

MIURA

success stories

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Sports Medicine Hospital

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Process Steam

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Healthcare

Miura Boilers Help Maintain The Health Of A Leading Orthopedics And Sports Medicine Hospital

Energy Manager Utilizes Miura Boilers for Efficiency, Economy, and N+1 Redundancy

Located in Murray, Utah, Intermountain Healthcare's The Orthopedic Specialty Hospital (TOSH) is one of the country's most advanced facilities for sports medicine, physical therapy, and athletic training, nutrition, and exercise. TOSH also has one of the country's most advanced and efficient steam boiler systems, which provides the essential HVAC and process heating capacity typical of a modern hospital facility. Leveraging Miura's advanced technology in combination with controls customization focused on site-specific load management, Intermountain Healthcare has made great strides toward meeting its long-term energy-optimization goals.

"The mechanical advantages of Miura boilers are a big part of our solution," explains Troy Jensen, Corporate Energy Manager for Intermountain Healthcare. "Our system goes beyond simply buying and installing Miura boilers, to a custom integration of our systems that enables us to use an iPad to cycle the boilers, turn them on and off, switch them around, and change their pressure set points." Miura boilers save an average of 20 percent annually on energy costs over traditional boiler designs, but Jensen notes that TOSH's Miura boilers have achieved a 42 percent fuel-cost reduction during January 2014 alone. Jensen explains that this is due to his integration of custom software and a boiler control system of his own design that interfaces with each Miura boiler's built-in precision microprocessor-control technology.

"I hesitate to translate this into dollars because when you talk percentages it's associated to square feet," Jensen notes. "TOSH is only 279,000 square feet. Some of our other hospitals are 1.5 million square feet. What you save will be based on your facility's baseline load and the cost of natural gas per decatherm in your area. If you need 30 million BTU's and you're 400,000 square feet, then a 40 percent savings may sound a lot bigger than what it would be traditionally. That's something

to keep in mind. I'm an energy guy who doesn't believe in wasting energy, which is why I support new and innovative technologies. This includes key components addressing unnecessary waste in an area of high cost that impacts our ability to become more efficient."

Mechanical advantage

"Right now we are in a transition phase," Jensen relates. "We removed two 500 horsepower standard fire-tube boilers and replaced them with three 100 horsepower LX series Miura boilers. Miura can provide N+1 redundancy, but with less fuel and a smaller footprint. [N+1 redundancy references systems in which components (N) have at least one independent backup component (+1) to compensate for component failure.] These boilers are also equipped with Miura's oxygen-removal system, which removes the corrosive damages caused by oxygen. This, combined with Miura's integrated water-treatment process, further enabled seamless processes in achieving optimal results. We also have



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Troy Jensen, Corporate Energy Manager,
Intermountain Healthcare

Miura boilers being installed at one of our larger facilities, LDS Hospital in Salt Lake City. We are removing two 1,100 horsepower fire-tube boilers and installing three dual-fuel Miura EX-300s in the plant with an additional 100 horsepower Miura in the other side of the hospital to split steam distribution. The integrated technology of these boilers and controls provide superior mechanical advantages, allowing an optimized environment.

Jensen highlights the mechanical advantage as being the vertical water tube design of Miura boilers and the precise location of where the flame hits those tubes. Miura’s unique “once-through” vertical fin-tube design heats a smaller volume of water more efficiently than other boilers. This, combined with built-in precision boiler-controls technology, requires less fuel and produces fewer emissions. This unique design enables the boilers to generate full steam from a cold start in five minutes or less. This on-demand steam-generation feature is easily scalable, and can handle up to 15 boilers by utilizing Miura’s modular “MI” system, in which multiple Miura boilers can be sequentially staged on or off as needed to match load fluctuations, as opposed to consuming energy while constantly idling in stand-by.

“Instead of having a big 500 horsepower boiler idling away with another 500 in case it fails, the Miuras enable us to have multiple 50, 100, 200 or 300 horsepower boilers that we can fire when we need to,” Jensen says. “Installing modular Miura boilers not only enables us to reduce boiler horsepower, this modularity gives us the N+1 boiler redundancy hospitals need. Miura’s staging capabilities work really well for our needs.”

Environmental impact

In addition to the *on-demand* steam and energy-conservation benefits of Miura boilers – as compared to conventional boilers – Miura also outputs reduced levels of nitrogen oxides (NOx), a major contributor to air pollution, as well as carbon dioxide (CO₂), the most prevalent of greenhouse gases. Miura boilers achieve low-NOx 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 of this, NOx 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 CO₂ emissions, Miura’s technology leverages superior operating efficiency via precise load management to contribute to significant reductions in carbon emissions with a payback.

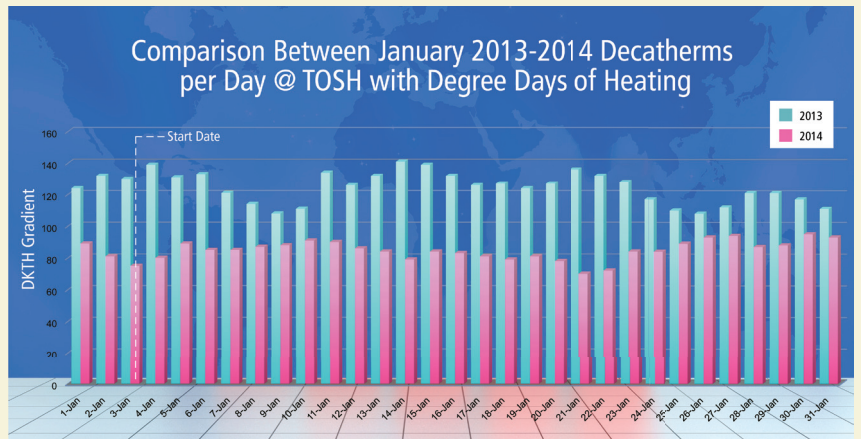
“Although Utah’s emissions limits are not overly strict, we strongly support reducing our impact on the environment,” Jensen says.

“Miura has some great advantages when it comes to parts per million emissions and NOx and SOx [SO₂, sulfur dioxide]. Every time you replace a boiler you have to re-license here in Utah. But because Miura boilers produce fewer emissions you can actually apply for it instead under the R-3075 Reduction of Contaminants Clause.”

Remote monitoring

Microprocessor intelligence built into Miura boilers includes the BL Micro Controller, which keeps track of multiple individual monitoring points. An advanced diagnostic system, it can identify any potential challenge to smooth operation and recommend a solution on an easy-to-read display. A “sliding-window feature” records events four seconds before they occur for fast and effective trouble-shooting. This system can also be accessed via the Internet using the Miura Online Maintenance (“MOM”) feature for remote monitoring and diagnostics. The system can also interface with Miura’s Colormetry feature, which monitors water quality to prevent the build-up of scale inside the boiler “As long as you give them a phone line, Miura has

proven effective in monitoring practically everything about our system,” Jensen notes. “Everything from the hardness of your water, to what your



boilers are doing, to any alarms you’ve received. The nice thing about Miura is simplicity in operation, which reduces the requirements for specialized training to operate them. It’s a phone call and a screwdriver for most things. If you do have an issue you can call Miura 24 hours a day, give them your code, and they can see your boiler online. This unique ability combined with my experience of customer service and focus creates a win/win for a customer like myself, who is focused on delivering an effective product that ultimately allows better patient care.” ●

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Miura

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