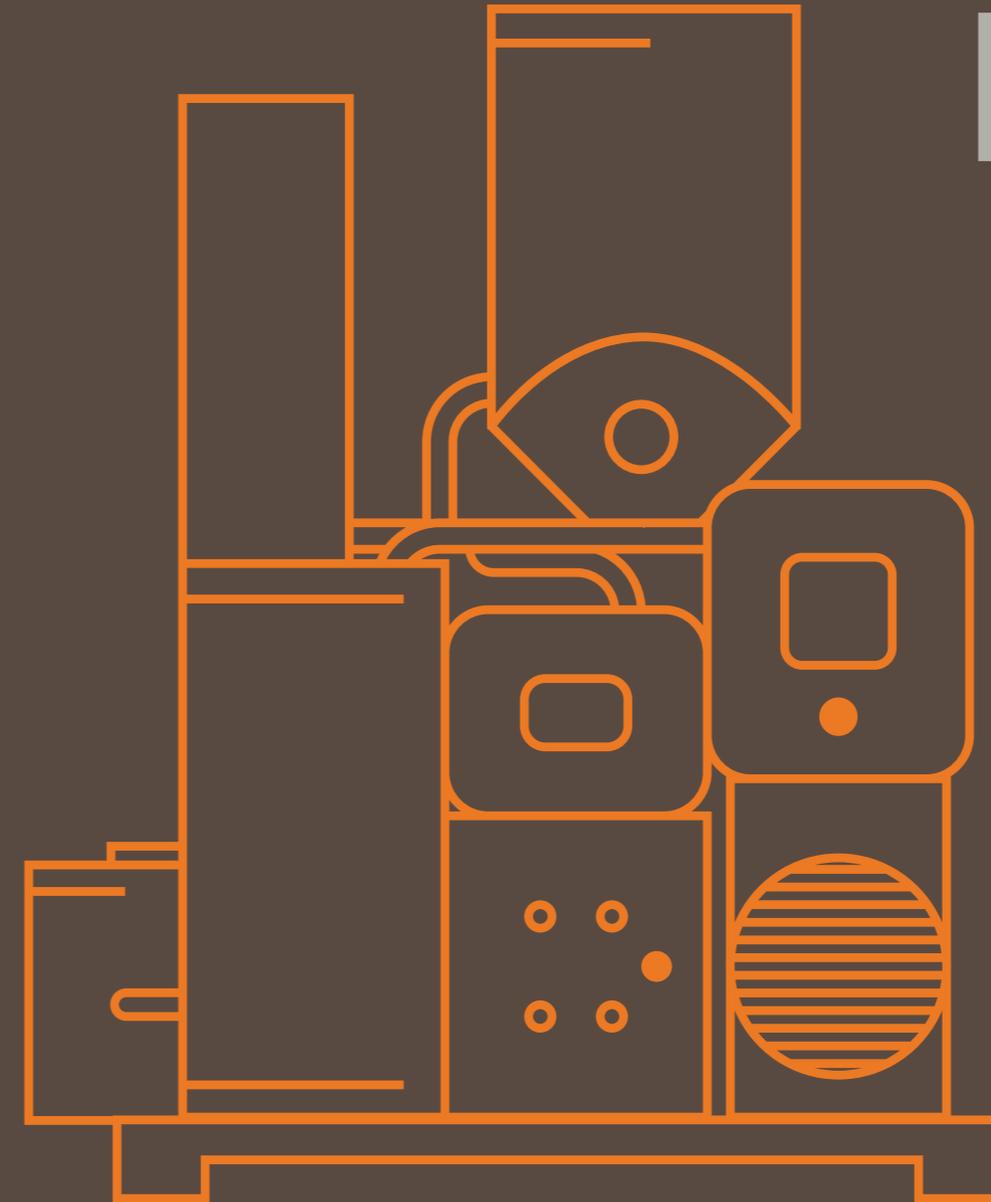


# PP30



## Solving Global Warming

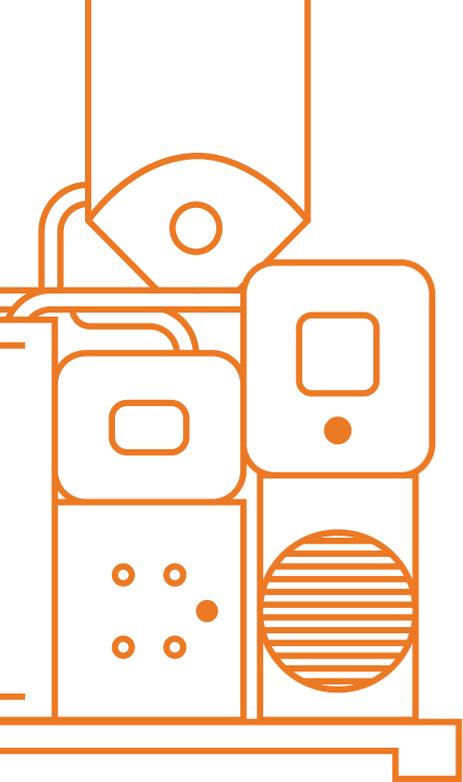
Biomass-based solutions to climate change are of unique interest in that the hardest problem –the capture and storage of atmospheric CO<sub>2</sub>–is already solved and globally installed at scale in the form of plant photosynthesis. We don't have to start from scratch, as with expensive direct capture of atmospheric CO<sub>2</sub>; we only have to process the biomass in some form that prevents the captured CO<sub>2</sub> from returning to atmosphere. We do this by producing Biochar as part of our gasification process for energy production. When mixed with soil, the carbon in the biochar can be sequestered from the atmosphere for centuries or more, making the Power Pallet one of the only carbon-negative technologies currently ready for global deployment.



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**ALL POWER LABS**  
 Carbon Negative Power & Products



# PP30

## Spec Sheet

### SHIPPING

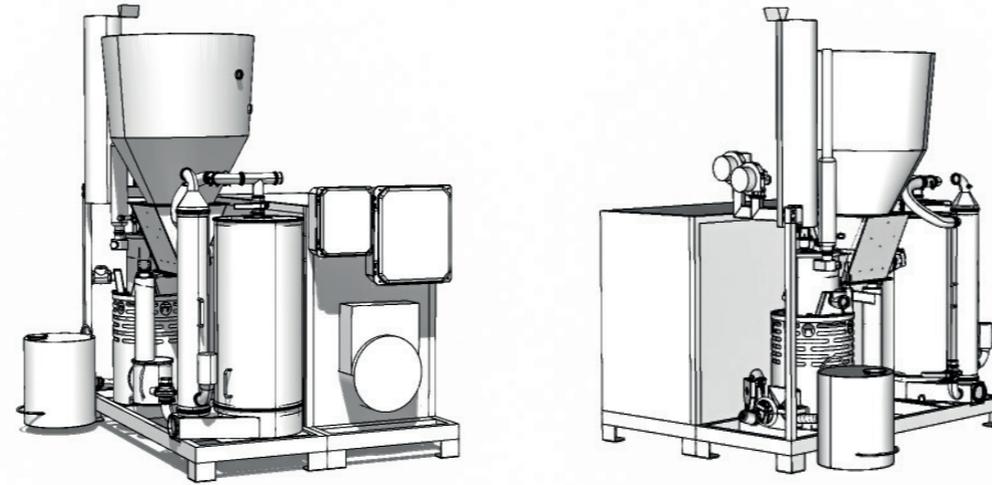
<b>Dimensions</b>	<b>Main crate</b>	1.83 x 1.47 x 1.40 m 72 x 58 x 55 inches
	<b>Hopper crate</b>	83 x 83 x 114 cm 33 x 33 x 45 inches
<b>Weight</b>	<b>Main crate</b>	1,350 kg - 2,976 lbs
	<b>Hopper crate</b>	91 kg - 200 lbs

### PERFORMANCE ELECTRICAL OUTPUT

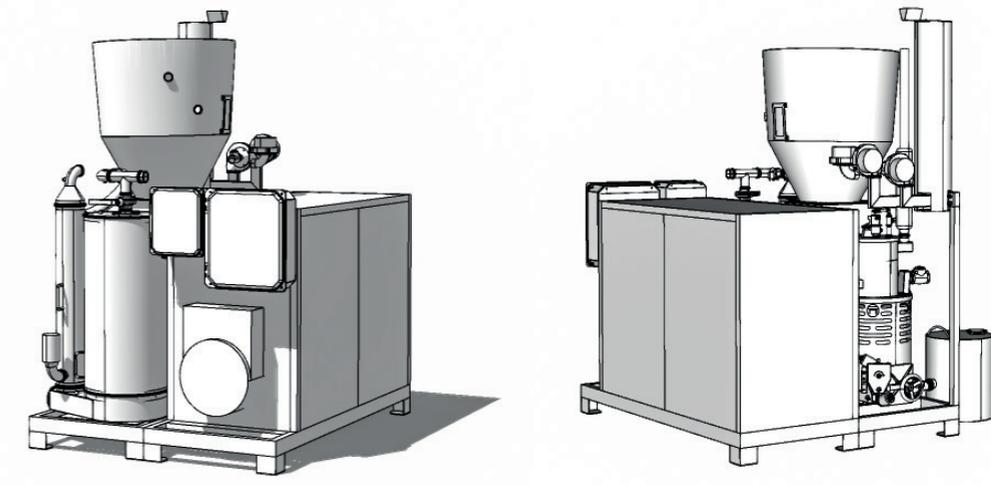
<b>Continuous Power Rating</b>	25 kW @ 50/60 Hz
<b>Sound Level @ 7 meters</b>	75 db
<b>Biomass Consumption</b>	1.0 kg/kWh (dry biomass)
<b>Runtime per hopper fill: Approximate @ 250kg/m<sup>3</sup> feedstock density</b>	5 kW: 12 hours 10 kW: 6 hours 15 kW: 4 hours 25 kW: 2.4 hours
<b>Max. continuous operation</b>	>12 hours
<b>Start up time</b>	10-15 minutes

### PERFORMANCE THERMAL ENERGY OUTPUT

<b>Maximum Outlet Temperature</b>	90°C (190°F)
<b>Return Temperature Range</b>	40°C - 90°C (160°F - 190°F)
<b>Standard Temperature Difference</b>	10°C (50°F)
<b>Heating Water Volume Flow</b>	Variable
<b>Max Heating Water Volume Flow</b>	50 gpm
<b>Maximum Thermal Output</b>	50 kW



two separate skids for gas making and powertrain



### GASIFIER

<b>Type</b>	APL v5 Patented Multistage heat recycling downdraft gasifier
<b>Materials</b>	304 Stainless, 310 Stainless, 321 Stainless, 316 Stainless, Mild Steel
<b>Hearth</b>	Coated Ceramic
<b>Char-Ash Removal</b>	Automated removal from reactor to 12-hour batch vessel.
<b>Fuel Feed</b>	Automated from hopper to reactor
<b>Hopper Capacity</b>	333 liters / 88 gallons
<b>Hopper Filling</b>	Batch—manual refilling while operating OPTIONAL CONTINUOUS FEED HOPPER SYSTEM AUTOMATES FILLING
<b>Minimum maintenance cycle</b>	~12 hours
<b>Control system</b>	On-board automation

### GENERATOR

<b>Type</b>	Marathon 284CSL1542 wire reconfigurable
<b>AVR</b>	DSE A106 MK II
<b>Available Voltages</b>	120-277, 240-480V AC
<b>Available Topologies</b>	3 phase: Series Star, Parallel Star, Series Delta, Parallel Delta, 1 phase: Double Delta (Base Model)
<b>Total Harmonic Distortion</b>	<5%
<b>Motor Surge Starting Capacity</b>	>300%
<b>Genset Starting</b>	Manual Handover
<b>Maximum step-load</b>	50% of rated power
<b>Generator efficiency</b>	92%

### ENGINE

<b>Type</b>	Ashok Leyland /Hino
<b>Cylinder count</b>	4
<b>Displacement</b>	4.0 liter
<b>Compression Ratio</b>	12:1
<b>RPM</b>	1500 @ 50hz, 1800 @ 60Hz
<b>Valve Configuration</b>	Overhead valves, Pushrods
<b>Engine block / Cylinder head</b>	Cast Iron w/ hardened exhaust valve inserts
<b>Ignition</b>	Coil over plug (COP)
<b>Oil capacity</b>	8L 15 W-40
<b>Oil Maintenance Interval</b>	500 hrs
<b>Coolant capacity</b>	15 L
<b>Auto-shutdown</b>	Low oil pressure High coolant temperature
<b>Starter</b>	12 V Starter
<b>Charging system</b>	switch mode power supply from AC genhead
<b>System voltage</b>	12 V DC
<b>Recommended battery</b>	75 Ah, 880 CCA Marine
<b>Battery tray dimensions</b>	20 x 30 cm / 10 x 12 inches
<b>Speed control</b>	Electronic governor Woodward L-series
<b>Mixture control</b>	Automated with Wide Band Oxygen Sensor