

# MIURA

## success stories

**MARKET:**  
Major Chemical Producer

**USAGE:**  
Process Steam

**CUSTOMER:**  
FUJIFILM Hunt  
Chemicals

## Two Dual-Fuel Steam Miura Boilers Chosen By Major Specialty Chemicals Plant For Energy Optimization

*Miura's On-Demand Steam, Fuel Economy, High Performance, and Compact Footprint All Cited as Contributing to Major Efficiency Upgrade*



New installation of Miura EX-200 SGO dual-fuel on-demand boilers.

As a diversified producer of a wide range of sophisticated chemical products, FUJIFILM Hunt Chemicals, in Dayton TN, has extensive expertise in applying advanced, cost-effective technologies to its complex manufacturing processes. After initiating an energy-efficiency survey in 2009 in conjunction with Tennessee Tech University and the U.S. Department of Energy, FUJIFILM Hunt Chemicals determined that its steam-generation capabilities needed upgrading. To meet its goal of energy economy and reduced downtime for its cyclical manufacturing processes, the company chose two EX-200 SGO dual-fuel units from Miura, the world leader in ultra-low NO<sub>x</sub> modular on-demand steam solutions.

“Overall, we run cyclical reaction batch processes,” states Manuel Calero, Maintenance Manager at FUJIFILM Hunt Chemicals. “We heat-up our reactors and then cool them down. We had two old

locomotive-style boilers, which were not well suited to the turndown when we cooled the reactors. Those boilers just sat there and made steam that was not being used, which was very inefficient.”

Calero researched the latest industrial steam boilers and obtained quotes from two makers of traditional-style fire-tube models and one from Miura, which they had learned about from Combustion & Control Solutions, of Chattanooga TN. Assisted by Tennessee Tech University, FUJIFILM Hunt Chemicals examined the efficiency specs of each brand and model of boiler and chose Miura.

“The Miura boilers definitely provide better cost-efficiencies,” Calero explains, adding that current figures indicate a savings of approximately 33 percent in natural gas costs. “We expect that to continue to improve as we get everything in place. And whereas we once had two boilers with a full combined output of 450 horsepower, we now have one on-demand 200 horsepower Miura boiler basically running the facility on low fire, with the second on-demand Miura sitting there on standby. The dual-boiler system has reduced potential downtime situations due to equipment failures. In the past it was difficult not to impact production for maintenance. Now the facility is able to operate with one boiler while performing repairs on the second unit. In addition, the facility is experiencing a reduction on production downtime when repairs are performed on steam piping. Once the repair is completed, steam service is back within five minutes. It took the old boilers about 20 minutes, or 80 percent longer.”

Miura's unique “once-through” fin-tube design not only requires less fuel and produces fewer emissions, it also generates full steam from a cold start in five minutes or less. This modular on-demand steam



capability makes Miura boilers particularly well-suited to a multiple installation (MI) in which boilers can be selectively turned on or off as needed to best manage changing load conditions, as opposed to idling in stand-by while they consume energy and generate emissions.

“The Miura boilers manage our ‘peaks and valleys’ very, very well,” Calero adds. “Whenever a reactor comes on line to be heated, the Miura boiler provides the steam required, and maybe 10 to 15 minutes later it goes to low fire and drops off. These boilers also heat our buildings. Our facility runs 24/7, and we anticipate that with redundant Miura EX-200 SGO boilers in place we’ll never have to shut down because of steam issues. That’s going to give us a great deal of savings. We recently had to upgrade our gas meter and tweak our condensate-dumping system, but the facility didn’t even ‘notice’ we had done that. There was no drop in service.”

#### Unique Advantages

On-demand steam is but one of several major benefits of Miura boiler design. Another is reduced output levels of both nitrogen oxides (NO<sub>x</sub>), a major contributor to air pollution, and carbon dioxide (CO<sub>2</sub>), the most prevalent of greenhouse gases. Miura boilers achieve low-NO<sub>x</sub> performance by reducing the temperature of the boiler’s flame, which in turn reduces the amount of excited nitrogen atoms available to bond with oxygen to form nitrogen oxides. As a result, NO<sub>x</sub> emissions are reduced to around one-quarter of what traditional fire-tube boilers emit. This enables Miura boilers to comply with even the most stringent air-quality regulations. With regard to reduced CO<sub>2</sub> emissions, Miura’s technology leverages superior operating efficiency to contribute significant carbon abatement with a payback.

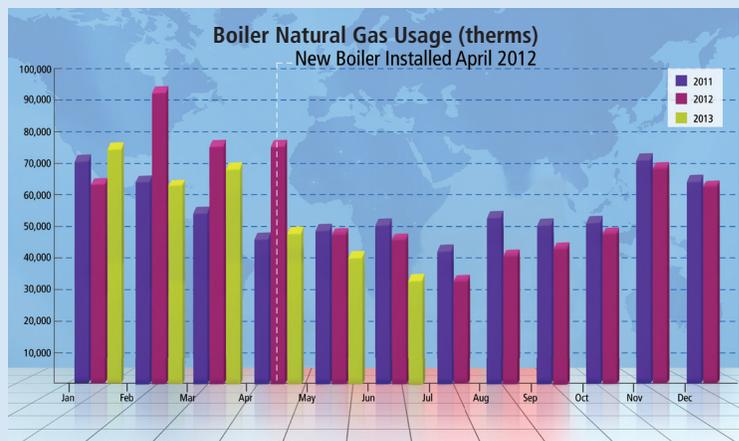
“FUJIFILM has had a green initiative for more than a decade, and we report annually on how we impact the environment,” Calero says. “Our Miura boilers will give us a major improvement for next year’s report. It’s a much more environmentally friendly system than what we had before.”

**“...these new Miura boilers address a big part of our energy footprint. We expect the project to pay itself back in about two years.”**

Manuel Calero, Maintenance Manager at FUJIFILM Hunt Chemicals

FUJIFILM Hunt Chemicals’ two Miura EX-200 SGO boilers are located in a central plant that pipes steam more than 1100 ft. to two separate buildings. Yet another benefit of Miura’s boiler design is its compact footprint. This enabled Calero to have both boilers installed in an existing building instead of spending \$70,000 on a new one. “That really facilitated the implementation of the project by making it a lot more affordable and reducing our payback time,” he notes.

Calero also cites the dual-fuel capability of the two boilers as a notable advantage. “They just finished tuning the boilers for diesel and I was expecting to see a drop in combustion efficiency, but I didn’t,” he states. “Efficiency numbers were just as good with diesel as they were with natural gas. With the old boilers, whenever we would switch to diesel it would take about 20 minutes for them to level out and begin to provide consistent steam to the facility. With the Miura boilers we are able to switch back and forth almost seamlessly between natural gas and diesel.”



Calero anticipates continuing benefits from his company’s two new Miura EX-200 SGO boilers. “Combustion and Control Solutions did a very good job of setting them up so that we would be successful with the installation,” he informs. “We are going to go back that our original energy assessment and report our numbers. More than likely we will get some additional recognition to the U.S. Department of Energy because these new Miura boilers are a big part of our energy footprint. We expect the project to pay itself back in about two years.” ●

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# Miura

Miura Steam is Engineered for Greater Efficiency,  
Lower Costs, and Reduced Environmental Impact.