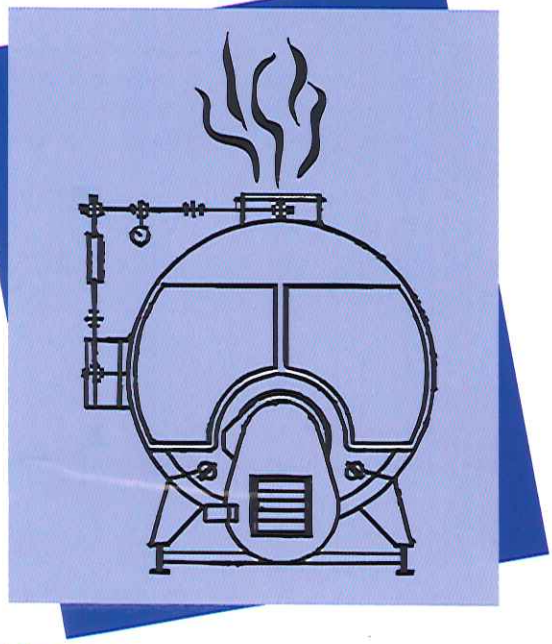
WARE
Powerful solutions... Extraordinary results.

The GRIME

December 2013 and January 2014
Newsletter



Storage & Startup:

The Summer/Winter Transition

It's that time of year again! With the snow already piling up around us, hopefully you have already completed your transition from summer cooling to winter heating. Unfortunately, this process is not as simple as just flipping a switch; in fact, there are several important steps to follow when making this transition. Failure to adhere to these procedures during this critical period often results in higher energy costs and overall reduced equipment life. The following measures will help protect your system during boiler startup and storage:

Fall Startup: Transition from Dry Storage to Operation

First, remove any desiccant or drying agent you may have placed inside the boiler. Be sure to inspect and evaluate the condition of the boiler before setup. Documenting the boiler's condition with photos is highly recommended. Next, fill the boiler to normal operation levels. The appropriate amount of water treatment chemicals can be added to the top of the boiler while it is open or pumped in during startup. The boiler should now be ready for normal operation.

Transition from Wet Storage to Operation

Although the boiler can be started up with the wet storage chemical levels intact, a cleanup procedure should be initiated as soon as possible. Begin adding the chemicals that are part of your regular water treatment program, and increase the bottom blowdown to quickly remove the high levels of sulfite and any iron that may be in the boiler. Continue until the sulfite is in the normal 30-60 ppm range.

The water in the boiler may be turbid or even gray to black in color. If this is the case, it may be the result of corrosion formation during the layup time. If, however, you have maintained appropriate sulfite levels, this dark color may simply be a cleanup of old iron inside the boiler while it was shut down.

Sometimes the water may turn red or slightly orange. This is the typical result of corrosion products returning from the condensate and should stop as the pH level increases with your amine feed.

REMEMBER: *While you are in a heavy bottom blowdown mode, you need to increase the chemical feed to maintain normal levels in the boilers. The chemical levels should stabilize in a week or so and blowdown schedules can be returned to normal. If this does not occur, consult your water treatment consultantant .*

Hot Water Boilers

As a rule, hot water boilers should be wet-stored. While they technically can be stored dry, this is usually not the case.

The normal wet-storage recommendation is to increase the corrosion inhibitor to the maximum level before shutting down the boiler for the summer. Corrosion inhibitors are far more effective when they are circulated throughout boilers. In the case of nitrite,

circulation bathes the metal surfaces in the inhibitor, maintaining the protective film throughout the system. With sulfite, this circulation assures that all the oxygen is removed from the boiler. When boilers are stored, increased inhibitor levels are necessary to compensate for the lack of circulation.

Transition from Wet Storage to Operation

While starting up a boiler with high inhibitor levels DOES NOT pose a problem, an initial cleanup may still be required.

Even if proper storage procedures are observed, iron in the boiler may turn the water a dark color. An initial increase in blowdown will usually remove the iron and clear up the murky water. If additional cleaning is necessary, adding CHEM-AQUA CBD-93 may help. Let the chemical circulate for a minimum of three days, then blow down the boiler until the water appears clear. It may be necessary to blow the boiler down enough times to turn the water over at least once—essentially just flushing impurities out of the system. This requires blowing down a volume of water equal to the volume of the boiler and piping. This process should be performed over the course of a few days and never all at once.

REMEMBER: *While you are using heavy blowdown for a cleanup, you need to feed enough inhibitor to maintain appropriate levels in the boiler. Typically this means adding extra feed for a few days. If for some reason the water does not clear up within a week, contact your water treatment consultant.*

Boiler Storage

At the end of every heating season, one should always set aside a week to thoroughly clean up hot water and steam boilers. Doing this will increase equipment life and protect the boilers.
During this period:

- Increase the alkalinity to the maximum limit
- Increase, or even double, the bottom blowdown
- Maintain the phosphate and phosphonate levels by increasing chemical feed
- If you are using CHEM-AQUA CBD-93, double the feed
- After shutting the boiler down, wash it out with water as soon as possible. Do not use a fan or electric light to speed the drying process. Exposed electrical wires are safety hazards that should be avoided.

Wet-Stored Boilers:

- Increase, or even double, the bottom blowdown
- If the boiler has been drained for inspection, make sure it is refilled to normal water levels
- Add enough sodium sulfite to establish 220 ppm
- Add enough caustic to maintain the ph alkalinity at 400 ppm
- If the boiler has been drained and refilled, open the vents and heat the boiler for one hour to mix the chemical and remove the oxygen
- If the boiler was not drained, feed enough chemical to reach recommended storage residuals and shut the boiler down. Fill the boiler and steam head completely full of water for storage
- Residuals should be checked at least once per month to confirm that chemical levels are adequate to protect the stored boiler
- When the boiler is dry, place a quicklime, silica gel or activated alumina desiccant inside on trays and pans. The desiccant should be inspected every month to make sure it is still effective

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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
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
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
719	250	1987	Superior	G/#2	Steam	150	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
SB185	150	2013	York-Shipley	G/#2	Steam	150	UL/CSD1
SB181	150	2012	York-Shipley	G/#2	Steam	150	UL/CSD1
SB182	150	2012	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
SB187	100XID	2011	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

Request a quote on-line at www.wareinc.com or call 800-228-8861

WARE buys used boilers

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

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	Fuel	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
SSB22	100XID	2012	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
SSB24	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

New York – A Need for Steam

In late October 2012, the eastern coast of the United States suffered the onslaught of Hurricane Sandy, one of the most destructive Atlantic hurricanes in recent memory. An estimated $65 billion in damages is believed to have been caused by the storm, second only to the devastation of hurricane Katrina. One of the most affected areas was none other than New York City, and in Sandy's wake, nearly 100,000 homes were left damaged, destroyed, or flooded. Many of the boiler rooms that supply large residential areas of the city with steam for hot water and basic heating were likewise flooded with saltwater and thus rendered incapable of operating. With winter looming just around the corner, the city was truly faced with a state of emergency.

That is when WARE was called in. As one of the only companies nationwide with a fleet large enough to meet the city's demand, WARE was able to mobilize enough boilers to get steam back online. At its peak, 21 large units were placed throughout the city at the request of the NYC Housing Authority, with crews working around-the-clock to perform startup and keep them running when they were needed most. Ultimately this endeavor met with success—steam was made available to warm people's homes and to provide hot water for basic comforts such as laundry or a hot shower. As we begin to enter another winter season over a year later, Ware's boilers continue to provide steam for New York, working tirelessly behind the scenes to allow people to carry on normal lives while the city continues to rebuild. The machines, however, are not the only ones working hard; WARE continues to have technicians working every day of the week to ensure that the mission continues to succeed. With rapid response, on-site project management, and a reliable fleet of mobile boilers, WARE is committed to continually demonstrating its ability to provide steam...anytime, anywhere.

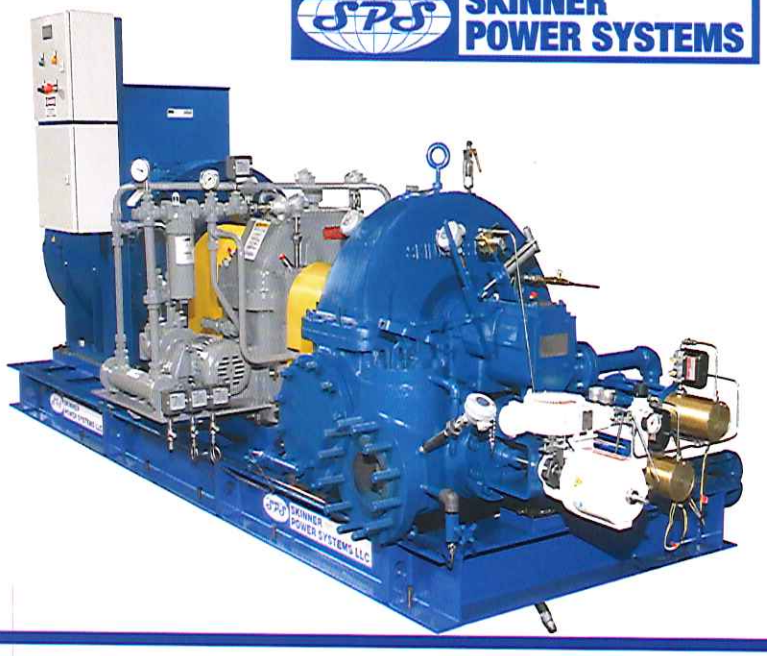
WARE is pleased to announce the addition of Skinner Power Systems to the energy efficient products that we provide our customers.

Skinner Power Systems has a rich heritage in Steam. Founded in 1868, Skinner has more than 80 years of experience in manufacturing steam turbine generators. Today, as one of a handful of steam turbine manufacturers in the United States, Skinner Power Systems continues to produce single-stage backpressure turbine generator packages that are uniquely suited to combined heat and power projects. Skinner turbine generators are able to meet Process Steam requirements while generating electricity. The turbine achieves electrical generation by converting the mechanical losses normally found in pressure reducing valves.

Typical conditions in which a single stage backpressure turbine generator should be considered are:
1. Steam flow rates greater than 7,000 lbs/hr
2. Saturated or superheated steam
3. Pressure drop of 100 psi
4. Electrical cost greater than $0.05 per kWh
5. Greater than 5,000 operating hours per year

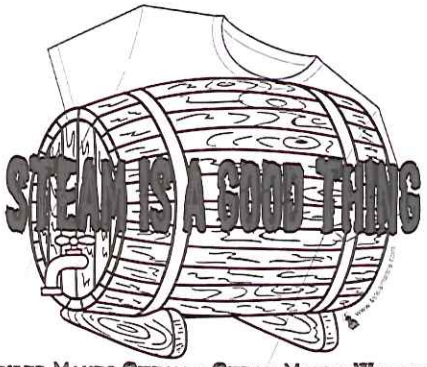
WARE can provide an initial assessment of your application at no charge. WARE also has local representatives for Skinner Power Systems in many areas of the United States.

SPS SKINNER POWER SYSTEMS



WARE BOILER UNIVERSITY

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



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

WARE will be exhibiting at the following Shows:

AHR 2014 on January 21 - 23, 2014
at the Javits Convention Center
in New York, NY
Booth # for WARE 8229 and
Booth # for Boiler University 8337

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

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