

## VSRT® SERIES:

VSRT-30

**30 HP**

Vertical Spiral Rib Tubeless Steam Boiler



As the worlds first and only spiral rib tubeless design, the VSRT® has been optimized so that its spiral rib heat exchanger can acheive maximum heat transfer in a compact space. The VSRT® features a fully water backed pressure vessel wrapped with high-density insulation, resulting in minimal thermal losses and low jacket temperatures. The VSRT® provides the highest efficiencies available combined with a compact vertical footprint. VSRT® boilers are built to last as a reliable source of dry steam, providing savings and operator peace of mind for years to come.

### STANDARD FEATURES:

- Vertical Tubeless Heat Exchanger
- Thick wall construction (0.375" minimum)
- Never needs re-tubing
- Fully wetted design- no refractory
- Operating efficiencies up to 86%
- Variable speed combustion air blower
- 150 PSIG maximum allowable working pressure
- Can be trimmed 15-150 PSIG
- Fully modulating 6:1 turndown burner
- Industrial pilot ignition
- Operating and high pressure limit switches
- Two (2) low water cut off probes, (1) with auto reset, (1) with manual reset
- NEMA 1 enclosure with locking electrical panel
- Low NOx emissions <20ppm
- Media free cyclonic combustion air intake filter
- CSD-1/CSA ventless gas train
- PID type pressure controller
- Safety interlock contacts for external device
- Emergency-stop contacts
- Combustion air inlet adapter
- 10 year pressure vessel warranty
- 5 year burner warranty

### OPTIONS:

- Stainless steel jacket
- Conductivity based surface blowdown
- Timer based bottom blowdown
- Control panel with non-fused disconnect
- High water overflow protection
- Reflex type sight glass
- Boiler alarm package
- Boiler gauge kit
- Remote E-stop
- MM-150 ALWCO
- MM-157 PWLCO and pump control
- MM-193-7B PWLCO modulating level control
- On/off motorized FW valve & 3-valve bypass
- On/off FW solenoid valve
- Differential pressure level control
- Modbus integration gateway
- BACnet integration gateway

### PROJECT DETAILS:

Project Name	
Date Submitted	
Fulton Representative	

City, State (Province)	
Engineer of Record	
Contractor	

### LISTINGS & COMPLIANCE:

- ASME Section I & IV code
- ETL approved to UL-795
- CSD-1 and CSA Controls and Fuel Train
- GAPS Compliant; Supersedes IRI
- Exceeds AHRAE 90.1 efficiency requirements
- FM Compliant Fuel Train Components
- Control panel wired in a UL 508 facility

### TRIM KIT ITEMS:

- ASME Safety Relief Valve
- Pressure Gauge
- Installation, Operation and Maintenance Manual
- Gauge Glass and Protector Rods
- Touch-up Spray Paint

### NOTE:

Information provided in this document is based on standard boiler configurations only. Custom configurations may result in deviations.

**CAPACITIES: STANDARD NATURAL GAS; APPLIES TO ELEVATIONS UP TO 2,000 FT)**

VSRT®		VSRT-30
Rated Input at High Fire	<b>BTU/hr</b>	<b>1,200,000</b>
	<i>kWh</i>	352
Minimum Input at Low Fire	<b>BTU/hr</b>	<b>200,000</b>
	<i>kWh</i>	59
Rated Output (At 0 psig operating pressure and 212F feedwater temperature)	<b>BTU/hr</b>	<b>1,005,000</b>
	Boiler HP	30
	lbs/hr	1,035
	kg/hr	470
	<i>kWh</i>	294

**CONNECTION SIZES:**

VSRT®		VSRT-30
Steam Outlet Operating >75 psig	<b>inches</b>	<b>2</b>
	<i>mm</i>	51
Steam Outlet Operating <=75 psig	<b>inches</b>	<b>3</b>
	<i>mm</i>	76
Feedwater Inlet	<b>inches</b>	<b>1</b>
	<i>mm</i>	25
Bottom Blowdown	<b>inches</b>	<b>1-1/4</b>
	<i>mm</i>	32
High Water Protection	<b>inches</b>	<b>3/4</b>
	<i>mm</i>	19
Natural Gas Train Inlet	<b>inches</b>	<b>1-1/4</b>
	<i>mm</i>	32
Combustion Air Inlet	<b>inches</b>	<b>6</b>
	<i>mm</i>	152
Stack Connection	<b>inches</b>	<b>8</b>
	<i>mm</i>	203
Water Column Drain	<b>inches</b>	<b>1</b>
	<i>mm</i>	25
Surface Blowdown	<b>inches</b>	<b>3/4</b>
	<i>mm</i>	19
Sight Glass Drain	<b>inches</b>	<b>1/4</b>
	<i>mm</i>	6
Safety Valve Inlet x Outlet Section I 15 psi trim	<b>inches</b>	<b>1-1/2 x 2</b>
	<i>mm</i>	38 x 51
Safety Valve Inlet x Outlet Section I 150 psi trim	<b>inches</b>	<b>3/4 x 1</b>
	<i>mm</i>	19 x 25

**FUEL REQUIREMENTS: PRESSURE REQUIREMENTS AT RATED INPUT**

VSRT®		VSRT-30
Fuel Usage at Rated Input (Natural Gas)*	<b>SCFH</b> <i>m³/hr</i>	<b>1,200</b> 33.5
Fuel Usage at Rated Input (Propane)**	<b>SCFH</b> <i>m³/hr</i>	<b>480</b> 13.5
Minimum Gas Pressure	<b>in W.C.</b> <i>kPa</i>	<b>3</b> 0.75
Maximum Gas Pressure	<b>in W.C.</b> <i>kPa</i>	<b>13.8</b> 3.4

\*SCFH based on 1,000 BTU/ft³

\*\*SCFH based on 2,500 BTU/ft³

**ELECTRICAL REQUIREMENTS: APPLIES TO <20 PPM NOx STANDARD BLOWER MOTOR AND CONTROL OPTION**

VSRT®		VSRT-30				
Electrical Supply*	<b>Volts</b>	<b>230</b>	<b>208</b>	<b>230</b>	<b>460</b>	<b>575</b>
	<i>∅</i>	<i>1</i>	<i>3</i>	<i>3</i>	<i>3</i>	<i>3</i>
	<i>Hz</i>	<i>60</i>	<i>60</i>	<i>60</i>	<i>60</i>	<i>60</i>
Short Circuit Current Rating	<b>Amps</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>	<b>5000</b>
NEMA Rating		<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
Full Load Amps (FLA)	<b>Amps</b>	<b>30</b>	<b>20</b>	<b>19</b>	<b>8</b>	<b>7</b>

**WEIGHTS AND VOLUMES:**

VSRT®		VSRT-30
Dry Weight	<b>lbs</b>	<b>3,100</b>
	<i>kg</i>	<i>1,406</i>
Operating Weight at Normal Working Level	<b>lbs</b>	<b>4,100</b>
	<i>kg</i>	<i>1,860</i>
Flooded Weight	<b>lbs</b>	<b>4,400</b>
	<i>kg</i>	<i>1,996</i>
Water Volume at Normal Working Level	<b>gallons</b>	<b>112</b>
	<i>liters</i>	<i>424</i>

**VENTING REQUIREMENTS:**

VSRT®		VSRT-30
Typical Combustion Air Intake Flow Rate	<b>SCFM</b>	<b>265</b>
	<i>m³/hr</i>	450
Flue Gas Exhaust Flow Rate	<b>SCFM</b>	<b>285</b>
	<i>m³/hr</i>	499
Minimum Allowable Draft Pressure	<b>in W.C.</b>	<b>-0.25</b>
	<i>kPa</i>	-0.062
Maximum Allowable Draft Pressure	<b>in W.C.</b>	<b>+1.50</b>
	<i>kPa</i>	+0.373

**EMISSIONS: TYPICAL NATURAL GAS OPERATION (CORRECTED TO 3% O2, CO TO BE 10ppm OR LESS)**

VSRT®		VSRT-30 <20ppm NOx condition	VSRT-30 15% excess air condition
NO <sub>x</sub>	<b>lbs/hr</b>	<b>0.025</b>	<b>0.084</b>
	<i>kg/hr</i>	0.011	0.038
SO <sub>x</sub>	<b>lbs/hr</b>	<b>0.0007</b>	<b>0.0007</b>
	<i>kg/hr</i>	0.0003	0.0003
Volatile Organic Compounds	<b>lbs/hr</b>	<b>0.0066</b>	<b>0.0066</b>
	<i>kg/hr</i>	0.0030	0.0030
Total Particulates	<b>lbs/hr</b>	<b>0.009</b>	<b>0.009</b>
	<i>kg/hr</i>	0.004	0.004
CO	<b>lbs/hr</b>	<b>0.0087</b>	<b>0.0087</b>
	<i>kg/hr</i>	0.0039	0.0039

**MINIMUM CLEARANCES: LOCAL CODES MAY SUPERSEDE FULTON REQUIREMENTS**

VSRT®		VSRT-30
Side Clearance from Boiler Jacket	<b>inches</b>	<b>24</b>
	<i>mm</i>	609
Total Installed Height Required for Burner Removal	<b>inches</b>	<b>110</b>
	<i>m</i>	2.8

**SOUND DATA: MEASUREMENTS TAKEN FROM FIVE FOOT FROM THE FRONT OF THE BOILER**

VSRT®		VSRT-30
Sound Level at Low Fire	<b>dBa</b>	<b>61</b>
Sound Level at High Fire	<b>dBa</b>	<b>76</b>

**DIMENSIONS:**

Refer to the Product Data Submittal Drawing for dimensions.