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Justsen Components for Hot Water Boiler System type JWB 1.5 MW – 6.0 bar(g), 110 °C

System data: *Based on design fuel as stipulated below.*

Max. heating output:	1.5 MW
Design pressure:	6.0 bar(g)
Min. operating pressure:	1.5 bar(g)
Design temperature:	110 °C
Flow temperature:	105 °C
Min. return temperature:	90 °C
Air surplus factor (Lambda) at 100% load:	1.48 at MCR*
O ₂ , dry at 100% load:	7.0% at MCR*
Flue gas temperature at 100% load:	160 °C at MCR*
Thermal efficiency at 100% load:	87.8%
Fuel consumption at 100% load:	400 kg/h
Combustion capacity at 100% load:	1,708 kW
Grate length:	2,450 mm (7 fixed steps, 6 moving steps)
Grate width:	1,240 mm (1 row of 3 hydraulic cylinders)
Ratio length vs. width:	1.98:1
Grate area:	3.04 m ²
Thermal grate load:	488 kW/m ²
Grate load:	115 kg/h/m ²
Combustion air amount, wet:	2,107 Nm ³ /h = 2,261 m ³ /h at 20 °C
Flue gas amount, wet:	2,385 Nm ³ /h = 3,783 m ³ /h at 160 °C
Flue gas amount, dry:	2,069 Nm ³ /h
Flue gas moisture by weight:	7.94%
Combustion chamber volume*:	min. 8.32 m ³
Flue gas retention time*:	3.05 s
Recommended chimney core diameter:	300 mm for flue gas velocity 14.9 m/s

*) Measured after the last addition of combustion air and before the first boiler tube pass at an average flue gas temperature of 850 °C.

<u>Reference values*:</u>	Fuel temperature:	20 °C
	Ambient air temperature:	20 °C
	Relative air humidity:	35%
	Fouling factor:	0.0030 m ² k/w

*) Forms the basis for thermal calculations and should not be confused with allowed values.



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Design fuel: Wood waste grade C.

Data:	- calorific value (H_{awf}^*):	5.31 kWh/kg = 19.117 MJ/kg
	- net calorific value (H_u):	4.23 kWh/kg = 15.235 MJ/kg
	- water:	16.6% based on total weight
	- ash:	1.9 based on dry weight
	- Hydrogen (H):	5.86% based on dry weight
	- Carbon (C):	49.87% based on dry weight
	- Sulphur (S):	0.06% based on dry weight
	- Nitrogen (N):	0.97% based on dry weight
	- Chlorine (Cl):	approx. 0.02% based on dry weight
	- Potassium (K):	approx. 0.10% based on dry weight
	- particle size distribution:	ÖNORM M 7133 G50
	- max. length of particles:	120 mm
	- expected density:	150 kg/m ³

*) Ash and water free.

Emission data: Justsen does not provide an emission guarantee as flue gas cleaning is outside Justsen scope of supply. The values below are expected values for design fuel:

- SO ₂ :	120 mg/Nm ³ at 6% O ₂ , 101.3 kPa, dry gas (at 0.06% Sulphur in fuel dry basis)
- NO _x :	650 mg/Nm ³ at 6% O ₂ , 101.3 kPa, dry gas (without SNCR system)