

Build It and They Will Come

Ware builds largest mobile boiler unit on the market

Ware's customers continue to demand more power in smaller packages.

"Ware is always pushing the envelope to build equipment to meet the needs of their customers," said Steve Taylor, Ware's Director of Sales. "Many times customers are settling for the largest size on the market but would use larger equipment if it were available, so every time we build a bigger mobile boiler, we know the market will expand to exceed it."

The concept is build it and they will come.

Currently, the 650-horsepower mobile boiler units are the largest available on the market. Ware has now developed a 900-horsepower mobile boiler, 250 psig design.

The new mobile boiler will be on the trailer of a semi-truck. The de-

velopment of a mobile boiler with this much power was not easy and the trailer had to be retrofitted in several ways.

First, an extra axle was added to the trailer to make it a tri-axle trailer. Then, an extra set of dollies were added in the rear of trailer to support the boiler during operation. Additional support under the front of the trailer was added, where the side door will be cut, to support the trailer itself.

"The first of it's kind"

The 900hp mobile boilers, which will be the first of its kind, utilize a Limpsfield high efficiency Low Nox burners with Autoflame controls which is the newest and most efficient technology available. The 900 BHP 250 PSIG Design Boiler is furnished by York-Shipley Global – a

Division of AESYS Technologies, LLC.

"We have worked with AESYS for years and they do a great job and are very flexible in their design criteria," said Taylor. "Nobody else has been able to design what they are doing – they are head and shoulders above their competition."

"Our relationship with WARE is of utmost importance to AESYS," said Kevin J. Hoey, President and CEO of AESYS. "WARE is a solid group of cutting edge, and technologically progressive, professionals who have entrusted AESYS with developing product to satisfy their customers' needs. We are mindful of our responsibility and truly grateful to be considered a part of their team."

The new product is completely mobile and contains a water softener, deaerator system, a

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blow down separator and all electrical switch gear that is enclosed in a 57' trailer. "The water softener and deaerator system are sized for 100% makeup which allows customers great flexibility in a multitude of applications," said Taylor. "We are also utilizing Variable Speed Drives on the feedwater pump and blower motors. It is just another example of WARE going the extra mile to give our customers the most efficient and versatile Mobile Boiler Room on the market today."

Containerized mobile boilers have a multitude of uses in a variety of industries. The "plug and play" capabilities mean the system can be set up and start providing steam which makes them invaluable in an emergency situation to get a plant back online immediately or to be used by a plant during temporary increases in boiler needs instead of investing in new equipment.

"Currently, we see these mobile boilers being heavily utilized by veterans' administrative hospitals all over the country," said Taylor. "All of these hospitals would take larger units if we had them available so this new product will change the market."

Ware expects to have the new boilers completed by January 1, 2013.

Understanding Combustion and Control

Are You Getting the Most Out of Your Boiler?

An efficient burner provides the proper air-to-fuel mixture through the full firing range. Many linkage designed burners do not hold their air-to-fuel settings over time. Often, they are adjusted to high levels of excess air to compensate for unsafe conditions in the burner performance.

Regular burner tune ups are recommended with measurements taken for combustion efficiency during full and part-load conditions. If excess oxygen exceeds three percent from high to low fire, consider upgrading the linkage system to a parallel fuel/air ratio control system. Do not be fooled by analyzer readings that may indicate a higher percentage of combustion efficiency at lower firing rates while having elevated oxygen levels. This percentage is based on available heat which is no longer useful at high oxygen levels. Flame temperatures are often 500 degrees F cooler at elevated oxygen levels.

Improved process controls such as multiple parameter trim systems (O2, CO, CO2) or a new pre-mix low O2 burner is also recommended. A pre-mix burner should also be considered if repair costs increase, if reliability is a concern, if improved performances are guaranteed or utility rebates are available. Be careful when selecting a trim system. A standard O2 trim system will not be concerned with elevated CO levels which may prove to be hazardous.

The purpose of the burner is to mix fuel with air in an effective manor. A boiler will run only as well as the burner performs. A poorly designed boiler with a pre-mix burner may perform better than a well-designed boiler with a poor burner. Traditional swirl head burners are designed to maximize combustion efficiency while minimizing the release of emissions at High fire and often have a difficult time performing efficiently at levels below 50% firing rate.

A traditional power burner mechanically mixes fuel and air and injects the mixture into the combustion chamber. Where as a pre-mix burner mixes 85% of the fuel and air prior to ignition before reaching the combustion chamber. All traditional power burners basically provide complete combustion while maintaining flame stabilization over a range of firing rates. However traditional power burners struggle to performer at rates below 50%. Different burners, however, require different amounts of excess air and have different turndown ratios. The turndown ratio is the maximum inlet fuel or firing rate divided by the minimum firing rate.

An efficient natural gas burner requires no more than three percent excess oxygen, or 15 percent excess air in the flue gas, to burn fuel without forming excessive carbon monoxide. Most traditional gas burners exhibit turndown ratios of 5:1 to 10:1 with little or no loss in combustion efficiency. However this may not be an accurate indication of the oxygen and excess air levels which can increase fuel consumption significantly. A higher turndown ratio can reduce burner starts (and may or may not be a factor depending on how your system operates), provides better load control, saves wear and tear on the burner (many burners at high turn down can cause gas head failures when used at low firing rates for long periods of time), reduces refractory wear (pre-mix burners have little to no refractory), reduces purge-air requirements and provides fuel savings.

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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
SSB12	50 hp	2011	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
SSB6	250XID	2011	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
SSB17	600XID	2012	York Shipley	(Low NOx) G/#2	Steam	250	UL/CSD-1
SSB11	800XID	2011	York Shipley	(Low NOx) G/#2	Steam	250	UL/CSD-1

WARE Any Temperature Anywhere

WARE's mobile boiler rooms come equipped with a duplex feed system, blowdown separator, all electrical switch gear, 240 or 480 volt and are pre-piped and wired. If a boiler is all that is needed, WARE has skid mounted or trailer mounted boilers available.

Also, ask about our hot water systems

Mobile boiler rooms
50 hp – 650 hp

Skid mounted
10 hp – 250,000 pph

Trailer mounted
30,000 pph – 75,000 pph

A variety of pressure ranges from 15 psi to 750 psi, 750° super heat.





The GRIME

**August and September 2012
Newsletter**

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
SB80	40,000	1986	Cleaver Brooks	Gas	Steam	260	IRI
615	40,000	1975	B&W	G/#2	Steam	325	IRI
496	800	1990	York-Shipley (Low NOx)	G/#2	Steam	200	IRI
634	800	1972	York-Shipley	G/#2	Steam	150	IRI
SB150	800	2011	Victory Energy (Low NOx)	G/#2	Steam	300	IRI
SB123	600	2008	York-Shipley	G/#2	Steam	150	UL/CSD1
SB149	500	2011	Victory Energy (Low NOx)	G/#2	Steam	250	IRI
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
SB147	200	1995	Kewanee	Gas	Steam	325	IRI
SB170	250XID	2012	York-Shipley	G/#2	Steam	150	UL/CSD1
SB172	175XID	2012	York-Shipley	G/#2	Steam	150	UL/CSD1
SB176	175XID	2012	York-Shipley	G/#2	Steam	150	UL/CSD1
RB769	150	1998	Precision	Electric	Steam	150	UL
SB163	150	2001	Miura	G/#2	Steam	170	UL/CSD1
SB164	150	2001	Miura	G/#2	Steam	170	UL/CSD1
SB132	100	2003	Johnston	Gas	Steam/HW	15/30	IRI
SB131	100	2003	Johnston	G/#2	Steam/HW	15/30	IRI
SB178	100XID	2011	York Shipley	G/#2	Steam	150	UL/CSD1
SB177	100XID	2011	York Shipley	G/#2	Steam	150	UL/CSD1
SB179	70	2012	York Shipley	G/#2	Steam	150	UL/CSD1
SB167	50	2011	York Shipley	G/#2	Steam	150	UL/CSD1
SB145	50	2001	Cleaver Brooks	Gas	Steam	150	IRI

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Understanding Combustion and Control - from pg2

Linkage designs are regularly being replaced by modern burners. Modern burners both traditional and pre-mix are increasingly using servo-motors with parallel positioning to independently control the fuel and air delivered to the burner head. Controls without linkage allow for easy tune-ups and minor adjustments, while eliminating hysteresis, increasing turn down, and providing accurate point-to-point control. These controls provide consistent performance and repeatability as the burner adjusts to different firing rates.

Scholarship funds available

ABMA offers scholarship funds every year. This past year ABMA had only one participant apply.

The scholarship funds are intended to assist in the post-secondary education and/or vocational training of students intending to pursue a career in the commercial, institutional, industrial or power-generating boiler, combustion and related equipment industry.

Any student who is getting ready to graduate from high school in the year 2013 with a 3.0 GPA and who is intending to pursue a career in the above mentioned fields, and needs a little help with furthering their education should look into the American Boiler Manufacturers Association Scholarship Fund.

Check out the ABMA website, www.abma.com, starting in January of 2013 for more information.

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