# MIURA EX GAS/OIL SERIES

## High Pressure Steam Boiler

**NEW**

***XJ1***
***Micro Computer Boiler Control System***


***The most versatile industrial steam boiler in the world***

***The intelligent boiler that works with you***

MIURA

*...Setting New Standards in Boiler Technology*

# MIURA EX GAS/OIL SERIES
## High Pressure Steam Boiler

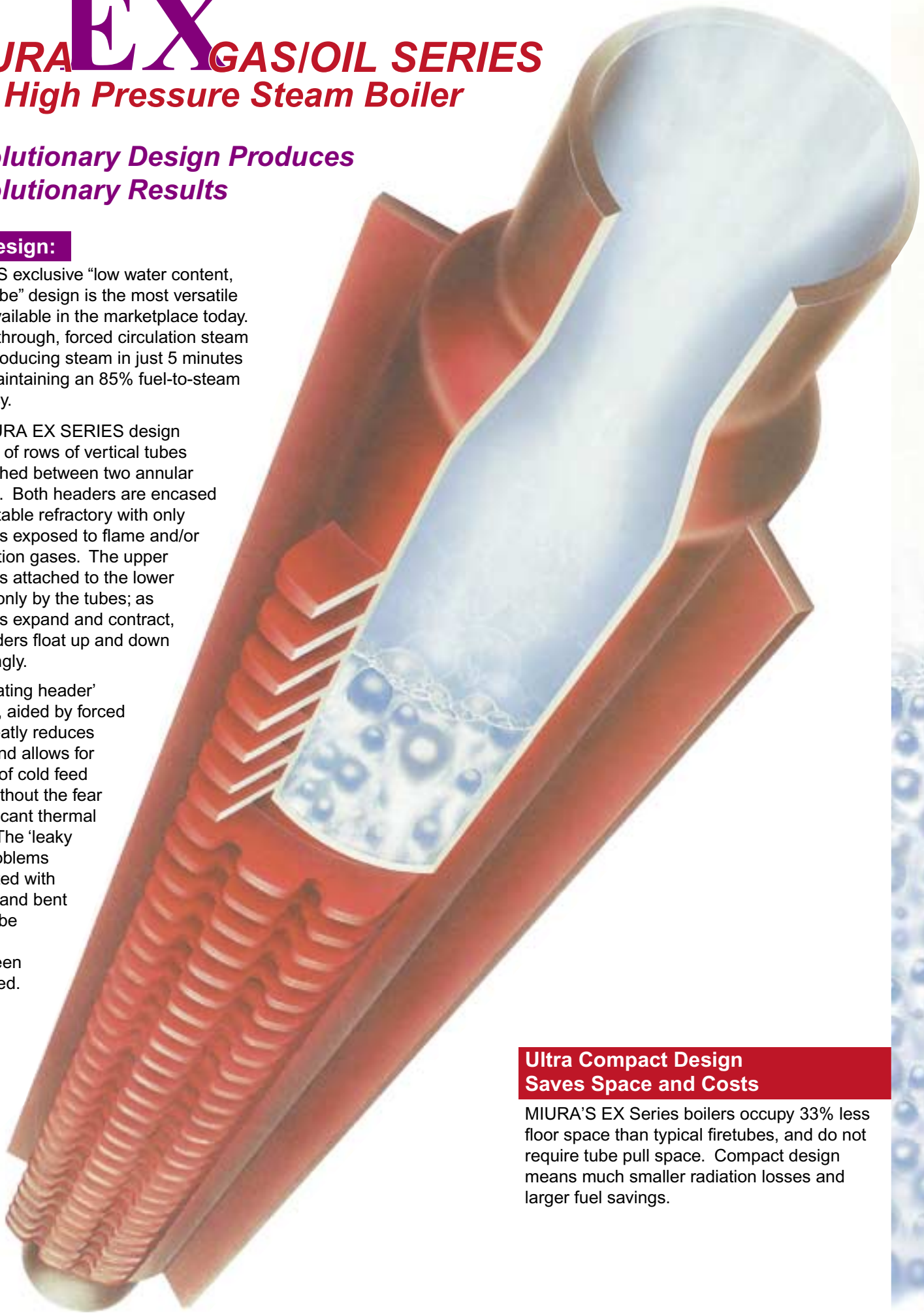
### Revolutionary Design Produces Revolutionary Results

**The Design:**

MUIRA'S exclusive "low water content, water-tube" design is the most versatile boiler available in the marketplace today. A once-through, forced circulation steam boiler producing steam in just 5 minutes while maintaining an 85% fuel-to-steam efficiency.

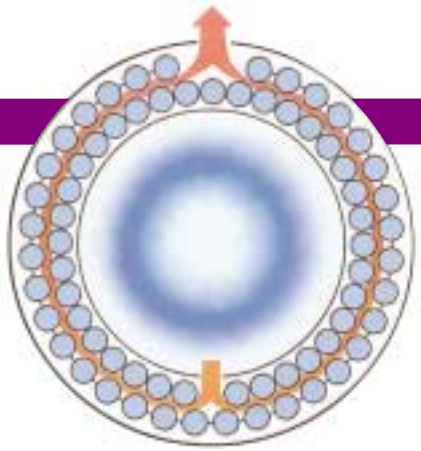
The MIURA EX SERIES design consists of rows of vertical tubes sandwiched between two annular headers. Both headers are encased in a castable refractory with only the tubes exposed to flame and/or combustion gases. The upper header is attached to the lower header only by the tubes; as the tubes expand and contract, the headers float up and down accordingly.

This 'floating header' concept, aided by forced flow, greatly reduces stress and allows for the use of cold feed water without the fear of significant thermal shock. The 'leaky tube' problems associated with firetube and bent water tube designs have been eliminated.



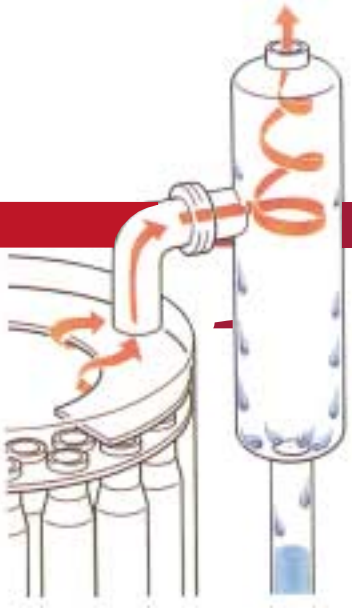
**Ultra Compact Design Saves Space and Costs**

MIURA'S EX Series boilers occupy 33% less floor space than typical firetubes, and do not require tube pull space. Compact design means much smaller radiation losses and larger fuel savings.



## Full Steam Output Within Five Minutes

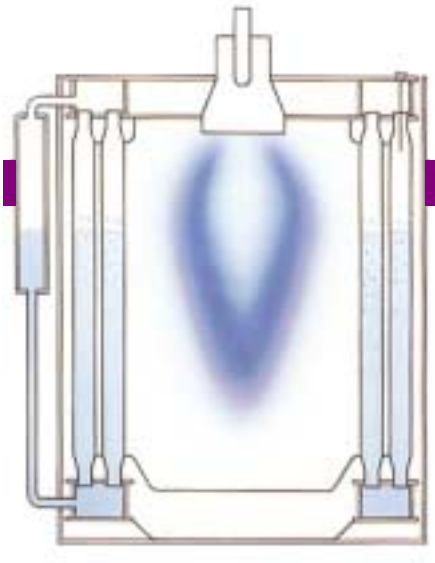
Floating headers mean fast start-up. MIURA boilers produce fast steam in five minutes or less from a cold start-up. Standard firetubes require from 1 to 1.5 hour start-up times. MIURA'S unique design yeilds significant time and fuel savings.



## Dry Steam

The MIURA EX design minimizes carryover and produces dry 99+% saturated steam through a 3-stage process:

***1) initial separation in the tubes,***
***2) second separation in the upper header and baffle plate,***
***3) final separation in the cyclone separator.***



## Early Warning Scale Monitors

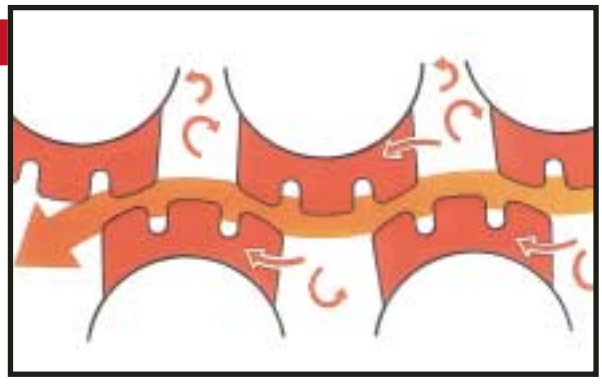
Scale is a problem all boilers have to deal with. Scale forms when boiler feed water is not properly treated. Advanced scale information acts as an insulator; only an eggshell thickness of scale results in a 10% efficiency loss, higher fuel bills and possible damage to the boiler system.

As standard equipment, all MIURA EX models are equipped with thermo-couples attached directly to a tube. Should scale begin to form, the MIURA boiler will shut down and ring an alarm - allowing the operator to trace and repair the source of the water hardness. The boiler can then be acid rinsed to restore its original efficiencies - saving tens of thousands of dollars in wasted fuel and repair bills.

## Unbeatable In-Service Efficiencies

MIURA'S computer-aided design results in optimal heating surface transfer with minimal water content for fuel-to-steam efficiencies of 85%. Typical firetube designs can deliver up to 83% fuel-to-steam efficiencies. However, in actual use, MIURA averages 10 - 40% fuel savings over standard firetube designs.

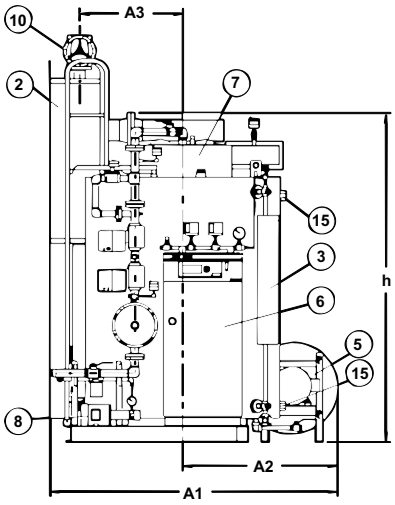
How does a 2% difference in fuel-to-steam efficiencies translate into a 10 - 40% ACTUAL FUEL SAVINGS? Contact your local MIURA representative for details.



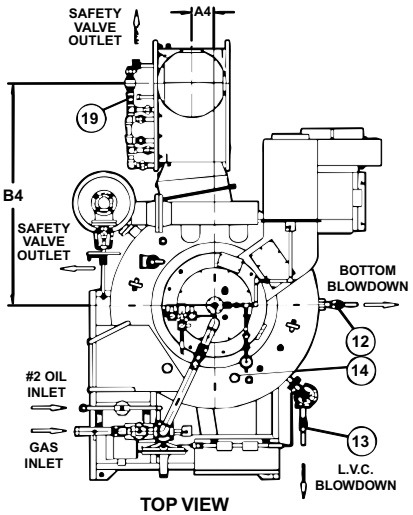
# Dimensions

EX Series Gas/Oil with Economizer Dimensions (Inches)

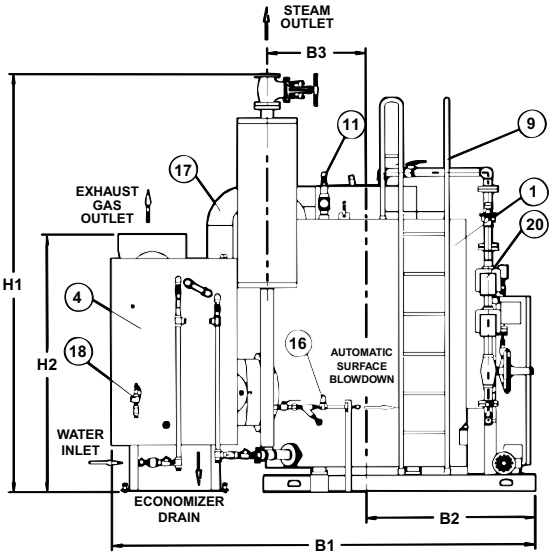
| | A1 | A2 | A3 | A4 | B1 | B2 | B3 | B4 | H1 | H2 | h |
|---|---|---|---|---|---|---|---|---|---|---|---|
| EX-100 SGO | 80 | 38 | 28½ | 9 | 109½ | 40½ | 12 | 56½ | 102½ | 69½ | 87 |
| EX-200 SGO | 89½ | 48½ | 32 | 6½ | 128½ | 51 | 30 | 65 | 127 | 78 | 102½ |
| EX-250 SGO | 94 | 50 | 32 | 6½ | 134 | 51 | 32 | 68 | 157 | 73½ | 119½ |
| EX-300 SGO | 94 | 50 | 32 | 6½ | 138½ | 51 | 32 | 72 | 157 | 81 | 119½ |




FRONT VIEW



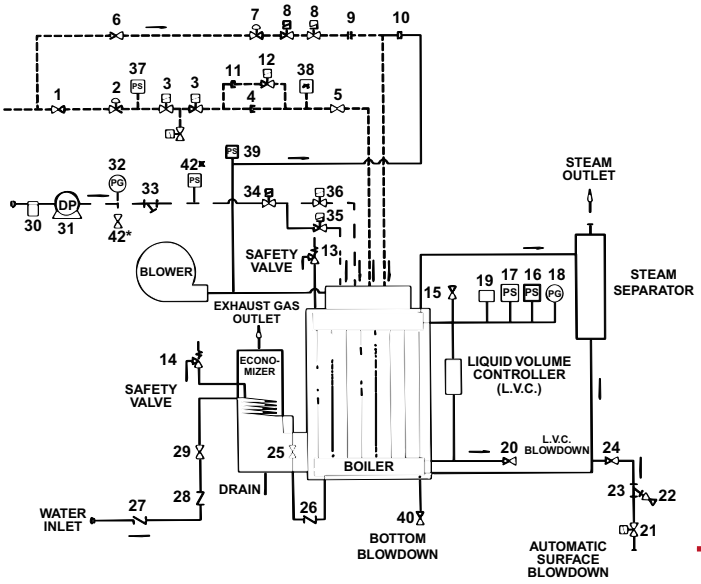

TOP VIEW




SIDE VIEW

| NO. | NAME OF PART |
|---|---|
| 1 | BOILER VESSEL |
| 2 | STEAM SEPERATOR |
| 3 | LIQUID VOLUME CONTROLLER |
| 4 | ECONOMIZER |
| 5 | BLOWER |
| 6 | CONTROL BOX |
| 7 | WIND BOX |
| 8 | OIL PUMP (OPTION) |
| 9 | LADDER |
| 10 | STEAM OUTLET VALVE (OPTION) |
| 11 | MAIN SAFETY VALVE |
| 12 | MANUAL BLOWDOWN VALVE |
| 13 | MANUAL BLOWDOWN VALVE |
| 14 | INSPECTION HOLE (TOP) |
| 15 | INSPECTION HOLE (SIDE) |
| 16 | AUTOMATIC BLOWDOWN |
| 17 | AIR DUCT |
| 18 | ECONOMIZER SAFETY VALVE |
| 19 | FEEDWATER PIPING |
| 20 | MAIN GAS TRAIN |

# Schematic View (Standard)




| NO. | NAME OF PART | NO. | NAME OF PART |
|---|---|---|---|
| 1 | MAIN GAS VALVE | 23 | BLOWDOWN STRAINER |
| 2 | MAIN GAS REGULATOR | 24 | SURFACE BLOWDOWN VALVE |
| 3 | GAS CONTROL VALVE | 25 | WATER VALVE |
| 4 | MAIN GAS ORIFICE (LOW) | 26 | CHECK VALVE |
| 5 | TEST FIRING VALVE | 27 | CHECK VALVE |
| 6 | PILOT GAS VALVE | 28 | CHECK VALVE |
| 7 | PILOT GAS REGULATOR | 29 | VALVE |
| 8 | PILOT GAS CONTROL VALVE | 30 | OIL FILTER |
| 9 | PILOT GAS ORIFICE | 31 | OIL PUMP |
| 10 | PILOT AIR ORIFICE | 32 | OIL PRESSURE GUAGE |
| 11 | MAIN GAS ORIFICE (HIGH) | 33 | OIL STRAINER |
| 12 | HIGH-LOW CONTROL VALVE | 34 | OIL CONTROL VALVE |
| 13 | SAFETY VALVE | 35 | OIL CONTROL VALVE |
| 14 | SAFETY VALVE | 36 | OIL CONTROL VALVE |
| 15 | AIR VENT VALVE | 37 | GAS PRESSURE SWITCH |
| 16 | STEAM PRESSURE SWITCH | 38 | GAS PRESSURE SWITCH |
| 17 | STEAM PRESSURE SWITCH | 39 | AIR PRESSURE SWITCH |
| 18 | PRESSURE GAUGE | 40 | BOTTOM BLOWDOWN VALVE |
| 19 | PRESSURE SENSOR | 41 | GAS VENT VALVE* |
| 20 | L.V.C. BLOWDOWN VALVE | 42 | OIL VANT VALVE* |
| 21 | BLOWDOWN CONTROL VALVE | 43 | OIL PRESSURE SWITCH |
| 22 | SAMPLE WATER VALVE | | |

# NEW


# XJ1 Micro Computer Boiler Control System

## Instantly and easily check boiler operation status

MIURA's XJ1 Micro Computer Boiler Control System works for you and with you, identifying problems and suggesting solutions in plain, descriptive English on an easy-to-read display.

- ***Greater control over steam pressure settings for steadier steam pressure.***
- ***Allows for compensated adjustment of high and low fire scale thermocouple settings.***
- ***Allows for compensated adjustment of automatic blowdown based upon Total Dissolved Solids (TDS) and/or blowdown rates.***
- ***Easily interfaces with the MIURA "Colormetry" unit to eliminate scale formation due to water softener failure.***

## Detailed Boiler Cautions

MIURA's XJ1 Control system provides detailed information on the status of critical boiler functions before problems arise; to prevent and eliminate costly boiler shut downs:

1. **Air Filter Clogged**
2. **High Ambient Temperature**
3. **Water Softener Fault**
4. **Blowdown Timing**
5. **Low Battery**
6. **High Boiler Water Concentration**
7. **Communication Error**
8. **Plugged Surface Blowdown Pipe**

## Detailed Boiler Operation Information

MIURA's XJ1 Control System utilizes ten points to measure the performance of your boiler, displayed in an easy-to-read, user friendly format:

1. **Steam Pressure**
2. **Total Time of Low Fire Operation**
3. **Total Time of High Fire Operation**
4. **Scale Monitor Temperature**
5. **Overheat Thermocouple Temperature**
6. **Flame Voltage**
7. **Remaining time to Blowdown**
8. **Automatic Surface Blowdown Valve (On/Off)**
9. **Water Conductivity**
10. **11 point combustion sequence**

***Conductivity***


***Boiler Water Volume***


***Scale Monitor Temperature***


***High Fire High Tube Temperature Limit***


***Steam Pressure Indication***


## Simple, intuitive, programming and operation!

The XJ1 Micro Computer Control System is as simple to set up and program as it is to operate, and is fully Y2K compliant.

MIURA's training program and the intuitive, easy-to-use interface provide an intelligent boiler that works for you **and with you.**

## EX Series Specifications

| ITEM | EX-100 SGO | EX-200 XGO | EX-250 SGO | EX-300 SGO |
|---|---|---|---|---|
| Utilization Horsepower | 100 HP | 200 HP | 250 HP | 300 HP |
| Maximum Pressure (*1) | 170 PSIG MAWP, 150 PSIG Maximum Operating | | | |
| Equivalent Output (*2) | 3,450 LB/HR | 6,900 LB/HR | 8,625 LB/HR | 10,350 LB/HR |
| Heat Output | 3,348,000 BTU/HR | 6,695,000 BTU/HR | 8,369,000 BTU/HR | 10,050,000 BTU/HR |
| Efficiency (fuel to steam) (*3) | 85% (80% without Economizer) | | | |
| Heating Surface Area | 193 FT² | 323 FT² | 407 FT² | 390 FT² |
| Operational Weight | 7,250 LBS | 11,500 LBS | 17,850 LBS | 18,000 LBS |
| Shipping Weight | 6,750 LBS | 10,650 LBS | 16,950 LBS | 17,100 LBS |
| **Dimensions given are approximate** | | | | |
| Width | 80 in. | 89.5 in. | 94 in. | 94 in. |
| Length | 109.5 in. | 128.5 in. | 134 in. | 138.5 in. |
| Height | 102.5 in. | 127 in. | 157 in. | 157 in. |
| Combustion System | Proprietary Forced Draft, Step Fired Modulation Hi-Low-Off | | | |
| Ignition System | Electric Spark Ignited, Interrupted Gas Pilot | | | |
| Power Supply | 230, 460, or 575 V, 3 PHASE, 60 HZ | | | |
| Max. Electrical Consumption | 14 KVA (15) for oil | 24 KVA (25 for oil) | 32 KVA (34 for oil) | 32 KVA (34 for oil) |
| Fuel Type (*4) | Natural Gas or Propane (3-5 PSIG), No. 2 oil | | | |
| Gas Consumption (*5) | 3,920 SCFH | 7,850 SCFH | 9,810 SCFH | 11,770 SCHF |
| No. 2 oil | 28.1 GAL/Hr | 56.3 GAL/Hr | 70.3 GAL/Hr | 84.4 GAL/Hr |
| Gas Supply Pressure | 3-5 PSIG Natural (Gas or Propane) | | | |
| Main Steam Outlet Valve | 2 in. | 3 in. | 4 in. | 4 in. |
| Safety Valve Outlet | One 1½ in. | One 2½ in. | Two 2½ in. | Two 2½ in. |
| Main Water Inlet | 1 in. | | 1 ¼ in. | |
| Fuel Gas Inlet | 2 in. | | 2 ½ in. | |
| Fuel Oil Inlet | 3/4 in. | | | |
| Automatic Surface Blowdown | One 3/8 in. | | Two 3/8 in. | |
| Manual Blowdown | Two 1 in. | | One 1 in. and One 1¼ in. | |
| Chimney Diameter (ID) | 14 in. | 20 in. | 20 in. | 26 in. |
| Flame Detector | Ultraviolet Flame Eye Sensor | | | |
| Pressure Control | Adjustable Pressure Transducer and Switch | | | |
| Liquid Volume Control | Electrolytic Conductive Tape | | | |
| Overheat Protection | Low Water Cut Off & Thermocouple | | | |

**"S" - Economizer** **"G" - Natural Gas or Propane Fired** **"O" - #2 Oil Fired**

### Note:

1 Optional EXH-SGO Series at 250 PSIG MAWP, 225 PSIG maximum operating.
2 Equivalent output calculated from and at 212°F (100°C) feed water at 212°F (100°C) steam.
3 Thermal efficiencies are based on high heating values of fuels at 68°F (20°C) feed water.
4 UL and CGA/CSA approved for natural gas, propane, and No. 2 oil.
5 Gas consumption based on natural gas with high heating 1004 BTU/SCF.
6 All Miura steam boilers are fully packaged and test fired at factory.
7 Built to meet or exceed UL & ASME standards in U.S.A; CGA/CSA & B-51 standards in CANADA.
8 Flue Gas recirculation is optional only with the Economizer.

Patented in the U.S.A.


***MIURA BOILER WEST, INC. (Chicago )***
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**The descriptions and specifications are approximate.**

**MIURA Boiler reserves the right to discontinue and/or change models and specifications without notice and without incurring obligation.**

***REPRESENTED BY:***

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