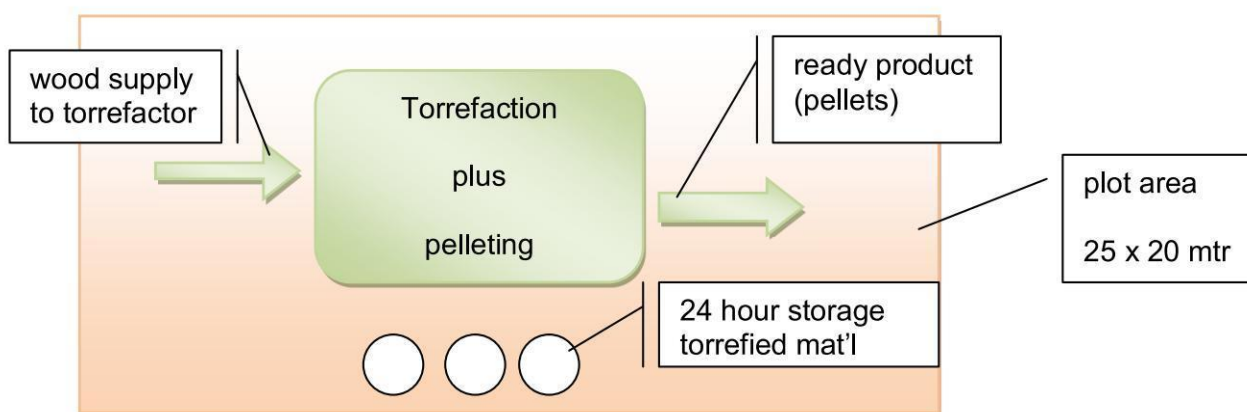


MAIN DESIGN CONDITIONS

Capacity of the Plant			
Mass/Volume Throughput	Shredded and pretreated fresh wood	12.000	kg/h
Moisture Content		20	%
Product discharge	Including average 3% of moisture	60.000	t.p.a.
Operational Hours	Minimum amount continuous operation without maintenance hours	7.500	h.p.a.
Dimensions of the feed	90% not bigger then	6 x 50	mm
	Bulk density	215	kg/m ³
Max. op. temperatures		< 440	°C
Temperature of solids	Entering the reactor	> 10	°C
Energy consumption	on full capacity	3.220	kW
Site Conditions			
Elevation	Netherlands	0	Mtr
Temperature	Maximum ambient	35	°C
	Minimum ambient	- 10	°C
	Basis for insulation design	25	°C
		0,5	m/s
Humidity		90	%
Wind speed	average	4 – 6	m/s
General Design Data			
Equipment regulations	European standard		
Power	V/Ph/Hz	415/3/50	
Controls	DC/signals	24 / 4 – 20	V/ mA
Process Control	Siemens PLC	SL 7	
Thermocouples	K-Type units	Inconel	
	Alternatively	Zakbuis	
Compressed air	Maximum flowrate at 6 bar(g), min 5 bar	1.500	ltr/min
Steam conditions available	Safety steam	1,4	bar(a)
	Maximum amount	800	kg/h

Orientation Torrefactor



ITEM	DETAIL	VALUE	UNIT	COMMENTS	REV	
Reactor Data – Combustor						
Reactor Size		2.5 m		EBR		
Combustor Power	Nominal	8,2 MW		Thermal	Design value	T
	Minimum	7.4 MW				
Feed Inlet Data	Calorific Value	18,000 kJ/kg		CV of Dry Ash Free Wood. (provided by client)		
	Wood Feed Rate Maximum	1,760 kg/hr				T
	Wood Feed Rate Nominal	1,418 kg/hr		Design value		T
	Wood Feed Rate Minimum	319 kg/hr				T
	Max Diameter	6 mm				
	Max Length	50 mm				
	Shape Factor	0.7				
Feed Details	Moisture	20 % w/w		Wet Basis		G
	Ash	2 % w/w		Wet Basis		
	Temperature	0 °C		Design value		
	Bulk Density	215 kg/m ³				
	Heat Capacity	1.75 kJ/kg.K				
Process Fluid Data	Process Fluid	Products of combustion* and volatiles				
	Inlet Flow from Devolatiliser					
	Maximum	21,540 kg/hr				T
	Inlet Flow from Devolatiliser					
	Nominal	19,185 kg/hr		Design value		P
	Inlet Flow from Devolatiliser					
	Minimum	19,150 kg/hr				T
	Combustion air flow					
	Maximum	11,457 kg/hr				T
	Combustion air flow					
	Nominal	11,273 kg/hr		Design value		T
	Combustion air flow					
	Minimum	10,111 kg/hr				T
Combustion Air Fan Design Flow	12,000 kg/hr		With design allowance of 6%		T	
Recycle gas flow						
Maximum	6,464 kg/hr				T	
Recycle gas flow						
Nominal	6,213 kg/hr		Design value		T	
Recycle gas flow						
Minimum	6,050 kg/hr				T	
Recycle Gas Fan Design Flow	7,000 kg/hr		With design allowance of 13%		T	

* Products of combustion includes sulphur oxides and chlorides