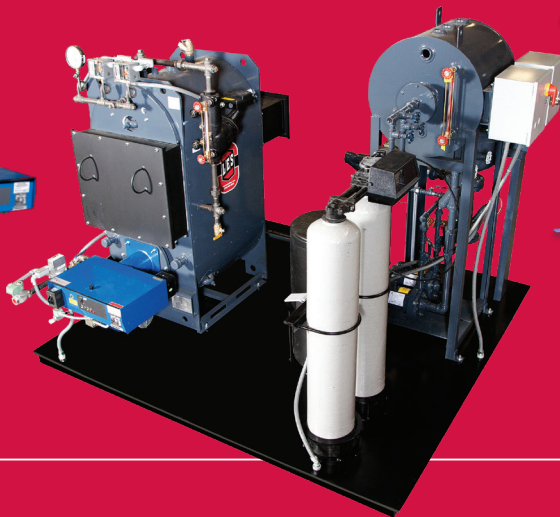




High Efficiency Boilers

Boiler Product Catalog

- Series HF/HW Boiler
- Series VW Boiler
- Low Pressure Steam System
- High Efficiency Electric Boilers



Tel: (712) 243-5300
www.lesboilers.com



High Efficiency Boilers

About L.E.S. High Efficiency Boilers

L.E.S. (Low Energy Systems) is a leading manufacturer of high-efficiency packaged boiler systems engineered for performance, durability, and efficiency. Headquartered in the United States, L.E.S. designs, assembles, tests, and ships a wide range of custom-built energy management systems, including packaged boilers, boiler feed systems, and integrated heat and power solutions.

Every L.E.S. system is manufactured to meet or exceed the rigorous standards of Section IV of the ASME Boiler and Pressure Vessel Code. Their units are factory-tested for quality and performance before shipping, ensuring reliable and consistent operation in the field. L.E.S. boilers are widely used in commercial, institutional, and industrial applications where high performance and energy savings are critical.

L.E.S. Packaged Boilers are available for the following types of service:

Direct Water Heating

Designed for applications requiring high efficiency and low emissions, these systems operate at 30 to 100 psi design pressure with an input range of 200 to 4,820 MBH. They are ideal for domestic hot water production, hydronic heating, and process water systems.

Steam Heating

Built for 15 psi low-pressure steam service, these boilers provide dependable steam generation with inputs from 200 to 4,850 MBH. Applications include humidification, sterilization, laundry, kitchen, and other commercial steam needs.

Indirect Water Heating

Utilizing finned copper tube heat exchangers mounted within steam or hot water boilers, these systems deliver full-output indirect or combination direct/indirect heating. Input capacities range from 200 to 3,000 MBH, making them suitable for high-demand water heating and space heating applications.

Why Choose L.E.S. Boilers?

- Proven high-efficiency performance
- Compact, space-saving designs
- Easy installation and maintenance
- Custom configurations for specialized applications
- Full technical support and after-sales service

Whether you're looking for a dependable hot water solution or a versatile steam system, L.E.S. offers reliable, high-performance boilers tailored to meet your exact energy needs.

Contact Us Today

Explore the full range of L.E.S. high-efficiency boiler systems and discover energy solutions that work for your facility.

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High Efficiency Boilers

Table of contents

HF/HW Scotch Box Series Boilers



Series HF/HW Boiler

- 15 to 200 HP Packaged Boilers
- 15 psi Steam or 80 psi Hot Water

See pages 4-6

VW/VWC Series VW Boiler Direct Hydronic Boilers



VW/VWC Series VW Boiler Direct Hydronic Boilers

- Applications: 30 to 100 psi Hydronic
- Outputs: 165 to 2750 MBH Packaged Boilers,
- Modular Heating Plants for Any Capacity
- Fuels: Natural or Propane Gas, #2 Oil, Combination

See pages 7-10

High Efficiency Electric Boilers



LES Series ZF "Zero Fire" Electric Boiler

- ZERO NOx EMISSIONS
- QUIET AND SAFE OPERATION
- NEARLY 100% EFFICIENT

See page 11-12

Low Pressure Steam System



Low Pressure Steam System

Boiler, Feedwater System, Water Softener, Blowdown Separator

- Low pressure steam boiler, 83% efficient
- Duplex boiler feed system
- Twin alternating water softener
- Blowdown separator with cooling package

See page 13-14

Contact Us Today

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**High Efficiency
Boilers**

HF/HW

Scotch Box Series Boilers

Series HF/HW Boiler

15 to 200 HP Packaged Boilers

15 psi Steam or 80 psi Hot Water



3-pass firetube boiler operates at high efficiencies due to effective heat transfer across all heating surfaces. Submerged combustion chamber improves water circulation and adds to direct heating surface.

Compact design fits through a 36" doorway and occupies a small footprint per boiler horsepower. Front and rear water legs eliminate the need for side connections.

Built, inspected, and stamped in accordance with Section IV of the ASME code. Tubes are rolled and flared to facilitate maintenance*.

U-Type Flex Joint design minimizes the destructive effects of differential stress as furnace expands at a greater rate than tubes during firing.

Structural steel skid with slots for forklift handling.

Custom fabricated bent steel turbulators insure positive furnace pressure necessary for highest non-condensing combustion efficiencies.

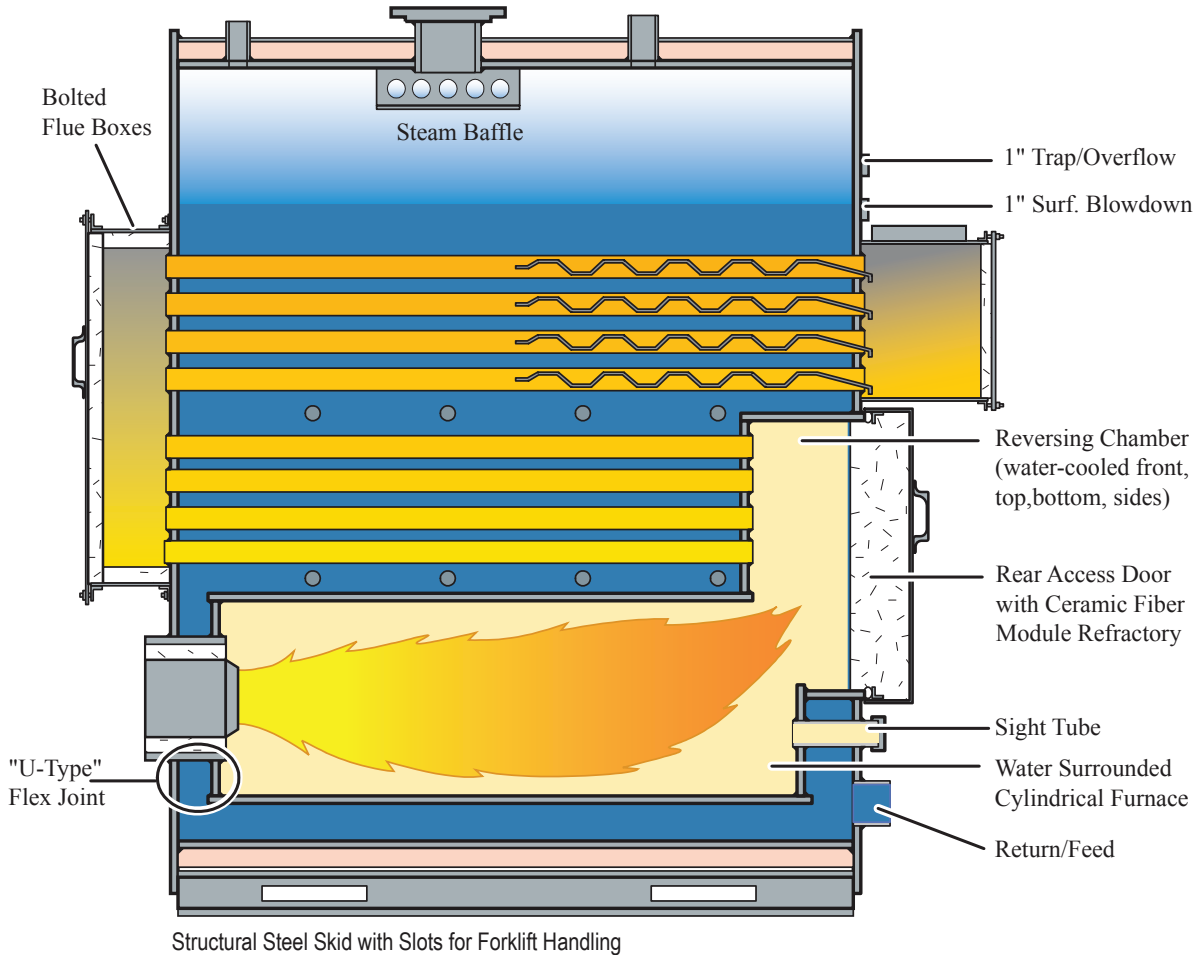
Smokeboxes are easily removed for transporting boilers through existing elevators and stairwells. Bolted and gasketed construction provides convenient access to tubesheets or inspection, cleaning, and tube maintenance.

All flue gas reversing chamber surfaces except for rear access door are water-cooled, insuring maximum heat transfer efficiency and minimal thermal shock. Removable rear door provides easy access to furnace interior.

* Welded tubes available upon request.

Schematic Cutaway: Series HF Boiler

Flanged Supply/Steam Outlet



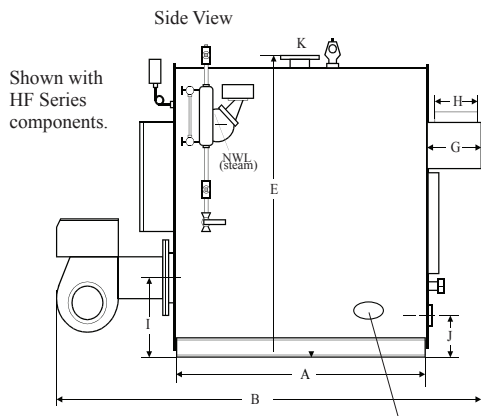
L.E.S. Series HF/HW “Scotch Box” Boilers

3-Pass Firetube • 15# Steam / 30# Water • 83% Efficiency • 4 sq.ft. Fireside Heating Surface per BHP

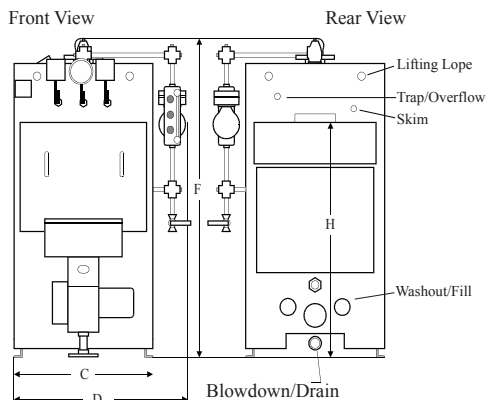
Ratings / Data / Dimensions

Model	15	20	25	30	40	50	60	70	80	90	105	120	130	140	150	175	200
Input																	
Gas (Cubic ft/hr)	600	800	1000	1200	1610	2010	2410	2820	3220	3620	4240	4865	5243	5646	6050	7038	8044
Oil (Gallons/hr)	4.3	5.7	7.1	8.6	11.5	14.4	17.2	20.1	23.0	25.9	30.3	34.8	37.5	40.3	43.2	50.3	57.6
Output																	
MBH	500	670	835	1000	1340	1675	2010	2345	2680	3015	3520	4040	4352	4687	5021	5863	6700
Boiler Horsepower	15	20	25	30	40	50	60	70	80	90	105	120	130	140	150	175	200
Gas Burner Motor HP	.25	.33	.33	.33	.5	.75	1.0	1.0	2.0	3.0	3.0	5.0	5.0	5.0	5.0	7.5	7.5
Oil Burner Motor HP	.33	.33	.5	.5	.75	1.0	1.5	1.5	2.0	3.0	5.0	5.0	5.0	5.0	5.0	1.0	1.0
SQ. Ft. Heating Surface																	
Primary	16.7	20.8	20.8	24.7	28.7	35.6	40.4	46.6	46.5	51.9	57.3	57.3	70.2	77.4	77.3	99.2	113.4
Total Fireside	62	86	102	125	163	200	242	286	325	359	424	424*	518	563	583	743	873
Total Waterside	68	94	111	137	180	221	267	316	360	397	470	470	574	624	646	816	961
Boiler Data																	
Furnace Vol. (CU.FT.)	4.5	6.1	6.1	7.7	9.3	13.6	15.8	20.3	20.3	23.2	26.0	26.0	38.5	43.4	43.4	56.0	66.3
Water Cap. (Gal; NWL)	89	116	111	138	160	206	237	282	270	312	344	344	392	445	439	590	694
Water Cap. (Gal; Full)	112	146	141	176	206	275	318	363	350	404	447	447	536	608	602	756	889
Dry Weight (LBS)	1350	1650	1725	2075	2435	3000	3450	3925	4075	4500	4975	4975	6500	7000	7000	8250	9550
Dimensions in Inches																	
A: Skid Length	29	39	39	49	59	59	68	68	68	78	88	88	88	88	88	112	131
B: Overall Length	64	76	76	86	96	112	121	123	128	138	154	154	156	156	156	180	200
C: Width	28	28	28	28	28	34	34	34	34	34	34	34	42	42	42	42	42
D: Trimmed Width (Std)	40	40	40	40	40	46	46	46	46	46	46	46	54	54	54	54	54
E: Height	64	64	64	64	64	72	72	78	78	78	78	78	90	90	90	90	90
F: Trimmed Height	72	72	72	72	72	79	79	86	86	86	86	86	100	100	100	98	98
G: Rear Smokebox Depth	10	12	12	12	12	14	14	16	16	16	16	16	18	18	18	16	16
H: Flue Connection Size	6	8	8	8	8	10	10	10	12	12	12	12	14	14	14	14	14
Flue Connection Height	50	50	50	50	50	54	54	61	61	61	61	61	72 1/4	72 1/4	72 1/4	73	73
I: Burner Port Height	18	18	18	18	18	20	20	20	20	20	20	20	24	24	24	24	24
J: Burner Port ID	9 1/4	9 1/4	9 1/4	9 1/4	9 1/4	12 1/4	12 1/4	14 1/4	14 1/4	14 1/4	14 1/4	14 1/4	14 1/2	14 3/4	14 3/4	14 7/8	14 7/8
J: Return Size (NPT)	2	2	2	3	3	4	4	4	4	4	4	4	4	4	4	4	4
K: Return Height	8 1/2	8 1/2	8 1/2	8 1/2	8 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/2	10 1/4	10 1/4	10 1/4	10 3/4	10 3/4
K: Outlet Size	3	3	3	4	4	6	6	6	6	6	8	8	8	8	8	8	8
Height	64	64	64	64	64	72	72	78	78	78	78	78	90	90	90	90	90

* 3 1/2 Sq. Ft. Fireside heating surface per BHP



Clean out/Inspection





**High Efficiency
Boilers**

VW/VWC

**Series VW Boiler
Direct Hydronic Boilers**

Applications: 30 to 100 psi Hydronic
Outputs: 165 to 2750 MBH Packaged Boilers,
Modular Heating Plants for Any Capacity
Fuels: Natural or Propane Gas, #2 Oil, Combination



Low Stress Design: Single pass construction eliminates differential expansion forces across heads, permitting design return temperatures as low as 70°F and immediate “cold starting” response to all call for heat. Boilers are warranted for five years against thermal stress leaks regardless of return temperature. Consult L.E.S. for boiler configuration/control options required for direct very low temperature operation.

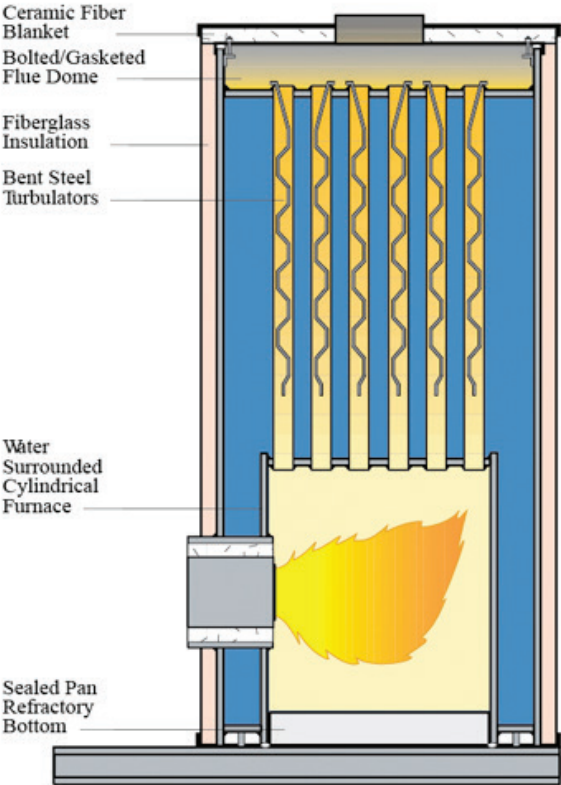
High Efficiency: Series VW boilers are positive pressure non-condensing appliances. They are equipped with forced-draft burners for reliable 83% efficient combustion. High-temperature fiberglass rope is used to gasket burner flanges to burner ports and steel lids to flue-gathering chambers. Custom-fabricated bent steel turbulators installed in fire-tubes limit flue gas velocity, insuring maximum heat transfer. Heat losses associated with draft hoods and barometric dampers are eliminated and breeching/stack sizes can be reduced.

Steel Skids: Structural channel skids create a space (3" minimum) beneath boiler shells which may permit elimination of a poured concrete pad. Boilers can be rolled into place on steel pipes, levered into precise position, and easily/securely leveled by shimming of skids.

*Consult factory for boiler configuration/control options required for direct very low temperature operation.

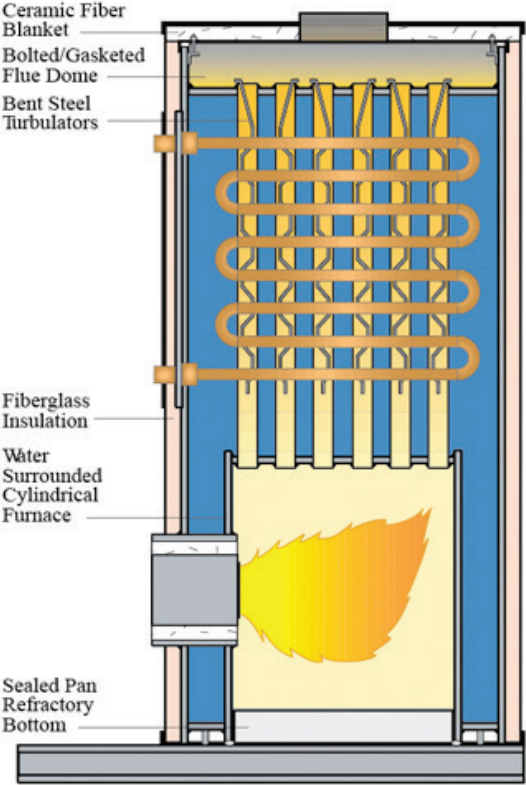
Schematic Cutaway: Series VW/VWC Boiler

Series VW Direct Hydronic Boiler Cutaway



Structural Steel Skid for Forklift Handling

Series VC/VWC Multi-Function Boiler Cutaway



Structural Steel Skid for Forklift Handling

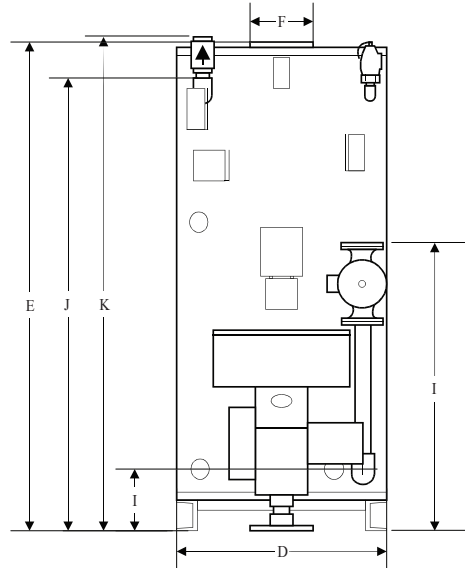
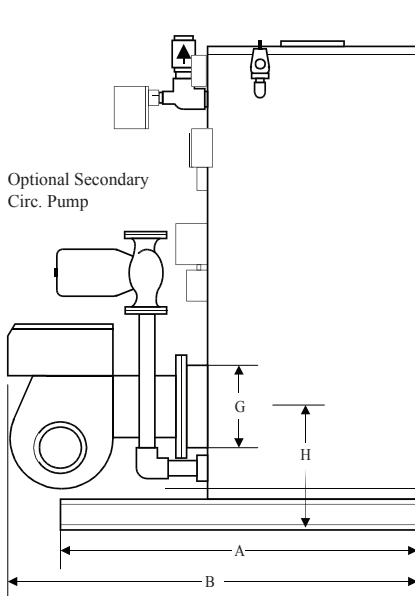
L.E.S. Series VW Hydronic Boiler

30 to 100 psi • 83% Efficiency • Structural Steel Base

Ratings / Data / Dimensions

Model	25	37	50	60	70	78	100	110	135	150	180	200	220	245	270	315	340	375
Input																		
Gas (MB/CF) CFH	200	305	399	505	600	700	900	1000	1200	1350	1635	1800	2000	2200	2420	2825	3020	3300
Oil (140MB/Gal) GPH	1.4	2.2	2.9	3.6	4.3	5.0	6.4	7.1	8.6	9.6	11.7	12.9	14.3	15.7	17.3	20.2	21.6	23.6
Output																		
MBH	165	250	330	420	500	575	750	835	1000	1125	1360	1500	1675	1840	2010	2010	2510	2750
Boiler Horsepower	5.0	7.5	10.0	12.5	15.0	17.5	22.5	25.0	30.0	33.5	40.7	44.8	50.0	55.0	60.0	70.0	75.0	82.5
Gas Burner Motor HP	.25	.25	.25	.25	.25	.25	.33	.33	.33	.33	.33	.33	.5	.5	1.0	1.0	1.0	2.0
Oil Burner Motor HP	.25	.25	.25	.33	.33	.33	.33	.33	.33	.5	.75	.75	.75	.75	1.5	1.5	1.5	2.0
SQ. FT. Heating Surface																		
Primary	7.9	7.8	11.1	10.9	12.9	12.8	15.2	16.0	18.1	19.1	19.9	22.1	23.2	25.6	26.5	29.1	29.4	32.3
Total Fireside	24	33	45	53	61	70	90	98	122	136	162	180	199	222	244	282	307	338
Total Waterside	26	36	50	58	66	77	99	108	134	151	179	200	220	246	271	313	340	375
Boiler Data																		
Furnace Vol. (CU.FT.)	1.9	1.9	3.3	3.3	4.3	4.3	5.6	6.1	7.7	8.4	9.1	10.7	11.7	13.8	14.7	17.3	17.6	20.6
Water Cap. (Gal, Full)	41	38	59	57	78	75	98	92	124	115	153	136	190	169	240	209	272	240
Dry Weight (LBS)	500	550	774	825	975	1025	1225	1275	1500	1575	1825	1925	2150	2275	2550	2775	3150	3350
Dimensions in Inches																		
A. Skid Length	30	30	36	36	36	36	39	39	43	43	45	45	50	50	54	54	57	57
B. Overall Length	48	48	51	51	54	54	56	56	62	62	64	64	72	72	78	78	88	88
D. Width	22	22	25	25	28	28	30.25	30.25	34.25	34.25	34.5	34.5	4.1	4.1	45	45	49	49
E. Height	53	53	64	64	66	66	71	71	71	71	77	77	78	78	78	78	78	78
F. Flue Conn. Size	5	5	6	6	6	6	8	8	8	8	10	10	10	10	12	12	12	12
G. Gas Conn. Size*	.75	.75	.75	1	1	1	1	1	1.25	1.25	1.5	1.5	2	2	2	2	2	2
H. Burner Port Height	12	12	13	13	14	14	16	16	16	16	16	16	17	17	17	17	17	17
Burner Port ID	8	8	8	8	10	10	10	10	10	10	10	10	10	10	10	10	16	16
I. Return Size	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2.5	2.5	3	3	3	3	3	3
Return Height	7	7	7	7	7	7	7	7	7	7	7	7	8	8	8	8	8	8
Height with Pump	26	26	26	26	28	28	28	28	30	30	30	30	32	32	38	38	38	38
J. Supply Size	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2	2	2.5	2.5	3	3	3	3	3	3
Supply Height	48	48	59	59	60	60	66	66	65	65	72	72	73	73	73	73	73	73
Height with C.V.	54	54	65	65	66	66	72	72	72	72	78	78	82	82	82	82	82	82

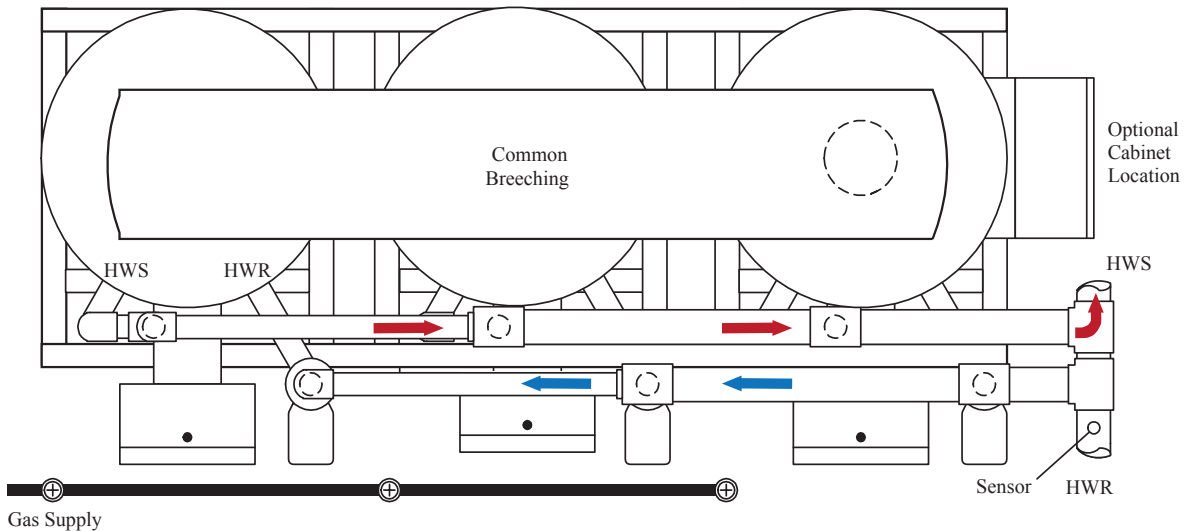
* 7-14" W.C. available. Consult factory for high flow or low delta applications.



Modular Heating Plant Layout Schematic

Partial Load Efficiency

Modular heating plants achieve high partial load efficiencies by matching individual modules to light loads. With true parallel primary/secondary piping and correct control including warm weather and night/weekend shutdown, light load equipment cycling is minimized while both unnecessary heating plant operation and excess capacity heat loss paths are completely eliminated. Automatic sequencing and PLC based controls are available upon request.





**High Efficiency
Boilers**

High Efficiency Electric Boilers

- Zero Nox Emissions
- Quiet And Safe Operation
- Nearly 100% Efficient



LES Series ZF "Zero Fire" Electric Boiler

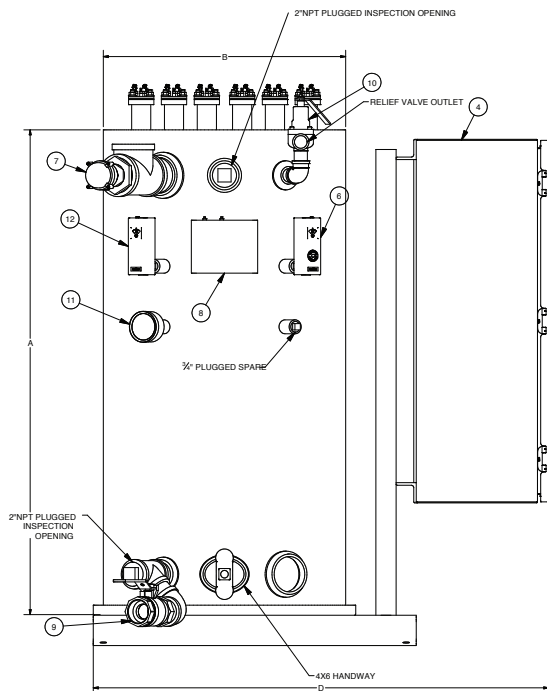
160# Water

Ratings / Data / Dimensions

Model	150	200	240	280	320	400	440	480	520	560	600	640	680	720	760	800	840	880
Rating																		
MBH	512	682	819	955	1092	1365	1501	1638	1774	1911	2047	2184	2320	2457	2457	2730	2866	3003
KW	150	200	240	280	320	400	440	480	520	560	600	640	680	720	760	800	840	880
Elements																		
Quantity	10	10	12	14	16	20	22	24	26	28	30	32	34	36	38	40	42	44
KW	15	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Water Volume (gallons)	28	28	28	28	28	28	125	125	125	125	125	125	360	360	360	360	360	360
Dry Weight (Lbs.)	970	970	970	970	970	970	1860	1860	1860	1860	1860	1860	2746	2746	2746	2746	2746	2746
Dimensions (inches)																		
A. Vessel Height	48	48	48	48	48	48	60	60	60	60	60	60	72	72	72	72	72	72
B. Vessel Diameter	24	24	24	24	24	24	36	36	36	36	36	36	48	48	48	48	48	48
C. Overall Width	42	42	42	42	42	42	54	54	54	54	54	54	66	66	66	66	66	66
D. Overall Length (vessel and panel)	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46	46
Return Size	2	2	2	2	2	2	4	4	4	4	4	4	4	4	4	4	4	4
Outlet Size	3	3	3	3	3	3	6	6	6	6	6	6	6	6	6	6	6	6

* Contact factory for larger sizes or custom dimensions

* Steam boilers will be in the horizontal configuration



FEATURES

- 100% Efficient heat transfer
- No Air permits required
- No Stack required
- Smaller Footprint
- No operating engineer required
- Quiet Operation
- No combustion air required
- No pre purge or post purge losses
- Safe Operation
- Simple maintenance
- Fully Automatic

APPLICATIONS

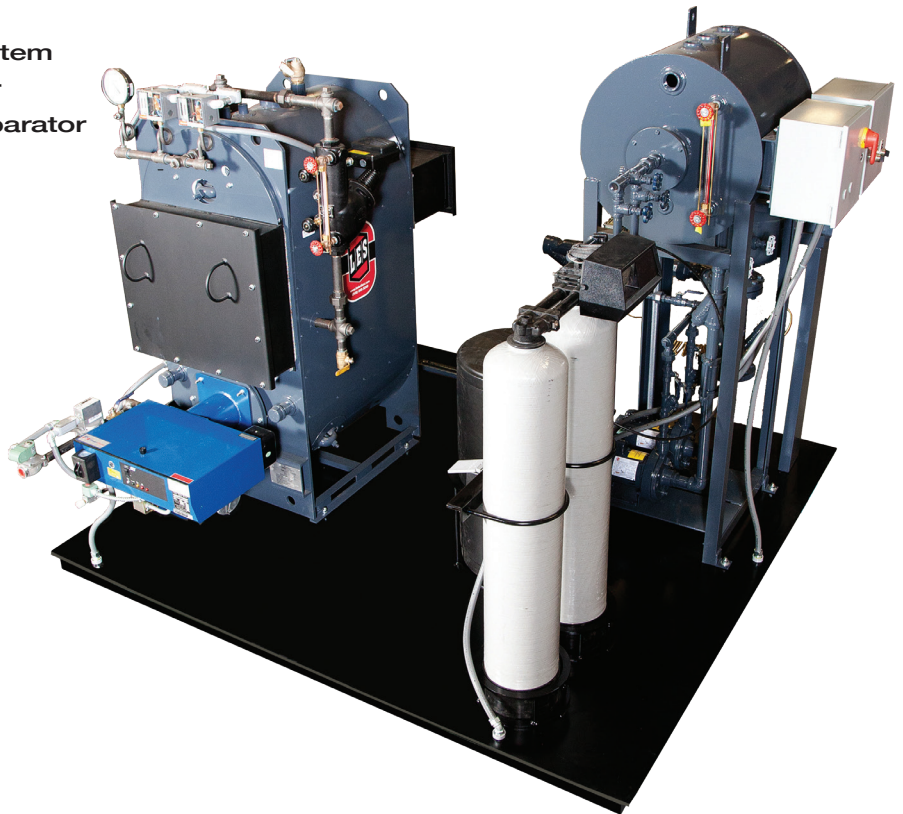
- Commercial Green Buildings
- Laboratory - Research
- Remote Area Steam
- Stand-By or part load Steam
- Humidification
- Steam heat retrofits
- Government Facilities
- Courthouses
- Direct Replacements



**High Efficiency
Boilers**

Low Pressure Steam System

- Boiler
- Feedwater System
- Water Softener
- Blowdown Separator



Sizing Selection Chart

Skid System	Boiler BHP	Steam Output (PPH)	Natural Gas Input (MBH)	115 VAC Electrical Requirements (Amps)	Weight Dry (lbs)	Weight Flooded (lbs)
BHS-15	15	517.5	600	60	3022	4367
BHS-20	20	690	800	60	3322	5198
BHS-30	30	1035	1200	60	3747	5872

*Contact the factory for larger sizes

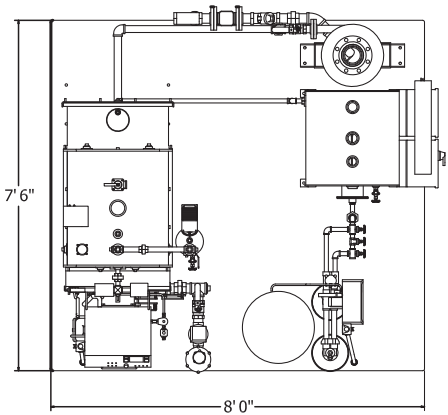
Components

- Low pressure steam boiler, 83% efficient
- Duplex boiler feed system
- Twin alternating water softener
- Blowdown separator with cooling package
- Single point connection for utilities:

Natural gas, Water, Steam, Drain, Exhaust, Vent

115 vac/1 ph/60 hz Electrical Power – Individual Component Disconnects

- 60 AMP main panel disconnect
- Factory tested to ensure reliability
- Small Footprint – 8' L x 7.5' W



Standard Features

Boiler

- ASME Section IV, National Board stamped
- UL/CSD-1 Compliant
- Reliable ‘Scotch Box’ design with rolled tubes
- On-off firing rate for burners

Feedwater System

- Duplex pumps
- Suction and discharge piping
- UL Panel

Custom Upgrades

- Burner firing rate (LHO, LHL, MOD)
- Surface blowdown/TDS control
- LoNOx and high turn down burners
- BMS Communications

Blowdown Separator

- ASME section VIII, National Board stamped
- Aftercooler
- Self contained cooling water control package

Water Softener

- Twin tanks
- Alternating
- Responsive design

- Steam drop header

- Steam pre-heat to boiler feed tank
- Corrosion resistant coating inside of boiler feed tank
- NEMA 4/4X rated panels

Additional Brands



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Atmospheric Deaerators
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Boiler Blowdown Systems
Blowdown Heat Recovery
www.wilsonblowdown.com



Have questions or need help specifying equipment?
Need help with an existing system or parts?
Looking for a local representative?
Visit our website at www.lesboilers.com



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712-243-5300

www.lesboilers.com