

## STANDARD EQUIPMENT

**AIR CLEANER** – Engine mounted. Dry type, including pad type precleaner and service indicator. For sheltered installation and average dust environment.

**BARRING DEVICE** – Manual.

**BEARINGS** – Heavy duty, replaceable, precision type.

**BREATHER** – Closed system.

**CONNECTING RODS** – Drop forged steel, rifle drilled.

**CONTROL SYSTEM** – Pneumatic. Includes pilot operated valves for air start and prelube. Engine mounted control panel with two push button valves. Pilot operated air start valves omitted when starter is not furnished by Waukesha.

**CRANKCASE** – Integral crankcase and cylinder frame. Main bearing caps drilled and tapped for temperature sensors. Does not include sensors.

**CRANKSHAFT** – Counterweighted, forged steel, ten main bearings, and dynamically balanced.

**CRANKSHAFT PULLEY, FRONT SEGMENT** – Ten inch (254 mm) pitch diameter pulley, with six c-section drive grooves, front end drive assembly, and outboard bearing. Outboard bearing not mounted. Includes engine mounted stub shaft and coupling guard.

**CYLINDERS** – Removable wet type cylinder liners, chrome plated on outer diameter.

**CYLINDER HEADS** – Sixteen 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.

**ENGINE ROTATION** – Counterclockwise when facing flywheel.

**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) .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 GUARD

**FUEL SYSTEM** – Dual, natural gas, 4" (102 mm) duplex downdraft. Two Fisher Model 99 2" (51 mm) gas regulators, 25 psi (172 kPa) inlet pressure required.

**GOVERNOR** – Woodward UG-8LD hydraulic lever type, with friction type speed control. Mounted on right hand side.

**IGNITION** – Waukesha Custom Engine Control Ignition Module. Electronic digital ignition system. 24V DC power required.

**INSTRUMENT PANEL** – Engine mounted, includes jacket water temperature, lube oil pressure, lube oil temperature, intake manifold compound vacuum pressure, intake manifold temperature gauges, and digital electronic tachometer.

**INTERCOOLER** – Air-to-water.

### LEVELING BOLTS

### LIFTING EYES

**LUBRICATION** – Full pressure. Gear type pump. Full flow filter, 45 gallon (170 litres) capacity, not mounted. Includes flexible connections. Includes lube oil strainer, mounted on engine. Air/gas motor driven prelube pump. Requires final piping.

**MANIFOLDS** – Exhaust, (2) water cooled.

**OIL COOLER** – With thermostatic temperature controller and pressure regulating valve. Not mounted.

**OIL PAN** – Base type. 165 gallon (625 litres) capacity including filter and cooler.

**PAINT** – Oilfield orange primer.

**PISTONS** – Aluminum with floating pin. Standard 8:1 compression ratio. Oil cooled.

**SHIPPING SKID** – Steel for domestic truck or rail.

**TURBOCHARGERS** – Exhaust, (2) water cooled, with single vertical 14" (356 mm) flange at center, and flexible stainless steel exhaust connection.

**VIBRATION DAMPER** – Viscous type. Guard included with remote mounted radiator or no radiator.

### WATER CIRCULATING SYSTEM

**Auxiliary Circuit** – For oil cooler and intercooler. Pump is belt driven from crankshaft pulley.

**Engine Jacket** – Belt driven water circulating pump, 175 – 180° F (79 – 82° C) thermostatic temperature regulating valve, full flow bypass. Flange connections and mating flanges for (2) 4.5" (114 mm) inlets and (1) 6" (152 mm) outlet.

**WAUKESHA CUSTOM ENGINE CONTROL, DETONATION SENSING MODULE (DSM)** – Includes individual cylinder sensors, Detonation Sensing Module, filter and cables. Device is compatible with Waukesha CEC Ignition Module only. Sensors are mounted and wired to engine junction box. Detonation Sensing Module and filter are shipped loose. One 11 ft. cable provided for connection between engine junction box and filter. One each 15 ft. cable provided for connection between filter and DSM and Ignition Module and DSM. One 20 ft. cable provided for power and ground for filter. All cables are shipped loose. Packager is responsible for power supply and ground to the DSM. 24V DC power is required. The DSM meets Canadian Standards Association Class 1, Group D, Division 2, hazardous location requirements.

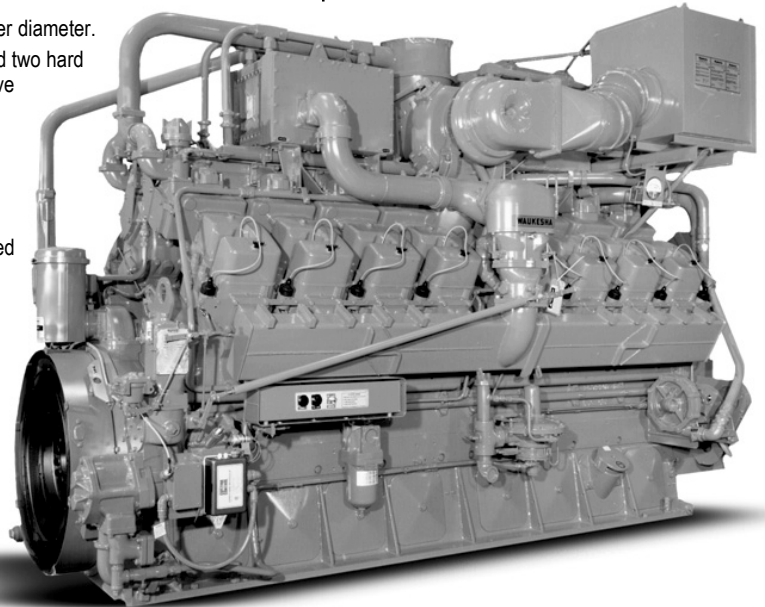
# Waukesha<sup>®</sup>

## VHP

# P9390G/GSI

## VHP™ Series Gas Engine

### 900 - 2063 BHP



**Model P9390G** Naturally Aspirated  
**Model P9390GSI** Turbocharged  
and Intercooled, Sixteen Cylinder, Four-Cycle  
Gas Engine

## SPECIFICATIONS

<b>Cylinders</b> V 16	<b>Lube Oil Capacity</b> 165 gal. (625 L)
<b>Piston Displacement</b> 9388 cu. in. (154 L)	<b>Starting System</b> 125 - 150 psi air/gas 24 V electric
<b>Bore &amp; Stroke</b> 9.375" x 8.5" (238 x 216 mm)	<b>Dry Weight</b> G Models 25,000 lb. (11,340 kg)
<b>Compression Ratio</b> Standard, 8:1 Optional, 10:1	GSI Models 28,750 lb. (13,040 kg)
<b>Jacket Water System Capacity</b> 148 gal. (560 L)	

Waukesha Engine  
 **ISO 9001**  
CERTIFIED

# POWER RATINGS: P9390G/GSI VHP SERIES GAS ENGINES

## Brake Horsepower (kWb Output)

Model	I.C. Water Inlet Temp. °F (°C) (T <sub>cr</sub> )	C.R.	800 rpm	900 rpm	1000 rpm	1100 rpm	1200 rpm
P9390GSI	85° (29°)	8:1	1375 (1025)	1547 (1154)	1719 (1282)	1891 (1410)	2063 (1538)
P9390GSI	130° (54°)	8:1	1314 (980)	1478 (1102)	1642 (1224)	1806 (1347)	1970 (1469)
P9390G	—	10:1	976 (738)	1090 (813)	1194 (890)	1289 (961)	1366 (1019)

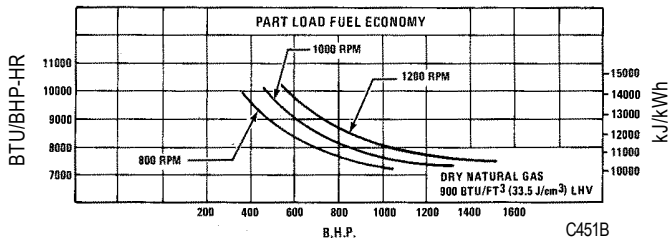
**Rating Standard:** All models: Ratings are based on ISO 3046/1-1995 with mechanical efficiency of 99% and auxiliary water temperature T<sub>cr</sub> (clause 10.1) as specified above limited to ± 10° F (± 5° C). Ratings are also valid for SAE J1349, BS5514, DIN6271 and AP17B-11C standard atmospheric 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.

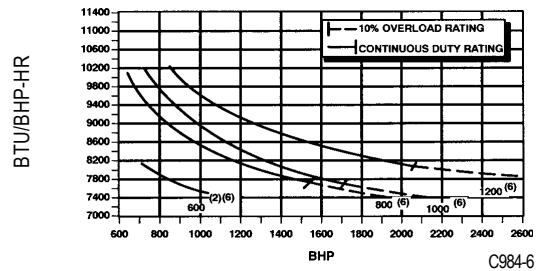
All natural gas engine ratings are based on a fuel of 900 Btu/ft<sup>3</sup> (35.3 MJ/nm<sup>3</sup>) SLHV value, with a 91 Waukesha Knock Index<sup>®</sup>.

For conditions or fuels other than standard, the Waukesha Engine Sales Engineering Department.

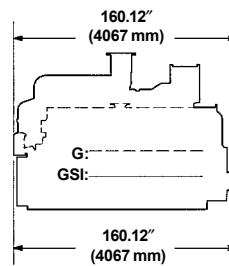
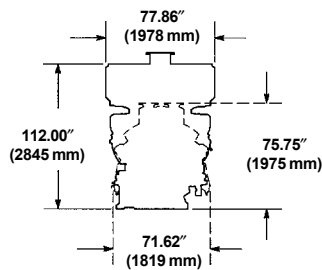
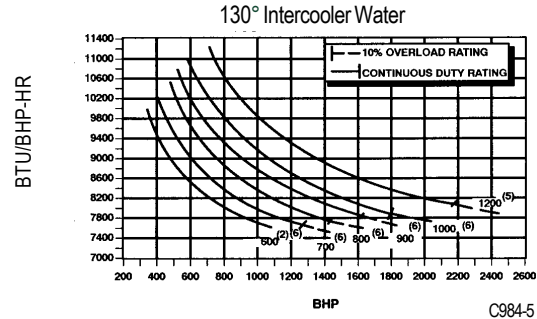
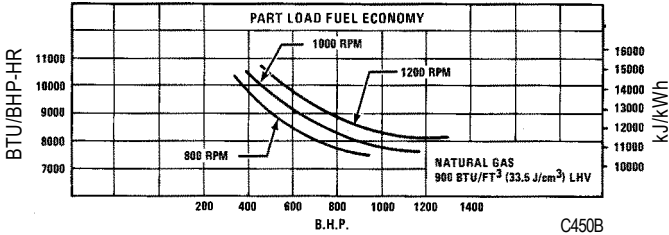
**P9390G Engine**  
Naturally Aspirated  
10:1 Compression Ratio - Natural Gas



**P9390GSI Engine**  
Turbocharged-Intercooled - 8:1 Compression Ratio  
85° Intercooler Water



8:1 Compression Ratio - Natural Gas



**Waukesha**

**WAUKESHA ENGINE  
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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.