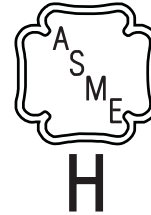
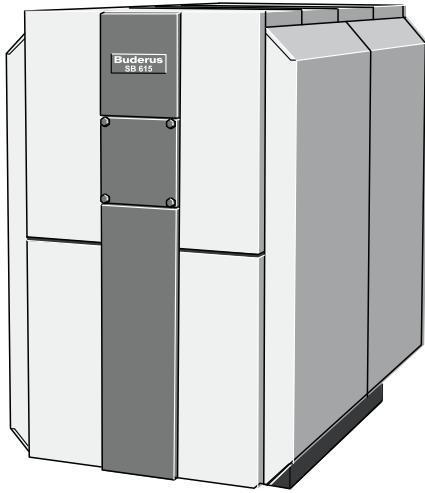


SB615/510 Stainless Steel Condensing Boiler

Engineering
Submittal
Sheet

Buderus

Boiler Components



Engineering Specifications

The boiler(s) shall have a full three pass fire tube design to allow complete combustion of the fuel in the main combustion chamber. All flue side surfaces, including the main combustion chamber, second and third flue passages shall be constructed of 316 stainless steel designed to maximize the condensate formation. All flue passages shall be fully water-backed to minimize thermal stresses on the boiler vessel.

Boiler(s) shall be constructed with dual return water connections where the lower connection shall be aligned with the lowest (coldest) return water temperature for maximum efficiency.

Boiler(s) shall be suitable to operate under any return water temperature, any boiler water flow rate and without any restrictions on temperature rise through the boiler vessel. Boiler(s) shall be able to operate at efficiencies up to 98% at suitably low return water temperatures.

The condensing secondary and tertiary fire tube flue passages shall be fabricated from 316 stainless steel with a reduced cross section in the direction of flue products flow to maintain a near constant velocity of combustion products and to enhance micro turbulences for maximum heat transfer.

Boiler(s) shall have an internal water baffle plate separating return water between second and third flue passages for maximum efficiency.

Boiler(s) shall be fully serviceable from the front by means of a reversible swing burner door and removable access cover. The boiler vessel shall be wrapped with a full 4" thermal insulation blanket for minimal stand-by loss.

SB615/510
Stainless Steel Condensing Boiler



Performance Data		
	Unit	Value
Gas input	MBtu/h	1776
Gross rated output	MBtu/h	1678
IBR Rating	MBtu/h	1459
Boiler horsepower	H.P	50.1
AHRI natural gas combustion efficiency	%	96.2
AHRI natural gas thermal efficiency	%	94.5
AHRI Ultra-Low Sulfur Diesel combustion efficiency	%	95.2
AHRI Ultra-Low Sulfur Diesel thermal efficiency	%	92.6

General Data		
	Unit	Value
Boiler category	-	Condensing
Heat exchanger construction	-	Stainless steel
Heating surface	Sq. Ft	232.50
Maximum allowable working pressure	PSIG	30
Water content	Gallons	229
Weight - shipping (approx.)	Lbs	2970
Weight - operating (approx.)	Lbs	4898
Standard relief valve size (inlet x outlet)	Inch	1¼ x 1½
Standard relief valve pressure rating (other capacities available upon request)	PSI	30
Minimum relief valve capacity	MBH	1860
Venting category	-	IV

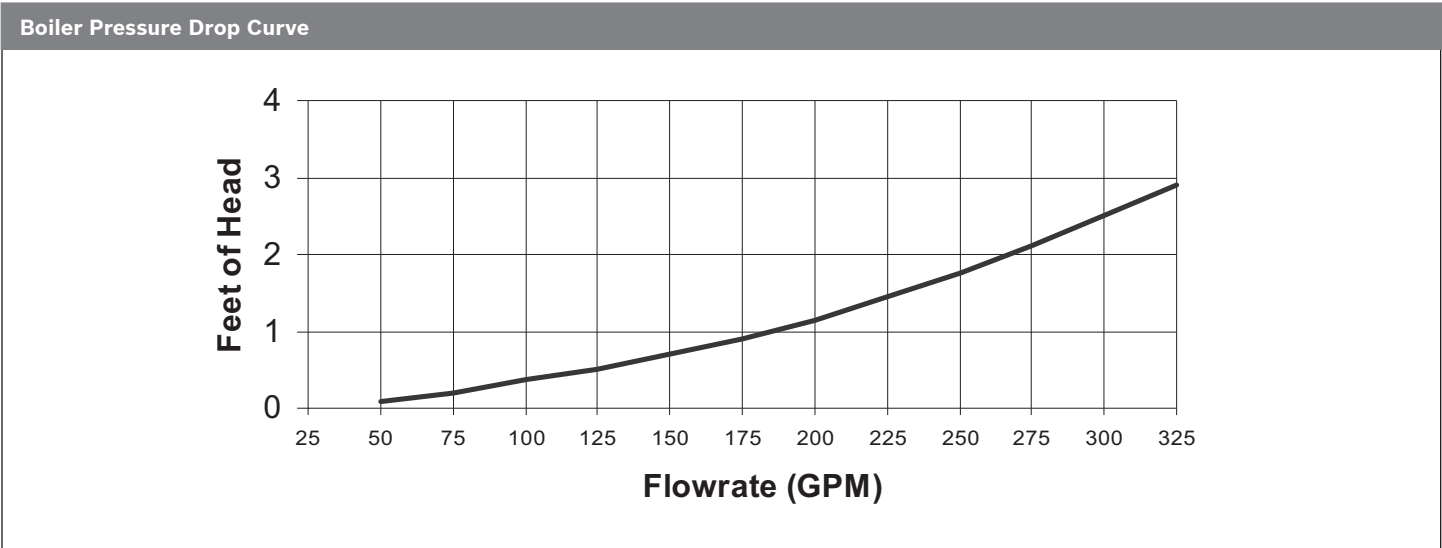
Operational Data		
	Unit	Value
Fireside pressure drop	Inch W.C.	1.44
Required vent connection pressure	Inch W.C.	+0.01 - +0.2
Maximum allowable firebox pressure	Inch W.C.	0.20
Minimum flow rate	GPM	none
Maximum flow rate	GPM	none
Maximum supply water temperature	°F	210
Minimum return water temperature	°F	none

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Burner Data		
	Unit	Value
Allowable fuels	-	Natural gas, LP, Ultra low sulfur diesel (ASTM D396 No. 2)
Motor voltages, gas/oil pressure and modes of operation will vary based upon final burner selection - see burner specification sheet for additional details	-	-

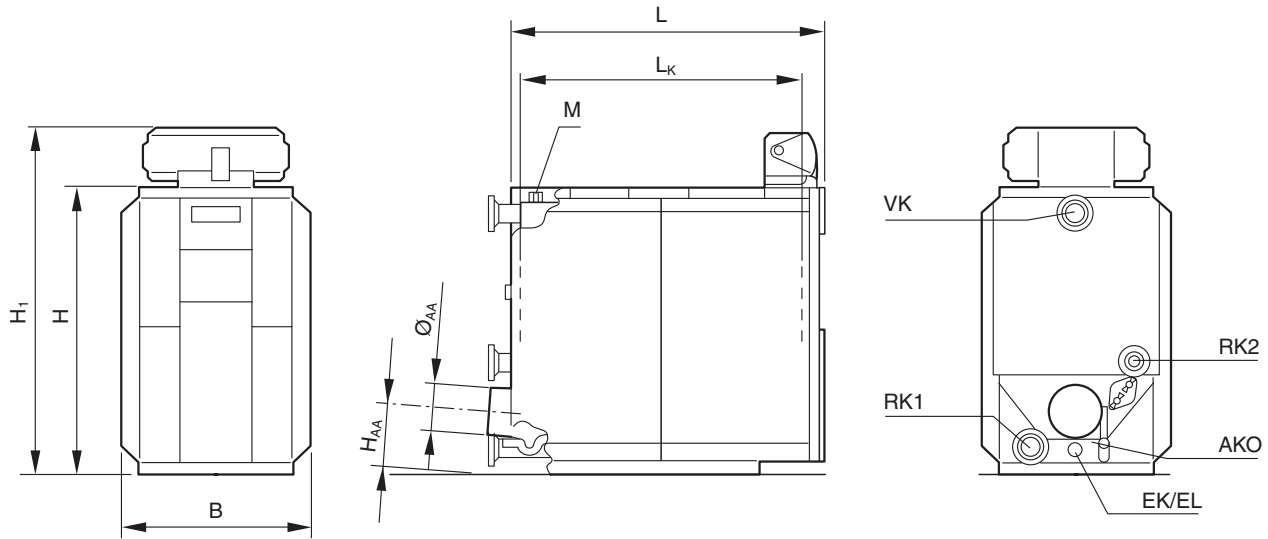
Approval Data	
Approval description	Approval number
Massachusetts Approval #	G3-0610-0523
New York MEA #	MEA 444-04-E
CRN #	M8164.5C



SB615/510
Stainless Steel Condensing Boiler



Boiler Dimensions and Connections

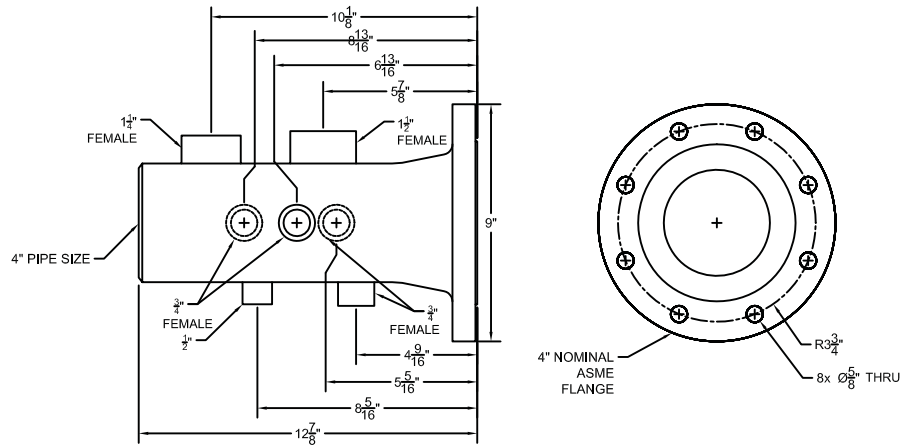


Boiler Dimensions / Connections Data

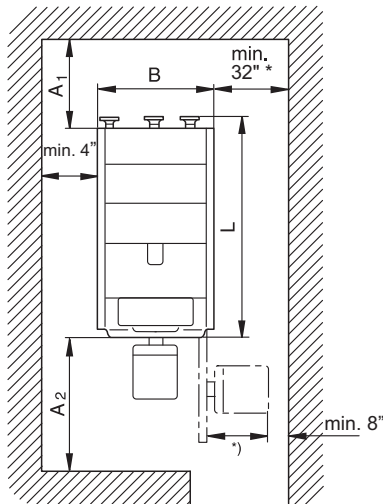
Item	Description	Unit	Value
ØAA	Boiler flue inner diameter	Inch (mm)	12 (303)
HAA	Boiler flue height	Inch	15
AKO	Condensate outlet	Inch	½
EK/EL	Cold water inlet/drain	Inch	1 ½
H	Boiler height	Inch	69 ½
H ₁	Boiler height including controller Logamatic 4321/22 controller = H + 10" (235mm)	Inch	79 ½
RK1	Boiler return (low temperature)	Inch	4
H _{RK1}	Boiler return height (from boiler base to centerline)	Inch	5 15/16
RK2	Boiler return (medium temperature)	Inch	3
H _{RK2}	Boiler return height (from boiler base to centerline)	Inch	26 15/16
VK	Boiler supply	Inch	4
H _{VK}	Boiler supply height (from boiler base to centerline)	Inch	63 ½
M	Sensing point for temperature sensor/immersion sleeve	-	-
L	Boiler length including outer casing	Inch	75 ¼
LK	Boiler heat exchanger length	Inch	66 ½
B	Boiler width including outer casing	Inch	43 ½

* All dimensions above are within +/- ¼".

Supply Manifold Connections



Recommended (Minimum) Boiler Clearances



Description	Unit	Recommended clearance (minimum clearance)
Length A ₁	Inch	42 (36)
Length A ₂	Inch	78 (60)
Length L	Inch	78
Width B	Inch	44
Minimum Width for the boiler room opening / door	Inch	39 (37)
Minimum Height for the boiler room opening / door	Inch	70 (68)

*) Take burner size into account. Removal of burner may be required if using minimum distance.

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