

STANDARD EQUIPMENT

AIR CLEANER – Dry type with rain shield and service indicator.

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. Includes engine On/Off push button. One mounted on either side of the engine.

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 wet type cylinder liners, chrome plated on outer diameter.

CYLINDER HEADS – Six 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.

ENGINE MONITORING DEVICES - Thermocouples, K-type, are wired to a bulk head connector for jacket water temperature, lube oil temperature and intake manifold temperature. 25 foot (7.6 m) customer interface and standard thermocouple harnesses are provided for making connections to a customer supplied panel. Magnetic pickup wired for customer supplied tachometer. Lube oil pressure and intake manifold pressure sensing lines are terminated in a common bulk head.

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 – Natural gas, 4" (102 mm) updraft. Fisher Model 99, 2" (51 mm) gas regulator, 25-50 psi (172-345 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.

LEVELING BOLTS

LIFTING EYES

LUBRICATION – Full pressure. Gear type pump. Full flow filter, 20 gallon (76 litres) capacity, not mounted. Includes flexible connections. Includes lube oil strainer, mounted on engine. Air/gas motor driven prelube pump. Requires final piping.

MANIFOLD – Exhaust, water cooled, vertical 5" (127 mm) pipe flange at rear and flexible stainless steel exhaust connection.

OIL COOLER – With thermostatic temperature controller. Mounted on left hand side.

OIL PAN – Base type. 72 gallon (273 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.

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

WATER CIRCULATING SYSTEM

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

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 4" (102 mm) inlet and outlet.

WAUKESHA CUSTOM ENGINE CONTROL, DETONATION SENSING MODULE (DSM) – Includes individual cylinder sensors, Detonation Sensing Module, filter and cables. Compatible with Waukesha CEC Ignition Module only. Detonation Sensing Module and filter are mounted and wired. Packager is responsible for 24V DC power supply and ground to the DSM. The DSM meets Canadian Standards Association Class 1, Division 2, Group D hazardous location requirements.

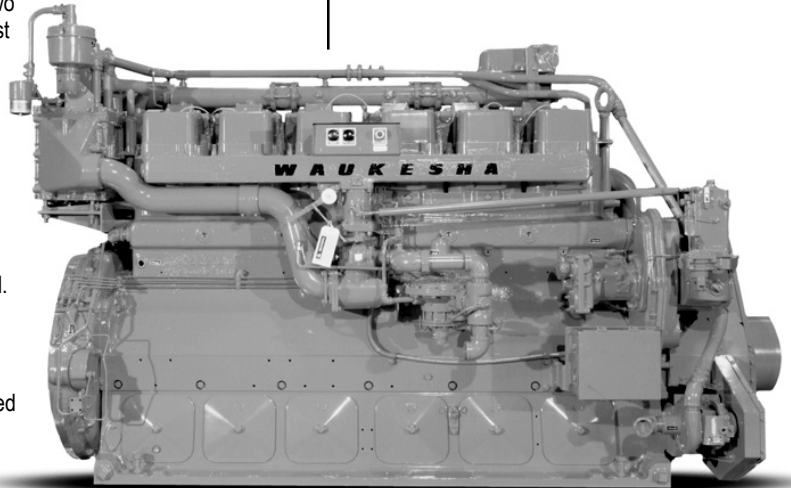
Waukesha[®]

VHP

F3521GSI

VHP™ Series Gas Engine

492 - 773 BHP



Model F3521GSI Turborecharged and Intercooled Six Cylinder, Four-Cycle Gas Engine

SPECIFICATIONS

Cylinders	Lube Oil Capacity
Inline 6	72 gal. (273 L)
Piston Displacement	Starting System
3520 cu. in. (58 L)	125 - 150 psi air/gas 24 V electric
Bore & Stroke	Dry Weight
9.375" x 8.5" (238 x 216 mm)	15,000 lb. (6800 kg)
Compression Ratio	
8:1	
Jacket Water System Capacity	
48.5 gal. (191 L)	

Waukesha Engine
 ISO 9001
CERTIFIED

CONTINUOUS POWER RATINGS: F3521GSI VHP SERIES GAS ENGINES

Brake Horsepower (kWb Output)

Model	I.C. Water Inlet Temp. °F (°C) (Tcra)	C.R.	800 rpm	900 rpm	1000 rpm	1100 rpm	1200 rpm
F3521GSI	85° (29°)	8:1	516 (385)	580 (433)	644 (480)	709 (529)	773 (577)
F3521GSI	130° (54°)	8:1	492 (367)	554 (413)	615 (459)	677 (505)	738 (550)

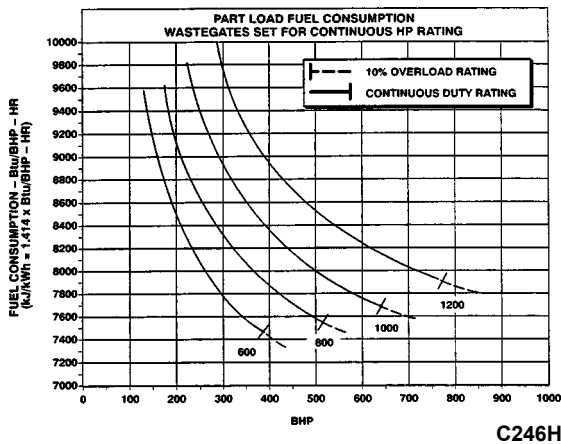
Rating Standard: All models: Ratings are based on ISO 3046/1-1995 with mechanical efficiency of 90% and auxiliary water temperature Tcra (clause 10.1) as specified above limited to ± 10° F (± 5° C). Ratings are also valid for SAE J1349, BS5514, DIN6271 and AP17B-11C standard atmospheric conditions.

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.

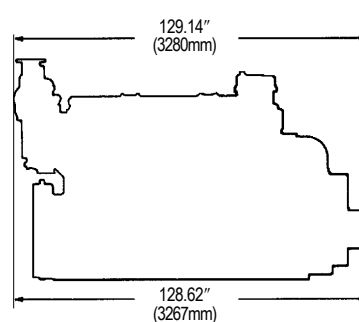
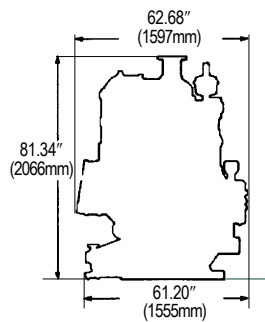
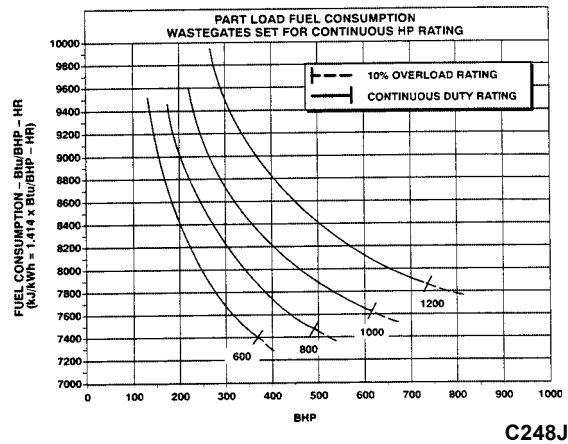
All natural gas engine ratings are based on a fuel of 900 Btu/ft³ (35.3 MJ/nm³) SLHV value, with a 91 Waukesha Knock Index®.

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

F3521GSI Engine
Turbocharged-Intercooled - 8:1 Compression Ratio
85° Intercooler Water



F3521GSI Engine
Turbocharged-Intercooled - 8:1 Compression Ratio
130° Intercooler Water



Waukesha

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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.