Waterloo Manufacturing Company Limited
BOILER SALES & SERVICE

Boiler News
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Changes are happening at the Waterloo Post Office!

That means

our mailing address is changing

and we will no longer have a post office box.

Please change our address in your systems to read:

Waterloo Manufacturing
Company Limited

505 Dotzert Court, Unit #1
Waterloo Ontario
N2L 6A7*

Please pass this on to the appropriate person to make the update.

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*Remember the postal code

PUMP LIFE INTO THAT OLD STEAM BOILER

It is often said that once a steam boiler reaches 20 to 25 years of service, it's worn out, outdated and ready to be replaced. In reality, this could be a very costly mistake.

Boilers are long-term assets, and if operated and maintained according to the manufacturer's recommendations, they can last 40-50 years. The key is how the equipment is managed and (chemically) treated.

High pressure steam boilers are routinely shut down annually for cleaning and inspection. If you have an older boiler, inspection is the perfect time to evaluate its condition and determine if replacement is right.

If a boiler pressure vessel is ingood shape, a tune-up and/or upgrades will increase its energy efficiency.

Once the boiler is off-line and drained, check the condition of the pressure vessel on both the fireside and waterside. If there is no evidence of heavy scale, overheating or corrosive attack, this boiler has many more good years in it, and may only need to be tuned and/or retrofitted to bring its performance to a higher efficiency and present day standards.

Start with a tune-up and load check

After the boiler is cleaned, closed and the pressure vessel is determined to be sound, use the services of a qualified technician to run the boiler through its paces. This should include checking the efficiency under normal operating conditions, modulating the burner throughout the complete firing range, while monitoring boiler efficiency along the way. If the overall efficiency is less than 80%, pay to have the boiler tuned to see if the efficiency can be increased to at least 80% when operating between 85-100% of its rated input.

Next, determine if the load is properly matched to the boiler by noting its operation, ensuring that it fires over 50% of its capacity most of the time, without cycling more than six (6) times an hour. If it does cycle excessively, the boiler is probably oversized for the load and operating very inefficiently because of the repeated cycling and resultant pre- and post-purge losses. In this case, a smaller (capacity) boiler (new or used) might be a good option during those lower load periods, keeping the larger boiler for standby or use during the high-load conditions. Or, if the load is not to reduced, consider a higher turndown burner retrofit on the old boiler, keeping it on line during periods of lower loads, mitigating the expensive cycling losses.

New Burner and Controls

If the boiler is properly sized to load, and the efficiency after tune-up is still below 80%, it is most likely time for a new burner or upgrade.

If the burner's major parts (motor, damper blade(s), blast tube, burner baffle and diffused) are in good condition, an upgrad should be considered. This may include replacing the single-point positioning linkage system with independent servo drives for fuel and air metering. You may also consider O_2 trim and VFD, if the conditions are right and payback can be realized.

Lastly, look at the burner management system, also known as the flame safeguard or programmer. This is the control that automatically sequences the burner, supervising boiler/burner start, modulation and shutdown. It has evolved over the years to give you better operating information and fault indicators to enhance diagnostics and troubleshooting. The control can also be incorporated within a PLC platform to include other combustion control devices such as parallel position, O_2 Trim, VFD, etc., thereby, having one integrated system for the operator. This will enhance real-time, operational knowledge while providing instant communication to various parts of the facility and/or offices across the country.

Boilers are key assets within a production facility that deserve close attention not only from the utilitarian and process control perspectives, but also from a cost perspective as well. On average, a boiler consumes four times its original cost in fuel expenditure annually, and if properly evaluated, maintained and operated, it can return wealth to the business that otherwise would have been squandered in needless capital expenditures and operating dollars.

For information on products and services please contact us at:

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