BioMass NextGen

Wood Gasification Boiler

Models 25 kW, 40 kW, 60 kW, 80 kW and 100 kW

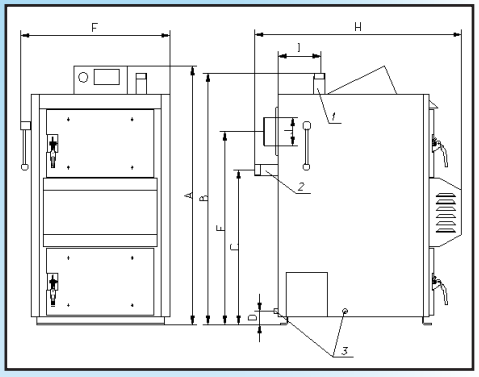
BioMass Combo
(Wood-Oil-Gas)
Models 25kW, 40kW, 60kW

BioMass Gasification Boilers are an ecological and efficient source of heat for closed pressurized or open radiant systems. BioMass uses dry fuels like seasoned logs, wood chips or pellets and extracts maximum heat for your system by using gasification process and secondary combustion, which results in complete practically emission free burning. BioMass boilers come with a new digital programmable controller, RK 2001, which allows for customization of the operation.

Technical Info		Models				
BioMass		**25**	**40**	**60**	**80**	**100**
Rated Power Output	KBTU	85	140	205	275	342
European Standard EN 303-5		Yes	Yes	Yes	Yes	Yes
Fuel Moisture Level		Cord of Wood – with a maximum of 30% moisture				
Power Range	BTU	40K-85K BTU	50K – 145K BTU	60K – 215K BTU	120K – 300K BTU	200K-390K BTU
Efficiency	%	91.2	91	91	91	90
Possible Fuels		Seasoned Wood, Briquettes, Corn Cobs with Kernels, 50% of Coal, Saw Dust, Wood Chips (50%), any kind of pellets				
Temperature Adjustment Range	°F	150-195 F	150-195 F	150-195 F	150-195 F	150-195F
Total Weight	Lb	1190	1480	1780	2100	3580
Height with Controller Housing	A in	59	59	59	63	80
Height of Hot Water Outlet	B in	56	56	59	62.5	80
Height of Return Water Pipe	C in	32	32.6	32.4	36.5	5.5
Height of Water Drain Valve	D in	2.7	2.7	2.7	2.75	5.5
Height of Flue Pipe	E in	46.5	46.5	46.5	49.5	70
Width with Clean-up Lever	F in	25	31.5	31.5	31.5	33.2
Depth	H in	39	39	54.5	59.0	78.7
Distance of Hot Water Outlet	I in	9.5	9.5	9.5	14.0	60.4
Flue Pipe Size	J in	6″	6″	6″	8″	8
Hot Water Outlet Pipe Size	G in	2″	2″	2″	2″	2″
Water Return Pipe Size	G in	2″	2″	2″	2″	2″
Drain Pipe Size	G	¾″	¾″	¾″	¾″	¾″
Boiler Water Capacity	gal	33	40	50	68	110
Flue Temperature						
-Max power output	°F	320	330	330	310	295
-Min power output	°F	195	210	210	210	200
Size of Loading Chamber						
-depth	in	19″	20.5	30.3	30.75	45
-height	in	28″	24.8	24.8	34.0	39
-width	in	18.5″	24.8	24.8	24.75	26
Volume of Loading Chamber	gal		40	60	75	140
Noise Level	dB	30	31	31	31	31
Power Consumption	W	80W (1.4A)	80 (1.4 A)	140 (2.2 A)	140 (2.2A)	140 (2.4A)
Voltage/Frequency	V/Hz	120V/60Hz	120V/60	120V/60	120V/60	120V/60HZ

BioMass
Model 40

BioMass
Wood Gasification
Secondary Combustion
(bottom chamber)



THE WOOD GASIFICATION PROCESS

Gasification process occurs as follows:
1. Drying and heating wood until the release of gases (hydrogen and carbon monoxide).
2. Burning of gas mixture in lower chamber at 2200°F.
3. Transfer of the flue gasses to heat exchanger on the back of the boiler.
4. Ejecting the gasses through the chimney pipe.

The best indicator of successful wood gasification is the lack of smoke exiting the chimney.

BIOMASS NEXTGEN

WOOD AS A FUEL

Wood is a renewable resource like solar, water or wind power. They are all energy sources, which never become depleted, unless improperly managed. Wood is also a fuel, which may be stored and preserved without energy loss. Wood storing reduces its moisture and simultaneously increases its heating value (energy volume, which may be used up during burning process). Modern boilers utilizing wood in gasification processes use energy contained in wood with efficiency that is three times higher than traditional boilers. Smoke and other emissions are cut to a very low level, making our boilers very nature friendly. BioMass Gasification Boilers are adapted for burning of any kind of wood ranging from sawdust to chunks of wood. The best way to achieve recommended wood moisture is to cut timber during the wintertime and let it season for a year stacked in single rows spaced 2 to 3 feet apart.

1. FUEL SOURCES

The recommended source of fuel for the BioMass boiler is cut and split firewood that has a moisture content between 20% and 35%. Log size should be around 6 inches in diameter and about 20 inches in length for the BioMass 40 and up to 30 inches in length for the Model 60. Smaller size wood can be used as well, including briquettes, artificial logs, wood pellets and corn cobs with kernels. Additional fuel sources like dry wood chips can be added along with dry logs.

2. BOILER CONSTRUCTION AND DESIGN

The BioMass boiler's WATER JACKET is made out of ¼" boiler plate steel. The HEAT EXCHANGER is made out of multiple 3-inch diameter tubes (0.150 inch in thickness). Exhaust gases are released into a 6-inch diameter chimney outlet. Special construction of the BioMass boiler allows for a very efficient heat exchange from the boiler into the heating system. The OUTER INSULATION JACKET (made out of mineral wool) minimizes heat loss from the boiler, allowing for the maximum amount of heat transfer from the boiler into the heating system.

3. HOW THE BOILER WORKS

During the gasification process, wood Inside the loading/burning chamber is dried and gasified. The gas (smoke) produced is drawn down through the ceramic nozzle into the ceramic-lined gasification chamber with a blower, and burned at very high temperatures. The hot, burned gas travels up through the heat exchanger tubes, out the exhaust opening and into the chimney. The heat of gasification (around 2000 °F) completely burns off virtually all smoke and particles. Gasses released from the chimney are practically invisible and do not contain unburned particles.

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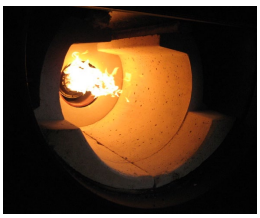

Oil Burner
(bottom chamber)

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