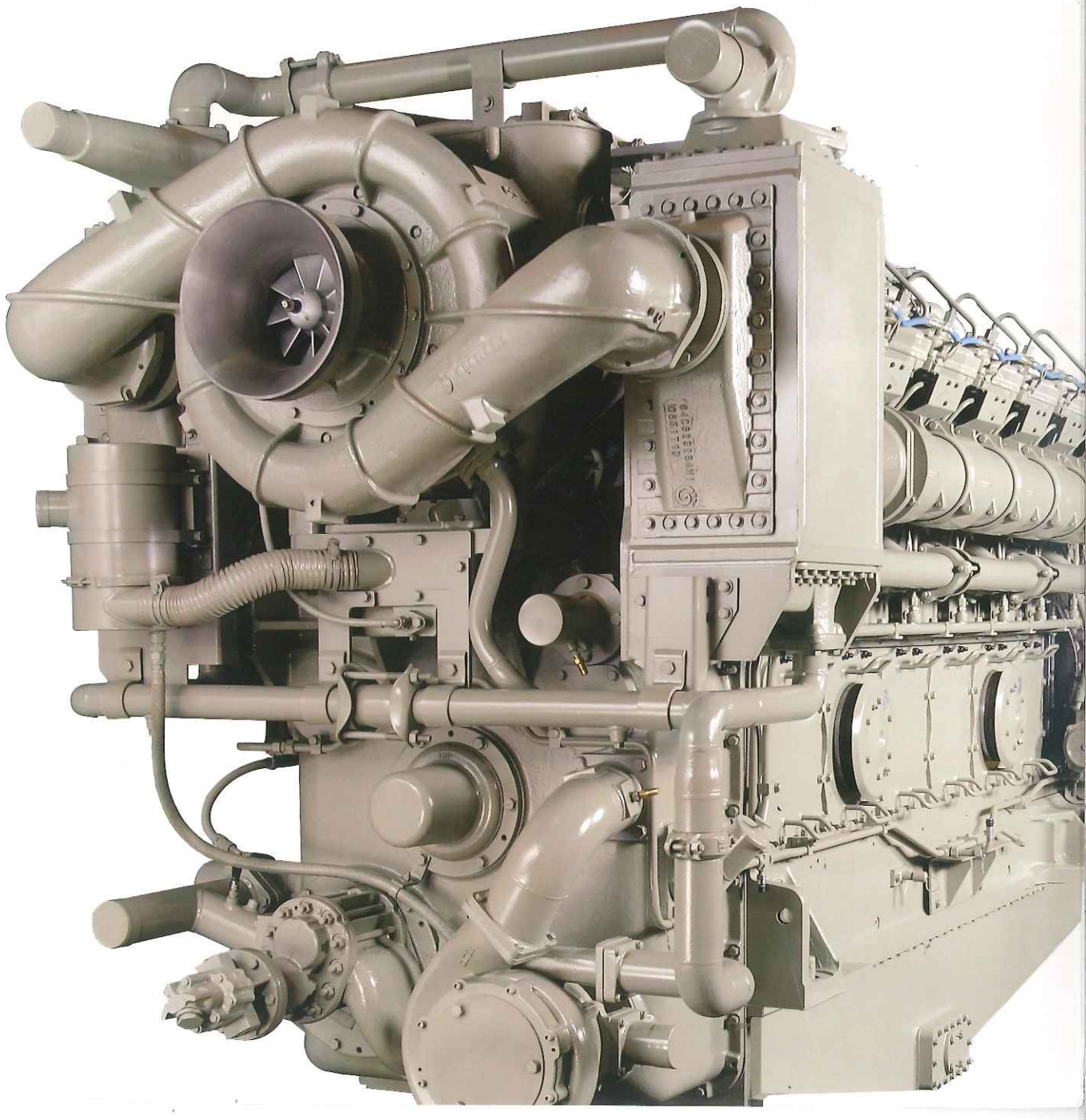
GE
Marine

Rugged and reliable

GE's high-performance V228 Series diesel engines



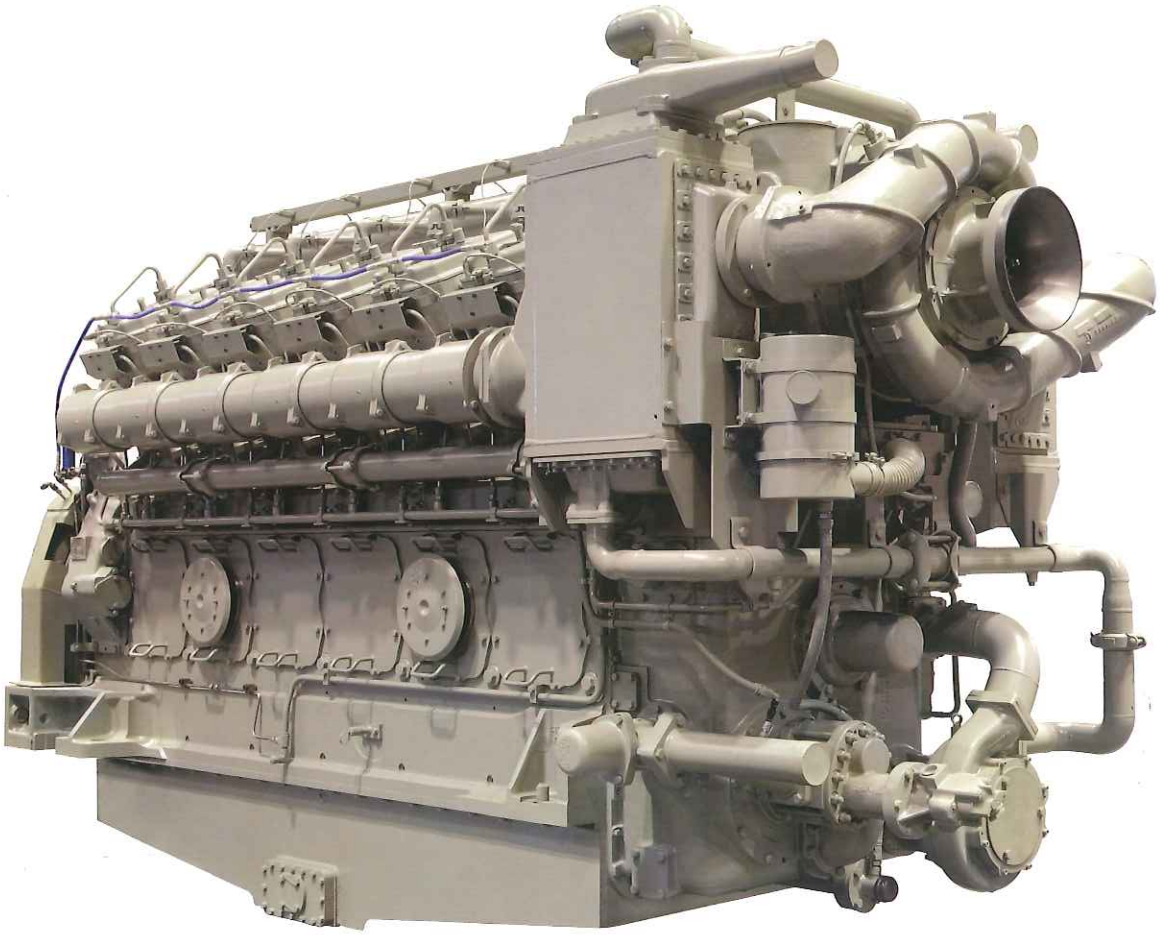
V228 Series engines—Dependable, long-lasting marine power

GE has been designing and building high-performance diesel engines for more than 40 years. Today, we're one of the leading manufacturers of medium-speed engines in the world. Our V228 Series engines produce continuous power from 1045 kw to 3060 kw. With exceptional reliability and operating costs among the lowest in their class, V228 engines from GE are the right choice for dependable, efficient power.

They work harder.
GE's V228 engines are high-compression, four-stroke, medium-speed, turbocharged, electronically fuel injected, class-approved engines designed and built for rigorous marine applications. Our medium-speed engines are proven reliable, with more than 150 million hours of service. They are also among the most fuel-efficient engines in their class.

They go longer.
With rugged construction and quality-assured parts, V228 engines are capable of operating cost-effectively for more than 20 years. Most components can go without overhaul for up to 40,000 hours on a typical marine duty cycle. Among medium-speed engines on the market, V228 engines offer one of the lowest life-cycle costs.

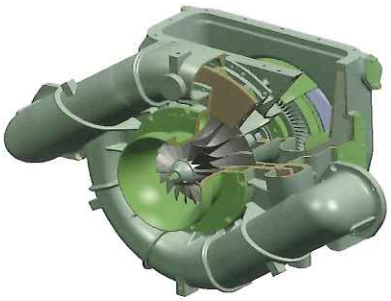
They run smarter.
A high-capacity turbocharger, electronic fuel injection and efficient combustion management come together in V228 engines to make fuel and lube oil consumption as well as emissions among the lowest in the industry. V228 engines comply with MARPOL Annex VI and U.S. EPA Marine Tier 1 and Tier 2 requirements.



The easy-to-maintain engine

The modularized construction of our V228 engines improves maintainability. Among the features that make maintenance easier are large access doors on the engine mainframe to reach bearings and other crankcase components. The segmented camshaft, sectional exhaust manifold and unitized power assembly are features that simplify removal and replacement of components.

Rigid Cast Mainframe
V228 engine mainframes feature high-strength, monobloc cast-iron construction. All water, fuel and exhaust piping is externally mounted, eliminating the potential for internal contamination. Large access doors allow for easier maintenance, and generous casing and ribbed cross-members dampen vibration.



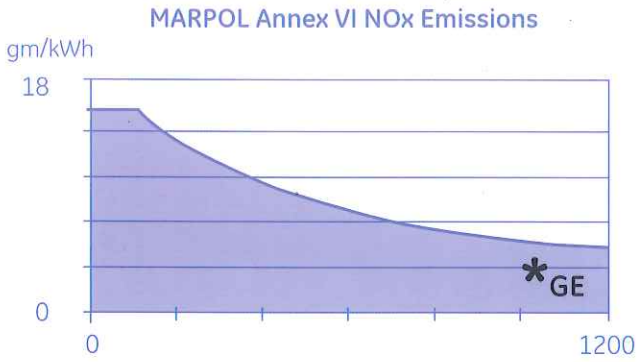
High-Performance Turbocharger
GE's expertise in gas turbine technology contributes to an industry-leading design for performance in the turbocharger. A high compression ratio improves efficiency across the load range. Dual modular pulse piping preserves exhaust pulse energy for maximal thermal efficiency, and the stainless dual exhaust pipe exhibits long component life.

V228 components

Designed for high reliability and low life-cycle costs

The low-emissions solution

Proven EFI technology, integrated with GE's PowerStar™ engine control module, makes V228 engines the natural choice for environmental compliance. Without exhaust gas treatment, NOx emissions are below MARPOL Annex VI regulatory standards. V228 engines comply with U.S. EPA Marine Tier 1 and Tier 2 standards as well.



Unitized Power Assembly
Four-bolt mounting makes assembly removal fast and easy. Electron-beam welding of the steel liner to the forged head prevents leakage. Stainless steel valve seats, inconel exhaust, chromed intake valves and valve rotators extend overhaul intervals and component life.

Electronic Fuel Injection (EFI)
Our EFI systems ensure compliance to all major regulatory standards. Precise fuel management and control also yields fuel savings. The reliability and performance of electronic fuel injection technologies from GE have been proven with more than 150 million hours of engine service over the past decade.

High-Strength Pistons
Forged steel crowns with forced oil lubrication and cooling promote heat reduction for longer life. A three-ring arrangement, which distributes pressure more evenly, and a cut-back design decrease lube oil consumption. A lightweight aluminum skirt offers high heat resistance. The master and articulated rod share a common journal, minimizing engine length while maximizing bearing width.

Segmented Camshaft
The camshaft in a V228 engine is arranged in individual sections for easy inspection and maintenance. Forged and hardened camshaft lobes reduce wear. Oversized end bearings decrease loads for longer camshaft life.

Heavy-Duty Crankshaft
The engine's one-piece crankshaft is forged from high-quality steel, nitride-hardened for long life. Hefty journals and crank pins minimize surface loads, and large radii fillet welded counter-weights reduce stress for longer crankshaft life.

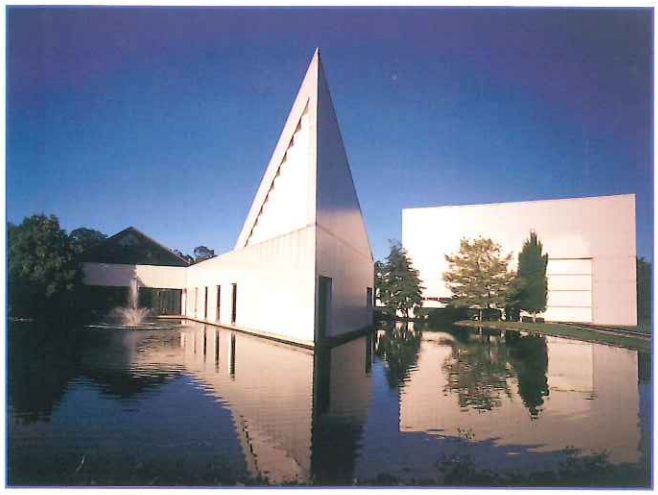
Tolerant Tri-Metal Main Bearings
The main bearings are oversized to reduce pressure while providing exceptional oil-wedge formation for low wear. A sacrificial run in overlay promotes rapid conformity at start-up. A nickel barrier ensures superior heat resistance, while a lead tin overlay serves as a high-tolerance contaminant trap for particles and degraded oil.

Stay the course with V228 Series engines

GE's V228 Series engines are designed to power workboats, tugs, towboats, offshore supply vessels, ferries, dredges, fishing vessels and other marine transport applications. Dependable and durable, these medium-speed engines are among the best in their class for fuel efficiency and low life-cycle costs. Engines are available in 8-, 12- and 16-cylinder configurations.

The right support right when you need it

With more than 15,000 medium-speed diesel engines in service worldwide, it's critical we have the parts and service to support them. And we do—through a network of parts distribution centers and service representatives available 24/7 around the globe. We're a leader in the on-time delivery of parts and services.



Learn from the diesel engine experts

In addition to product and service support, we provide comprehensive instruction in diesel engine maintenance. Our learning facility in Erie, Pennsylvania, features classrooms, computer simulated training and an engine laboratory. Our instructors also provide on-site training at customer locations around the world. We offer custom-designed instructional courses, computer-based learning aids, expert technical advisors, training videos and train-the-trainer programs.

V228 Series engine specifications

Item		Electronic Fuel Injected (EFI) 8V228	12V228	16V228
Number of cylinders		8	12	16
Stroke cycle		4	4	4
Cylinder arrangement		45-degree V	45-degree V	45-degree V
Bore		228.6 mm (9 in.)	228.6 mm (9 in.)	228.6 mm (9 in.)
Stroke		266.7 mm (10.5 in.)	266.7 mm (10.5 in.)	266.7 mm (10.5 in.)
Compression ratio		15.7:1	15.7:1	15.7:1
Power Output at 1050 rpm				
Continuous[1]		1526 kw (2045 bhp)	2290 kw (3070 bhp)	3052 kw (4100 bhp)
Maximum[1]		1678 kw (2250 bhp)	2518 kw (3375 bhp)	3357 kw (4500 bhp)
Power Output at 1000 rpm				
Continuous[1]		1453 kw (1948 bhp)	2180 kw (2922 bhp)	2906 kw (3896 bhp)
Maximum[1]		1598 kw (2143 bhp)	2398 kw (3214 bhp)	3197 kw (4286 bhp)
Power Output at 900 rpm				
Continuous[1]		1308 kw (1753 bhp)	1962 kw (2630 bhp)	2616 kw (3506 bhp)
Maximum[1]		1438 kw (1929 bhp)	2158 kw (2893 bhp)	2877 kw (3857 bhp)
Engine Dimensions				
A	Height w/deep sump	2762 mm (109 in.)	2762 mm (109 in.)	3030 mm (119 in.)
B	Height w/shallow sump	2555 mm (101 in.)	2555 mm (101 in.)	2555 mm (101 in.)
C	Length	3298 mm (130 in.)	4136 mm (163 in.)	4975 mm (196 in.)
D	Width	1734 mm (68 in.)	1734 mm (68 in.)	1734 mm (68 in.)
E	Crank center line to marine sump	978 mm (39 in.)	968 mm (38 in.)	1246 mm (49 in.)
F	Crank center line to mounting feet	480 mm (19 in.)	480 mm (19 in.)	480 mm (19 in.)
G	Exhaust diameter	457 mm (18 in.)	508 mm (20 in.)	610 mm (24 in.)
Dry Weight		12,478 kg (27,509 lbs)	17,778 kg (39,200 lbs)	22,132 kg (48,800 lbs)

[1]Ratings are based on ISO3046-1

To learn more:
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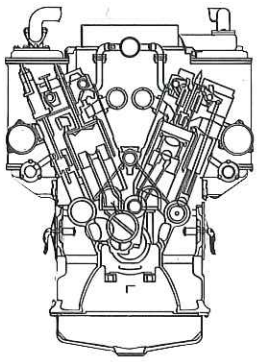

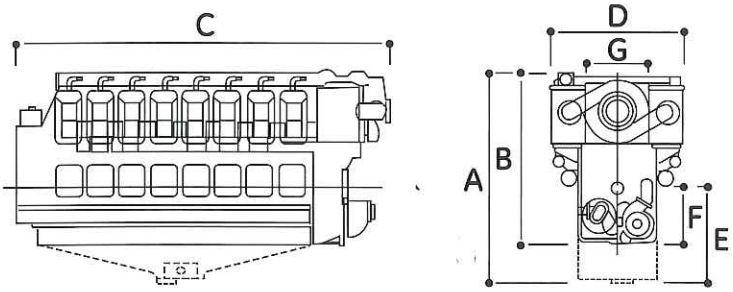

imagination at work