

Boiler Model

EXH-250SGOF-07

Document Number

EN-SC-044-02

General Specifications

| Description | - | High Pressure, FGR |
|---|-----------------|--|
| Boiler Type | - | Multiple water tube, once through, forced flow, steam boiler |
| Boiler Capacity | BHP | 250 |
| Design Pressure | PSIG | 300 |
| Operating Pressure Range ^{1,2} | PSIG | 170-270 |
| Boiler Heating Surface Area | ft ² | 394 |
| Minimum Feedwater Temperature | °F | 140 |

Combustion Specifications

| Fuel | - | Natural Gas | Propane | #2 Oil |
|---|----------|-------------|---------|-----------|
| Fuel Supply Pressure | PSIG | 3-5 | N/A | 0-3 |
| Maximum Heat Input | BTU/hr | 9,846,000 | N/A | 9,660,000 |
| Maximum Heat Output | BTU/hr | 8,270,640 | N/A | 8,307,600 |
| Maximum Fuel-to-Steam Efficiency ³ | % | 84.0% | N/A | 86.0% |
| Equivalent Output ⁴ | lb/hr | 8,530 | N/A | 8,560 |
| Turn-Down | - | 1.9:1 | - | 1.7:1 |
| Flue Gas Excess Oxygen | % | 5.0% | N/A | 7.0% |
| Flue Gas Temperature ³ | °F | 310 | N/A | 360 |
| Fuel Consumption ⁵ | SCFH/GPH | 9653 | N/A | 69 |
| Combustion Air Volume | SCFH | 121,810 | N/A | 139,960 |
| Flue Gas Volume - Wet | SCFH | 131,460 | N/A | 145,270 |
| Flue Gas Volume - Dry ⁶ | SCFH | 112,730 | N/A | 133,480 |
| Flue Gas Velocity | ft/s | 25.4 | N/A | 29.9 |

Emissions⁷

| Fuel | - | Natural Gas | Propane | #2 Oil |
|------------------------------|-----------|-------------|---------|--------|
| NOx | ppm | 49.6 | N/A | 120.0 |
| NOx | lbs/MMBTU | 0.0602 | N/A | 0.1536 |
| CO | ppm | 100.0 | N/A | 200.0 |
| CO | lbs/MMBTU | 0.0739 | N/A | 0.1559 |
| CO2 | lbs/MMBTU | 117.6 | N/A | 159.3 |
| VOC | lbs/MMBTU | 0.0054 | N/A | N/A |
| TOC | lbs/MMBTU | 0.0108 | N/A | 0.0018 |
| SO ₂ ⁸ | lbs/MMBTU | 0.0006 | N/A | 0.0015 |
| PMt | lbs/MMBTU | 0.0075 | N/A | 0.0236 |
| PMf | lbs/MMBTU | 0.0019 | N/A | 0.0143 |
| PMc | lbs/MMBTU | 0.0056 | N/A | 0.0093 |

Weights and Capacities

| | | |
|---|----------------|-----------|
| Shipping Weight | lbs | 9,000 |
| Operational Weight | lbs | 10,200 |
| Operational Water Content ⁹ | Gal (Imp. Gal) | 143 (119) |
| Fully Flooded Water Content ¹⁰ | Gallons | 353 |

| Connections | | |
|------------------------------------|--------|----------------------|
| Main Steam Outlet | - | 4", Class 300 Flange |
| Safety Valve Outlet ¹¹ | in NPT | 1 1/2 |
| Drip Pan Elbow Vent ¹¹ | in NPT | 3 |
| Drip Pan Elbow Drain ¹¹ | in NPT | 1/2 |
| 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 |
| LVC Blow-Off | in NPT | 1 |
| Economizer Drain (If Equipped) | in NPT | 2 |
| Chimney Diameter | in OD | 20 |

| Electrical Ratings at 460V ¹² | | | | |
|--|---|------------------|----------------|---------|
| Feedwater Configuration ¹³ | - | Std. Check Valve | MI Check Valve | No Pump |
| Electrical Rating | A | 59.1 | 59.1 | 38.1 |
| Min. Circuit Ampacity | A | 67.6 | 67.6 | 46.6 |

| Electrical Components and Controls | | |
|------------------------------------|----|--|
| Power Supply | - | 575, 460, 380, 230 or 208 Volts, 3 Phase, 60 Hz |
| Blower Motor | HP | 25 |
| Water Pump Motor ¹⁴ | HP | 15 |
| Water Booster Pump Motor | HP | 0 |
| Oil Pump Motor | HP | 1.5 |
| Control Amperage | A | 1.1 |
| 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 |
| Remote Monitoring | - | Optional |

| Notes |
|---|
| 1) Operating within this range ensures proper steam quality and limited relief valve leakage. |
| 2) Setpoint must be below the listed maximum operating pressure to accommodate overshoot. Contact your Miura representative to confirm operating pressure range for your specific application. |
| 3) Based on 68°F feedwater, 80°F combustion air, and minimum steam pressure. Feedwater temperature during normal operation must be higher. Efficiency decreases and flue gas temperature increases with increasing feedwater temperature and steam pressure. Contact your Miura representative to confirm values for your specific application. |
| 4) Equivalent output is calculated based on conversion of 212°F feedwater to 212°F steam. |
| 5) Fuel consumption assumes 1,020 BTU/SCF for natural gas, 91,500 BTU/US gal for LPG, and 140,000 BTU/US gal for #2 oil. |
| 6) 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. |
| 7) NO _x and CO emissions are based on empirical test data corrected to 3% excess oxygen, all others are calculated using EPA factors. |
| 8) SO ₂ factor assumes 0.002 grains/SCF for natural gas, 0.005 grains/SCF for LPG, 15ppm for #2 oil. |
| 9) Operational water content is the average water content during normal operation for the entire boiler assembly including economizer. |
| 10) The fully flooded water content is the total water and steam capacity for the entire boiler assembly including economizer. |
| 11) Boiler safety valve and drip pan elbow connection sizes subject to change based on specific operating pressure. |
| 12) Convert to amps at a different voltage by multiplying value by the ratio of 460V/new voltage. |
| 13) Multiple installation (MI) check valve is required with higher feedwater pressures (i.e. when using DA tank) and may require a larger pump. |
| 14) Water pump size may vary depending on feedwater piping options. |