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BOILER TECH UPDATE

October 1, 2005

Definition:

Enthalpy - The amount of heat present in a material (i.e. Btu content of a substance above a specific datum). For example, in water the datum is 32°F.

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NEW

CLEAVER-BROOKS WEBSITE:

www.cleaver-brooks.com

Check it for the news about the Boiler Bucks II contest!

Don't forget to schedule your annual cleaning!

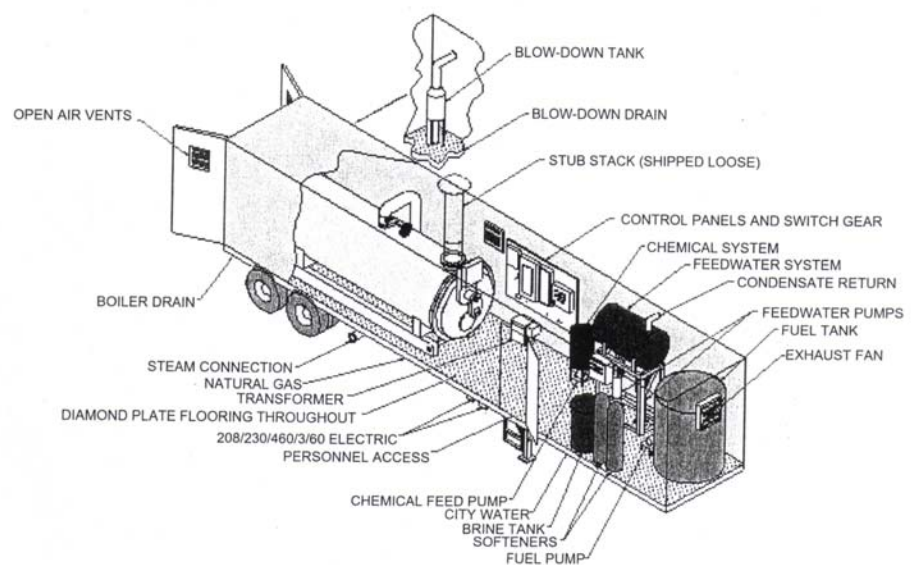
Delval Equipment, Your Source For Rental Boilers!

Hurricane Katrina's recent appearance on the Gulf Coast tested American's mettle in handling emergencies. People had to think, act and get results in the worst of times.

When you own or operate a boiler, a sudden loss of a steam or hot water generator constitutes an emergency situation. You suddenly need a portable generator that can be delivered to your plant, tied into your

power, water and fuel supplies and begin to provide energy ASAP! Who do you call to handle this emergency?

Delval Equipment wants to be you source for rental boilers. We can supply a boiler, or boilers for one to two weeks during a simple repair, or for months as dictated by your needs.



Boiler Technology For Today

It is a fact that the longer you can keep heat contained in the fireside of your boiler, the more of it will be transferred into the waterside. We call the result thermal efficiency.



Turbulator in Tube

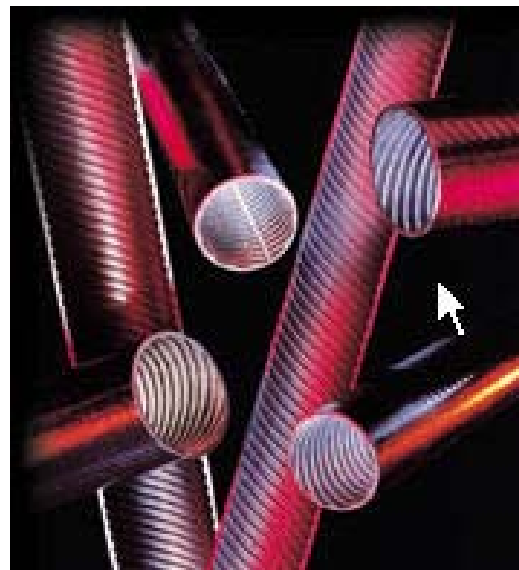
During the mid twentieth century, as boilers transformed from field-erected behemoths to smaller integrated packages, thermal efficiency was a result of how many passes the flue gases made through the boiler. Then some engineers decided to insert turbulators into boiler tubes to retard the flow and keep the flue gases in the boiler as long as possible. Cleaver-Brooks developed the “dimpled tube” with depressions stamped into the tube to add heating surface to the tube. These tubes are still used today in the CB Ohio Special boiler. Tubes with external fins were impossible to install on firetube boilers.



Dimpled Tube

In the late 1980's the “rifled tube” made its appearance in some firetube boilers. These tubes with internal fins in a spiral pattern offered more heating surface per square foot of steel. This shrunk the footprint of firetube boilers. Rifled tubes are still used by some manufacturers and boiler repair companies today.

Fast-forward to the year 2000. Cleaver-Brooks introduced the new Clear-Fire boiler. The Clear-Fire design was a result of many years of research in Europe. It is a compact one-pass condensing hot water boiler with capacities to 1,800,000 btu/hr input, and efficiencies exceeding ninety percent when return water temperatures are 105 degrees Fahrenheit.



Rifled Tubes

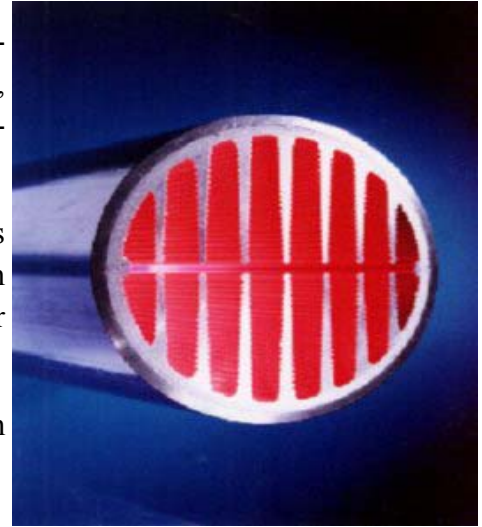
The heart of this boiler is the Alu-fer tube. The tube is stainless steel with complex aluminum fins attached to the inside. The heat transfer is almost instantaneous. It is released from the burner at about 2200 degrees Fahrenheit and

Boiler Technology For Today (cont'd)

after one pass through the Alu-fer tubes, a distance of about thirty-six inches, the flue gas temperature is down to 160 degrees, (condensing) or slightly higher, depending on the return water temperature.

This technology will be incorporated into the Cleaver-Brooks Super Boiler design, which was recently a major item of discussion with the United States Department of Energy. You are sure to hear more about this boiler soon!

You can depend on us to be the leader in the boiler market with quality products and factory-trained technicians!



Alu-fer Tube

Prep for Heating Season

Is your boiler ready for the heating season? With the heating season rapidly approaching it is important to make sure that your boiler is in good operation condition. The following are some maintenance items that you should consider:

- 1. Have all fireside and waterside gaskets been replaced since last heating season?**
- 2. Check all air and fuel linkages for tightness and stroke.**
- 3. Have all fuel delivery systems been primed and checked for proper operation (pump seals, oil filters, fuel oil pump coupling alignment, and drive belts etc...) ?**
- 4. Check combustion for proper fuel/air ratios.**
- 5. Check all motors and actuators for proper operations.**
- 6. Check all head bolts for tightness.**
- 7. Check flame scanner and safety limits.**
- 8. Check the alternate fuel once a week for proper light off.**

Preventive maintenance programs are the best way to be sure that your boiler will be ready for when you need it. Have a qualified mechanic perform all the checks listed above.