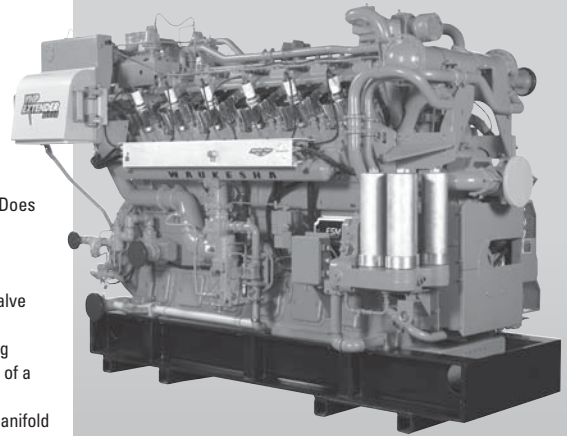


**STANDARD EQUIPMENT**

- AIR CLEANER** – Two, 3" dry type filter with hinged rain shield and service indicator.
- AIR FUEL RATIO CONTROL (AFR)** – Integrated ESM® - AFR catalyst rich-burn control, main fuel gas regulator actuators, exhaust O<sub>2</sub> sensor(s), and post turbocharger exhaust thermocouple. Factory mounted and tested. AFR maintains emissions through load and speed changes. The ESM AFR meets Canadian Standards Association Class 1, Division 2, Group D hazardous location requirements. Note: For dual fuel applications, ESM AFR system will control the primary fuel source only.
- 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 1, Division 2, Group D, hazardous location requirements.
- CRANKCASE** – Integral crankcase and cylinder frame. Main bearing caps drilled and tapped for temperature sensors. Does not include sensors.
- CRANKSHAFT** – Forged steel, seven main bearings, counterweighted and dynamically balanced.
- CYLINDERS** – Removable wet type cylinder liners.
- CYLINDER HEADS** – Twelve interchangeable. Four valves per cylinder, with water cooled exhaust valve seats. Roller valve lifters and hydraulic push rods. Flange mounted ignition coils.
- 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 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.
- ENGINE ROTATION** – Counterclockwise when facing flywheel.
- EXHAUST OUTLET** – Single vertical at rear. Flexible stainless steel connection with 8" (203 mm) pipe flange.
- FLYWHEEL** – Approx. WR<sup>2</sup> = 155000 lb-in<sup>2</sup>; 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. Two natural gas, 4" (102 mm) updraft carburetors and two mounted Mooney Flowgrid 250, 2" (51 mm) gas regulators. 30-60 psi (207-414 kPa) fuel inlet pressure required. 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. Shielded ignition components that meet Canadian Standard Association Class 1, Division 2, Group D hazardous location requirements.
- 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. Lube oil strainer, 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. 8.2:1 compression ratio.
- SHIPPING SKID** – For domestic truck or rail.
- TURBOCHARGERS** – (2) with water-cooled bearing housing and differential wastegates.
- VIBRATION DAMPER** – Viscous type.
- 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.
- WATER CIRCULATING SYSTEM, ENGINE JACKET** – Belt driven water circulating pump. Cluster type thermostatic temperature regulating valve, full flow bypass type with 165°-170° F (74°-77°C) start to open thermostats. Flange connections and mating flanges for (2) 4" (102 mm) inlets and (1) 5" (127 mm) outlet.

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

**920 - 1380 BHP  
(686 - 1029 kWb)**



Engine shown with options.

**Model L5794GSI  
with ESM®**

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

**SPECIFICATIONS**

<b>Cylinders</b>	<b>Lube Oil Capacity</b>
V 12	190 gal.
<b>Piston</b>	(719 L)
<b>Displacement</b>	<b>Starting System</b>
5788 cu. in.	125 - 150 psi
(95 L)	air/gas
<b>Bore &amp; Stroke</b>	24/32 V electric
8.5" x 8.5"	<b>Dry Weight</b>
(216 x 216 mm)	22,750 lb.
<b>Compression Ratio</b>	(10,320 kg)
8.2:1	
<b>Jacket Water</b>	
<b>System Capacity</b>	
107 gal.	
(405 L)	



## POWER RATINGS: L5794GSI VHP® SERIES FOUR® GAS ENGINE

Model	I.C. Water Inlet Temp. °F (°C) (T <sub>cra</sub> )	C.R.	Brake Horsepower (kWb Output)				
			800 rpm	900 rpm	1000 rpm	1100 rpm	1200 rpm
L5794GSI	130° (54°)	8.2:1	920 (686)	1035 (772)	1150 (858)	1265 (943)	1380 (1029)

**Rating Standard:** All models: Ratings are based on ISO 3046/1-1995 with mechanical efficiency of 90% and auxiliary water temperature T<sub>cra</sub> (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.

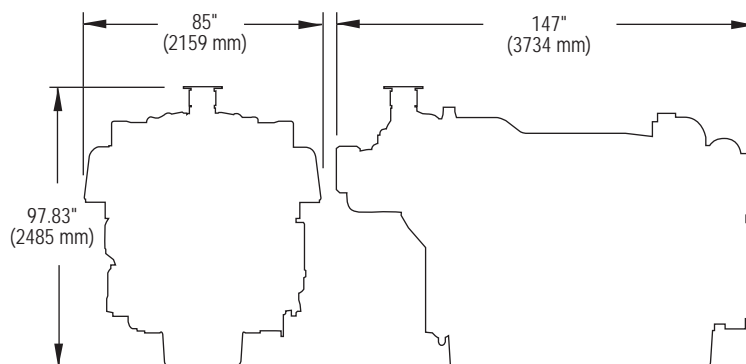
## PERFORMANCE: L5794GSI VHP® SERIES FOUR® GAS ENGINE

	English	130° F I.C. Water Temperature			Metric	54° C I.C. Water Temperature	
	RPM	1200	1000		RPM	1200	1000
Catalyst Settings	Power (Bhp)	1380	1150	Catalyst Settings	Power (kWb)	1029	858
	BSFC (Btu/bhp-hr)	7510	7350		BSFC (kJ/kW-hr)	10625	10395
	NO <sub>x</sub> (grams/bhp-hr)	13.9	15.0		NO <sub>x</sub> (g/nm <sup>3</sup> )	5.2	5.6
	CO (grams/bhp-hr)	8.8	8.8		CO (g/nm <sup>3</sup> )	3.3	3.2
	NMHC (grams/bhp-hr)	0.3	0.3		NMHC (g/nm <sup>3</sup> )	0.10	0.11

### 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 value

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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