

Pacific Class Wood Gasifier

- Gasifies up to 45 kg of wood/hour
- Sustaining the following range of power output:

Spark ignition engine

Shaft power: to 37.8kw (50.7hp)
Electrical power: to 34kw

Dual fuel, diesel engine

Shaft power: to 47.8kw (60.7hp)
Electrical power: to 40.8kw

(Actual power output is determined by engine specification. Optimum engine size is 6 litres)

Features

- Wood fuel hopper, 200 litre capacity, power agitated and thermally insulated.
- Twin fan, air cooled gas conditioning system designed for easy cleaning
- Quick change, sawdust gas filter with washable, final safety filter element (Rice husk or pulverised plant material may also be used).
- Change over valve
- Start up, suction fan complete
- Test flame, burner nozzle
- Hearth and filter manometers
 - Hearth, gas exit temperature gauge
 - Space frame chassis with built in steps and operators platform
 - 6 metres of 80mm PVC pipeline
 - Operating instructions

Dimensions

Length 2616 mm	Gasifier weight 900 kg
Width 1160mm	Shipping volume 11.66 cubic metres
Height 2870 mm	Shipping weight 1500 kg

This plant incorporates an automatically timed 0.37 KW electric motor for fuel agitation. It generally operates for about 5 seconds every 3 to 5 minutes.

The Start up fan is powered by a 0.37 KW electric motor, which normally operates for 3 to 5 minutes daily while the engine is running initially on liquid fuel as the gasifier warms up to operating temperature. A small petrol engine can also be used for this function. when the main engine runs on producer gas only.

A maximum of three (3) Pacific Class gasifiers may be manifolded together to obtain larger gas volume.

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Specification

Type	Downdraught
Maximum wood consumption	45kg/hour
Maximum gas production (in continuous operation)	98.3 Nm ³ /hour
Minimum gas production	24.6Nm ³ /hour
Gas heating maximum load	5030kJ/Mn ³
Gas heating value 60% load	4980kJ/Mn ³
Maximum fuel moisture content	24% (dry basis)
Maximum fuel ash content	2%
Fuel Size distribution	Assessed during commissioning
Minimum bulk fuel density	200 kg/m ³ (estimated and variable)
Type of ash removal system	Manual
Ash amount produced	0.055 kg ash/kg fuel (estimated)
Gasifier efficiency at maximum load	71%
Gasifier efficiency at 60% load	70%
Gasifier power consumption	0.992 kW/hour (approx)
Gasifier start up time	5 minutes
Suitable fuels	Wood coconut shells, corn cobs (no other fuel suitable)

Gas treatment section

Type Baffled settling chamber, multi cyclone, precipitation by condensation, volume filtration, impingement filtration.

Filter medium Sawdust plus washable reusable cellular sheet as final safety filter.

Filter efficiency (directly related to the size of sawdust particle used)

@ maximum flow rate of 95 Nm ³ /hour	88.5%
@ minimum flow rate of 53 Nm ³ /hour	93.7%

Cleaning	Manual
Maintenance requirements	0.00375 labour hours/kW
Condensate production at maximum load	Variable under different site conditions

Gas tar content after gas treatment section None visible in equipment or engine, across gasifier operating range.

Gas dust content after gas treatment section Acceptable to engine manufacturer, proven by site testing.