WARE ALL WAYS STEAM

THE GRIME

Summer 2019 Newsletter

Rolling a Boiler Tube • What It Is and Why It's Important

-By Steve Taylor

Without boiler tubes, you don't have a boiler. You just have a vessel of water that isn't going to produce any steam.

Because properly functioning boiler tubes are so crucial to the purpose of a boiler, the processes to ensure they're installed and fitted correctly must be performed by a skilled professional.

One of the most important parts of preparing boiler tubes for operation is what's called "rolling" the boiler tube.

This is when a special roll tool is used to "roll" the boiler tube into a secure fit within the tube sheet. In plain English, this means forcefully pressing the tube out against the tube sheet to seal it.

But rolling the tube doesn't just include pressing the tube to the tube sheet, it also means seal welding or beading the tube to the tube sheet.

You'll typically see welding on one end of the boiler's tubes, but not the other.

This isn't a mistake.

In fact, many manufacturers weld only the hot pass of the boiler, which is the very first pass, where the hot gas of the fire comes through the tubes at about 1800° - 1900°F.

This end of the boiler tube is welded or beaded, because if it's not, the tube will overheat and crack. That crack will then continue until it makes its way inside the tube and causes a leak, which you don't want.

The purpose of beading or welding the end of the tube is to allow for better heat transfer from the tube itself to the tube sheet. This protects the tube from cracking.

In general, there are three types of rolls that can be used during the rolling process.

The first is a Straight Roll, in which a roll is slid into the tube and used to push the edges of the tube out against the tube sheet. This type of roll is used when the tube will be seal welded to the tube sheet.

The second is a Flare Roll. This process is similar to a straight roll, but as it rolls the tube it flares the very end of the tube out, so it can be beaded to the tube sheet.

The third is a Collins Roll, which is used after the tube has been either seal welded or beaded to the tube sheet, to ensure a strong seal.

And that's it!

The trick is applying just the right amount of roll. Too little, and the tube will leak. Too much, and the tube will be thinned out, making it harder (or impossible) to repair the tube later, if necessary.

It might sound simple in theory, but rolling a tube requires a high-level of skill. And here at WARE, we're grateful for a team of experts that can not only roll tubes on a boiler, but can also perform any other possible repair or maintenance your boiler may need.

You Tube Watch
WAREboilers channel

WATCH -Rolling a Boiler Tube
On the Boiling Point

WARE's 2019
Annual Partners Conference is a Success

- by Chris Jones

Every year, WARE hosts an Annual Partners Conference to show its gratitude to all of its Rental Partners across the nation.

Working with these Partner companies helps us make a significant impact on the boiler industry, and we wouldn't be able to do what we do without them.

This year, our Annual Partners Conference was held on April 30th and May 1st, with 46 Partners in attendance representing 24 different companies.

The event kicked off on April 30th with a meeting at WARE's new state-of-the-art training facility, Boiler University.

After the meeting, the group made its way down to the Ohio River for dinner at the LeVee, one of Louisville's premiere seafood houses. This year's Sales Awards were announced after dinner.

On Wednesday, May 1st, WARE revealed the winners of the Platinum Partners Reward Program, as well as the prizes they had chosen (listed below).

After that, the Partners were given a tour of the WARE maintenance facility and the Valve Shop. Following this, WARE took the Partners to Churchill Downs to enjoy the day.

We appreciate all thatour Partners do for us, and we were thankful for the opportunity to show our gratitude during this year's Annual Partners Conference.

WARE Annual Partner Sales Awards

Top Valve Sales
The Partner with the highest valve sales revenue

Valley Boiler & Mechanical
Roanoke, VA
Mr. Brandon Jarrell

High Fire Award
The Partner with the highest revenue

American Combustion Inc.
Glenn Dale, MD
Mr. David Grimard

Ignition Award
The Partner with the best start of the new year

Valley Boiler & Mechanical
Roanoke, VA
Mr. Brandon Jarrell

Top Parts Sales
The Partner with the highest parts sales revenue

Hughes Machinery
Lenexia, KS
Mr. Tim Powell

Service Award "The BULL"
The Partner that has supported WARE the most over the last year

Jackson Mechanical, Inc.
Oklahoma City, OK
Mr. Larry Beatty

Platinum Parts Reward Program Winners

Decker Mechanical Inc.
Cedar Hill, TX
Mr. Wade Decker, who chose the
Mossberg Silver Reserve 12 gauge shotgun

Yown's Boiler & Furnace Service
Jacksonville, FL
Mr. Cory Yown, who chose the
Sig Sauer P226 9mm pistol

Valley Boiler & Mechanical
Roanoke, VA
Mr. Brandon Jarrell, who chose the
Daytona 500 Racing Experience

Troy Boiler Works
Albany, NY
Mr. Lou Okonski, who chose the tickets to the
2020 College Football Championship

YouTube

WAREBOILERS

#1 ONLINE RESOURCE FOR BOILER EDUCATION

NEW VIDEOS UPLOADED ALL THE TIME

Watch Ritchie talk with industry professionals about the many different aspects of steam boilers.

Every Friday, Brent will talk about where steam and Culture intersect.

WE EAT AND BREATHE STEAM

FUN

VIDEOS ARE INFORMATIONAL AND FUN INVOLVING BOILERS, BURNERS AND MORE FROM AN INDUSTRY LEADING BOILER COMPANY.

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- BOILING POINT
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- CASE STUDIES
- WARE CAPABILITIES
- FUN WARE VIDEOS
- WEEKLY BOILER TIPS

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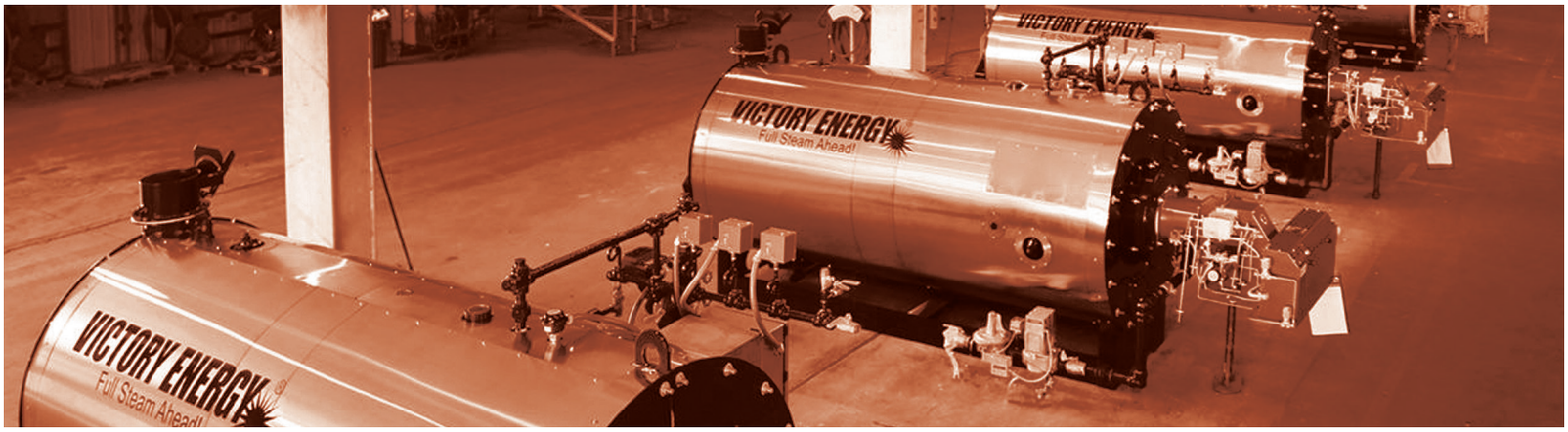

NEW AND USED LIST

ALL EQUIPMENT LISTED IS FOR SALE OR LEASE AND SUBJECT TO AVAILABILITY

Unit	HP/PPH	Year	Manf.	Fuel	Type	PSI	Ctrl.
779	82,500	2013	Victory Energy Limpsfield	(Low NOx) G/#2	Steam	350	IRI
796	82,500	2016	Victory Energy Faber	(Low NOx) G/#2	Steam	350	IRI
797	82,500	2016	Victory Energy Faber	(Low NOx) G/#2	Steam	350	IRI
767	75,000	2011	Victory Energy	(Low NOx) G/#2	Steam/SH	750/750	IRI
747	75,000	2000	B&W	(Low NOx) G/#2	Steam/SH	750/750	IRI
791	75,000	2016	Victory Energy	(Low NOx) G/#2	Steam/SH	750/750	IRI
750	70,000	1996	Nebraska	(Low NOx) G/#2	Steam/SH	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
795	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
SSB44	800XID	2018	Victory Energy	(Low NOx) G#2	Steam	250	UL/CSD-1
620	800	1975	York-Shipley	G/#2	Steam	250	IRI
SSB42	600XID	2018	Victory Energy	(Low NOx) G/#2	Steam	250	UL/CSD-1
SB139	500	2001	Cleaver Brooks		Steam	150	
SB243	400	2018	Victory Energy	(Low NOx) G/#2	Steam	150	UL/CSD1
SB138	350	1994	Cleaver Brooks		Steam	150	
SSB39	300XID	2016	Victory Energy	(Low NOx) G/#2	Steam	150	UL/CSD-1
SSB43	250	2018	Victory Energy	(Low NOx) G/#2	Steam	150	UL/CSD-1
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

ONE HOUR QUOTE ON-LINE AT WAREINC.COM OR CALL 800-228-8861

WARE new and used List

NEW AND USED LIST continued

ALL EQUIPMENT LISTED IS FOR SALE OR LEASE AND SUBJECT TO AVAILABILITY

Unit	HP/PPH	Year	Manf.	Fuel	Type	PSI	Ctrl.
SB-213	175XID	2014	York-Shipley	G/#2	Steam	150	UL/CSD-1
SB-220	175XID	2015	York-Shipley	G/#2	Steam	150	UL/CSD-1
SB-240	175XID	2017	Victory Energy	G/#2	Steam	150	UL/CSD-1
SSB-20	175XID	2012	York-Shipley	(Low NOx) G/#2	Steam	150	UL/CSD-1
SWVB1	1200	2017	Victory Energy	(Low NOx) G/#2	Steam	250	UL/CSD-1
SB-216	250	2015	York-Shipley	G/#2	Steam	150	UL/CSD-1
SS-B38	150	2017	Victory Energy	(Low NOx) G/#2	Steam	150	UL/CSD-1
SB-245	150	2018	Victory Energy	G/#2	Steam	150	UL/CSD1
SB-242	150	2017	Victory Energy	G/#2	Steam	150	UL/CSD1
769	150	1998	Precision	Electric	Steam	150	UL
SB-246	100	2019	Victory Energy	G/#2	Steam	150	UL/CSD-1
SB-239	100	2017	Victory Energy	G/#2	Steam	150	UL/CSD-1
SSB-41	100	2017	Victory Energy	(Low NOx) G/#2	Steam	150	UL/CSD-1
SB-241	100	2008	York-Shipley	Gas	Steam	150	UL
SB-237	70	2016	Victory Energy	G/#2	Steam	150	UL/CSD-1
SB-238	70	2016	Victory Energy	G/#2	Steam	150	UL/CSD-1
SSB-35	70	2016	Victory Energy	(Low NOx) G/#2	Steam	150	UL/CSD-1
SB-216	50	2019	Victory Energy	G/#2	Steam	150	UL/CSD-1
SB-234	50	2016	Victory Energy	G/#2	Steam	150	UL/CSD-1
SB-244	100	2018	Victory Energy	G/#2	Steam	150	UL/CSD-1
SSB-45	50	2019	Victory Energy	G/#2	Steam	150	UL/CSD-1

WARE will be exhibiting at:

IDEA 2019 - June 24 - 26, 2019 - Pittsburg, PA
Processing Expo - Oct. 8 - 11, 2019 - Chicago, IL
Power Gen 2019 - Nov. 19 - 21, 2019 - New Orleans, LA
AHR EXPO - Feb. 3-5, 2020 - Orlando, FL

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WARE new and used List

The (Potentially Catastrophic) Risks of Low Water in a Firetube Steam Boiler

Water level in a boiler is a delicate balance.
A water level that's too high sends water out into the steam header, which can cause catastrophic damage to the steam system.

But too little water can lead to severe failure in the form of an explosion. Here's why:

Hot gases from the boiler's fire travel through its tubes. When the water level is adequate, these tubes heat the water, turning it into steam, and the water alows the tubes to dissipate heat energy, so they don't overheat.

However, when that water level drops too low, it prevents the tubes from transferring heat. And when that happens, the tubes overheat and fail.

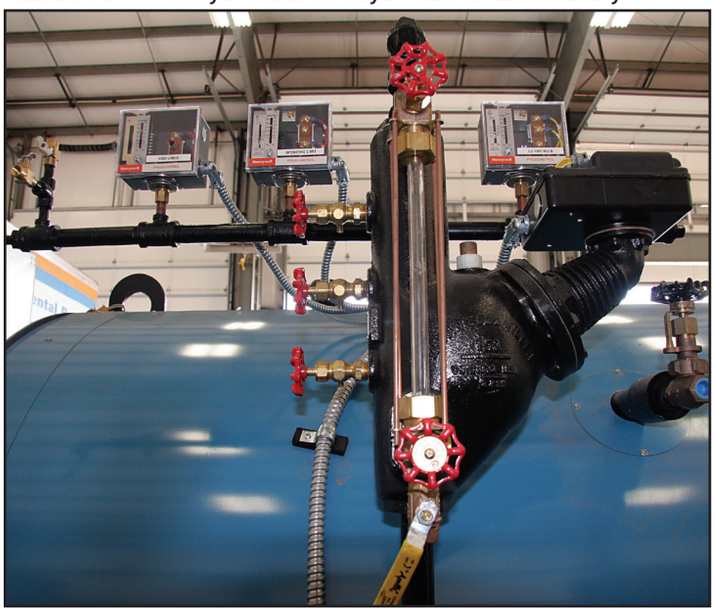
If the water level gets low enough, it exposes the Morrison Tube (the boiler's main furnace area), and this is most often when low-water catastrophic failures occur.

Since the Morrison Tube is no longer protected by the water, it overheats. Then, since the tube is so hot, when water is injected into the boiler, it instantly turns to steam, creating a massive amount of energy, which cannot be contained by the boileror relieved in time by its safety relief valves. In short:

Boom.

This generally causes an explosion.
And while this sort of incident does happen, it's not typical, because boilers have two low-water cutoffs designed to prevent it.

There are two styles: Float-Style and Conductivity Probes.
They both monitor the water level, and shut the boiler off if the water level gets too low.



A boiler's normal water level is about 3 - 4 inches above the tubes. The first low-water cutoff is about an inch above the tubes. And the second is right above the top of the tubes.

However, if your first low-water cutoff is a Float-Style cutoff, it's important to blow the boiler down every day. Otherwise, sediment can build up, hold up the float, and stop this cutoff from activating.

So, what sort of low-water damage is "typical?"

Typically, the least amount of damage is loose or cracked tubes. In these cases, you'll end up with water coming out of the boiler.

A technician can tell this is caused by a low-water situation by looking at the discoloration of the tubes, as well as whether the tubes are warped, cracked, drooping, or otherwise disfigured.

Sometimes, there are even cracks in the Morrison tube or the tube sheet. These have to be ground out and welded. And once the repair is finished, an inspector has to come in and make sure it was completed properly.

The functionality of low water cutoffs should be checked at least once a quarter, and you can use a sight glass to check the boiler's water level regularly.

Low water in a steam boiler can lead to serious problems, so it's important to continually pay attention to your boiler's water level, blowdown the system daily, and check the functionality of your low-water cutoffs routinely.

Watch WAREboilers channel

WATCH -Low Water in a Steam Boiler On the Boiling Point

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CATASTROPHES CAUSED BY HUMAN ERROR

Boiler and Pressure Vessel incidents, which can have devastating consequences, are usually the result of human error (improper installation, improper repair, low-water condition, operator error or poor maintenance).

101 CLASS - $1,200.00

Is a two-day introduction to the boiler room, covering all of the important aspects from water treatment, and boiler operations, to condensate systems. This seminar style, media-rich class offers a great first look at boilers for beginners, and a great review for experienced operators.

101 CLASS 2019

July 8 - 9, 2019 - Louisville, KY
August 13 - 14, 2019 - Chattanooga, TN
October 8-9, 2019 - Louisville, KY
October 15-16, 2019 - Savannah, GA

201 CLASS 2019

March 5-7, 2019 - Louisville, KY
April 23-25, 2019 - Louisville, KY
August 20-22, 2019 - Louisville, KY
September 17-19, 2019 - Louisville, KY
November 12-14, 2019 - Louisville, KY

201 CLASS - $1,800.00

Is a three-day program building on the 101 foundation, but adding the full experience of our Louisville Boiler Lab, providing hands-on opportunities on many subjects with our four fully operational lab boilers. Beginners will get the full perspective of an operating system, and even seasoned operators and contractors will gain valuable insight from displays, such as our fully glass piped steam and condensate system demonstrator.

NEW FOR 2019
Visit www.wareboileruniversity.com for details

Classes are four hours long
BOILER 202 - Daily Boiler Operations
BOILER 203 - 4 Hour Steam System Basics
BOILER 204 - Safety and Limit Checks
BOILER 205 - Energy Efficiency Options

Classes are three days long
BOILER 301 - Boiler Open/Close
BOILER 302 - Principles of Combustion
BOILER 303 - Hands on Flame Safeguard and Boiler Control Wiring
BOILER 304 - Feedwater and Level Control

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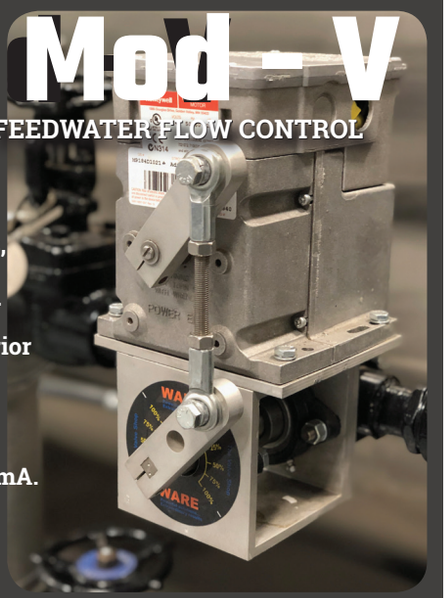

You Tube **Watch** WAREboilers channel

WATCH - Common Problem fixed for boiler feedwater valves **On the Boiling Point**

and a **WHOLE LOT MORE**

New website coming soon!