

MIURA **MII** SYSTEM

Multiple Unit Installation For Maximum Efficiency

The most advanced, High Efficiency, multiple steam boiler systems in the marketplace today.



- *Revolutionary Concept for Multiple Boiler Steam Systems*
- *Fuel savings average 10 to 40% over traditional steam boiler systems*
- *Reliable steam with a minimum of waste and cost*
- *Ultra Compact Systems*

www.miuraboiler.com

**MIURA**
...Setting New Standards in Boiler Technology

MIURA MI SYSTEM

Revolutionary concept For Multiple Boiler Steam Systems

Fast Steam

in 5 minutes or less from a cold start-up. This is achieved through our revolutionary floating header design. Standard firetubes require start-up times from 1 to 1.5 hours.

Smaller, more efficient MIURA Boilers can be turned on (or off) like a light switch. Shut boilers off when not required and bring them on line just as quickly.

Until now, multiple boiler steam systems ranging from 100 to 4,500 BHP meant installing one firetube or watertube boiler for peak loads with another boiler of the same size for back up.

Situation:

The system wants steam, and it wants steam now — conventional firetube and watertube technology can't manage quick steam demands.

Keeping stand-by boilers hot so they can quickly come on line when steam demand picks up, or take over if the primary boiler breaks down results in **wasted fuel and increased costs.**

Revolutionary Solution...

The MIURA Boiler "Floating Header" design delivers full steam output within five minutes from a cold start-up. Multiple boilers are tied together with MIURA's Multiple Installation (MI) software, programmed to match your particular steam patterns, acting as one large boiler with multiple back-up and almost infinite turn down.

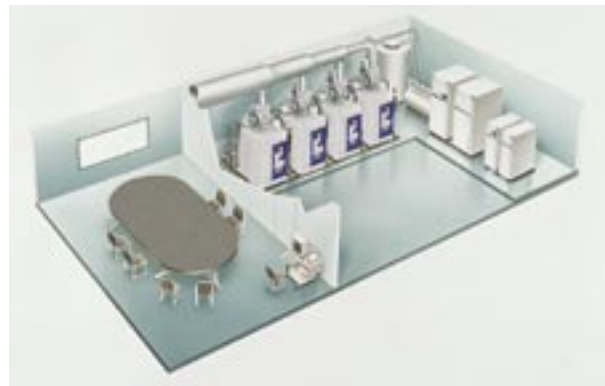
When steam demand picks up, the MI controller compensates by forcing on line boilers to high fire while additional units are brought on line. When steam demand slows, the MI controller reduces output and, if necessary, takes boilers off line quickly and efficiently.

Ultra Compact Design Saves Space and Costs

- One HALF the footprint requirements over traditional system designs
- Reduces real estate and building costs for new installations
- Retrofits are simple and costs are minimized



Standard Firetube/Watertube Technology



Miura's Revolutionary Technology

MIURA MI SYSTEM

The Highest In-Service Efficiencies in the Marketplace Today

In-Service Efficiencies - the REAL comparison.

The most efficient boiler is a cold boiler. An idling boiler makes noise and consumes fuel. If no steam was used for process, the In-Service efficiency is zero.

No matter how high a boiler's design (fuel to steam) efficiency is, if the In-Service (running) efficiency is low, you will waste fuel.

Multiple Installations - the next step.

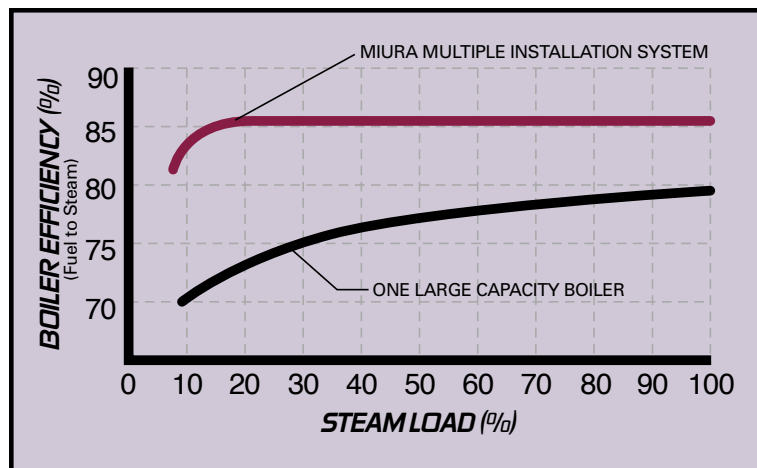
Combine MIURA's smaller, more efficient boilers together into a super-efficient MI system. The Goal: to keep the highest, most efficient load on the boiler as possible. When you don't need the steam, keep the boiler(s) off line and cold - greatly reducing radiation losses.

A typical load pattern in a steam plant over a 24-hour period produces high load patterns for only a portion of the day. Standard firetube or large watertube multiple boiler systems are inefficient and waste fuel.

With a MIURA Multiple Boiler MI System, boilers are brought on line when needed, and shut down when not needed. The In-Service efficiency of the system is raised - the cornerstone of the MIURA MI System.



The Highest In-Service Efficiencies in the Marketplace Today



Smaller is Better.

Compare operational water content...

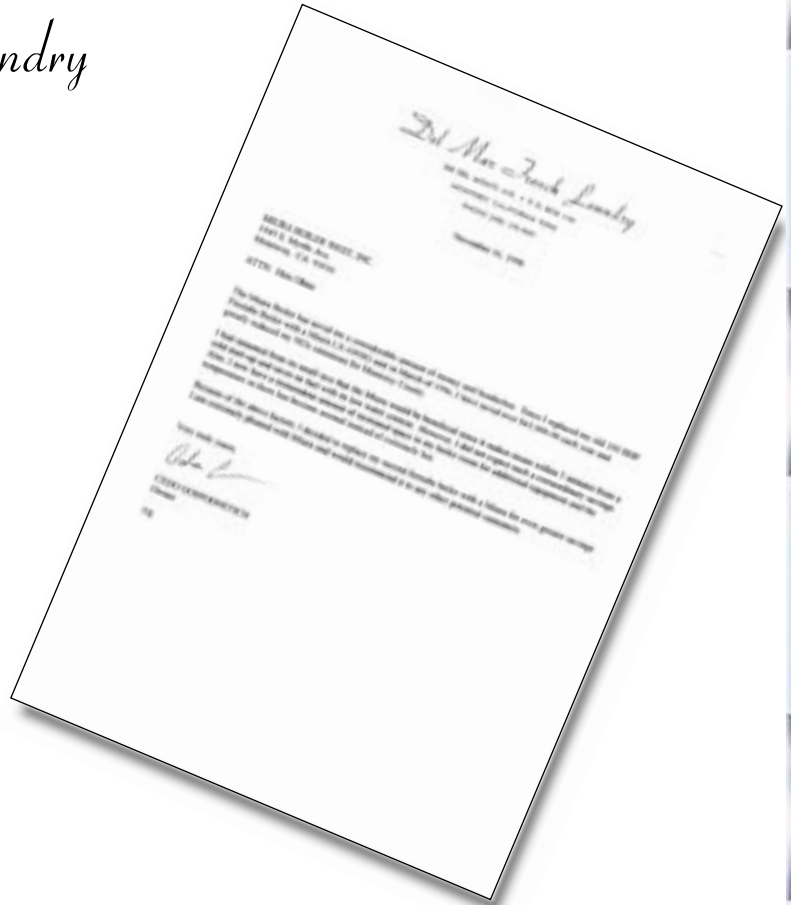
200 BHP MIURA boiler = 50 Gallons

200 BHP Standard Firetube boiler = 2000 Gallons

MIURA MI SYSTEM

"I have saved over \$43,000 each year.."

Del Mar French Laundry



CEDO GOSPODNETICH

Owner
Del Mar French Laundry
Monterey, California

"The MIURA Boiler has saved me a considerable amount of money and headaches. Since I replaced my old 100 BHP Firetube Boiler with a MIURA LX-100SG unit... I have saved over \$43,000 each year and **greatly reduced my NOx emissions for Monterey County.**"

"I decided to replace my second firetube boiler with a MIURA for even greater savings. I am extremely pleased with MIURA and would recommend it to any potential customers."

Del Mar French Laundry
TWELVE MONTH COST COMPARISON

Old BHP Firetube Boiler			Miura LX-100SG			Savings
Month*	Therms	Cost	Month	Therms	Cost	
Mar-95	14,966	\$ 9,427	Mar-96	13,408	\$ 8,176	\$ 1,251
Apr-95	18,181	\$ 10,452	Apr-96	13,353	\$ 6,637	\$ 3,815
May-95	17,534	\$ 9,445	May-96	12,051	\$ 5,447	\$ 3,998
Jun-95	17,812	\$ 9,595	Jun-96	13,146	\$ 5,941	\$ 3,654
Jul-95	18,121	\$ 9,761	Jul-96	14,293	\$ 6,458	\$ 3,303
Aug-95	17,394	\$ 9,370	Aug-96	12,703	\$ 5,741	\$ 3,629
Sep-95	19,029	\$ 10,249	Sep-96	13,715	\$ 6,197	\$ 4,052
Oct-95	17,767	\$ 9,570	Oct-96	12,380	\$ 5,597	\$ 3,973
Nov-95	16,349	\$ 11,036	Nov-96	11,402	\$ 6,476	\$ 4,560
Dec-95	14,706	\$ 10,692	Dec-96	9,483	\$ 5,787	\$ 4,905
Jan-96	17,523	\$ 11,304	Jan-97	12,075	\$ 7,356	\$ 3,948
Feb-96	15,903	\$ 9,694	Feb-97	11,331	\$ 6,913	\$ 2,781
					TOTAL SAVINGS	\$ 43,869

*Miura installed on March 22, 1996

**Miura meets the most stringent AQMD regulations in California.

MIURA MI SYSTEM

“The boilers have been dependable and reliable, with virtually no downtime in the past two years...”



Clarence D'Cruz

PEPSI/SEVEN-UP TORONTO
Mississauga, Ontario, Canada

“Pepsi/Seven-Up Toronto purchased three (3) EX-3000 SGO (200 BHP) steam boilers from MIURA...”

“Since their start-up, Pepsi/Seven-Up Toronto has been extremely pleased with the boiler’s performance and overall operation. The boilers are operating 24 hours per day, 7 days per week. The boilers have been dependable and reliable, with virtually no downtime in the past two years. Any minor service which was required was always prompt and efficient.”

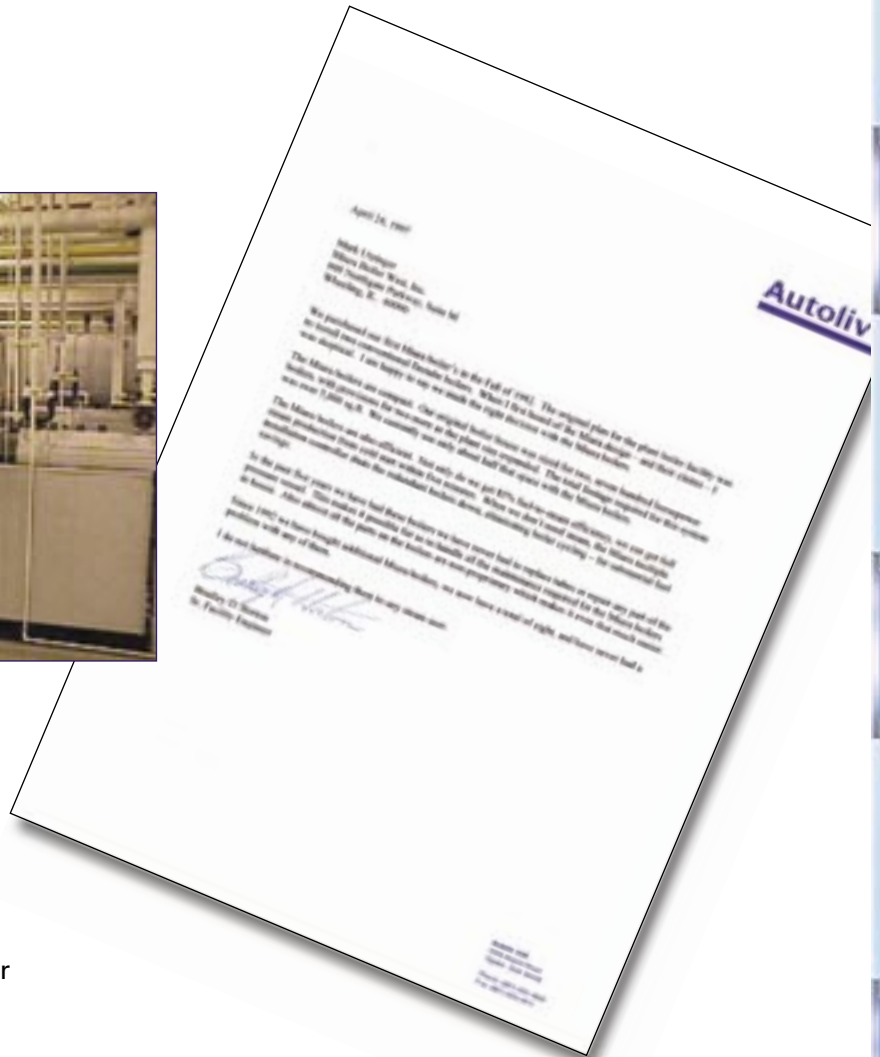
“We are extremely confident in recommending these boilers to any potential end user.”



MIURA MI SYSTEM

“Our original boiler house required over 5,000 sq. ft. We currently use only about half that space with the MIURA boilers.”

Autoliv



Bradley D. Horton

Sr. Facility Engineer
Autoliv ASP
Ogden, Utah, USA

“When I first heard of the MIURA design - and their claims - I was skeptical. I am happy to say we made the right decision with the MIURA boilers.”

“Our original boiler house was sized for two, 700 HP boilers, with provisions for two more as the plant size expanded. The total footage required for this system was over 5,000 sq. ft. We currently use only about half that space with the MIURA boilers.”

“In the past 5 years... we have never had to replace tubes or repair any part of the pressure vessel. This makes it possible for us to handle all the maintenance required for the MIURA boilers in house. Almost all the parts on the boilers are non-proprietary, which makes it even that much easier.”

MIURA MI SYSTEM

*“We get 85% Fuel to steam efficiency
For substantial Fuel savings.”*



Stephen J. Carbery

Director, Facilities Management
GREENWICH HOSPITAL
Greenwich, Connecticut, USA

“The MIURA boiler is flexible and efficient. We end up using only two or three units on the average at full fire. We get 85% fuel to steam efficiency; we can get full steam production from a cold start within five minutes. When we don't need steam, the MIURA multiple installation controller shuts the redundant boilers down, eliminating boiler cycling - for substantial fuel savings.”

“The MIURA Boiler Concept has certainly been a welcome addition to the New Greenwich Hospital... we are pleased to be experiencing the Concept's many benefits over conventional firetube systems.”

MIURA MI SYSTEM



Pressure Controller MP1-200

Based on detected steam pressure, MP1-200 releases a signal to MT1-200 to follow steam demand.

Voltage	AC 120V (+10, -15%)
Frequency	50/60 Hz
Allowable Control Pressure	(Optional) 15-135 psi
	(Standard) 30-270 psi
Pressure Differential	(Optional) 7-57 psi
	(Standard) 15-70 psi
Maximum Controlled Boilers	15 Units

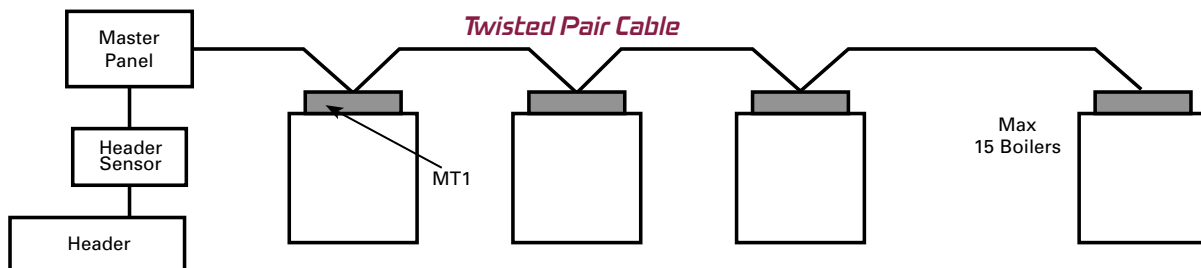


MI Terminal MT1-200

Receiving information from MP1-200, MT1-200 has the boiler run with appropriate conditions as a total system.

Voltage	120V (+10, -15%)
Frequency	50/60 Hz
Control	Automatic Rotation
	Troubled boiler back-up
	Full blowdown timer

Miura Multiple Installation Control System



- A pressure sensor quickly senses pressure swing in the header. The master panel, MP1 sends an ON or OFF signal to the boiler MI controller, MT1.
- The Master Panel brings boilers on line when needed, and only when needed, in order to match high load patterns, even during low load demands - for the highest possible In-Service efficiencies.
- The Master Panel brings back-up boilers on line automatically, in the rare chance a boiler breaks down, for a safe reliable steam supply.
- Combustion patterns can be programmed by the operator to match your Plant's load pattern.
- Up to 15 boilers can be tied together on one master panel. Therefore planners can buy only the boilers they need currently and easily add boilers as the plant expands in the future. Valuable resources can be used for other projects.



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