MESA SOLUTIONS

GV22PU Engine

Same size. More Power.

BEST IN RELIABILITY | **BEST** IN VALUE | **BEST** IN SERVICE

Mesa Solutions produces EPA certified, industrial engines engineered to operate on natural gas or propane and are used in stationary and mobile power generation applications.

Built on an industrial platform with a history of durability, the GV22PU integrates modern advancements for next-generation performance.

Designed for reliability, engineered for performance. Built on a robust industrial engine architecture, the GV22PU delivers proven power and efficiency for demanding applications.

A 90,000 square-foot engine facility, where engines are built to the Mesa Standard. Every engine is dyno tested to validate power prior to leaving our facility.

Engine Updates

The Mesa Solutions GV22PU engine features a heavy-duty industrial throttle to ensure durability and accurate performance over the life of the engine.

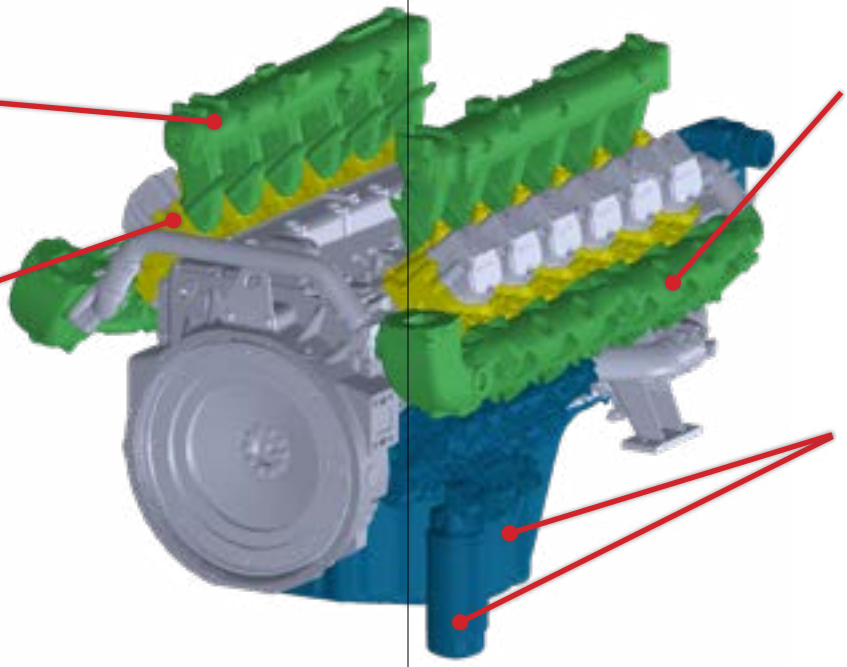
Base engine design refinements are focused on improving previous versions of the GV22 engine.

Designed with maintenance in mind, the placement of components is carefully selected to ensure easy access to commonly replaced parts, such as spark plugs.

GV22PU Quality Improvements

Intake Manifold
Redesigned to improve the flow distribution to each cylinder and reduce combustion imbalance.

Cylinder Head
Engineered with improved cooling and higher strength, allowing for higher power density without sacrificing durability.



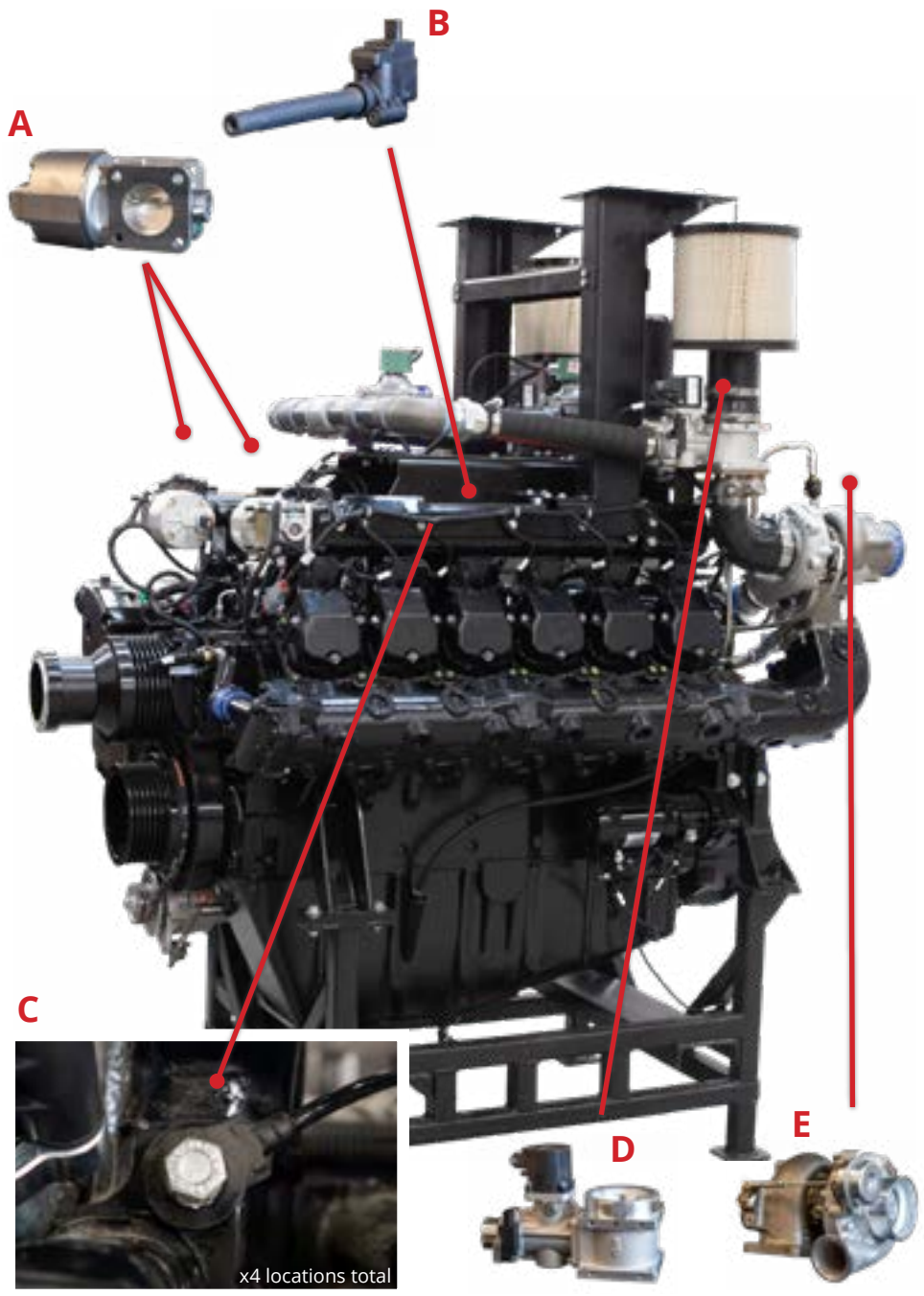
Exhaust Manifold
Redesigned exhaust manifold can withstand extreme temperatures and tough environments, allowing for thermal durability.

Oil Pan and Oil Filter
Larger oil pan capacity and reoriented oil filter creates streamlined maintenance for better convenience and performance.

Piston Assembly
Features an improved ringpack design focused on reducing oil consumption and providing consistent sealing.

Water Pump Assembly
Enhanced water pump assembly creates optimized cooling performance, ensuring equipment stays cool and efficient.

GV22PU Quality Improvements *(cont.)*



A. Improved Throttle
The new engine replaces an automotive-grade throttle to an industrial-grade throttle, providing improved durability and consistent control.

B. Smart Coils
Welcome to the future of ignition technology with our Smart Coils. Our PG+ system adapts ignition timing in real-time, compensating for fuel variations to ensure your engine operates at its peak.

C. Improved Knock Calibration
Countless hours of calibration work were completed to evaluate the knock sensor placement and ensure robust detection of knock for all cylinders. The new sensor location along with an improved knock detection algorithm helps to protect the engine and ensure consistent performance.

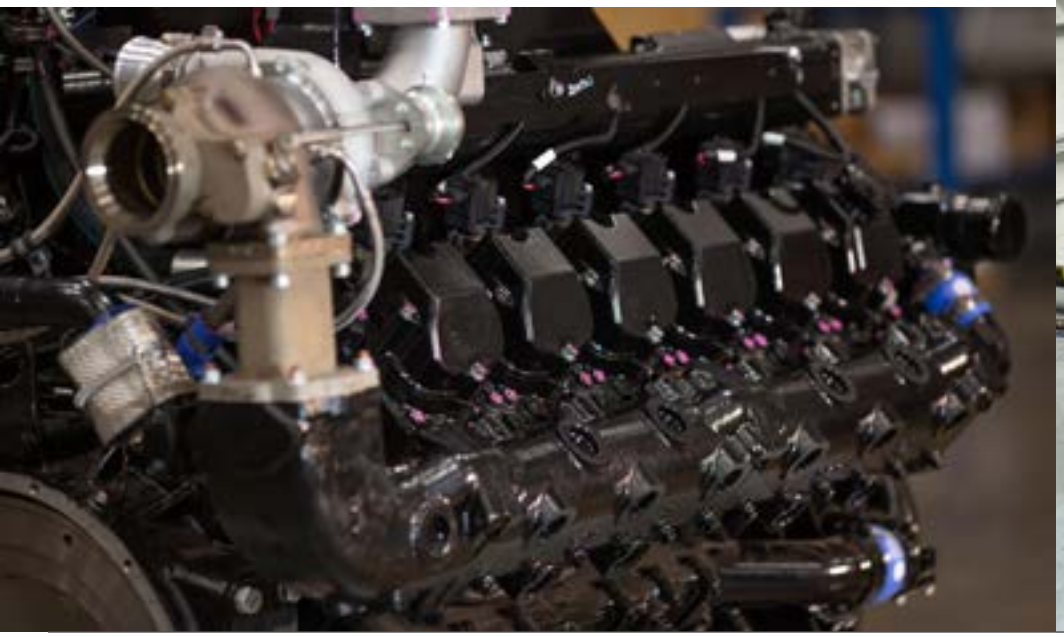
D. Integrated Mixer
Redefine fuel management with this all-in-one device that effortlessly handles fuel metering and mixing, simplifying your setup and optimizing your engine's performance.

E. New Turbocharger
Elevate your engine's capabilities with our brand-new turbocharger. Featuring a stainless-steel turbine housing for exceptional durability, it's ready to take on the toughest challenges.

Featured Quality Improvements

CCV

The Closed Crankcase Ventilation (CCV) system is designed to remove the emissions from blowby and protect engine components by filtering the oil mist and avoiding oil contamination on the turbocharger and mixers. The CCV system is also equipped with an integrated coolant passage to improve cold weather performance and prevent freezing of condensation and unnecessary shutdowns in cold conditions.



Dyno

The end of line dyno in our production facility is utilized to test the engines under load before shipping to customers. This is a critical part of our quality process to ensure the engine performs as expected before leaving our facility.

GV22PU Specs

Type	Water-cooled, 4 cycle, V-Type, Turbocharged and intercooled
Cylinder arrangement	V-12
Displacement	21.9L
Fuels[1]	Pipeline NG, Wellhead NG (700-1800 BTU LHV), LPG
Emission Levels	EPA Emergency
	EPA Non-Emergency
	Low Emission Level Option, < 0.041 g/hp-hr NOx
Engine Control System[2]	Woodward, SECM70

1. *Engine derate depends on the quality of the well head gas, please see owners manual for details.*

2. *Low emissions level will utilize different emissions control equipment.*

60 Hz		PRP[1]	ESP
kWm			
NG	kW	460	510
	HP	617	684
LP	kW	379	420
	HP	526	589
kWe*			
NG	kW*	392	439
LP	kW*	317	355

50 Hz		PRP[1]	ESP
kWm			
NG	kW	406	452
	HP	544	606
LP	kW	341	378
	HP	457	507
kWe*			
NG	kW*	342	383
LP	kW*	282	316

******* *kWe assumes following fan loss and alternator efficiency -* ***Fan loss: 38 kW***
Alternator efficiency: 93%

1. *Prime power ratings are for pipeline quality gas and do not include fuel quality derates.*

Our Development Process

During the development process, the engines undergo multiple durability tests to ensure performance and longevity in a variety of applications. The durability tests are rigorous and include thousands of thermal cycles to simulate a lifetime of engine starts.

At Mesa, there are other tests evaluate the performance at high temperatures to evaluate the cooling package and ensure the engine can perform in harsh conditions. In addition, the engine undergoes field testing where the package is evaluated in a variety of environments and operated on a variety of fuel qualities. All of this testing is performed to ensure the engine package provided to our customers meets the Mesa Standards of performance.

Mesa & HDI Partnership

Mesa and Hyundai Infracore signed a distributorship agreement at the ConExpo tradeshow in March of 2023, beginning their partnership for gasified engines.

Partnership Press Release →

HDI Website →

FAQs

Q: What does the 'PU' stand for?

A: PU stands for Power Up, an improvement in the power of the base GV22 engine.

Q: I currently have a 22L engine in my generator. Will this new GV engine fit in my current generator package?

A: The engine block and flywheel connections are the same as the previous version of the GV22, so mounting of the engine should be seamless. The new engines come with a new cooling kit and associated pipes to help integrate the engine into generator packages.

Q: The knock sensor has been updated on the new engines. Does this help the engine performance?

A: Improved knock detection ensures the engine is protected from fuel variations that could cause damage.

Q: Why did you decide to use a different throttle?

A: Mesa has over 65 million run hours in the field with the previous throttle. Due to this, we determined that it was not up to the Mesa Standard of durability and that an improvement was necessary.

Q: What is different about the GX engines?

A: The major difference with the GX is moving from a 2-valve cylinder head to a 4-valve cylinder head that allows for higher power ratings in the same package.

Q: What does our partnership with HDI mean for our customers?

A: The partnership between Mesa and HDI is a natural fit, bringing together the strengths of two industry leaders to create a new product that will benefit power generation customers worldwide.

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info@mesangs.com

www.247mesa.com

(307) 472-6372