

Waukesha

**Built smart
Built strong
Built to last**



Waukesha VGF
A cost efficient industrial
strength engine

INNIO

When enduring performance and optimal efficiency are demanded, the clear choice is VGF

For nearly two decades, the Waukesha* VGF* line of engines has consistently performed under extreme conditions in a wide-range of applications – both in power generation and gas compression.

The VGF series of high-speed engines are built with the durability expected from a medium-speed engine. Purposefully designed for a wide range of stationary, spark-ignited, gaseous fuel applications, the compact VGF engine has a high power-to-weight ratio operating up to 1800 RPM.

The foundation for exceptional long-term performance is attributed to the core VGF family design. Expansive choice of options earning VGF engines the distinction of market leader in versatility.

Power output



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- Rich-burn & lean-burn combustion choices for maximum operational flexibility.
- Normal maintenance intervals for spark plugs, lube oil, and filter changes are 2-3 times the hours of other brands.
- Only engine in its class offering field access to the bottom end for onsite major overhaul capabilities.
- Unsurpassed fuel flexibility.

Built smart

Whether it's a 6-, 8-, 12- or 16-cylinder VGF engine, INNIO is committed to bringing the greatest versatility to each and every application by offering a wide variety of options in the engine industry. It's a line of engines that consistently delivers years of dependable operation.

Fuel flexibility

The low compression ratio (LCR) option increases capability to maintain full power when running on fuels with a wide range of heating values. VGF engines operate efficiently on a wide BTU range of fuels, from 400 BTU landfill gas to 2300 BTU HD5 propane.

Co-generation applications

Operation with optional 210°F (99°C) jacket water temperature thermostats makes the VGF family well suited to many co-generation or Combined Heat and Power (CHP) applications.

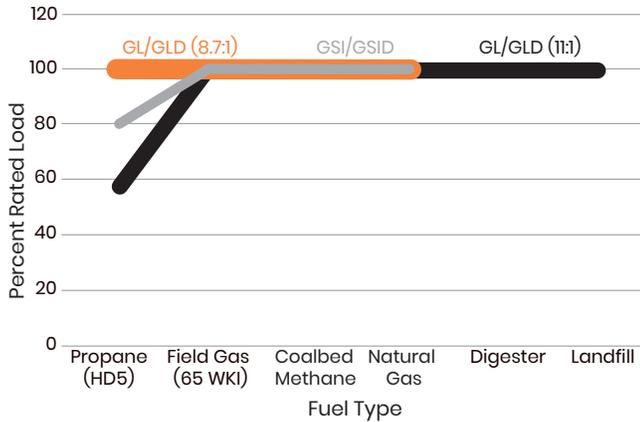
Fuel pressure variances

The VGF family can be configured as drawthrough for low fuel pressure or blowthrough for higher fuel pressure (0.5 to 50 psig).

High altitudes

With an improved high altitude turbocharger the new SE models are configured as standard to perform without derate to 5000 FASL at 100F ambient temperatures. GE's VGF lean-burn engines can operate up to 5500 FASL without derate.

Exceptional fuel tolerance



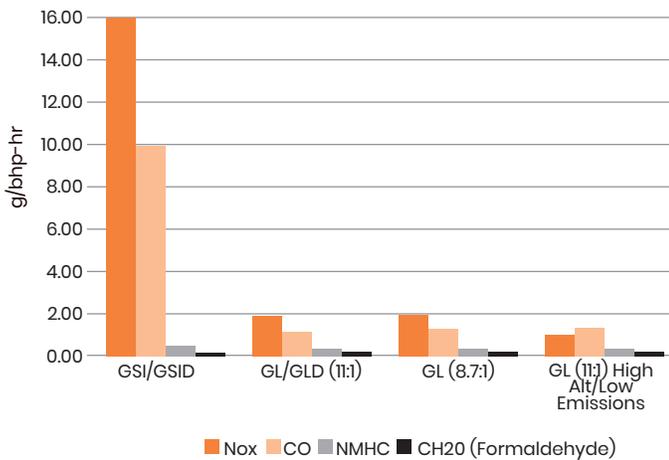
Minimal fuel consumption

	1800 RPM	1500 RPM
VGf Model	BSFC (g/bhp-hr)	BSFC (g/bhp-hr)
GSI/GSID	7389	7247
GL/GLD (11:1)	7013	6817
GL (8.7:1)	7482	7101

BSFC - Brake Specific Fuel Consumption base on ISO 3046/1 standard reference conditions of 25°C (77°F) and 100 kPa (29.61 in Hg) with 0,+5% fuel tolerance. Emissions data measurements are consistent with those described in EPA CFR 40 Part 89 Subpart D & E and ISO 8178-1 for measuring Nox, CO, NMHC, CH20.

Low emissions

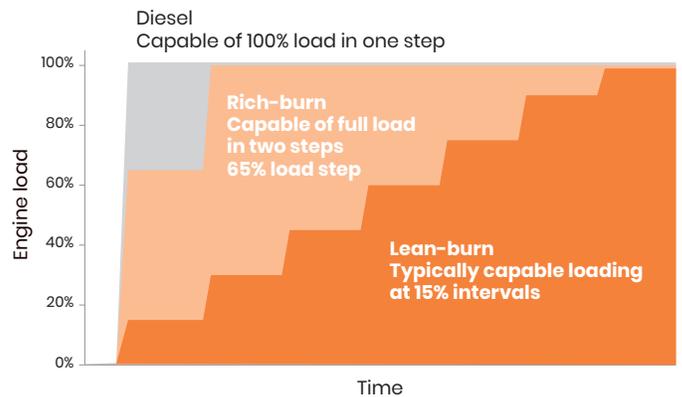
High compression ratio lean burn configuration VGf engines are capable of operating 1g/bhp-hr NOx emissions even at high altitudes. Lower emission levels can be reached with rich burn engines equipped with a 3-way catalyst.



GL (11:1) High Alt/Low Emissions Option Only for Gas Compression Applications. Emissions data measurements are consistent with those described in EPA CFR 40 Part 89 Subpart D & E and ISO 8178-1 for measuring Nox, CO, NMHC, CH20.

Load step capabilities

VGf engines have superior load step capabilities, allowing for optimal operation even when isolated from the utility or in stand-alone mode. The VGf Series' quick-loading characteristics, typically found only in diesel engines, avoid the time-consuming task of slow and gradual loading.



Built strong

This is not a warmed over automotive engine trying to do an industrial job. The VGF series was structurally designed from the inside out to deliver continuous output whether in the most extreme destination or compact location. And it's a Waukesha built with industrial strength to handle continuous high rpm to 1175 hp. Now with nearly two decades in the field, the VGF line of engines is proven in both design and durability.



Built to last

More Profitability

INNIO believes engines should operate with minimal interruption. That's why VGF engines need only quarterly maintenance – not monthly. This quarterly maintenance interval reduces cost and maximizes uptime.

The VGF Extender Package, a result of Waukesha's continuous design improvement efforts, is why the VGF line delivers this outstanding maintenance interval. The package is now standard on every new VGF engine. (Existing VGF models can be retrofitted.)

Long-lasting Waukesha spark plugs further extend service intervals by up to 62%. Spin-on oil filters, the preferred standard throughout the VGF line, simplify and speed up routine maintenance.

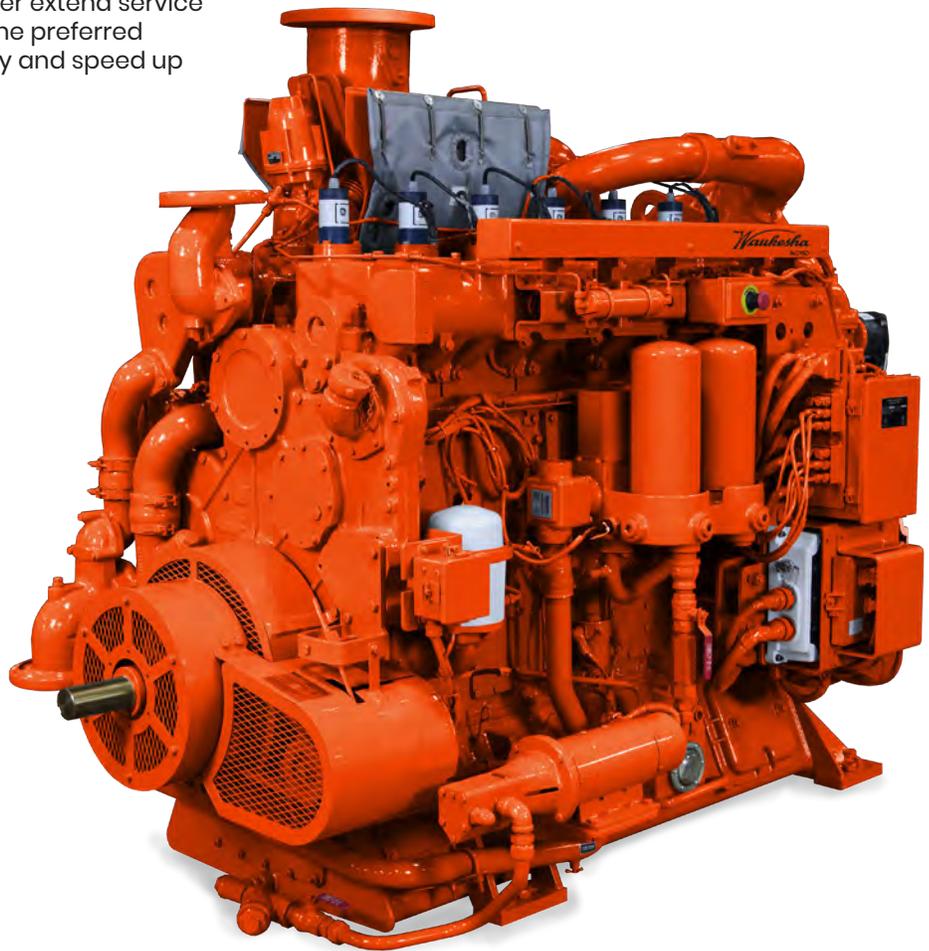
The VGF choice

With documented proven performance and durability, the VGF line of engines is the clear choice.

- More uptime earning better profitability
- Maximum high speed continuous duty providing durable stationary power
- Built to last with reduced vibration designs
- Compact size means less packaging costs
- Fuel quality and pressure variance application options
- High power-to-weight ratio ensures long life and reduced operation costs
- Inline and V configurations have major component commonality
- Worldwide network of distributors who know and support gas engines

Ease of Maintenance

The VGF Series simplifies maintenance procedures. The engine design allows easy access to the oil pump, main bearings and rod bearings – without the need to lower the oil pan. Commonality of parts between VGF models reduces the amount of inventory needed for servicing a fleet. Standard design features, such as independent heads, simplify and speed up maintenance work.



Built to last for a better bottom line.

Parts for increased performance

Genuine Waukesha parts and the reUp remanufactured parts program

When your VGF engine needs servicing, use only Genuine Waukesha parts to provide the performance and uptime you expect. The same high quality Waukesha parts used to build the VGF engine are stocked and available at your local Waukesha Distributor.

Contact your Authorized Waukesha Distributor for your VGF service parts needs and also get details about the Certified Overhaul (with extended warranty) that is available for your VGF engine.

Lifetime services

Combining innovative technology, service and support to bring value across the life cycle of you asset.

Modern energy production demands reliable, efficient asset operation. Only INNIO has the breadth and depth of offerings to increase productivity in critical applications worldwide. INNIO's global network of expertise is here to help with a wide array of outcome oriented options, with service including:

- Improved availability
- Enhanced output and efficiency
- Increased operational flexibility
- Reduced emissions
- Controlled operating costs and reduced risks
- Predicted performance
- Lifetime extension

Furthermore, INNIO's distributed power business maintains a local, accessible presence to help meet business challenges and success metrics every day. Backed by authorized service providers in more than 170 countries, our service network connects with you locally for rapid response to your service needs.





INNIO is a leading solutions provider of gas engines, power equipment, a digital platform and related services for power generation and gas compression at or near the point of use. With our Jenbacher and Waukesha product brands, INNIO pushes beyond the possible and looks boldly toward tomorrow.

Our diverse portfolio of reliable, economical and sustainable industrial gas engines generates 200 kW to 10 MW of power for numerous industries globally. We can provide life cycle support to the more than 48,000 delivered gas engines worldwide. And, backed by our service network in more than 100 countries, INNIO connects with you locally for rapid response to your service needs. Headquartered in Jenbach, Austria, the business also has primary operations in Welland, Ontario, Canada, and Waukesha, Wisconsin, US.

Visit <https://www.innio.com> for more information on INNIO technology: