



POWER PALLET - PP20



PP20 - Basic Configuration

RENEWABLE
AFFORDABLE
ON-DEMAND
POWER

The **Power Pallet** is a renewable power solution that is a sensible answer to a critical global problem. It meets the expectations for portable on-demand generators, is proudly made in California and available now at an affordable price.

APL's unique patented multi-stage gasification architecture, in combination with our innovative gasifier-engine thermal integration, our electronic control system and waste-heat recycling, gives the Power Pallet unprecedented biomass fuel flexibility and efficiency.

The Power Pallet uses agricultural and forestry waste materials that can be readily sourced very near the point of generation. It is compact and portable, easily transported in the bed of a pickup truck to where the fuel is and where the power is needed. Unlike diesel fuel or gasoline, this fuel is often available at little or no cost, and most importantly, depending on feedstock selection and use details, the Power Pallet is capable of the carbon negative operation.

PERFORMANCE

Continuous Power Rating:	15 kW@50 Hz/18 kW@60 Hz
Sound Level @ 30 feet:	85 dB(A)
Biomass Consumption:	1.2 kg/kWh, 2.5 lbs/kWh
Run Time per Hopper Fill: approximate @ 250 kg/m ³ fuel density	5 kW: 10 hrs 10 kW: 5 hrs 15 kW: 3 hrs
Max. Continuous Operation:	>12 hours
Start Up Time:	10-20 min.

OPERATING CONDITIONS

Ambient Temperature:	5-40°C/40-100°F
Humidity:	5-95% RH
Installed Footprint: without ash vessel or grid tie	1.36 x 1.36 m 53.5 x 53.5 inches
Site Requirements:	Well-Ventilated protected from rain & direct sun

FEEDSTOCK BIOMASS

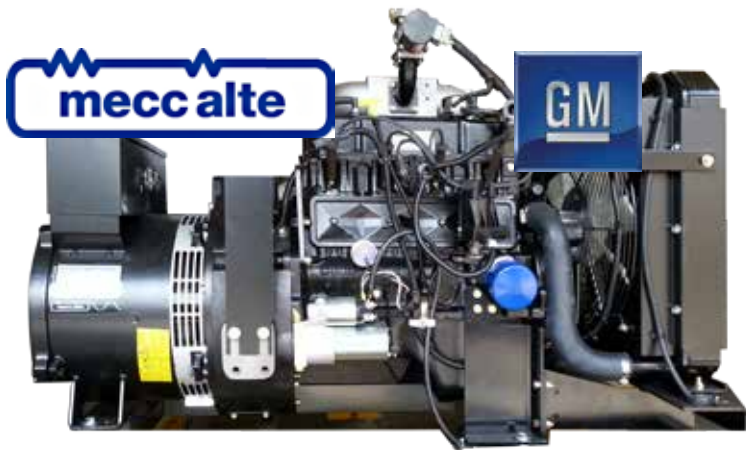
Size:	12-40 mm/0.5-1.5 in.
Moisture Content:	5-30% dry basis
Approved and Tested w/ normal operating procedures	Nut Shells (e.g. Walnut, Hazelnut) Softwood Chips (e.g. Fir, Pine) Hardwood Chips (e.g. Oak, Ash)
Approved and Tested w/ increased operating effort	Corn Cobs Coconut Shells Palm Kernel Shells
Not Approved dangerous & voids warranty	Coal Tires Plastic Municipal Solid Waste

SHIPPING

Dimensions:	PP20 - Crated Hopper - Crated	145 x 145 x 140 cm/57 x 57 x 54 in. 83 x 83 x 114 cm/33 x 33 x 45 in.
Weight:	PP20 - Crated Hopper - Crated	700 kg/1550 lbs. 91 kg/200 lbs.

FUEL COST COMPARISON (VARIES by REGION)

FUEL	PRICE RANGE
Diesel/LPG	\$0.40 - \$0.75/kWh
Gasoline	\$0.50 - \$1.00/kWh
Gasified Biomass	\$0.00 - \$0.20/kWh



Mecc Alte NPE32 Genhead

GM Vortec 3.0 I.C. Engine

ALL Power Labs

APL is the global leader in small-scale gasification technology. We make biomass-fueled power generators that are ready for everyday work, to serve real-world, distributed-energy needs. Our compact gasifiers are now at work in over thirty countries, and support research at more than fifty universities around the world.

Our APL team is an unusual combination of hands-on fabricators and university-trained scientists and engineers. The result is a powerful combination of technical ability and physical know-how for developing innovative energy solutions.

We are deeply committed to supporting and developing biomass energy conversion by curating and disseminating comprehensive information and data on gasification science and technology—online, in workshops, and free open house events.

Our facility is in Berkeley, CA. Please contact us to arrange a visit the next time you are in the Bay Area. We would love to show you around.



WARRANTY

ALL Power Labs products are covered by a 100% money back guarantee. If you buy something & find yourself unimpressed with the value of the product or company, we'll refund all your money (minus shipping costs) within 30 days of delivery. APL directly warrants all parts we manufacture (i.e. gasifiers, electronics, & related components) for two years or 4000 hours, & passes along the OEM warranty for parts we source & configure into our end products (e.g. engines & genheads). See <http://allpowerlabs.com> for full details.

GASIFIER

Type:	APL v5 Patented Thermally Integrated Downdraft
Materials:	304 SS/310 SS/ 321 SS/mild steel
Hearth:	Coated Ceramic
Ash Removal:	Automated 12 hour batch vessel
Fuel Feed:	Automated
Hopper Capacity:	0.33 m ³ /88 gallons
Hopper Filling:	Batch - refill while operating
Min. Maintenance Cycle:	~ 12 hours
Control System:	On-Board Automation

ENGINE

Type:	GM Vortec
Displacement:	3.0 liter
Compression Ratio:	10.25:1
RPM:	1500@50 Hz 1800@60 Hz
Valve Configuration:	Overhead, Pushrod
Engine Block/Cyl. Head:	Cast Iron w/ exh. valve inserts
Ignition:	Solidstate Distributor
Spark Timing:	Fixed
Lube Oil Capacity:	5 quarts - including filter
Coolant Capacity:	11.4 L, 12 qts - incl. radiator
Auto Shutdown:	Low Oil Pressure High Coolant Temperature
Starter:	Reduction Gear PG-260L
Charging System:	Delco-Remy 7-SI (70 A)
System Voltage:	12 V DC
Recommended Battery:	75Ah, 880 CCA Marine
Battery Footprint:	250 x 300 mm/10 x 12 in.
Speed Control:	Electronic Governor Woodward L-Series
Oxygen Sensor:	Bosch Wide Band

GENERATOR

Type:	Mecc Alte NPE32-E/4 12 wire
AVR:	Mecc Alte DSR
Available Voltages:	190-277, 380-480 V AC
Available Topologies:	Series Delta/Star, Parallel Delta
Total Harmonic Distortion:	<5%
Genset Starting:	Manual Handover
Maximum Step Load:	50% of rated power

All specifications are subject to change without notice