

Boiler Model
EXH-300SGOF-07

Document Number
 EN-SC-026-01

| Boiler Output | | |
|--------------------------------|-----------------|--|
| Description | - | High Pressure, FGR |
| Boiler Type | - | Multiple water tube, once through, forced flow, steam boiler |
| Boiler Capacity | BHP | 300 |
| Operating Pressure Range | PSIG | 170-270 |
| Equivalent Output ¹ | lb/hr | 10350 |
| Maximum Heat Output | MMBTU/hr | 10.043 |
| Boiler Heating Surface Area | ft ² | 496 |
| Turn-Down | - | 2:1 |
| Turn-Down | % | 50.0% |

| Air and Fuel Requirements | | | | |
|------------------------------------|----------|-------------|---------|---------|
| Fuel | - | Natural Gas | Propane | #2 Oil |
| Fuel Supply Pressure | PSIG | 3-5 | 3-5 | 0-3 |
| Heat Input | MMBTU/hr | 11.956 | 11.956 | 11.678 |
| Efficiency ² | % | 84.0% | 84.0% | 86.0% |
| Flue Gas Excess Oxygen | % | 5.0% | 5.0% | 7.0% |
| Flue Gas Temperature ² | °F | 310 | 310 | 360 |
| Fuel Consumption ³ | SCFH/GPH | 11,720.0 | 130.7 | 83.4 |
| Combustion Air Volume | SCFH | 147,890 | 147,890 | 169,160 |
| Flue Gas Volume - Wet | SCFH | 159,610 | 159,610 | 175,580 |
| Flue Gas Volume - Dry ⁴ | SCFH | 136,880 | 136,880 | 161,370 |
| Flue Gas Velocity | ft/s | 18.1 | 18.1 | 21.3 |

| Emissions ^{5,6} | | | | |
|--------------------------|-----------|-------------|---------|--------|
| Fuel | - | Natural Gas | Propane | #2 Oil |
| NOx | ppm | 50.0 | 65.0 | 120.0 |
| NOx | lbs/MMBTU | 0.0607 | 0.0789 | 0.1536 |
| CO | ppm | 100.0 | 100.0 | 300.0 |
| CO | lbs/MMBTU | 0.0739 | 0.0739 | 0.2338 |
| CO2 | lbs/MMBTU | 117.6 | 136.6 | 159.3 |
| VOC | lbs/MMBTU | 0.0054 | 0.0054 | N/A |
| TOC | lbs/MMBTU | 0.0108 | 0.0109 | 0.0018 |
| SO2 | lbs/MMBTU | 0.0006 | 0.0005 | 0.0015 |
| PMt | lbs/MMBTU | 0.0075 | 0.0077 | 0.0236 |
| PMf | lbs/MMBTU | 0.0019 | 0.0022 | 0.0143 |
| PMc | lbs/MMBTU | 0.0056 | 0.0055 | 0.0093 |

| Weights & Capacities | | |
|--|---------|--------|
| Shipping Weight | lbs | 13,900 |
| Operational Weight | lbs | 15,100 |
| Operational Water Content ⁷ | Gallons | 130 |
| Fully Flooded Water Content ⁸ | Gallons | 360 |

| Inlet & Outlet Connections | | |
|----------------------------------|------------|-----------|
| Economizer Drain (If Equipped) | in NPT | 2 |
| Main Steam Outlet | NPT Flange | 4 (300#) |
| Safety Valve Outlet ⁹ | in NPT | (2) 2-1/2 |
| Drip Pan Elbow Vent | in NPT | (2) 4 |
| Drip Pan Elbow Drain | in NPT | (2) 3/4 |
| Feedwater Inlet | in NPT | 1-1/4 |
| Fuel Gas Inlet | in NPT | 2-1/2 |
| #2 Oil Inlet | in NPT | 3/4 |
| Automatic "Surface" Blowdown | in NPT | 3/8 |
| Bottom Blow-Off | in NPT | 1-1/4 |
| LVC Blow-Off | in NPT | 1 |
| Chimney Diameter | in OD | 26 |

| Electrical Ratings at 460V ¹⁰ | | | | |
|--|---|------------------|----------------|---------|
| Feedwater Configuration ¹¹ | - | Std. Check Valve | MI Check Valve | No Pump |
| Electrical Rating | A | 0.0 | 0.0 | 0.0 |
| Min. Circuit Ampacity | A | 0.0 | 0.0 | 0.0 |
| Max. Circuit Protective Device ¹² | A | 0.0 | 0.0 | 0.0 |

| Electrical Components & Controls | | |
|----------------------------------|----|--|
| Power Supply | - | 575, 460, 380, 230 or 208 Volts, 3 Phase, 60 Hz |
| Blower Motor | HP | 25 |
| Water Pump Motor ¹³ | HP | 15 |
| Oil Pump Motor | HP | 1-1/2 |
| Combustion Control | - | 3-Position Step Burner (High - Low - Off) |
| Combustion System | - | Forced Draft Burner |
| Ignition System | - | Electric Spark Ignited, Interrupted Gas Pilot |
| Flame Safeguard | - | Miura BL Microcontroller with Miura ZUV Flame Sensor |
| Low Water Protection | - | Primary and Secondary Low Water Cutoff Electrodes |
| Miura Online Maintenance (M.O.M) | - | Analog Phone Line or 3G Cellular, Optional |

| Notes |
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| 1) Equivalent output is calculated based on conversion of 212°F feedwater to 212°F steam |
| 2) Flue gas temperatures and efficiencies are based on 68°F feedwater and 80°F combustion air and calculated using the higher heating value |
| 3) Fuel consumption assumes 1,020 BTU/SCF for natural gas, 91,500 BTU/gal for LPG, and 140,000 BTU/gal for #2 oil |
| 4) Dry flue gas volume is corrected for the operating O ₂ percentage and assumes F-factor of 8,710 SCF/MMBTU for natural gas/LPG and 9,190 SCF/MMBTU for #2 oil |
| 5) NO _x and CO emissions are based on empirical test data corrected to 3% excess oxygen, all others are calculated using EPA factors |
| 6) SO ₂ factor assumes 0.002 grains/SCF for natural gas, 0.005 grains/SCF for LPG, 15ppm for #2 oil |
| 7) The operational water content is the average water content during normal operation for the entire boiler assembly including economizer |
| 8) The fully flooded water content is the total water and steam capacity for the entire boiler assembly including economizer |
| 9) Boiler safety valve outlet size is subject to change based on specific operating pressure |
| 10) To convert to amps at a different voltage, multiply given amps by ratio of 460V/new voltage |
| 11) Multiple installation (MI) check valve is required with higher feedwater pressures (i.e. when using DA tank) and may require a larger pump |
| 12) For time-delay fuse protective device, value will be larger for time-delay circuit breaker |
| 13) Water pump output may vary by feedwater piping options |