Boiler Model
EXN-300SGOF-07

Document Number
EN-SC-023-03

General Specifications		
Description	-	Standard, Low NOx
Boiler Type	-	Multiple water tube, once through, forced flow, steam boiler
Boiler Capacity	BHP	300
Design Pressure	PSIG	170
Operating Pressure Range[1,2]	PSIG	70-150
Boiler Heating Surface Area	ft^2	499
Minimum Feedwater Temperature	°F	140

Combustion Specifications				
Fuel	-	Natural Gas	Propane	#2 Oil
Fuel Supply Pressure	PSIG	3-5	3-5	0-3
Maximum Heat Input	BTU/hr	11,814,706	11,814,706	11,543,103
Maximum Heat Output	BTU/hr	10,042,500	10,042,500	10,042,500
Maximum Fuel-to-Steam Efficiency[3]	%	85.0%	85.0%	87.0%
Equivalent Output[4]	lb/hr	10,350	10,350	10,350
Turn-Down	-	2.1:1	1.6:1	1.7:1
Flue Gas Excess Oxygen	%	5.0%	5.0%	7.0%
Flue Gas Temperature[3]	°F	270	270	320
Fuel Consumption[5]	SCFH/GPH	11583	129	82
Combustion Air Volume	SCFH	146,160	146,170	167,240
Flue Gas Volume - Wet	SCFH	157,740	150,870	173,590
Flue Gas Volume - Dry[6]	SCFH	135,270	135,270	159,500
Flue Gas Velocity	ft/s	17.0	16.3	20.0

Emissions[7]				
Fuel	-	Natural Gas	Propane	#2 Oil
NOx	ppm	30.0	40.0	90.0
NOx	lbs/MMBTU	0.0364	0.0485	0.1152
CO	ppm	100.0	100.0	200.0
CO	lbs/MMBTU	0.0739	0.0739	0.1559
CO2	lbs/MMBTU	117.6	136.6	159.3
VOC	lbs/MMBTU	0.0054	N/A	N/A
TOC	lbs/MMBTU	0.0108	0.0109	0.0018
SO_2[8]	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 and Capacities		
Shipping Weight	lbs	12,400
Operational Weight	lbs	13,600
Operational Water Content[9]	Gal (Imp. Gal)	136 (113)
Fully Flooded Water Content[10]	Gallons	359

Connections		
Main Steam Outlet	-	4", Class 150 Flange
Safety Valve Outlet[11]	in NPT	(QTY 2) 2-1/2
Drip Pan Elbow Vent[11]	in NPT	(QTY 2) 4
Drip Pan Elbow Drain[11]	in NPT	(QTY 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	1.25
LVC Blow-Off	in NPT	1
Economizer Drain (If Equipped)	in NPT	2
Chimney Diameter	in OD	26

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) NOx 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.