

VT.3

Steel Fire Tube Water Boiler

1500 to 2000 MBH

Inward-fired burner technology with 4-to-1 modulation
and less than 20 ppm NOx throughout turndown

Operates on 4" Gas Pressure

Dual fuel available - natural gas and LP



84% Thermal Efficiency
No minimum flow - Simplified primary-only piping



Riverside
HYDRONICS

VT.3

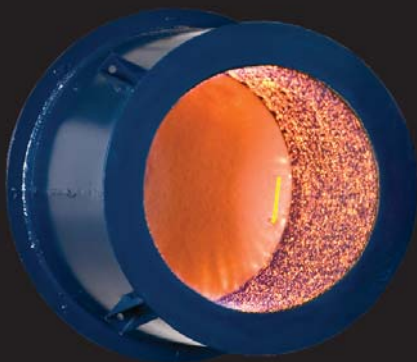
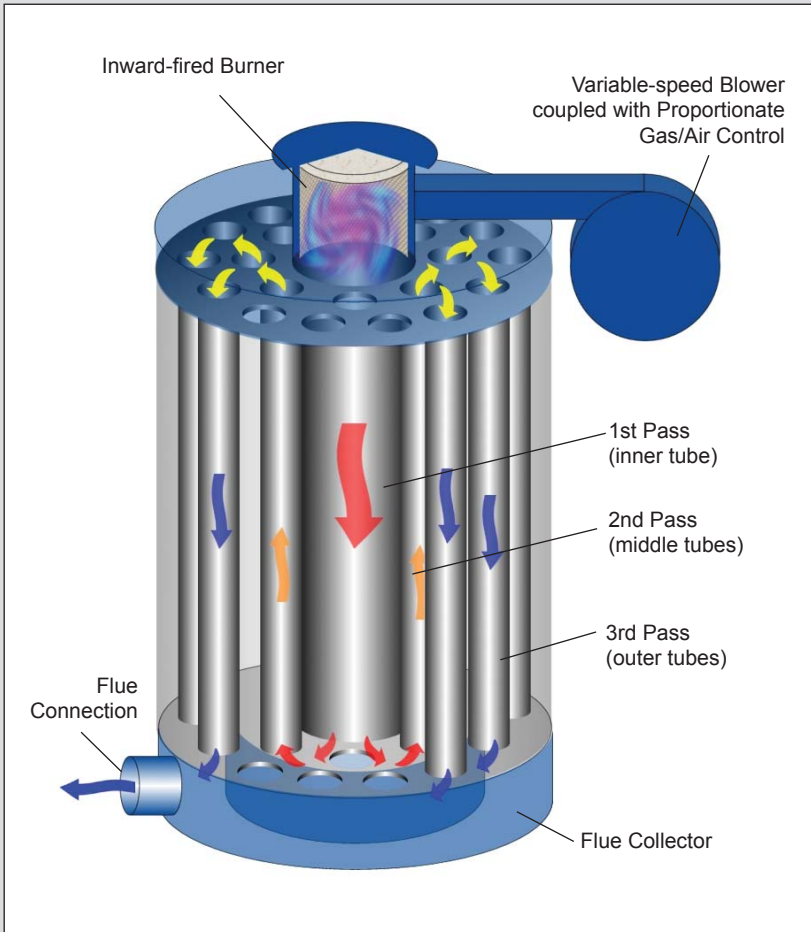
Steel Fire Tube Water Boiler - 1500 to 2000 MBH

MODE OF OPERATION

VT.3 is a fully modulating, mid-efficiency, three-pass, vertical fire tube boiler. Thermal efficiency when tested to the BTS 2000 standard is 84%.

Seamless 4-to-1 burner modulation is employed to match the required boiler output to building heat load and reduce burner cycling during periods of low heat demand. Modulation is accomplished without linkages between a motorized gas valve and the inlet air shutter on the burner. Instead, the boiler employs a variable speed combustion air blower with a zero-governor gas regulator. Gas is introduced into the burner based upon the amount of air; perfectly balancing the fuel/air ratio through the entire turndown range.

The boiler is constructed and stamped to section IV of the ASME code. The entire boiler package is third party listed to the UL standard for industrial gas-fired heating equipment. The standard configuration of combustion and safety controls complies with the requirements of ASME CSD-1. VT.3 is backed by a 10-year non-prorated warranty for manufacturing and materials.



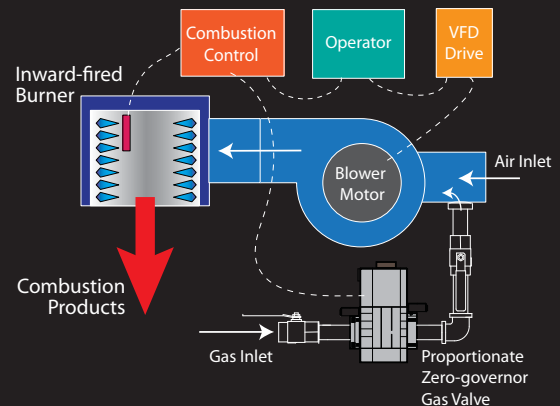
Breakthrough inward-fired burner technology (patent pending) produces NO_x levels of less than 20 ppm throughout the turndown range with levels as low as 7 ppm at low firing rates.

Available for firing with:

- Natural gas
- LP gas
- Combination natural and LP gas (dual gas train)

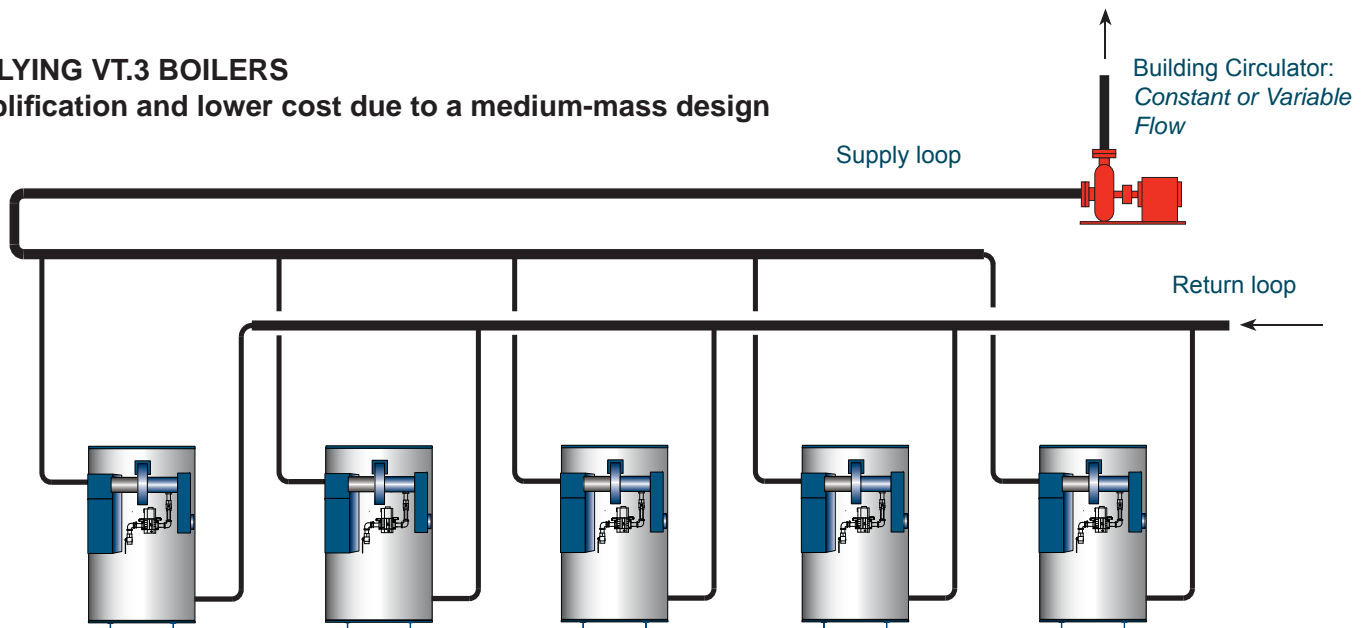
Available voltages for blower motor:

- 115/230V, 1Ø
- 208/230V, 3Ø
- 460V, 3Ø



APPLYING VT.3 BOILERS

Simplification and lower cost due to a medium-mass design



VT.3 boilers contain a moderate amount of stored water. As a result, they provide several installation and operating cost advantages.

NO MINIMUM FLOW FOR FULL VFD INTEGRATION

Unlike instantaneous water tube boilers, VT.3 boilers do not have a critical minimum flow rate requirement. Because there is no lower limit on building water flow, VT.3 boilers can take full advantage of VFD building pump systems, allowing the flow to be reduced to minimal levels and for savings to be maximized.

PRIMARY-ONLY PIPING

As depicted above, VT.3 boilers are most often piped in a reverse return fashion using the building pump to circulate water through the boilers. This is the least costly piping approach as it eliminates the requirement for a separate pump and secondary piping circuit for each boiler.

REDUCED BURNER CYCLING

During periods of very low building heat demand common to the beginning and end of the heating season, the combination of moderate mass and a 25% low fire rate in the VT.3 boiler combine to provide several minutes of burner runtime every time there is a call for heat. Unlike instantaneous watertube boilers that often require buffer tanks in order to lengthen firing cycles and prevent rapid short-cycling under these conditions, the VT.3 has the buffer built into the boiler.

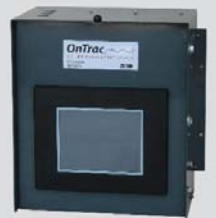
CONTROLS AND INTEGRATION with BAS

In single-boiler installations, VT.3 will utilize its onboard TempTrac® electronic operating control, which includes the following operating features:

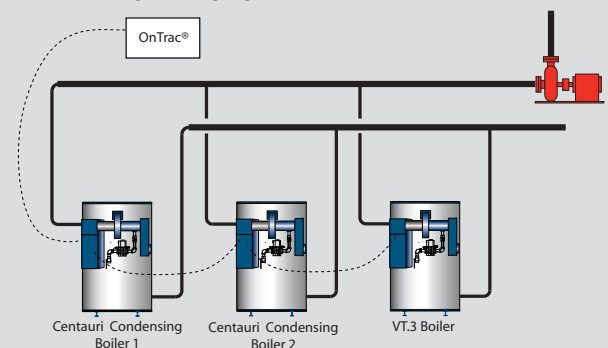


- Set point operation*
 - Outdoor reset*
 - Nighttime setback*
 - Modbus RTU serial connection for monitoring and overwrite by a BAS
 - LED readout of supply and return temperatures
- * Fully programmable parameters

For multiple boiler applications, with BAS network connectivity, one option is the OnTrac® Boiler Management System. This control is capable of rotating through 20 boilers and has special programming for the control of hybrid systems; boiler systems that combine condensing and non-condensing boilers in the same heating plant.



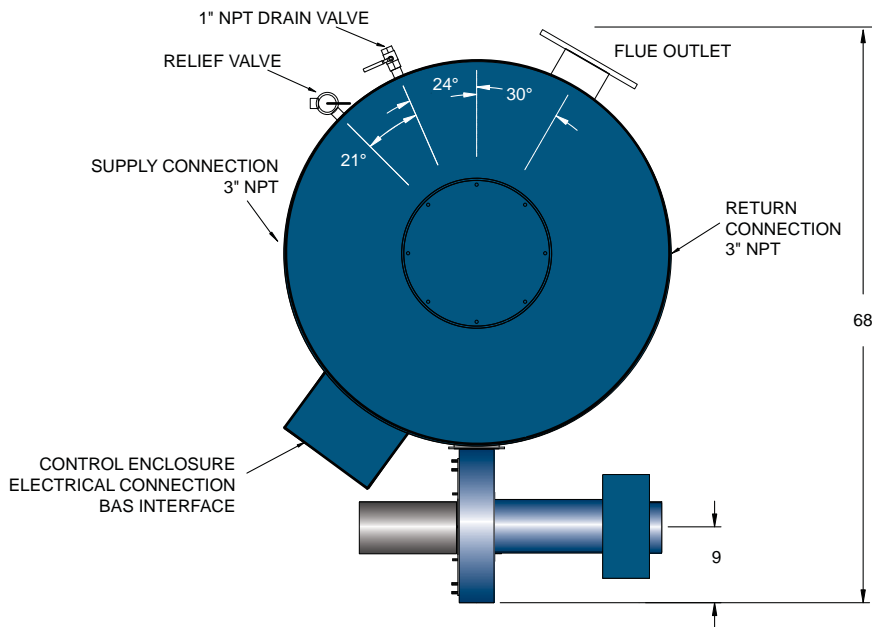
HYBRID BOILER SYSTEM



VT.3 PERFORMANCE AND DIMENSIONS

Maximum Input Btu/h	Maximum Output Btu/h per DOE testing requirements
2,000,000	1,680,000 (84% E _T)
1,800,000	1,512,000 (84% E _T)
1,500,000	1,260,000 (84% E _T)

VT.3 boilers are ETL-listed to UL795 and compliant with CSD-1, FM and ASHRAE 90.1.



Standard Electrical
120V, 1Ø, 60 Hz. 30 amp circuit

Optional Electrical
240V, 1Ø, 60 Hz, 15 amp circuit
120V control circuit

208/230V, 3Ø, 60 Hz, 9 amp
480 V, 3Ø, 60 Hz, 4.5 amp
120V control circuit required
120V transformer optional

Venting
Category I negative pressure,
Type B material

Inlet Combustion Air
Up to 100 eq. ft. using PVC or
galvanized vent pipe and
0.0" to -1.0" W.C. pressure

Minimum Flow Gas Pressure
Rated at 4.5" W.C.
Consult factory for gas pressures
lower than 4.5" W.C.

Minimum Clearances
24" from front and top
8" from sides and rear

