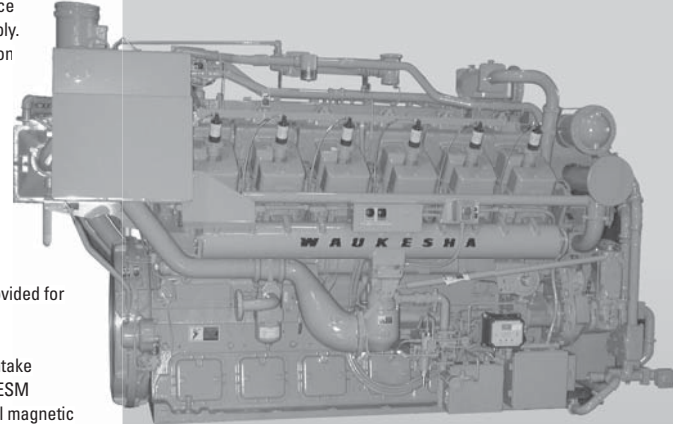


**STANDARD EQUIPMENT**

- AIR CLEANER** – Two, 3" dry type filter with hinged rain shield and service indicator.
- BARRING DEVICE** – Manual.
- BATTERY BOX** – Ship loose battery box designed to accommodate two series 31 12 VDC batteries. Includes power disconnect switch and 20 foot (6.1 m) cable for connection to ESM Power Distribution Box.
- BEARINGS** – Heavy duty, replaceable, precision type.
- BREATHER** – Self regulating, closed system.
- CONNECTING RODS** – Drop forged steel, rifle drilled.
- CONTROL SYSTEM** – Waukesha Engine System Manager (ESM) integrates spark timing control, speed governing, detonation detection, start-stop control, diagnostic tools, fault logging and engine safeties. Engine Control Unit (ECU) is central brain of the control system and main customer interface. Interface with ESM is through 25 foot (7.6 m) harness to local panel, through MODBUS RTU slave connection RS-485 multidrop hardware, and through the Electronic Service Program (ESP). Customer connections are only required to the local panel, fuel valve, and 24V DC power supply. Compatible with Woodward load sharing module. ESM meets Canadian Standards Association Class I, Division 2, Group D, hazardous location requirements. ESM controlled prechamber logic.
- CRANKCASE** – Integral crankcase and cylinder frame. Main bearing caps drilled and tapped for temperature sensors. Does not include sensors.
- CRANKSHAFT** – Counterweighted, forged steel, seven main bearings, and dynamically balanced.
- CYLINDERS** – Removable bainitic cast iron wet type cylinder liners, chrome plated on outer diameter.
- CYLINDER HEADS** – Twelve interchangeable. Two hard faced intake and two hard faced exhaust valves per cylinder. Hard faced intake and exhaust valve seat inserts. Roller valve lifters and hydraulic push rods. Includes prechamber and related fuel control valves.
- ELECTRONIC SERVICE PROGRAM (ESP)** – Microsoft® Windows-based program provided on CD-ROM for programming and interface to ESM. Includes E-Help for troubleshooting any ESM faults. Serial harness is provided for connection of a customer supplied laptop to the ECU RS-232 port.
- ENGINE ROTATION** – Counterclockwise when facing flywheel.
- ENGINE MONITORING DEVICES** – Factory mounted and wired sensors for lube oil pressure and temperature; intake manifold temperature and pressure; overspeed; and jacket water temperature; all accessible through ESM. ESM continually monitors combustion performance through accelerometers to provide detonation protection. Dual magnetic pick-ups are used for accurate engine speed monitoring. ESM provides predictive spark plug diagnostics as well as advanced diagnostics of engine and all ESM sensors and logs any faults into non-volatile flash memory.
- EXHAUST THERMOCOUPLES** – 14 K-type thermocouples. One for each individual cylinder and one pre-turbine for each bank and 25 foot (7.6 m) harness.
- EXHAUST OUTLET** – Single vertical at rear. Flexible stainless steel connection with 8" (203 mm) pipe flange.
- FLYWHEEL** – Approx.  $WR^2 = 155000 \text{ lb-in}^2$ ; with ring gear (208 teeth), machined to accept two drive adapters: 31.88" (810 mm) pilot bore, 30.25" (768 mm) bolt circle, (12) 0.75"-10 tapped holes; or 28.88" (734 mm) pilot bore, 27.25" (692 mm) bolt circle, (12) 0.625"-11 tapped holes and (12) 0.75"-10 tapped holes.
- FLYWHEEL HOUSING** – No. 00 SAE.
- FUEL SYSTEM** – Single 3" ANSI flange fuel inlet connection. Dual natural gas, 4" (102 mm) duplex updraft carburetors. Two mounted Mooney Flowgrid 250, 2" (51 mm) gas regulators, 43 – 60 psi (296 – 414 kPa) gas inlet pressure required. Prechamber fuel system and control logic. 10 foot (3 m) harness provided for ESM control of customer supplied fuel shutoff valve.
- GOVERNOR** – Electric throttle actuator controlled by ESM with throttle position feedback. Governor tuning is performed using ESP. ESM includes option of a load-coming feature to improve engine response to step loads.
- IGNITION SYSTEM** – Ignition Power Module (IPM) controlled by ESM, with spark timing optimized for any speed-load condition. Dual voltage energy levels automatically controlled by ESM to maximize spark plug life.
- INTERCOOLER** – Air-to-water.
- LEVELING BOLTS**
- LIFTING EYES** – Requires 9.5 ton Working Load Limit (W.L.L.) anchor shackles.
- LUBRICATION** – Full pressure, gear type pump. Engine mounted full flow lube oil micro-fiberglass filters. MICROSPIN® bypass filter, engine mounted. Air/gas motor driven prelube pump, requires final piping.
- MANIFOLDS** – Exhaust, (2) water cooled.
- OIL COOLER** – Shell and tube type, with thermostatic temperature controller and pressure regulating valve. Factory mounted.
- OIL PAN** – Deep sump type. 190 gallon (719 L) capacity including filter and cooler.
- PAINT** – Oilfield orange primer.
- PISTONS** – Aluminum with floating pin. Oil cooled.
- SHIPPING SKID** – For domestic truck or rail.
- TURBOCHARGERS** – Two, dry type. Wastegate controlled.
- VIBRATION DAMPER** – Two, viscous type. Guard included with remote mounted radiator or no radiator.
- WATER CIRCULATING SYSTEM, AUXILIARY CIRCUIT** – Belt driven water circulating high capacity pump for intercooler and lube oil cooler. See S6543-38 performance curve for use with standard 10" diameter crankshaft pulley. Includes thermostatic valve.
- WATER CIRCULATING SYSTEM, ENGINE JACKET** – Belt driven water circulating pump, cluster type thermostatic temperature regulating valve, full flow bypass type. Flange connections and mating flanges for (2) 4" (102 mm) inlets and (1) 5" (127 mm) outlet.

**VHP® Series  
Gas Engine  
Extender Series®**

886 - 1547 BHP  
(660 - 1154 kWb)



Engine shown without Extender Series Options.

**Model L7042GL  
with ESM®**

Turbocharged and Intercooled, Lean Combustion, Twelve Cylinder, Four-Cycle Gas Fueled Engine

**SPECIFICATIONS**

<b>Cylinders</b>	V 12	<b>Lube Oil Capacity</b>	190 gal.
<b>Piston Displacement</b>	7040 cu. in. (115 L)	<b>Starting System</b>	125 - 150 psi air/gas
<b>Bore &amp; Stroke</b>	9.375" x 8.5" (238 x 216 mm)	<b>Dry Weight</b>	24/32V electric 21,000 lb. (9525 kg)
<b>Compression Ratio</b>	10.5:1	<b>Jacket Water</b>	
<b>System Capacity</b>	107 gal. (405 L)		



## POWER RATINGS: L7042GL VHP® GAS ENGINES

Model	I.C. Water Inlet Temp. °F (°C) (Tcra)	C.R.	Brake Horsepower (kWb Output)				
			800 rpm	900 rpm	1000 rpm	1100 rpm	1200 rpm
L7042GL	85° (29°)	10.5:1	928 (692)	1160 (865)	1289 (961)	1418 (1057)	1547 (1154)
L7042GL	130° (54°)	10.5:1	886 (661)	1110 (828)	1233 (919)	1357 (1012)	1480 (1104)

**Rating Standard:** All models: Ratings are based on ISO 3046/1-1995 with mechanical efficiency of 90% and auxiliary water temperature Tcra (clause 10.1) as specified above limited to ± 10° F (± 5° C). Ratings are also valid for SAE J1349, BS5514, DIN6271 and AP17B-11C standard atmospheric conditions.

**ISO Standard Power/Continuous Power Rating:** The highest load and speed which can be applied 24 hours a day, seven days a week, 365 days per year except for normal maintenance. It is permissible to operate the engine at up to 10% overload, or maximum load indicated by the intermittent rating, whichever is lower, for two hours in each 24 hour period.

All natural gas engine ratings are based on a fuel of 900 Btu/ft<sup>3</sup> (35.3 MJ/nm<sup>3</sup>) SLHV, with a 91 WKI®.

For conditions or fuels other than standard, contact the Dresser Waukesha Application Engineering Department.

## PERFORMANCE: L7042GL VHP® GAS ENGINES

NO <sub>x</sub> Settings	English	130° F ICW		85° F ICW		NO <sub>x</sub> Settings	Metric	54° C ICW		29° C ICW	
	RPM	1200	1000	1200	1000		RPM	1200	1000	1200	1000
1.5 g NO <sub>x</sub>	Power (Bhp)	1480	1233	1547	1289	1.5 g NO <sub>x</sub>	Power (kWb)	1104	919	1154	962
	BSFC (Btu/bhp-hr)	7135	6850	7160	6865		BSFC (kJ/kW-hr)	10089	9686	10124	9707
	NO <sub>x</sub> (grams/bhp-hr)	1.50	1.50	1.50	1.50		NO <sub>x</sub> (g/nm <sup>3</sup> )	0.62	0.62	0.62	0.62
	CO (grams/bhp-hr)	2.65	2.65	2.65	2.65		CO (g/nm <sup>3</sup> )	1.09	1.09	1.09	1.09
	NMHC (grams/bhp-hr)	0.70	0.80	0.80	0.90		NMHC (g/nm <sup>3</sup> )	0.29	0.41	0.33	0.37

### NOTES:

- Fuel consumption and exhaust emissions are based on ISO 3046/1-1995 standard reference conditions and commercial quality natural gas of 900 Btu/ft<sup>3</sup> (35.38 MJ/m<sup>3</sup> [25, V(0: 101.325)]) saturated lower heat value, Waukesha Knock Index® of 91 and 93% methane content by volume. ISO 3046/1-1995 standard reference conditions are 77°F (25°C) ambient temperature, 29.54 inches Hg (100 kPa) barometric pressure, 30% relative humidity (1kPa/0.3 inches Hg water vapor pressure).
- S.I. exhaust emissions are corrected to 5% O<sub>2</sub> (0°C and 101.325 kPa).
- Data will vary due to variations in site conditions. For conditions and/or fuels other than standard, consult the Dresser Waukesha Application Engineering Department.
- Fuel consumption based on ISO 3046/1-1995 with a +5% tolerance for commercial quality natural gas having a 900 Btu/ft<sup>3</sup> saturated low heat valve

Consult your local Waukesha Distributor for system application assistance. The manufacturer reserves the right to change or modify without notice, the design or equipment specifications as herein set forth without incurring any obligation either with respect to equipment previously sold or in the process of construction except where otherwise specifically guaranteed by the manufacturer.



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