



VANTAGE™

Condensing Hydronic Boilers
2,000,000 - 6,000,000 BTU/HR



The heat transfer innovators.

VANTAGE

CONDENSING HYDRONIC BOILERS

FEATURES

- High Mass and Water Volume
- Ultra High Efficiencies
- Duplex Stainless Steel Heat Exchanger
- Linkageless Modulation
- Dual Fuel with #2 Oil
- Low Emissions: <9ppm NOx

DURABLE AND RELIABLE CONSTRUCTION

- The Vantage Hydronic Condensing Boiler product line includes an extensive offering of models ranging in size from 2,000,000 BTU/HR input to 6,000,000 BTU/HR input.
- The fire tube heat exchanger design features diverse power burner configurations for ultra-high efficiency hydronic heating applications.
- Vantage boilers feature HIGH PRODUCT MASS and HIGH PRESSURE VESSEL WATER VOLUME; making the boilers exceptionally tolerant of varying and sometimes unpredictable system conditions.
- Duplex alloy stainless steel is used in the condensing heat exchanger. Duplex alloys have superior properties suited for condensing applications and significantly increase heat exchanger life.



MODELS

Natural Gas Burner:

- VTG - 2000
- VTG - 3000
- VTG - 4000
- VTG - 5000
- VTG - 6000

Dual Fuel Natural Gas #2 Oil:

- VTG - 2000 DF
- VTG - 3000 DF
- VTG - 4000 DF
- VTG - 5000 DF
- VTG - 6000 DF

Low Emissions <9ppm NOx:

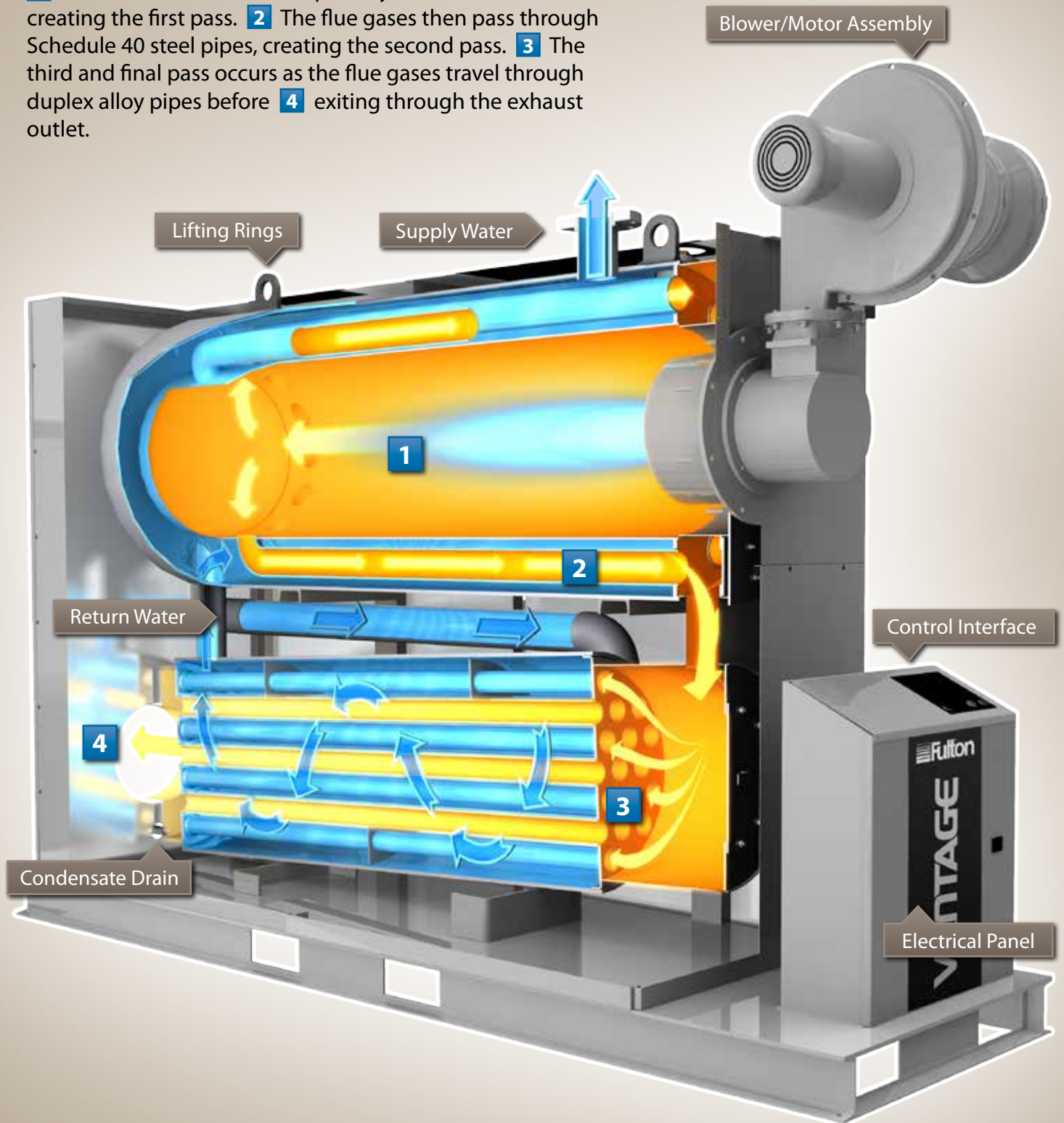
- VTG - 3000 LE
- VTG - 4000 LE



A LOOK INSIDE

THE COMBUSTION PROCESS

1 The burner fires down the primary combustion chamber, creating the first pass. **2** The flue gases then pass through Schedule 40 steel pipes, creating the second pass. **3** The third and final pass occurs as the flue gases travel through duplex alloy pipes before **4** exiting through the exhaust outlet.



SUPERIOR DESIGN PRINCIPLES

MATERIALS

Fulton has been designing and manufacturing boilers for over 60 years. Construction parameters typically include material thicknesses 30% greater than ASME minimum requirements.

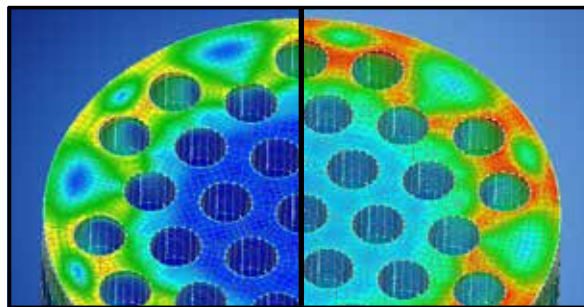
Conservative designs allow Fulton to offer a **lifetime thermal shock warranty** on all of our Vantage products.



ENGINEERING

Intelligent designs maximize boiler pressure vessel integrity and increase life expectancy. By choosing Duplex stainless steel alloys over the 300 series stainless steels, Fulton provides the advantage of increased **MATERIAL STRENGTH, RESISTANCE TO CORROSION, and HEAT TRANSFER CAPABILITIES** along with a decreased **COEFFICIENT OF THERMAL EXPANSION**. The graphic below represents thermal stress on a tubesheet based on material selection.

Left: Vantage tubesheet constructed of duplex alloys as used in all Vantage boilers. Blue, green and yellow indicate low stress.



Right: Same tubesheet design simulated with 316L stainless steel. Red and orange indicates increased material stress and decreased product longevity.

CRAFTSMANSHIP

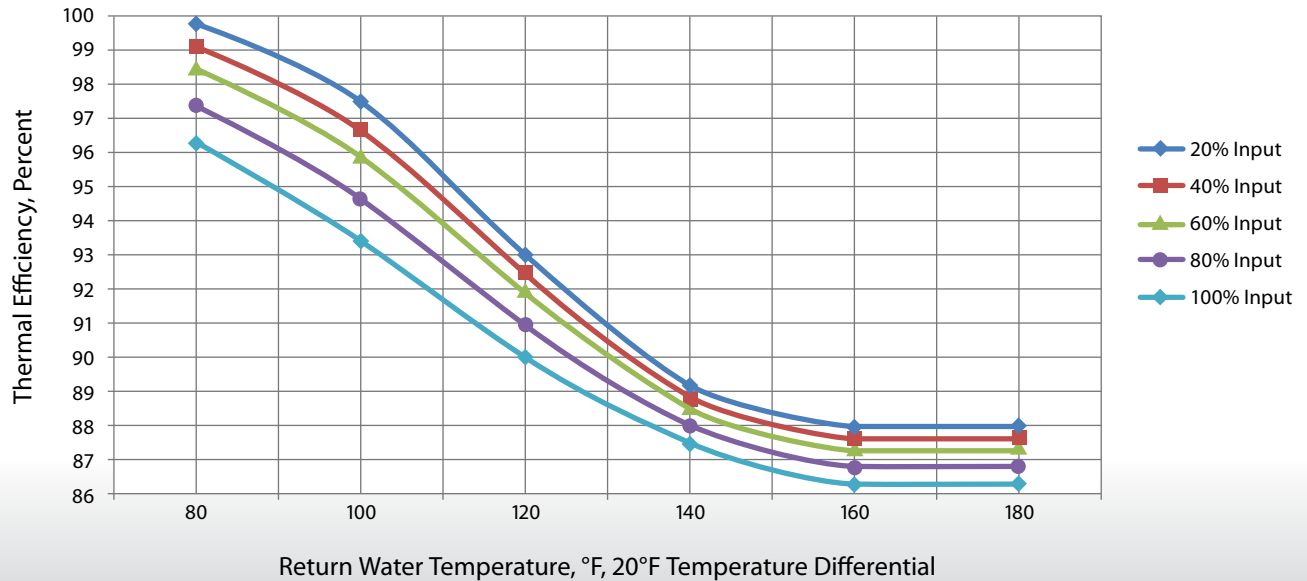
Vantage boilers are built by skilled craftsmen. The impressive workmanship that goes into constructing the pressure vessels is performed by Fulton's ASME certified welders, who average over 20 years of experience.



STRONGER MATERIALS + SMARTER ENGINEERING + SUPERIOR CRAFTSMANSHIP = FULTON

EFFICIENCY & CONTROLS

Thermal Efficiency vs. Return Water Temperature



AHRI Directory Listed Models	Thermal Efficiency, 100% Input • (High Fire) 100°F Temperature Differential • (80°F to 180°F)
VTG-2000, VTG-2000DF	95.7%
VTG-3000, VTG-3000DF, VTG-3000LE	96.3%
VTG-4000, VTG-4000DF, VTG-4000LE	96.9%
VTG-5000	92.6%
VTG-6000, VTG-6000DF	94.0%



CONTROLS

The Vantage boiler has been designed with a linkageless modulation control system. Air and gas servo motors are independently operated using a multiple point load profile. This configuration provides precise temperature control along with consistent and reliable boiler operation throughout varying environmental conditions and turndown ranges.

BACnet, LonWorks and Modbus communication options allow for integration with both ModSync and Building Management control strategies.



DUAL FUEL AND LOW EMISSIONS OPTIONS

DUAL FUEL OPTIONS

- Natural Gas / Propane
- Natural Gas / #2 Oil
- Propane / #2 Oil
- Natural Gas / Propane / #2 Oil (Tri-Fuel)
- Configurations available for alternative fuels like B100 Bio-diesel and Digester Gases

The Vantage boiler is a fully condensing boiler with #2 oil available as a backup fuel. Benefits of these fuel options include:

- Customers may qualify for lower natural gas rates with the ability to operate on a second fuel.
- A reliable backup fuel source can be critical to maintaining operations.
- Automatic fuel changeover capabilities.
- Thermal efficiency up to 91% when firing on #2 fuel oil.



#2 FUEL OIL

Can be stored indoors and many buildings already have infrastructure to utilize oil from previous boiler installations.

PROPANE

Tanks must be installed outdoors with clearance requirements to surrounding buildings.

LOW EMISSIONS OPTIONS

- Natural Gas / Propane
- <9ppm NO_x

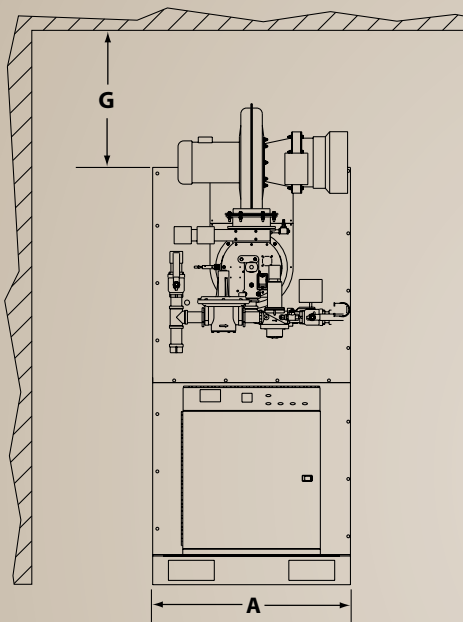
The Vantage Low Emissions models can be configured to meet emissions requirements down to <9ppm NO_x. This performance is achieved throughout the full modulation range, at full input firing capacity, and during all ambient (outdoor air temperature) conditions. Sealed combustion or mechanical room combustion air supply can be used.

Engineering Highlights:

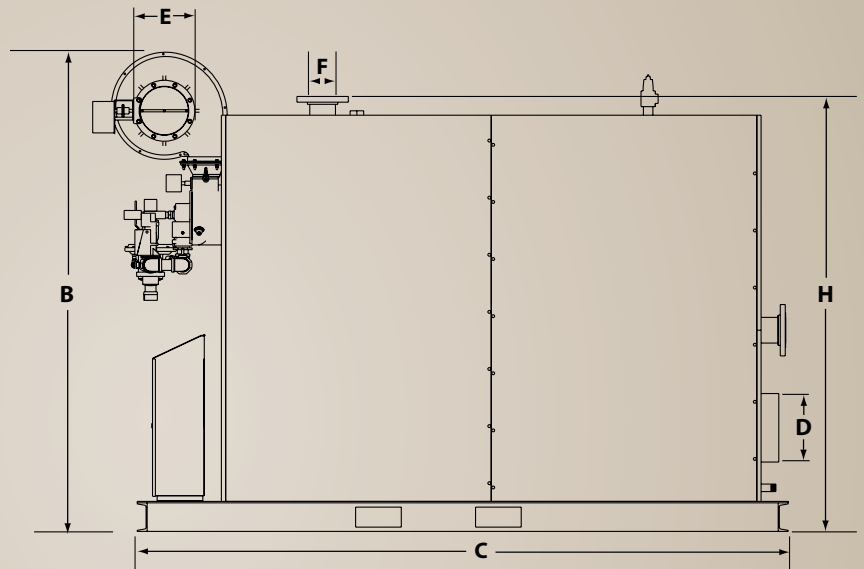
- Fiber mesh burner technology.
- Premium control technology allows the boiler to not only monitor the conditions in the hydronic heating system, but also maintains settings to ensure emissions stay within acceptable operating ranges.
- Variable speed blower motor minimizes electrical consumption while maximizing operating efficiency.



SPECIFICATIONS AND DIMENSIONS



Front View



Right Side View

MODEL	VTG-	2000	2000DF	3000	3000DF	4000	4000DF	5000	5000DF	6000	6000DF
Specifications				3000LE		4000LE					
Input	Million BTU/Hr.	2	2	3	3	4	4	5	5	6	6
Fuel Cons. @ rated cap: (Nat. Gas)	FT3/Hr.	2,000	2,000	3,000	3,000	4,000	4,000	5,000	5,000	6,000	6,000
Fuel Cons. @ rated cap.: (#2 Oil)	GPH	NA	14.3	NA	21.4	NA	28.6	NA	35.8	NA	42.8
Output at AHRI Test Condition	BHP	57	57	86	86	116	116	138	138	168	168
Electrical Req. (Amps) 230V, 60Hz, 3 Phase		6.8	13.4	12.9	16.1	18.5	16.1	23	29.2	23	29.2
460V, 60Hz, 3 Phase		3.4	6.7	6.5	8.1	9.3	8.1	11	16.6	11	16.6
Water Content	Gal	147	147	215	215	275	275	275	275	480	480
Dry Weight	LB	3,800	3,800	5,200	5,200	5,800	5,800	5,800	5,800	10,800	10,800
Operating Weight	LB	5,100	5,100	7,000	7,000	8,100	8,100	8,100	8,100	14,800	14,800
Dimensions											
A. Boiler Width	IN	30.5	30.5	34.5	34.5	40.5	40.5	40.5	40.5	50.5	50.5
B. Overall Boiler Height	IN	75.6	64	90.4	72.3	92	77.9	98.7	79.5	88.2	88.2
C. Overall Boiler Depth	IN	108	122	120	132	124	136	136	136	155	155
D. Flue Outlet Diameter	IN	10	10	12	12	14	14	14	14	14	14
E. Air Inlet Diameter	IN	8	10	10	10	12	12	12	12	12	12
F. Water Inlet/Outlet Diameter	IN	4	4	4	4	6	6	6	6	6	6
G. Min. Clearance to Ceiling	IN	24	24	24	24	24	24	24	24	24	24
H. Overall Height (w/o blower)	IN	60.9	68.1	72.3	72.3	77.9	77.9	77.9	79.	88.2	88.2

* Specifications and Dimensions are approximate and for reference only. We reserve the right to change specifications and/or dimensions without notice.

* Please consult factory for a complete list of dimensions including metric conversions.

* Consult factory for availability of specific models.

* Graphics contained in this brochure may not be representative of actual product.

APPLICATIONS

ENGINEERED SYSTEMS

Fulton's engineering and design capabilities are unmatched in the industry when it comes to providing comprehensive solutions to custom-designed hydronic systems. Our team of engineers and project managers assists in the specification and design of a "turnkey" system for each application. Skid-mounted hydronic systems provide simplified installation with single-point water, fuel and electrical connections available. From design to complete fabrication, trust Fulton and our many years of experience to build a system you can rely on for years to come.



MODSYNC SEQUENCING SYSTEM

The ModSync interfaces with multiple condensing boilers to maximize the efficiency of hydronic systems. The Modsync's reset functionality adjusts the hydronic loop temperature setpoint based on the outdoor temperature. The sequencing logic maintains multiple boiler stages at minimum input capacities to match the heating load. Lower loop temperatures and lower boiler firing rates allow for significant energy savings, while still maintaining building comfort levels.

The sequencing logic can also be customized for hybrid (condensing/non-condensing), steam and thermal fluid systems.



 **Fulton**[®] The heat transfer innovators.

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