



## BUDERUS BOILER SPECIFICATIONS

INOV8 uses the Buderus models G315 and G515 Series Thermostream Oil, Gas, Dual Fuel Boiler for the sizes covered by this specification. The Thermostream technology allows lower return water temperature that typically causes thermal shock. INOV8, however requires a hot boiler to optimize combustion of alternative fuels. This is achieved by maintaining a hot primary loop controlled by a thermally controlled mixing valve set at ‘nominally’ 180° F. The Buderus boiler designs are three pass with efficiencies in clean condition of about 85%. Standby losses are minimal with the double-wall heat exchanger and 3-1/2” thermal insulation. The boilers are available in knock-down and assembled versions. The Buderus boilers are UL Listed, have ASME approval as a cast iron low pressure boiler, and the G515 boilers have a 87 psi MAWP rating. INOV8 shall provide a burner tested and listed by Intertek-ETL Semko, a national third party test agency to all application safety standards for use in the United States and in Canada: See burner specifications for listings.

Buderus Boiler Specifications for INOV8 System:	B500	B650	B750	B850	B1050
<b>Boiler Dimensions (without burner)</b>					
Buderus Model #:	G315-6	G315-7	G315-8	G315-9	G515-8
Oil Input - GPH (based on 140,000 BTU per gallon)	3.46	4.23	5.04	5.76	7.50
Gross Output (de-rated 10% from Buderus ratings)	408,600	503,100	596,700	691,200	908,100
Net IBR (de-rated 10% from Buderus ratings)	355,500	437,400	519,300	601,200	789,300
Overall Boiler Length	55 1/2	56 3/4	63 1/4"	69 1/2"	69
Boiler Block Length	44 1/12	50 3/4	57"	63 1/2"	61
Minimum Boiler Width	20	20	33 1/2"	33 1/2"	33"
Boiler Width with Jacket & insulation	34 3/4	34 3/4	34 3/4"	34 3/4"	38 1/2"
Fire Box Depth	37 1/2	43 3/4	50"	56 1/4"	52 1/2"
Fire Box Diameter	15 3/4	15 3/4	15 3/4"	15 3/4"	20 1/4"
Fire Box Volume (cu. Ft.)	6.39	7.59	8.79	9.99	17.16
Dry Weight (lbs)	1,391	1,585	1,779	1,973	3,059
Water Content (gal)	45.2	52.6	60	67.4	77.7
Operating Weight (lbs)	1,768	2,024	2,280	2,545	3,707
Foundation Length	42 1/2	48 1/2	54 1/4"	61"	60 1/4"
<b>Water side connections:</b>					
Water connection - inches	3	3	3	3	4
Return water connection (NPT)	3	3	3	3	4
Drain connection size - inches	3/4	3/4	3/4"	3/4"	3/4"
Vent connection - inches	7	7	7	7	10
Chimney size - inches (minimum)	10	10	12	12	12
Chimney height - feet (minimum)	15	15	15	15	15
<b>Clearances (in inches)</b>					
Side wall	15 3/4	15 3/4	12	12	32
Side wall - burner door swing	43	43	43	43	43
Front of boiler (boiler length plus 40")	85	91	95	104	101
Behind (1/2 boiler length plus 20")	43	46	49	52	51
Top	12	12	12	12	24
Chimney connector	18	18	18	18	18

<b>Boiler operating requirements</b>					
Max operating temperature - F	240	240	240	240	240
Max operating pressure - PSIG	58	58	58	58	87
Max supply temperature - F	248	248	248	248	248
Min supply temperature - F	150	150	150	150	150
Min required draft - inches of WC	-0.02	-0.02	-0.02	-0.02	-0.02
Firebox Pressure (In. W.C.)	.54	.71	.71	.75	.57
<b>Draft Inducer Sizing:</b>					
Tjernlund Draft Inducer, model	I	I	I	I	I
Tjernlund connection size (inches)	8	8	8	8	10
<b>Standard features of Buderus Boilers &amp; supplied equipment:</b>					
Factory assembled cast iron sections (can be ordered knocked-down)					
Full-size burner door hinged left or right (field adjustable)					
Supply & return connections at rear of boiler					
Blue enamel jacket with 3 1/2" wrap-around thermal insulation (packaged separate from cast iron)					
Flexible GL-180M cast iron with silicon "barrier skin", precision casting eliminates need for manual grinding					
Precision casting eliminates need for manual grinding					
50 psig ASME relief valve					
3-1/4" pressure and temperature gauge (tridicator)					
No refractory or target cup needed due to chamber geometry					
AquaStat – Honeywell model L7248C1006					
Tongue and groove flue side sealing for pressurized operation					
Burner mounting plate with stainless sleeve					
Stainless steel liner for bottom of boiler combustion chamber					
Oil Regulator & Gauge Assembly or Kit					
Floating Oil Pickup Assembly with 2" tank fittings					
Inline Oil Filter (or optional Strainer)					
Checkvalve & fittings for oil line connection					
Boiler cleaning brushes & Instruction Manual					
<i>Note: boilers de-rated 10% by INOV8 from Buderus specifications to accommodate the longer waste oil flame and the loss of heat transfer from ash between cleanings. Ratings are at clean conditions.</i>					
<b>Items Needed for Boiler Installation which are not included with INOV8 System:</b>					
Low-Water Cut-out, oil & airlines, air compressor, water circulators and mixing valves, manifolds, zone controls or other water side controls, dual-acting barometric damper (for gas-oil burner), chimney, oil storage tank, boost pump for oil, electrical supply.					