VHP® Series Four® F3524GSI

With ESM® 2 and emPact Emission Control System

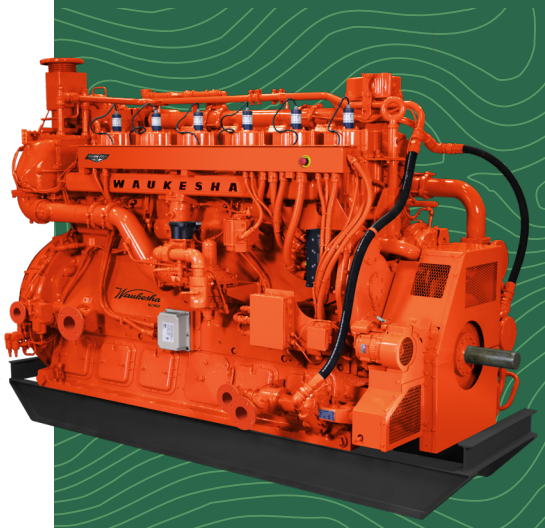
560 - 840 BHP (418 - 626 kWb)

Technical Data

Cylinders	Inline 6
Piston displacement	3,520 cu. in.(58 L)
Compression ratio	8:1
Bore & stroke	9.375" x 8.5" (238 x 216)
Jacket water system capacity	48.5 gal. (184 L)
Lube oil capacity	72 gal. (273 L)
Starting system	125 - 150 psi air/gas 24V electric

Dimensions l x w x h inch (mm)
129.14 (3,280) x 85.65 (2,175) x 81.34 (2,066)

Weights lb (kg)
16,000 (7,257)



INNIO's Waukesha® VHP® Series Four® rich-burn engines are the engines of choice for the harshest and most demanding gas compression, power generation and mechanical drive applications. The Series Four engines can reliably produce more power on hot field gases, at high altitudes, and in remote locations, all while delivering low emissions when paired with a 3-way catalyst (NSCR).

ESM® 2 is Waukesha's next-generation engine controller, adding functionality and benefits to the proven ESM platform.

The ESM 2 customer interface is a 12" full-color touch screen display panel that allows users to see all engine parameters, trend data, view manuals, and walk through troubleshooting steps, eliminating the need for a laptop computer.

ESM 2 directly reads exhaust and main bearing temperatures sensors and adds crankcase pressure, boost pressure, and an oil pressure permissive for starting the engine to the list of sensors available with the previous version of ESM.

Enhanced misfire detection can capture a single misfire event and an enhanced three-dimensional timing map allows for tighter engine control over the entire range of fuels.

Waukesha's emPact Emission Control System combines an engine, catalyst, and air/fuel ratio control, factory-designed for optimal interaction and maximum performance. It consists of a factory supplied catalyst, pre- and post-catalyst oxygen sensing, and differential temperature and pressure sensors. emPact's closed-loop control system measures the engine exhaust and automatically adjusts the air/fuel ratio to keep the catalyst operating at maximum efficiency, even as speed, load, fuel, and ambient conditions change.

SKIDIQ

Engine ships "ready to connect" with SkidIQ full skid monitoring system. SkidIQ is a cloud-based digital solution that integrates real-time engine analytics and compressor monitoring technology. The result is a unified platform that reduces operating expenses and emissions while enhancing uptime

A POWERFUL FUTURE

Waukesha

VHP Series Four F3524GSI

Performance Data

Intercooler Water Temperature 130°F (54°C)		1200 RPM	1000 RPM
	Power bhp (kWb)	840 (626)	700 (522)
	BSFC (LHV) Btu/bhp-hr (kJ/kWh)	8,035 (11,366)	7,731 (10,935)
	Fuel Consumption Btu/hr x 1000 (kW)	6,749 (1,976)	5,411 (1,586)
emPact Catalyst-Out Emissions	NOx g/bhp-hr (mg/Nm^3 @ 5% O_2)	0.5 (185)	
	CO g/bhp-hr (mg/Nm^3 @ 5% O_2)	1.0 (370)	
	NMHC g/bhp-hr (mg/Nm^3 @ 5% O_2)	0.18 (67)	
	THC g/bhp-hr (mg/Nm^3 @ 5% O_2)	1.68 (626)	
Engine-Out Emissions	NOx g/bhp-hr (mg/Nm^3 @ 5% O_2)	15.60 (5,857)	15.60 (5,766)
	CO g/bhp-hr (mg/Nm^3 @ 5% O_2)	12.80 (4,743)	12.30 (4,556)
	NMHC g/bhp-hr (mg/Nm^3 @ 5% O_2)	0.15 (59)	0.16 (60)
	THC g/bhp-hr (mg/Nm^3 @ 5% O_2)	0.50 (222)	0.60 (227)
Heat Balance	Heat to Jacket Water Btu/hr x 1000 (kW)	2,046 (600)	1,655 (485)
	Heat to Lube Oil Btu/hr x 1000 (kW)	297 (87)	239 (70)
	Heat to Intercooler Btu/hr x 1000 (kW)	114 (33)	70 (21)
	Heat to Radiation Btu/hr x 1000 (kW)	379 (111)	337 (99)
	Total Exhaust Heat Btu/hr x 1000 (kW)	1,905 (558)	1,434 (420)
Intake/Exhaust System	Induction Air Flow scfm (Nm^3/hr)	1,236 (1,861)	991 (1,492)
	Exhaust Flow lb/hr (kg/hr)	5,752 (2,608)	4,612 (2,092)
	Exhaust Temperature °F (°C)	1,196 (644)	1,128 (609)

All data according to full load and subject to technical development and modification.

emPact catalyst-out emissions valid from 100% - 75% load and 1200 rpm to 900 rpm and assume proper engine/catalyst maintenance and manual adjustment as necessary.

Consult your local Waukesha representative 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.

Waukesha – an INNIO brand - INNIO's Waukesha engines are at the forefront of the energy transition, providing reliable and compliant energy solutions for distributed gas compression and power generation applications. The brand's rich and lean-burn engines, ranging from 335 hp to 5,000 hp, set an industry standard for low emissions, high reliability, and fuel flexibility.

Waukesha products are continuously upgraded to help operators stay emission-compliant without sacrificing operational excellence. These upgrades include new and remanufactured engines and parts, as well as conversion and modification kits, all of which are backed by OEM warranty and more than 115 years of engine expertise. Additionally, our Waukesha digital solutions include a collaborative solution with Detechtion Technologies for gas compression applications and INNIO's myPlant platform for power generation applications. Both solutions provide customers with enhanced monitoring and optimization capabilities, resulting in improved performance and reduced downtime.

We connect locally with our customers to enable a rapid response to their service needs, providing enhanced support through our broad network of distributors and solution providers with parts, services, and digital offerings.

Waukesha engines are engineered in Waukesha, Wisconsin, U.S., and manufactured in Welland, Ontario, Canada. To learn more about the company's products and services, please visit INNIO's website at **www.waukeshaengine.com** or follow Waukesha engines on **LinkedIn**.

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