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WARE IS A MEMBER OF



800-228-8861 WAREINC.COM

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The GRIME

April and May 2014 Newsletter

Shut Your Trap

Most often overlooked fuel savings in a plant

Fuel savings and plant efficiency is always a hot topic. Add the high cost of fuel and recent arctic temperatures and it especially becomes a sore point for everyone watching the bottom line. One area of the plant that is often overlooked when searching for fuel savings is the common steam trap. The purpose of a steam trap is to prevent steam from traveling to the condensate system without first relinquishing latent heat of condensation. The number of steam traps in a system varies greatly depending on the size, pressure, temperature, and processes that the system requires. One thing is for certain, a few leaking steam traps can quickly add up.

Let's consider the following example where as:

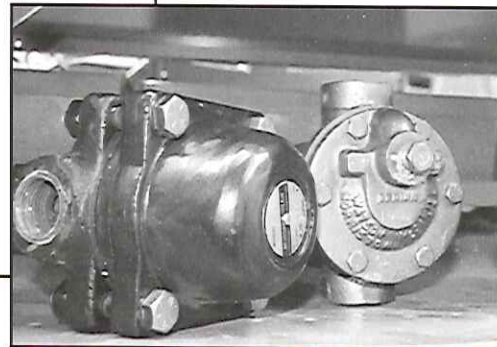
A boiler with an operating pressure of 450lbs, feed water temperature of 230F and efficiency of 81.7% has an estimated cost of steam of \$8.59/1000 lbs.

$$\frac{.7 (\$/\text{therm})}{100,000 (\text{Btu}/\text{therm})} \times 1000 \times 1006 (\text{Btu}/\text{lb}) \times \frac{100}{81.7} = \$8.59/1000\text{lbs}$$

A recent steam trap survey provided by Ware indicates that 3 steam traps located on a 150 lb line are not closing properly and have an estimated 1/16th gap each. The loss from these traps is calculated by the attached chart (Boiler Efficiency Institute) and the following calculation.

$$18.9 \text{ lbs/hr (3)} \times 8,760 \text{ hrs/yr} \times \$8.59/1000\text{lbs} = \$ 4266/\text{yr}$$

Trap Orifice Diameter (inches)	Steam Loss (lbs/hr) Steam Pressure (PSIG)			
	15	100	150	300
1/32	0.85	3.3	4.8	
1/16	3.4	13.2	18.9	36.2
1/8	13.7	52.8	75.8	145
3/16	30.7	119	170	326
1/4	54.7	211	303	579
3/8	123	475	682	1303



You can quickly determine that properly functioning steam traps may provide significant cost saving. Trap surveys can effectively reveal malfunctioning, clogged, or improperly sized traps at little cost to the plant. Call today to schedule a comprehensive steam trap survey with a certified Ware specialist and ask how WARE's Gestra MK 45 steam trap will save you money.

Do you want to increase efficiency and the life of your boiler? Read this →

Maintain Your Boiler's Fireside to extend its vigor

When proper care is applied to the fireside of a boiler, efficiency and life of a boiler will be increased. If mismanaged and not cared for properly, soot and other non-combustibles can start to collect in the boiler's system and can reduce the amount of heat transferred to the water and increase the boiler's consumption of fuel. In some states it is required that the fireside of a boiler should be inspected once a year, but if not required, it should be a regular habit.

During maintenance observe the type of fuel, the load in which the boiler is under, and how efficient the boiler is when combustion is taking place. By products from unclean fuel can combine with water in the air and create corrosive acids that eat away at the metal in the fireside. If the combustion is poor, the boiler will burn far too much fuel to maintain proper levels of efficiency.

It is important to take into consideration the burner and controls. A log should be kept in order to monitor combustion parameters. If a steady increase in stack gas temperature occurs, then it is time to check for possible soot deposits in the fireside. Keeping a good record of operations will help to identify the time when the boiler is running out of the "normal" operating conditions.

Gaskets

Be sure to visually check over the gaskets

continued on pg 5



used to seal the fireside door. Replace the door gaskets at least once a year or when the fireside is shutdown for maintenance and the door is open. If the gasket that seals the door is not working effectively, it could result in gasket burning, steel door deformation, loss of efficiency and above all is a safety hazard.

Tube Sheets, Tubes and Furnace

When checking over a fireside and it's tubes, be sure to look for any sign of blisters or other signs such as "pock-marks". If evidence occurs, it is possible that corrosion is emerging due to condensation with the flue gases and forming acidic solutions.

A remedy for corrosion is to set the boiler controls to the longest "on" time. This change will prompt the boiler to cycle less frequently and helps reduce condensation. Boiler water should be maintained at a minimal temperature of 170°F to help keep water vapor from condensing in the flue gas.

Cleaning the Tubes

When inspecting the tubes, look for soot deposits or any kind of white streaks that indicates leakage. A unit that is properly adjusted and well designed should never need the tubes cleaned. However, the length of time for cleaning the tubes varies with the type of fuel that you use in a unit. In some situations, it may be required that you clean the tubes once or twice a week, an example of this is when firing #6 oil. If a layer of soot is noticed in a short period of time, this indicates that the fuel-to-air mixture is running too "rich", where there is more fuel than air. This causes the fuel to not burn efficiently; but can be remedied by adjusting the ratio between fuel and air. If trying to save time on an inspection, try installing a thermometer in the flue gas vent outlet on the boiler. If there is a rise in temperature, it means that the tubes may be collecting soot and need to be cleaned.

Information was published online by Power Plus International, "Tips From The Boiler Man".

Contact Ware for information on parts and service at 800-228-8861

WARE BOILER UNIVERSITY

\$100.00 dollars off
when you register on-line
for Boiler University at
www.wareboileru.com

**Go to wareboileru.com for
2014 Classes schedule**

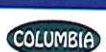
**WARE will be exhibiting at the
following trade show:**

*Global Petroleum Show 2014
on June 10 - 12 at Stampede Park
Calgary, Canada
Booth # for WARE 5146*



**BOILER MAKES STEAM - STEAM MAKES WHISKEY -
WHISKEY MAKES MY BABY A LITTLE BIT FRISKY**

All net proceeds from the sale of SteamWare T-shirts go to Kosair Charities. Where health care is provided to Children when there is no one else to turn to. Check it out on www.4steamware.com





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Equipment List

All equipment listed is for sale or lease and is subject to availability

Unit	HP/PPH	Year	Manufacturer	Fuel	Type	Pressure	Controls
779	82,500	2013	Victory Energy/Limpsfield	G/#2	Steam	350	IRI
767	75,000	2011	Victory Energy	G/#2	Steam/SH	750/750	IRI
747	75,000	2000	B&W (Low NOx)	G/#2	Steam/SH	750/750	IRI
750	70,000	1996	Nebraska (Low NOx)	G/#2	Steam/SH	750/750	IRI
752	60,000	1980	B&W	G/#2	Steam	750/750	IRI
709	60,000	1979	Zurn (Low NOx)	G/#2	Steam	500	IRI
741	60,000	1979	Zurn	G/#2	Steam	550	IRI
SB79	40,000	1986	Cleaver Brooks	Gas	Steam	260	IRI
496	800	1990	York-Shipley (Low NOx)	G/#2	Steam	200	IRI
634	800	1972	York-Shipley	G/#2	Steam	150	IRI
620	800	1975	York-Shipley	G/#2	Steam	250	IRI
SB123	600	2008	York-Shipley (Low NOx)	G/#2	Steam	150	UL/CSD1
SB139	500	2001	Cleaver Brooks		Steam	150	
SB63	500	1985	Superior	G/#2	Steam	150	IRI
SB152	400	2011	York-Shipley (Low NOx)	G/#2	Steam	150	UL/CSD1
SB138	350	1994	Cleaver Brooks		Steam	150	
SB137	250	1994	Cleaver Brooks		Steam	150	
415	250	1980	Eclipse	#2 Oil	HT/HW	954	IRI
SB148	200	1995	Kewanee	Gas	Steam	325	IRI
SB146	200	1995	Kewanee	Gas	Steam	325	IRI
SB170	250XID	2012	York-Shipley(Low NOx)	G/#2	Steam	150	UL/CSD1
SB172	175XID	2012	York-Shipley	G/#2	Steam	150	UL/CSD1
SB183	175XID	2012	York-Shipley	G/#2	Steam	150	UL/CSD1
SB191	150	2014	York-Shipley	G/#2	Steam	150	UL/CSD1
SB190	150	2014	York-Shipley	G/#2	Steam	150	UL/CSD1
SB193	150	2014	York-Shipley	G/#2	Steam	150	UL/CSD1
RB769	150	1998	Precision	Electric	Steam	150	UL
SB178	100XID	2011	York Shipley	G/#2	Steam	150	UL/CSD1
SB192	100XID	2014	York Shipley	G/#2	Steam	150	UL/CSD1
SB188	70	2013	York Shipley	G/#2	Steam	150	UL/CSD1
SB189	50	2013	York Shipley	G/#2	Steam	150	UL/CSD1



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WARE Buys Used Boilers

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Unit	Size	Manufacturer	Voltage	Type	Year
RC-24	30 Ton	Mc Quay	480 v	3 ph	2000
RC-21	40 Ton	Mc Quay	480 v	3 ph	1999
RC-1	60 Ton	Mc Quay	480 v	3 ph	1995
RC-2	60 Ton	Mc Quay	480 v	3 ph	1995
RC-13	60 Ton	Trane	200-230 v	3 ph	1989
RC-5	95 Ton	Mc Quay	480 v	3 ph	1995
RC-6	105 Ton	Mc Quay	480 v	3 ph	1995
RC-8	155 Ton	Mc Quay	480 v	3 ph	1995
RC-10	195 Ton	Mc Quay	480 v	3 ph	1995
RC-11	195 Ton	Mc Quay	480 v	3 ph	1995
RC-25	300 Ton	Mc Quay	480 v	3 ph	2003

New YORK SHIPLEYS AVAILABLE

Unit	HP/PPH	Year	Manufacturer	Fue	Type	Pressure	Controls
SSB23	50 hp	2012	York Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB21	70 hp	2012	York Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB29	100XID	2014	York Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB18	150	2011	York Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB20	175XID	2012	York Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB25	250XID	2012	York Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB14	300XID	2011	York Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB8	400XID	2011	York Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB15	500XID	2011	York Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB28	600XID	2012	York Shipley	(Low NOx) G/#2	Steam	250	UL/CSD-1
SSB26	800XID	2013	York Shipley	(Low NOx) G/#2	Steam	250	UL/CSD-1

It's Thunder time in Kentucky and we can't wait to be amazed.

Announcing Ware's Partner Conference 2014. April 11th and 12th.