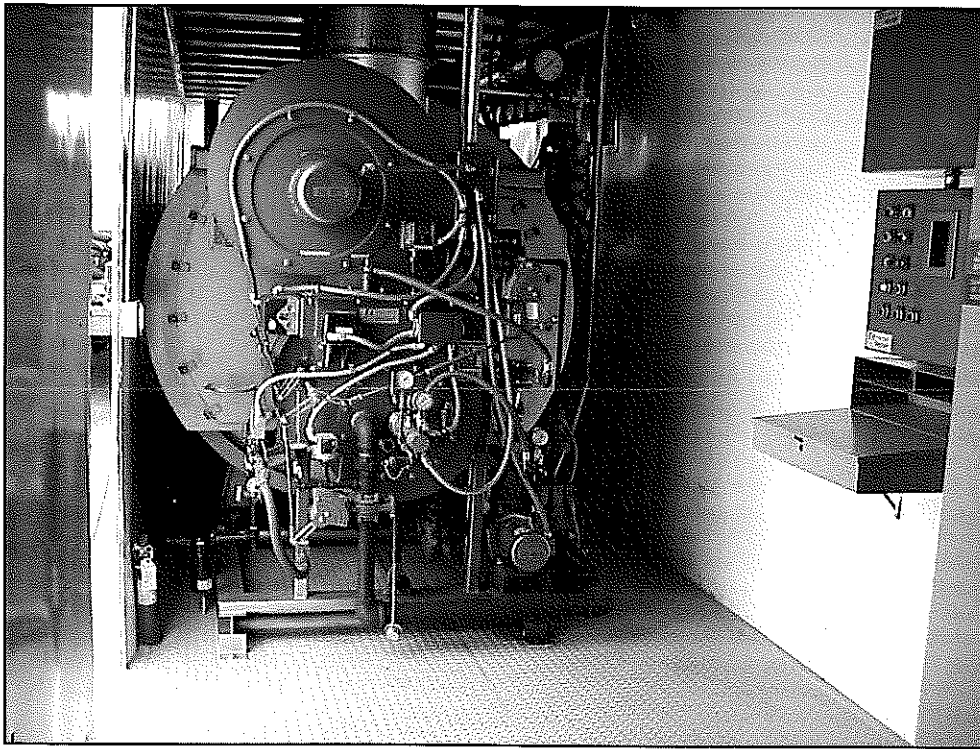


**WARE**  
Powerful solutions...  
Extraordinary results.

# The GRIME

August / September 2010  
Newsletter

## Pre-Packaged System Capabilities have expanded at Ware



more prepared to meet customer demands for Pre-Packaged Systems than we see ourselves as being today.

We recently completed the construction of a 6-bay building that measures 75' x 120'. This new addition, along with the experience of the management staff and technical support positions Ware to meet a demand being driven by a variety of issues not the least of which is simply a change in customer philosophy.

Today we are a society of people who want instant reward and therefore instant delivery of whatever we order. At home it is pizza or ribs. Don't feel up to mowing the yard? No problem, just place an order with your local lawn care company. Tired of waiting in line at the Pharmacy for your prescription? Order it on line and it will arrive in the mail. Hey, you can even order your groceries and have them delivered. (Aren't our Mommas proud?) When was the last time you bought a grill in a big square box and sat up until 2:00 am on a Friday night putting it together only to have 3 screws and a little (Don't worry honey, they always put extras in the package) piece of something left over. Not any more. Just call

In my nearly 28 years with Ware we have built in more than 100 mobile boiler rooms. These have ranged in sizes from small 20' containers with 25 horsepower hot water boilers with expansion tanks and circulating pumps to 650 horsepower, 250 psi complete mobile boiler rooms all enclosed in 53' trailers. We have built specialty containers with a modified A frame design in order to clear train tunnels in Siberia;

We utilized overseas shipping containers to house 250 horsepower boilers, deaerators and switch gear, then designed a special support structure so that electric superheaters could be mounted on top of the units thereby eliminating additional foundations and floor space; We have even built units to read out alarms and status in English and Cyrillic Russian while firing on exotic fuels, but never have we been

Pre-Packaged continued on page 2

Lowe's or Home Depot and they will put it together and deliver it to your door.

This has transferred over to our customers in how they look at boiler rooms. More customers are looking at the cost of new buildings and the time it takes to build the permanent boiler rooms and they are not liking what they see. The solution seems to be pre-packaged boiler rooms - something they can order, have pre-assembled, delivered, set on a concrete pad and poof! Instant boiler room. In most localities it is not considered a building so they don't even apply for a building permit.

Or maybe they are looking at a process expansion that will last for two years. Instead of the major investment in more building space and permanent equipment they invest in a package system that can set on a concrete pad outside the new process building. Now when they move to a new location they just unhook a few pipes, some wires and load the complete boiler room onto a trailer to be transported to a new site.

With our experience designing and building packaged systems Ware is ready for the challenges and opportunities ahead. If you think this concept is something you or your customer may be interested in, give us a call. Or better yet visit WARE's facility in Louisville, KY. We have been building these systems for over 35 years and have a technical support group with over 200 years combined experience in this field. And now we have the facility and process to streamline the production of pre-packaged systems.

Ware—Powerful Solutions, Extra Ordinary Results



### WARE CARE'S Preventative Maintenance Customer Web Portal

Take the worry out of managing data and files for boiler equipment and facilitate faster service for WARE's customers.

www.wareinc.com and click on Customer Login or call 800-228-8861

### New voices in Chattanooga

Ware promoted Jeff Barto from Valve Repair and Technical Consultant to Branch Manager in Chattanooga. We hired Dana Svoboda to be our new Service Coordinator. Dana comes to WARE with a background in accounting and service coordinator experience.



Dana Svoboda

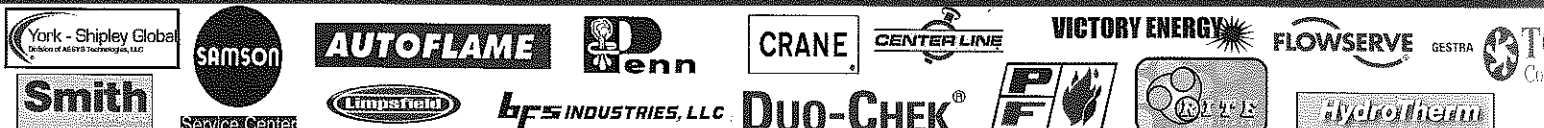
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# HOT TIP ARTICLE

## Installing a Condensing Economizer can result in efficiency improvements

Maximizing the use of the recovered energy is the key to a successful waste heat recovery project. Installing a condensing economizer can result in improvement of the overall heat recovery and steam system efficiency by up to 10 percent.

A condensing economizer improves waste heat recovery by cooling the flue gas below its dew point, which is about 135°F for products of combustion of natural gas. The economizer recovers both sensible heat from the flue gas and latent heat by condensing flue gas water vapor.

Many boiler applications can benefit from utilizing this additional heat recovery. Examples include district heating systems, wallboard production facilities, greenhouses, food processing plants, pulp and paper mills, textile plants and hospitals.

Site-specific engineering and design are required when installing condensing economizers as well as a technician who has a detailed and comprehensive understanding of the effect the installation will have on the existing steam system and water chemistry.

The available heat in a boiler's exhaust gases is dependent upon four things: the hydrogen content of the fuel, the fuel firing rate, the percent of excess oxygen in the flue gases, and the stack gas temperature.

For example, in a natural gas-fired boiler that produces 100,000 pounds per hour of 100-psig saturated steam, the boiler firing rate is about 116 MMBtu per hour at 83 percent efficiency. At its full firing rate, the boiler consumes over 4,860

pounds of natural gas each hour while exhausting 10,938 pounds of high temperature water vapor each hour. The water vapor in the flue gas contains over 10.6 MMBtu/hour of dormant heat that can be reclaimed.

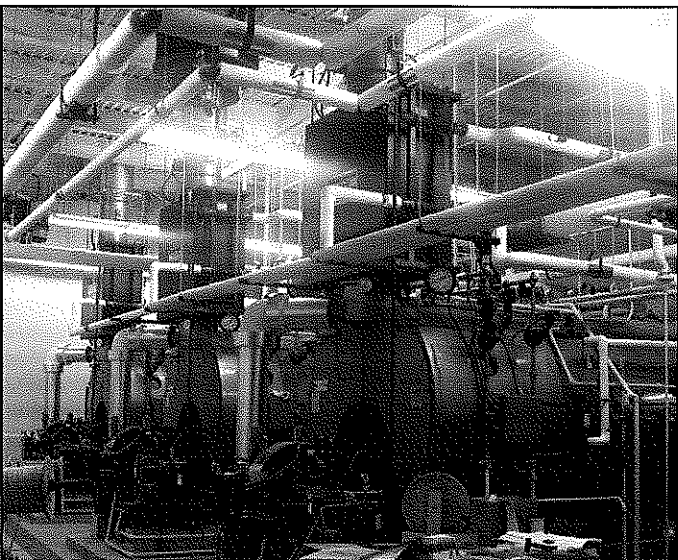
### Food Processing Plant Example

A food processing plant installed an indirect contact condensing economizer on a 20,000-lb/hr boiler. The condensing economizer reduced the flue gas temperature from 300°F to 120°F, while capturing 2.0 MMBtu/hr of sensible and latent heat. The company used the reclaimed energy from the condensing economizer to heat makeup water, which enabled them to reduce deaerator steam requirements from 5,000 pounds per hour to 1,500 pounds per hour.

### Suggested action steps

Considering the cost savings that can be realized from installing a condensing economizer, the following steps are recommended:

- Ascertain your boiler capacity, average steam production, combustion efficiency, stack gas temperature, annual hours of operation, and annual fuel consumption.
- Pinpoint uses for heated water in your plant, such as boiler makeup water heating, preheating, domestic hot water or process water heating requirements.

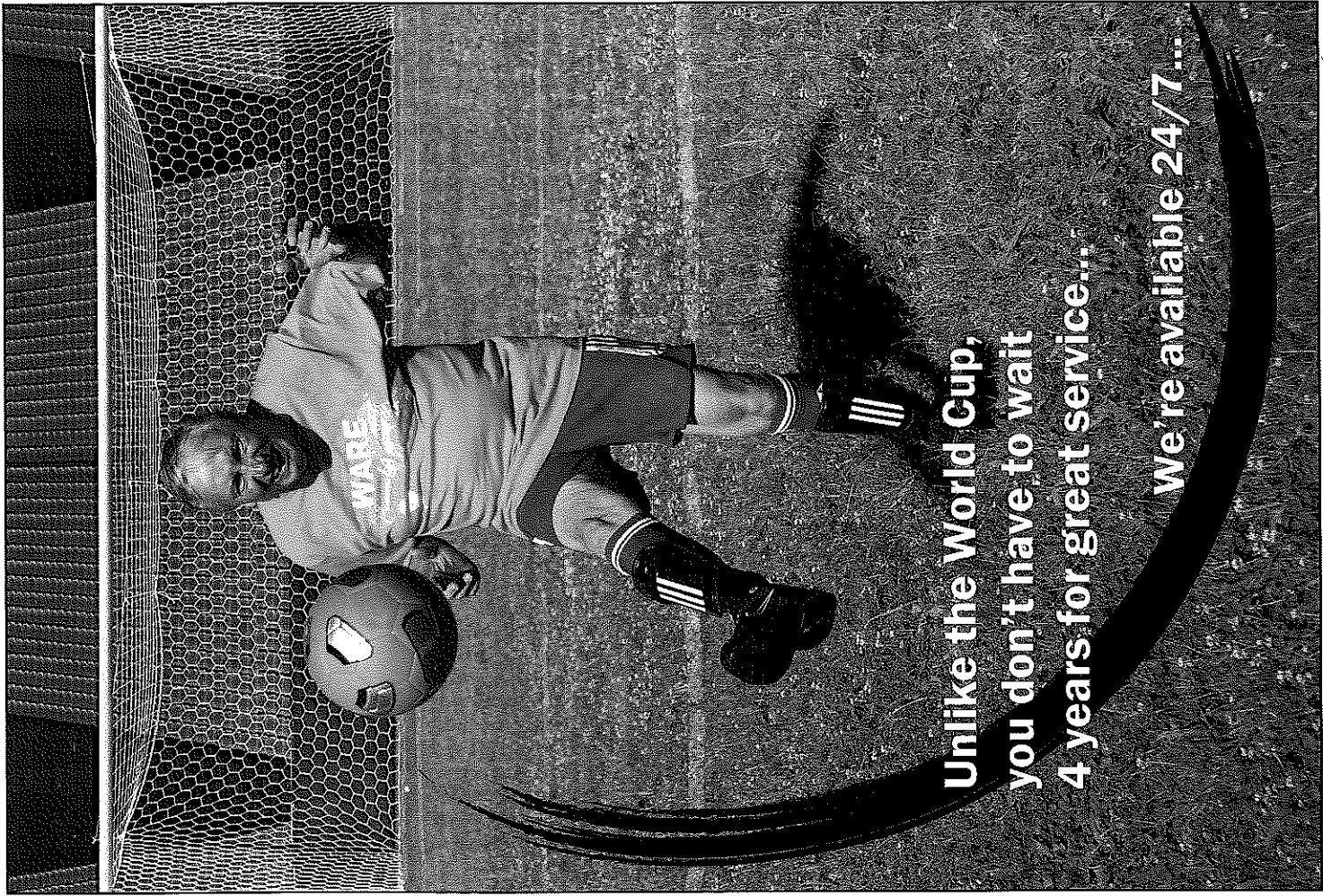


- Determine the thermal requirements that can be met through installation of a condensing economizer.
- Calculate annual fuel energy and cost savings.
- Obtain an installed cost quotation for and determine the cost-effectiveness of a condensing economizer.

As always, ensure that system changes are evaluated and modifications are included in the design. (For example: a mist eliminator, additional water treatment and heat exchangers.) Simple paybacks for condensing economizer projects are often less than two years.

Information for this tip was taken from the U.S. Department of Energy's (DOE) Best Practices Web site at [www.eere.energy.gov](http://www.eere.energy.gov). Use this Web site to access other industrial efficiency resources and information or refer to "Improving Steam System Performance: A Source book for Industry" from the U.S. DOE.

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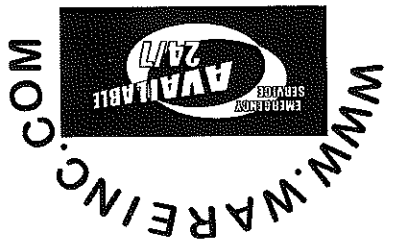


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