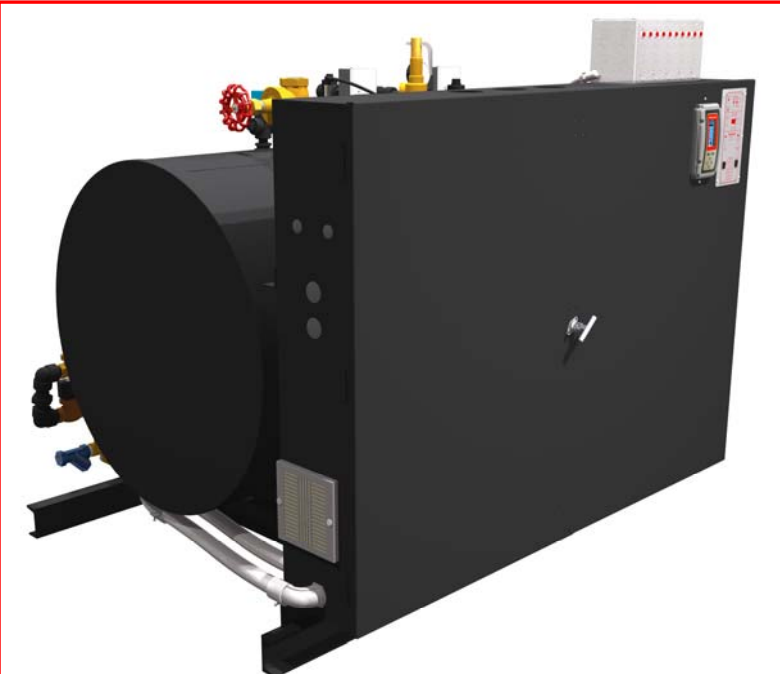


RHP360 – RHP510 Steam Boiler Series



Features

- Maximum safety relief valve setting 150psi
- All boilers are manufactured in accordance with the requirements of the A.S.M.E. Boiler and Pressure Vessel Code and A.S.M.E. CSD-1. Each boiler bears the National Board Stamp "S".
- High quality saturated steam, operating pressure range 0 – 135psig
- Heavy duty carbon steel pressure vessel. Vessel jacket and electrical enclosure made from black painted carbon steel
- Large selection of optional equipment

Standard Equipment of Each Boiler Includes:

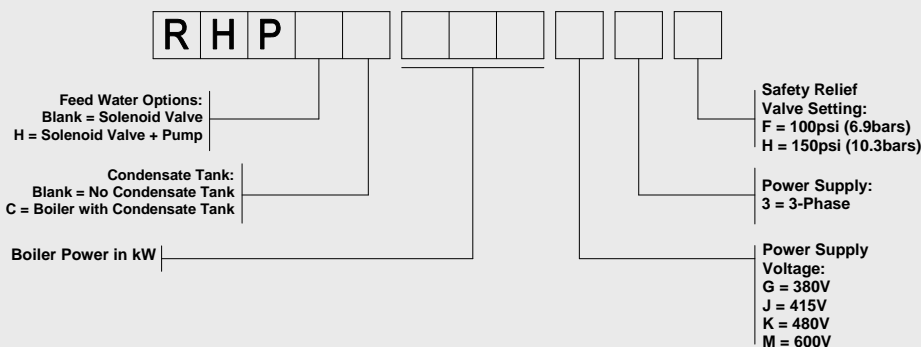
- A.S.M.E. pressure relief valve
- One (1) slow opening boiler bottom blowoff valve as per A.S.M.E. Code B31.1
- Steam outlet globe valve
- High pressure feed pump in RHPH- and RPHC-models
- One (1) primary high pressure cutoff control with automatic reset and one (1) secondary high pressure cutoff control with manual reset
- One (1) primary low water cutoff control with automatic reset and one (1) secondary low water cutoff with manual reset
- PID-step controller with number of heating stages depending on boiler model
- Digital readout of the operating pressure
- Magnetic contactors
- Internal branch circuit fusing
- Main supply power distribution block
- Indicator lights for POWER, REFILLING, HEATING, ALARMS and Automatic Boiler Blowoff Status
- Pressure and water level gauge

Applications

- Process Steam
- Industrial Autoclaves
- Air Humidification
- Dry Cleaning
- Food Service
- Laboratories
- Automotive Industry

HEATING POWER kW	STEAM CAPACITY lbs/hr (kg/hr) ⁽³⁾	BHP	VOLTAGE ⁽¹⁾	PHASE	NUMBER OF HEATING STAGES	SHIP WT. ⁽²⁾ lbs (kg)	PRESSURE VESSEL CAPACITY GAL. (L)	OPERATING PRESSURE RANGE psig (bar)	Steam Outlet Size (NPT) Steam Pressure	
									LP < 15psig	HP > 15psig
360	1229 (557)	36	380/415/480/600	3	6	2,460 (1114)	124 (468)	0-135 (0 – 9.3)	3"	2"
420	1434 (650)	42	380/415/480/600	3	7	2,500 (1133)	124 (468)	0-135 (0 – 9.3)	3"	2"
510	1742 (789)	51	380/415/480/600	3	8	2,600 (1178)	124 (468)	0-135 (0 – 9.3)	3"	2"

Model Number Key



⁽¹⁾ Each boiler model requires two (2) power supplies: Primary heating power and secondary control voltage. Nominal control voltage is 120V, 50/60Hz. Boiler models rated for 380V and 415V are equipped with control voltage transformers that require 220/240V applied to their primary side in order to provide the 120V AC control voltage to the boiler. As an option, all boiler models can be equipped with control voltage transformers so that only the heating power supply needs to be connected to the boiler.

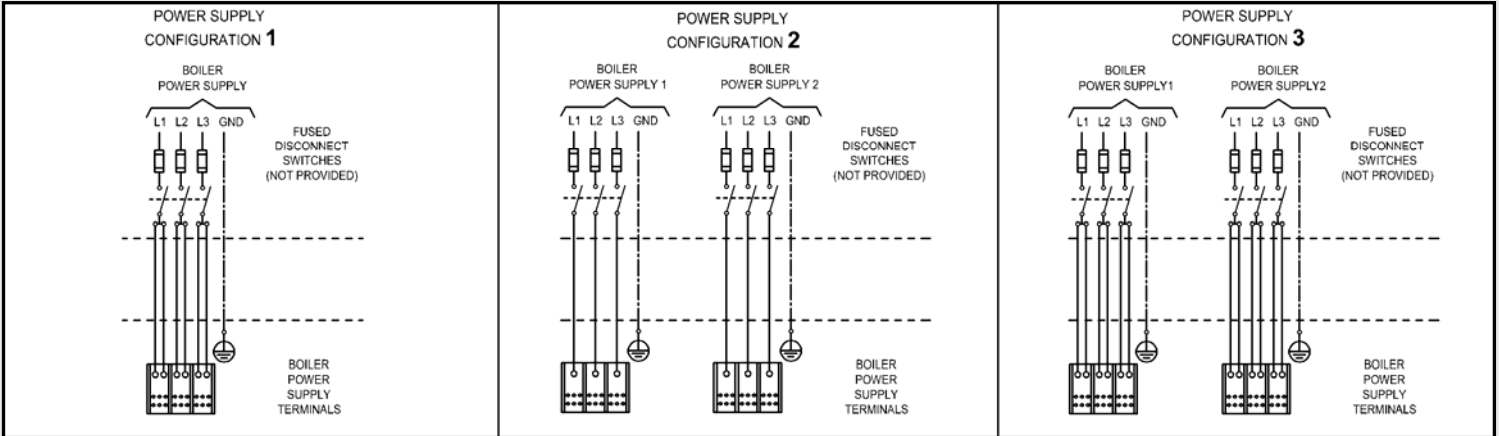
⁽²⁾ On boiler equipped with condensate tank, add 250lbs (113kg) to shipping weight

⁽³⁾ The STEAM CAPACITY listed above is based on the evaporation rate from and at 212°F, at 0 psig. If the boiler feed water temperature is 50°F, then the STEAM CAPACITY for each model listed above is approximately 15% lower.

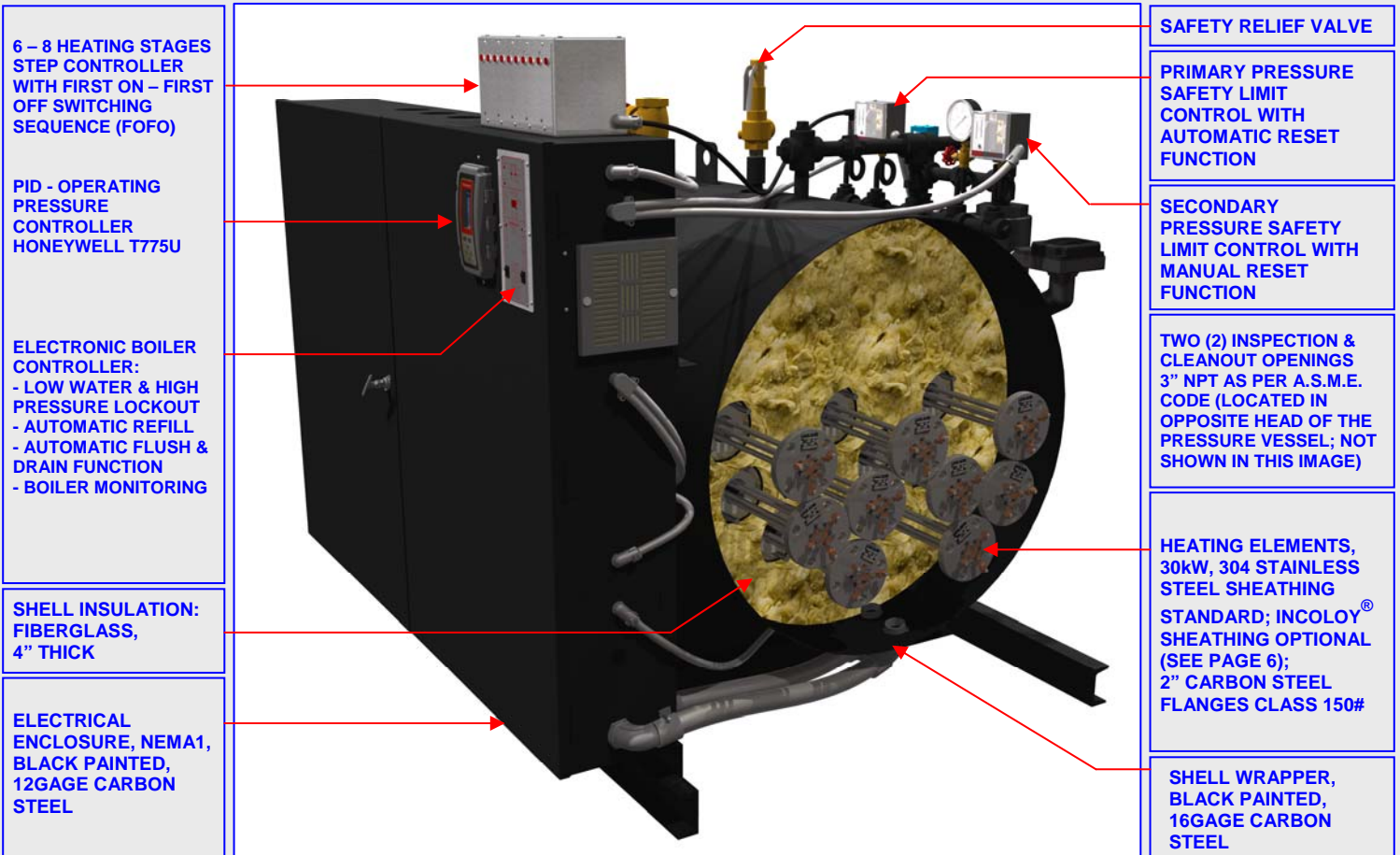
Example: RHPHC510K3H = RHP-Series boiler with pump and condensate tank, 510kW heating power, power supply 480V, 3ph, safety valve set to 150psi.

Electrical Specifications

HEATING POWER	VOLTAGE	PHASE	AMP DRAW	MIN REQ. N.E.C. SERVICE	INTERNAL POWER FUSING	INTERNAL ELEMENT WIRING	NUMBER & SIZES OF CONTACTORS (RES. LOAD)	NUMBER & SIZE OF ELEMENTS	POWER SUPPLY	
									FIELD TERMINAL MAX. CONDUCTOR SIZE	CONFIGURATION
kW	V		A	A		AWG (mm ²)				
360	380	3	547.0	684.0	36 x 60A, 600V	8 (8.35)	12 x 75A	12 x 30kW, 380V, 3ph	6 x 500MCM	2
	415	3	500.8	626.0	18 x 100A, 600V	8 (8.35)	12 x 50A	12 x 30kW, 415V, 3ph	6 x 500MCM	2
	480	3	433.0	542.0	18 x 90A, 600V	8 (8.35)	12 x 50A	12 x 30kW, 480V, 3ph	6 x 500MCM	1
	600	3	346.4	433.0	18 x 70A, 600V	8 (8.35)	12 x 50A	12 x 30kW, 600V, 3ph	6 x 500MCM	1
420	380	3	638.1	798.0	42 x 60A, 600V	8 (8.35)	14 x 75A	14 x 30kW, 380V, 3ph	12 x 500MCM	3
	415	3	584.3	731.0	21 x 100A, 600V	8 (8.35)	14 x 50A	14 x 30kW, 415V, 3ph	6 x 500MCM	2
	480	3	505.2	632.0	21 x 90A, 600V	8 (8.35)	14 x 50A	14 x 30kW, 480V, 3ph	6 x 500MCM	2
	600	3	404.1	506.0	21 x 70A, 600V	8 (8.35)	14 x 50A	14 x 30kW, 600V, 3ph	6 x 500MCM	1
510	380	3	774.9	969.0	17 x 60A, 600V	8 (8.35)	17 x 75A	17 x 30kW, 380V, 3ph	12 x 500MCM	3
	415	3	709.5	887.0	24 x 100A, 600V 3 x 50A, 600V	8 (8.35)	17 x 50A	17 x 30kW, 415V, 3ph	12 x 500MCM	3
	480	3	613.4	767.0	24 x 90A, 600V 3 x 50A, 600V	8 (8.35)	17 x 50A	17 x 30kW, 480V, 3ph	12 x 500MCM	3
	600	3	490.7	614.0	24 x 70A, 600V 3 x 40A, 600V	8 (8.35)	17 x 50A	17 x 30kW, 600V, 3ph	6 x 500MCM	2



Construction



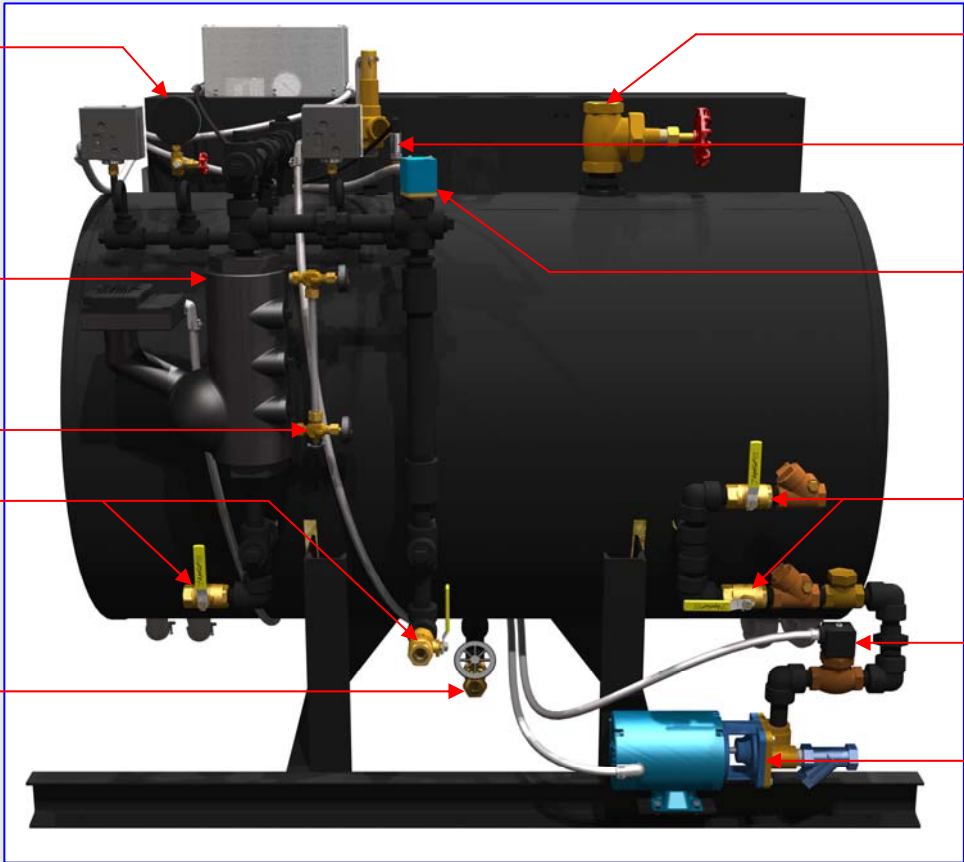
PRESSURE GAUGE WITH 3-WAY INSPECTION VALVE

AUTOMATIC WATER REFILL & PRIMARY LOW WATER CUT-OFF CONTROLLER WITH AUTOMATIC RESET FUNCTION, MCDONNELL & MILLER MODEL 157S

WATER LEVEL GAUGE

EXTERNAL WATER COLUMN DRAIN BALL VALVES 3/4" NPT

BOILER BOTTOM BLOWOFF VALVE: 1-1/4" NPT SLOW-OPENING Y-VALVE OR MOTORIZED BALL VALVE IF BOILER IS EQUIPPED WITH AN AUTOMATIC BOILER BLOWOFF OPTION (OPT1016 OR OPT1002, SEE PAGE 6)



STEAM OUTLET VALVE: 2" OR 3" (DEPENDING ON BOILER MODEL) NPT BRONZE GLOBE VALVE

PRESSURE TRANSDUCER FOR PID-OPERATING PRESSURE CONTROLLER

SECONDARY LOW WATER CUT-OFF SENSOR FOR BOILER CONTROLLER

BOILER FEED WATER SHUTOFF VALVES

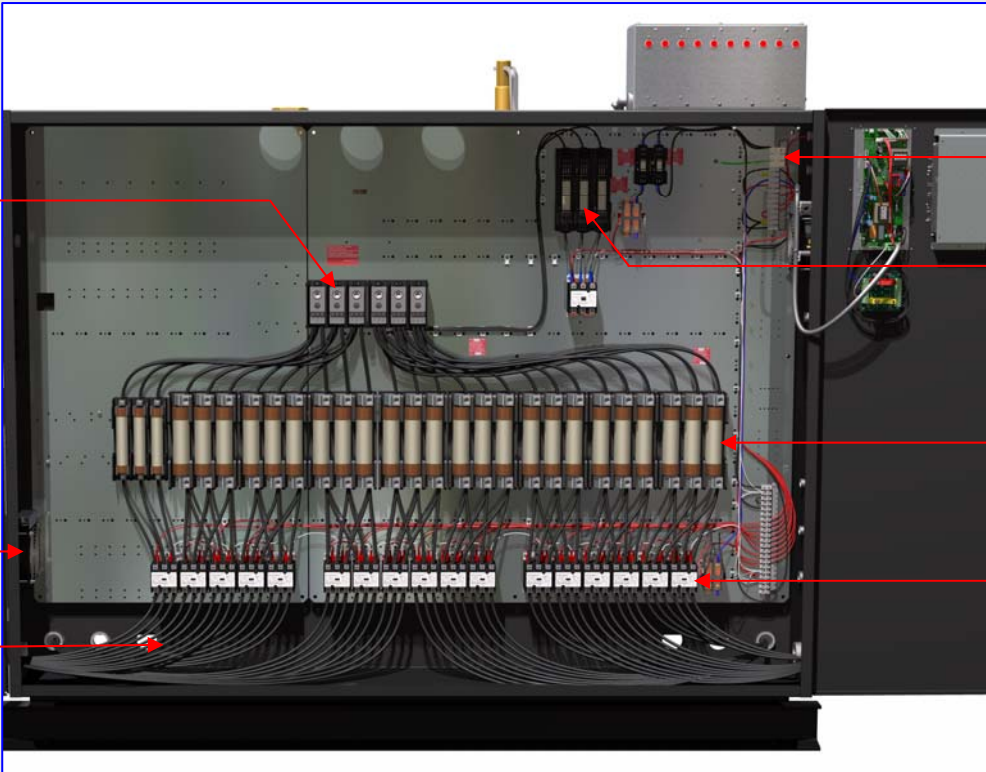
BOILER FEED WATER SOLENOID VALVE ON RHP- & RHPH MODELS

HIGH PRESSURE BOILER FEED WATER PUMP

FIELD TERMINALS FOR POWER CIRCUITS; NUMBER AND SIZE OF TERMINALS PROVIDED PER CIRCUIT AND PHASE DEPENDS ON BOILER MODEL (REFER TO ELECTRICAL SPECIFICATION TABLE ON PAGE 2)

ELECTRICAL ENCL. COOLING FAN

HEATING ELEMENT WIRING, RATED 125°C MINIMUM



FIELD TERMINAL FOR CONTROL VOLTAGE HOOKUP; NOT NEEDED WHEN A CONTROL VOLTAGE TRANSFORMER (OPT1011) IS INSTALLED

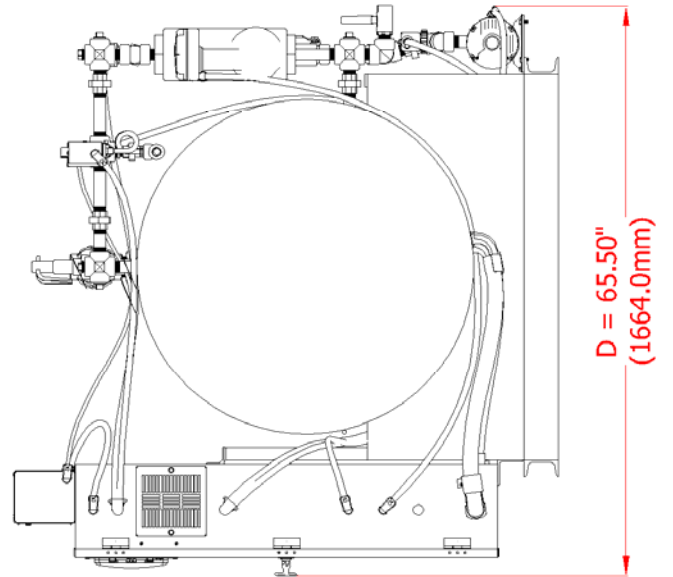
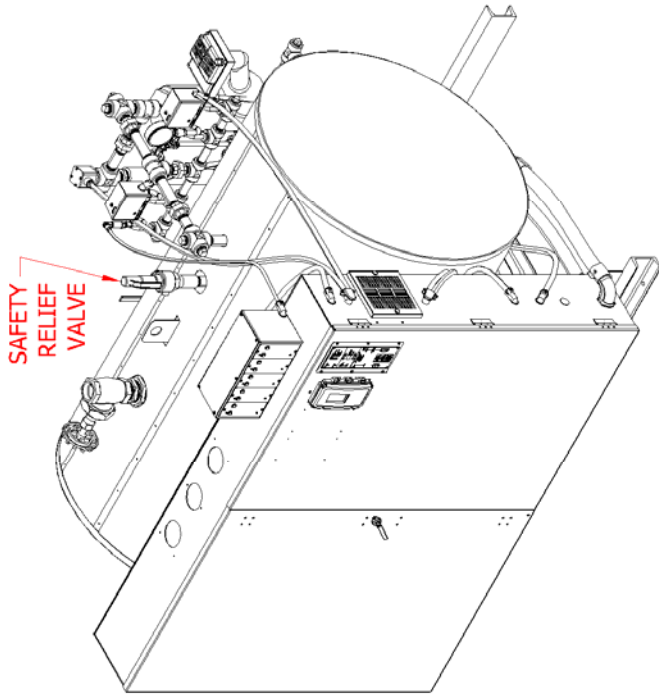
BOILER FEED WATER PUMP FUSING; UL CLASS RK5

HEATING ELEMENT CIRCUIT FUSING; UL CLASS K STANDARD OR UL CLASS J OPTIONAL

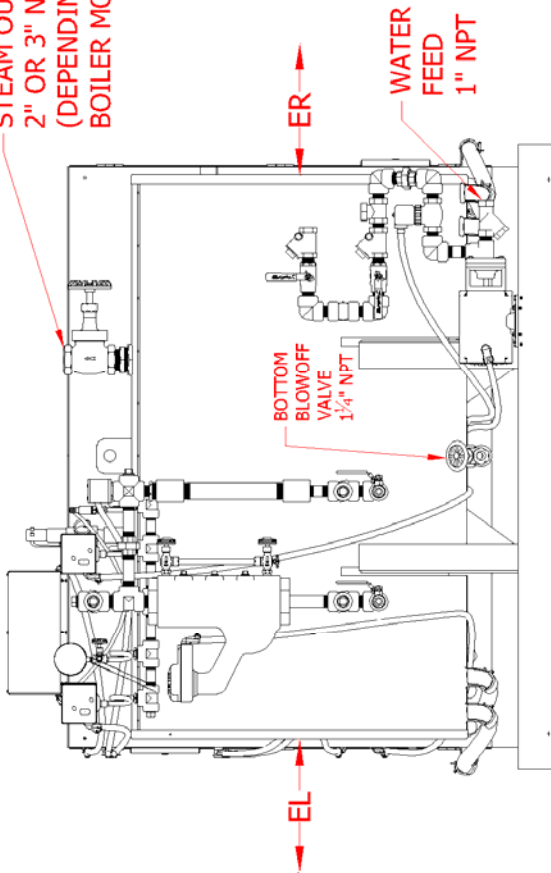
HEATING ELEMENT CIRCUIT MAGNETIC CONTACTORS, RATED MIN. 250,000 CYCLES AT FULL RATED ELECTRICAL LOAD

Dimensional Drawings (approximate)

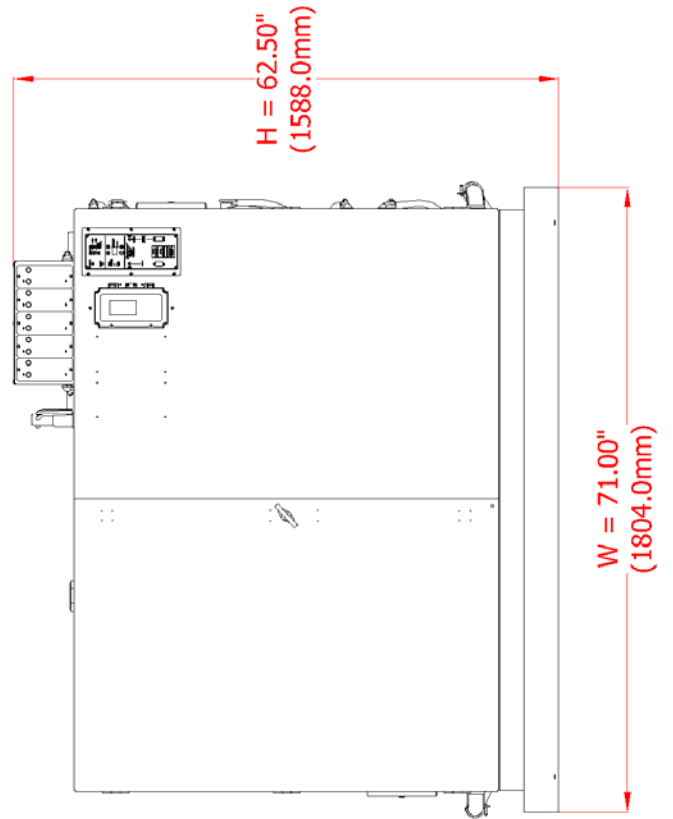
RHP/RHPH360 – RHP/RHPH510



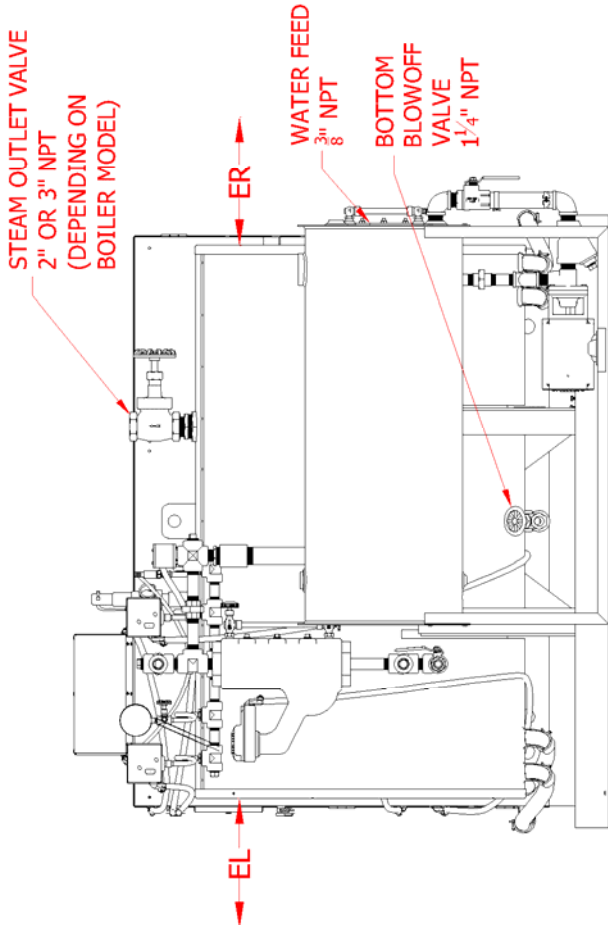
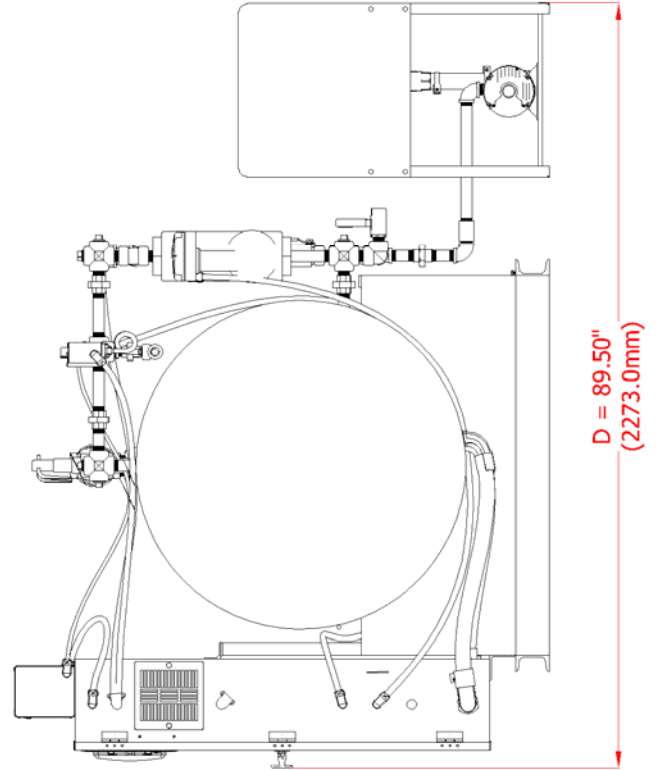
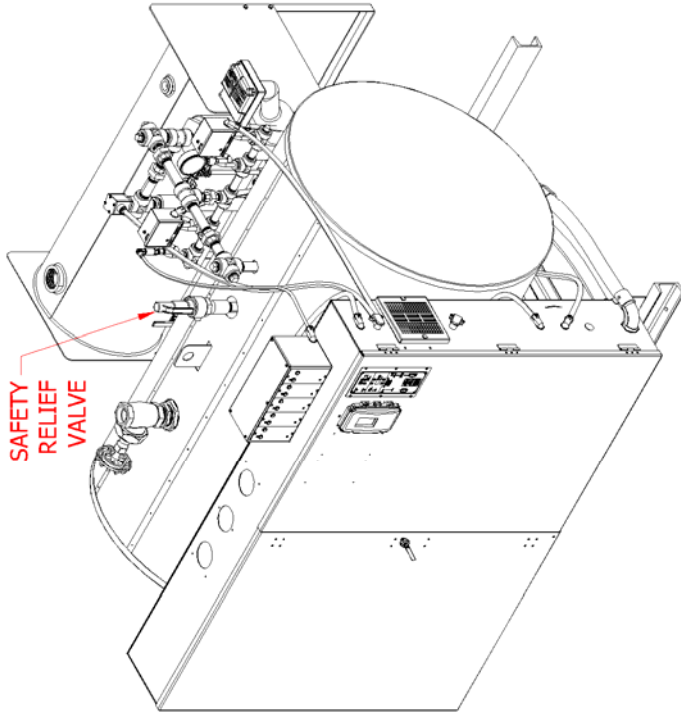
STEAM OUTLET VALVE
2" OR 3" NPT
(DEPENDENT ON
BOILER MODEL)



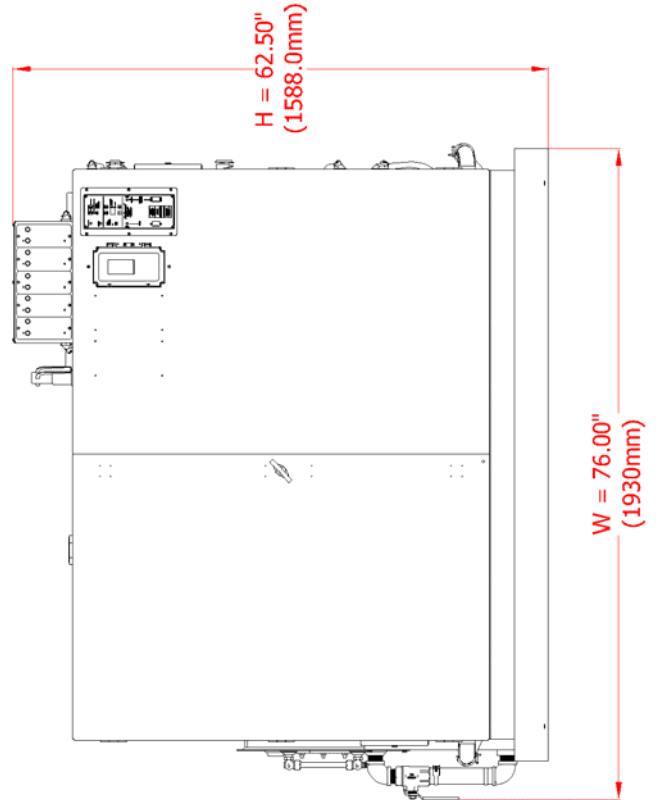
REQUIRED CLEARANCE FOR ELEMENT REMOVAL (EL & ER)
RHP/RHPH360 - RHP/RHPH510: EL = ER = 36" (915.0mm)



RHPHC360 – RHPHC510



REQUIRED CLEARANCE FOR ELEMENT REMOVAL (EL & ER)
RHP/RHPH360 - RHP/RHPH510: EL = ER = 36" (915.0mm)



Optional Equipment

1. Timer Controlled Boiler Blowoff System, #OPT1001:

Programmable Digital Timer
PART # 03893



Program boiler blowoff day time and duration

When boiler blowoff time is reached:
- Boiler control circuits turn off automatically
- Boiler Blowoff Valve opens

Boiler Blowoff Valve installed between boiler and blow down tank



At the end of boiler blowoff:
- Boiler Blowoff Valve closes
- Boiler control circuits turn on automatically
- The water level in boiler restores
- Boiler resumes operation automatically

2. Automatic Flush & Drain System, #OPT1016

Electronic Boiler Controller



Boiler Power OFF

Steam pressure drops below setting of blowoff-pressure controller (15psig or less).

Blowoff Enable ON



At the end of boiler blowoff, valve closes automatically.

Boiler Blowoff Valve installed between boiler and blow down tank



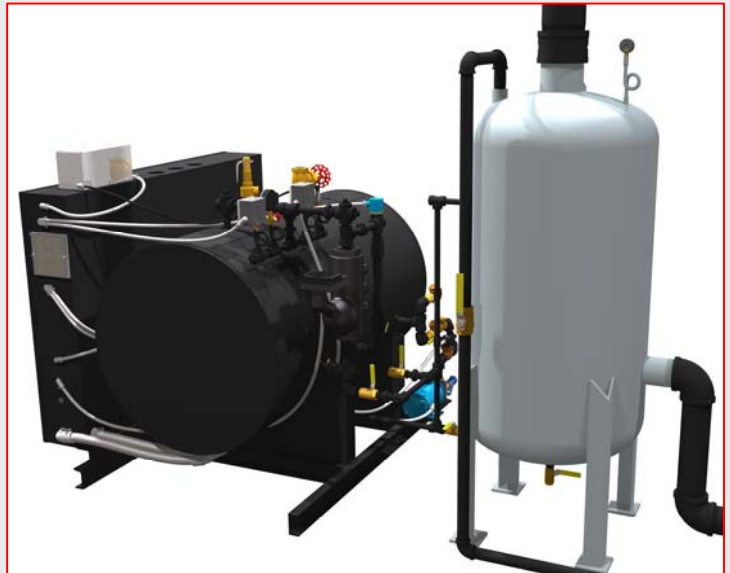
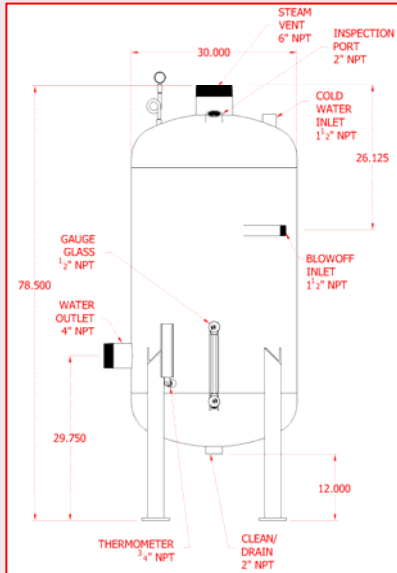
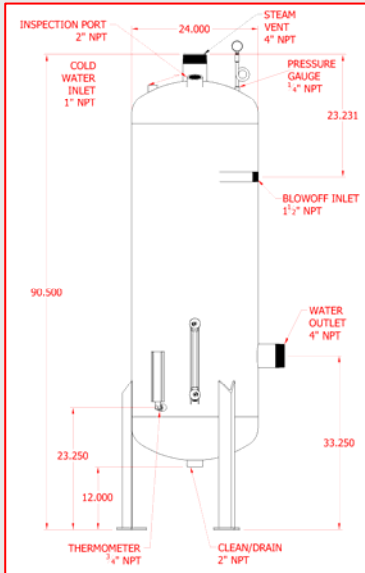
3. Blowdown Tank: #BTANK-750-USA & BTANK-750-CRN

- Designed in accordance with the National Board Guide for Blowoff Vessels NB-27
- Designed and manufactured in accordance with the requirements of the A.S.M.E. Boiler and Pressure Vessel Code Section VIII, Division 1. Each Blowdown tank bears the National Board Stamp "U". The design pressure as per NB-27 is 50psig.
- BTANK-750-CRN meets also the Canadian Standard CSA-B51.1 Boiler, Pressure Vessel and Pressure Piping Code

#BTANK-750-USA for all countries except Canada

#BTANK-750-CRN for Canada

Typical Blowdown Tank Installation; RHP510 model shown with BTANK-750-CRN



4. Control Voltage Transformer

When using this option, only the main power supply is required to operate the boiler.

Boiler Voltage	Transformer Option Part Number
380V	OPT1011 – 380RHP
415V	OPT1011 – 380RHP
480V	OPT1011 – 480RHP
600V	OPT1011 – 600RHP

5. Timer Controlled Boiler On/Off #OPT1017



Program timer to turn boiler ON/OFF automatically

6. INCOLOY® HEATING ELEMENT SHEATHING, #OPT-INCOLOY®