

process HEATING

FOR MANUFACTURING ENGINEERS WHO USE HEAT PROCESSING EQUIPMENT AND SUPPLIES

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INDUSTRIAL HEATERS:

Reducing
Premature
Failure

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About the Cover

Faulty elements, age, moisture ingress and long periods of downtime can all negatively impact the health of an industrial heater. Valin Corp. (www.valin.com) offers advice on preventive maintenance and testing to extend heater element life. To learn more about preventing heater failure, turn to page 34.



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On-Demand Webinar: Industrial Refrigeration Operating Tips

Our sister publication *Process Cooling* offers a no-cost webinar so you can understand how pressure drop and static head pressure affect the operation of your industrial refrigeration system. Learn more at webinars.process-cooling.com.

Time Lapse Video of Vapor Corrosion Inhibitors at Work

The video shows a time-lapse of steel wool protected in water vs. steel wool unprotected in water.

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Boiler Company Educates Students on Skills, Job Opportunities



More than 30 students from the Discovery ChalleNGe Academy toured Nationwide Boiler's 26,000 ft² shop in Fremont, Calif., where employees demonstrated skills such as welding, pipe fitting, electrical work, fabrication and equipment assembling. The students also learned about other professional career opportunities, including engineering, sales and marketing.

Larry Day, president and CEO of Nationwide Boiler, said, "We feel strongly about educating our youth so that we can successfully sustain our business and our industry for future generations. That starts with giving them the necessary information on both education and career opportunities but also alternative education like trade schools, where they can choose from a variety of different technical skills to master."

Located in Lathrop, Calif., the Discovery ChalleNGe Academy assists students in enhancing life skills, education levels and employment poten-

tial. The "NG" refers to the National Guard, which sponsors the program.

Heat Treater to Use Batch Ovens for Stress Relieving

Five electrically heated, standard draw batch ovens will be used by East Carolina Metal Treating, Raleigh, N.C., for stress relieving. The ovens have a maximum operating temperature of 1250°F, says oven maker Wisconsin Oven. Guaranteed temperature uniformity of $\pm 10^\circ\text{F}$ at setpoints of 300, 750 and 1250°F was documented with a nine-point temperature uniformity survey in empty oven chambers under static operating conditions, notes the company.

Features of the ovens include a plate-steel outer shell, reinforced steel-plate oven front, lined inner shell and exterior structural reinforcements as required to provide heavy-duty construction. The ovens also include a digital process controller and a digital high limit controller.



This 70,000 lb/hr trailer-mounted watertube boiler is staged at a tomato-processing facility.

 **Nationwide
Boiler Incorporated**
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TEMPORARY BOILERS

Can Support Seasonal Steam Demand

A short-term or long-term rental boiler can save time, conserve capital, minimize risk and maximize available resources.

By Tim McBride,
Nationwide Boiler Inc.

Many industries face periods of increased process steam requirements, commonly known as peak or seasonal demand. Whether it is processing the food we eat, the gasoline that fuels our vehicles or any other valued product, there likely will be occasions where demand exceeds steam production capability. How do companies go about fulfilling increased steam demands for critical processes when facility boilers have already reached their limits?

To satisfy additional steam requirements above and beyond normal demand, facilities can choose to supplement steam production with a temporary boiler. This practical solution allows facilities to maxi-

mize the resources needed to meet current, short-term and long-term demands.

While the purchase of an additional boiler may, in some cases, provide a beneficial solution, renting a boiler has significant advantages that should be evaluated. A short-term or long-term rental solution can save time, conserve capital, minimize risk and maximize available resources.

Rental Units Save Time

Rental boilers typically are available on an immediate basis while new equipment, being built to order, can take significantly longer. Depending on the size and design, typical lead times for new firetube boilers are 12 to 16 weeks. Lead times for watertube boilers can be 32 weeks or longer. In addition, the funding of a capital equipment investment can be a lengthy process. If time is of the essence, renting provides

an expedited and cost-effective solution that should be considered.

Rental Boilers Conserve Money

Industrial package boilers are not a small expense, and capital purchase opportunities may be limited. Renting a boiler can overcome these potential capital budget restrictions. Furthermore, rental payments may be expensed in the operating budget, which can offer significant tax advantages.

Alternative financing arrangements are available with some rental boilers. For instance, a rental boiler can be set up as a lease with an option to buy at the end of the rental period. Other contracts allow the rental boiler to be purchased on an installment basis. This provides users with an opportunity to test-drive the system, so

to speak, and determine if the boiler is a fit for their process before making a capital equipment purchase.

Rental Units Minimize Risk

If additional steam is required and your facility is unable to meet the current demands, there is a potential risk of losing revenue or market share. Installing a rental boiler can mitigate that risk and allow facilities to maintain production levels as required to support the needs of their customers.

The challenges associated with renting a boiler can be minimized as long as plant owners do their due diligence and choose a reputable rental boiler supplier. Factors to take into consideration include the extent of the company's rental inventory as well as stocking locations. Some suppliers maintain equipment in multiple storage locations, allowing for quicker transit times while minimizing shipping costs.

Rental Boilers Maximize Resources

Rental boilers come in many sizes and

configurations. If plant owners are limited on resources, a rental unit can make up for certain limitations, including:

- Available space.
- Foundation limitations.
- Installation equipment requirements.
- Support equipment.

Space Limitations. In most applications, there is not need to find space within the facility's boiler room for a rental unit. Rental boilers can be placed in many locations. Typically, a temporary enclosure only is required during the winter in locations that experience freezing conditions.

Foundation Requirements. Most mobile boilers are constructed with support members, so they can be placed on most reasonably level, stable surfaces. This avoids the need to install a dedicated foundation for the placement of a mobile boiler.

Installation Equipment Requirements. Mobile boilers are just as they sound: mobile. The boiler is mounted on a trailer with wheels for mobility and will typically remain on its designated trailer. This

means that a crane may not be needed to locate the boiler, and rigging costs may not need to be incurred. Some rental companies utilize trailers with removable pieces to accommodate facilities with limited space or other restrictions.

Support Equipment. Some rental systems are set up as complete mobile steam plants. In other words, all necessary auxiliary equipment is provided, including the feedwater system, pumps, water softener, chemical feeders, blowdown tank and motor control center. Typically, all components are prepped and prewired as a complete system. This fully packaged arrangement saves field time and installation expense while ensuring a reliable and proven system. Users simply connect steam, condensate, fuel, water, electricity and drains; everything else is assembled and ready to go.

In installations where a fully packaged mobile steam plant is not suitable or required for a specific application, a rental boiler can be provided as a stand-alone system. It also can be provided with a combination of the required auxiliary equipment



An internal view of a complete mobile boiler room shows how in such systems all necessary auxiliary equipment is provided.



At the tomato-processing facility, the rental system includes an SCR system for emissions control to meet air permitting requirements.

to meet the end user's specific operational requirements.

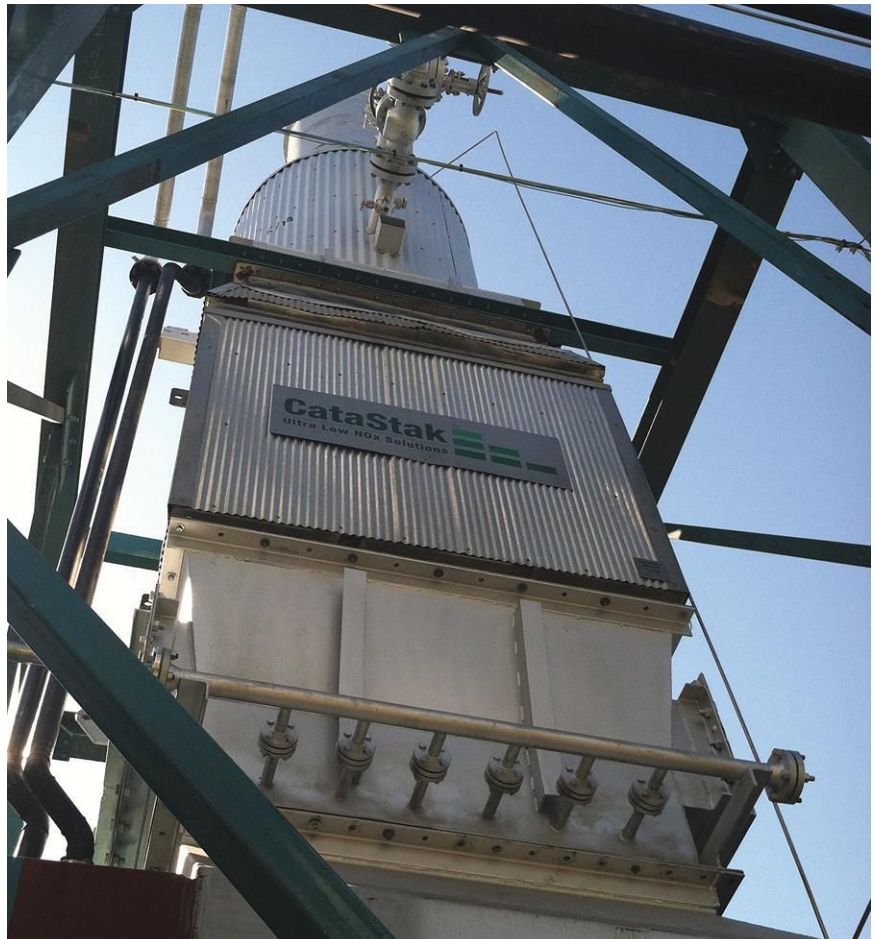
Once the decision to rent is made, up-front planning is a crucial step. Many rental boiler equipment providers are willing to make a site visit to assist the user in developing and executing an installation plan. A plant's unique steam-capacity requirements must be calculated, and a location must be selected that is easily accessible for the delivery and setting of the boiler equipment. The installation location also must have access to the processes or equipment in which the steam will be required. Lastly, connections to the required utilities — steam, condensate, fuel, water and electricity — must be available and sufficient in size to meet the needs of the rental unit.

Renters also must plan ahead for air and operating permits. Because these regulations are state and county specific, the rental company can assist by providing all necessary information; however, the facility must apply for and maintain these permits throughout the duration of the rental.

Some facilities actually configure a temporary rental station, with the installation location staged and all process piping and required valved utility connections installed ahead of time. This setup supports temporary, annual and seasonal rental equipment, and it also allows companies to move quickly should an unanticipated need arise. Oftentimes, facilities can utilize past permits, when applicable, to expedite the permitting process each year.

Case in Point

A major tomato processor in the central valley of California maintains a temporary rental station for — you guessed it — tomato season. On an annual basis, the company installs a trailer-mounted mobile watertube boiler package. The 70,000 lb/hr, 400 psi boiler is utilized for three to four months during the tomato processor's short but critical production season. Along with the rental boiler, an SCR system is provided for sub-5-ppm ultra-low NO_x compliance, which is required in one of the most stringent air districts in the country. This rental equipment allows the tomato processor to operate facility boilers with-



The SCR system is provided for ultra-low NO_x compliance for a tomato-processing facility located in one of the most stringent air districts in the country.

out overworking them and comply with local air regulations — all while satisfying their seasonal steam demand.

Why does the tomato processor rent on an annual basis rather than buy an additional boiler for use during periods of increased steam demand? Some years ago, the company identified a bottleneck in its evaporation system that hindered peak production capacities. The bottleneck was easily resolved; however, it would take more steam to fully realize the increase in production. Although the existing boilers were capable of running the newly found evaporation capacity, the increased production required the existing boilers to operate at 100 percent output continuously, leaving no room for margin and no buffer against any process anomalies. After

evaluating the cost of investing in a new boiler, the detrimental effects of operating the existing boilers at 100 percent output, and the process vulnerabilities of having no excess steam capacity, the decision was made to rent a supplementary steam boiler on an annual basis.

Ultimately, facility owners have to make decisions based on their unique needs, with no one facility being the same. When it comes time to evaluate the best way to support your seasonal steam demands, evaluate whether a rental unit can provide a cost-effective solution. ❄

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