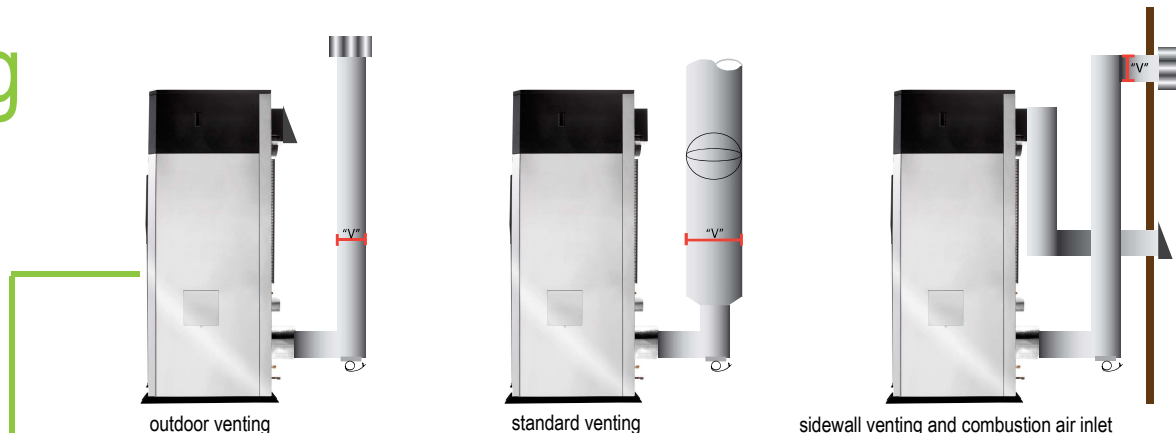


integrated  
lead lag

High efficiency is being demanded during the design phase or retrofit of building construction and each Dynaforce 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.

# venting



For ease of installation, the fully condensing Dynaforce can be vented individually in a Category IV positive pressure venting arrangement or they can be vented in a common chimney resulting in a Category II venting system.

With the outstanding efficiency of the Dynaforce it can be vented with corrosion resistant PVC, CPVC, Polypropylene, AL29-4C or 316L stainless steel material as stack temperatures are between 10-15°F above incoming water temperatures. This allows a diverse range of venting materials to suit any installation and the Dynaforce is capable of venting up to 100 equivalent feet and up to 100 equivalent feet of combustion air can be brought directly to the boiler for direct vent installations.

The Dynaforce is available with an air inlet damper for cold climates which prevents outdoor air from infiltrating the heat exchanger when the Dynaforce is in standby.

# dimensions and specifications



Model	Dim. "A"	Dim. "B"	Dim. "C"	Dim. "D"	Dim. "E"	Dim. "F"	Dim. "G"	Dim. "H"	Dim. "I"	Dim. "J"	Dim. "K"	Ø Dim. "L" Air Inlet*	Ø Air Inlet up to 100 Ft. Equiv. Length	Ø Dim. "V" Vent CAT. IV up to 100 Ft. Equiv. Length (as shipped)	Ø Dim. "V" Vent CAT. II	Dim. "M"	Ø Dim. "W" Water	Ø Dim. "X" Gas	Shipping Weight (lbs)
600	25"	27"	55 1/4"	18 1/2"	46"	11 1/2"	45 7/8"	10 1/2"	4 5/8"	12"	6"	8"	6"	5"	6"	5"	2"	1"	585
800	25"	27"	55 1/4"	18 1/2"	46"	11 1/2"	45 7/8"	10 1/2"	4 5/8"	12"	6"	8"	6"	6"	6"	5"	2"	1"	640
1000	25"	27"	65"	20 3/4"	57"	13"	56 5/8"	10 3/8"	4 3/8"	12"	6"	8"	8"	6"	7"	5"	2"	1"	750
1200	29 3/8"	31 3/4"	70 1/2"	20 3/4"	59 1/2"	13"	56 3/8"	1 7/8"	23 1/4"	12"	6"	10"	8"	7"	8"	5"	2 1/2"	1 1/4"	845
1400	29 3/8"	31 3/4"	73 1/2"	22 5/8"	62 1/2"	14"	59 1/4"	1 7/8"	23 1/4"	12"	6"	10"	8"	7"	8"	5"	2 1/2"	1 1/4"	845
1600	29 3/8"	31 3/4"	73 1/2"	22 5/8"	62 1/2"	14"	59 1/4"	1 7/8"	23"	12"	6"	12"	10"	7"	9"	5"	2 1/2"	1 1/4"	875
1800	29 3/8"	31 3/4"	73 1/2"	22 5/8"	62 1/2"	14"	59 1/4"	1 7/8"	23"	12"	6"	12"	10"	8"	9"	5"	2 1/2"	1 1/4"	1120
2000	29 3/8"	31 3/4"	81 1/4"	24 5/8"	72 3/8"	14 3/8"	69"	1 7/8"	22 3/4"	12 1/2"	6 1/2"	12"	10"	8"	10"	5"	3"	1 1/4"	1138
2500	29 3/8"	31 3/4"	82 5/8"	25"	74"	15 3/4"	69 1/2"	1 7/8"	22 1/2"	11 1/4"	6 1/2"	12"	12"	9"	10"	5 1/2"	3"	1 1/2"	1250
3000	35 3/4"	39 1/4"	85 1/4"	25 5/16"	75 3/16"	16"	70 1/2"	1 7/8"	27 3/4"	14"	7 3/4"	12"	12"	9"	10"	5 1/2"	3"	1 1/2"	1425
3500	35 3/4"	39 1/4"	93"	27 1/4"	82 1/4"	15 1/2"	76 1/4"	4 1/2"	27 3/4"	12"	12"	12"	12"	10"	12"	7"	4"	2"	1840
4000	35 3/4"	39 1/4"	93"	25 1/4"	82 1/4"	15 1/2"	76 1/4"	4 1/2"	27 3/4"	12"	12"	12"	12"	10"	12"	7"	4"	2"	1912
4500	35 3/4"	39 1/4"	96"	29"	81 1/4"	16 1/2"	79 1/4"	4 1/2"	28"	12"	12"	14"	14"	12"	12"	7 1/2"	4"	2 1/2"	2000
5000	35 3/4"	39 1/4"	102"	29 1/2"	87 1/2"	16 3/4"	85 1/2"	4 1/2"	27 3/4"	12"	12"	14"	14"	12"	12"	8"	4"	2 1/2"	2200



forward thinking

## CONTACT US

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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.

Representation of our products is coast to coast as well as internationally through a growing list of knowledgeable and professional distributors.

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.

