

Caterpillar 3412 Engine Specifications

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A Comprehensive Overview

The Caterpillar 3412 engine, a legendary power plant in the realm of heavy-duty applications, is renowned for its robust design, exceptional power output, and remarkable durability. This comprehensive guide will delve into the specifications of this iconic engine, providing you with a detailed understanding of its key features and capabilities.

I. The Caterpillar 3412

The Caterpillar 3412 is a 12-cylinder four-stroke diesel engine boasting a displacement of 1287 cubic inches (211 liters). It was first introduced in 1985 and quickly became a popular choice for a wide range of applications, including Construction Equipment, Excavators, loaders, bulldozers, and other heavy machinery. Mining, Haul trucks, drilling rigs, and mining shovels, Marine Tugboats, ferries, and workboats, Power Generation, Standby power generators, and prime power installations.

II. Engine Specifications

A. General Model

Caterpillar 3412 Type 12-cylinder four-stroke turbocharged diesel engine. Displacement: 1287 cubic inches (211 liters). Bore and Stroke: 6.5 inches (165 mm) x 7 inches (178 mm). Rated Speed: 1800 RPM. Configuration: Inline, watercooled with a single turbocharger. Fuel System: Electronic unit injection (EUI).

B. Power and Torque

The Caterpillar 3412 engine offers a wide range of power and torque outputs depending on the specific configuration and application. Here are some common ratings:

- Maximum Power: 650-900 horsepower (485-671 kW)
- Maximum Torque: 2100-2800 lbft (2848-3798 Nm)

C. Dimensions and Weight

Length: 82.5 inches (210 cm). Width: 45 inches (114 cm). Height: 60 inches (152 cm). Dry Weight: Approximately 5000 pounds (2268 kg).

D. Fuel Consumption

Fuel consumption varies depending on operating conditions, load, and engine configuration. Typical fuel consumption rates range from 0.35 to 0.45 gallons per horsepower-hour (0.093 to 0.119 liters per kilowatt-hour).

E. Emissions

The Caterpillar 3412 engine meets various emissions regulations, including EPA Tier 2/3 for nonroad applications and IMO Tier II for marine applications.

III. Key Features and Technologies

A. Electronic Unit Injection (EUI)

The EUI system provides precise fuel delivery and optimization, resulting in increased fuel efficiency and reduced emissions.

B. Turbocharging

The single turbocharger boosts air pressure, increasing power and torque output while enhancing fuel efficiency.

C. Durable Construction

The Caterpillar 3412 engine is built with heavy-duty components and robust materials for long-lasting performance in demanding environments.

D. Easy Maintenance

The engine features a well-designed layout with readily accessible components for streamlined maintenance and repair.

IV. Applications

The Caterpillar 3412 engine finds widespread application in diverse industries. Construction Equipment, Excavators, loaders, bulldozers, and other heavy machinery rely on the 3412's power and durability to handle demanding tasks. Mining, Haul trucks, drilling rigs, and mining shovels require the engine's high torque and reliability for efficient operation in challenging environments. Marine Tugboats, ferries, and workboats benefit from the 3412's power, fuel efficiency, and reliability in maritime applications. Power Generation, Standby power generators, and prime power installations utilize the 3412's robust design and consistent performance for critical power needs.

V. Advantages

A. High Power Output

The Caterpillar 3412 delivers impressive power and torque, making it suitable for demanding applications.

B. Exceptional Durability

Built with robust components, the engine withstands heavy loads and harsh operating conditions.

C. Fuel Efficiency

The EUI system and turbocharging optimize fuel consumption, reducing costs and environmental impact.

operational costs Reliable Performance Known for its reliability and long service life the 3412 engine minimizes downtime Versatile Applications Its power and durability make it adaptable to a wide range of applications across different industries VI Conclusion The Caterpillar 3412 engine remains a powerful and reliable choice for heavyduty applications renowned for its high power output exceptional durability and fuel efficiency Its versatility and adaptability make it a valuable asset for a wide range of industries ensuring efficient and reliable operation in even the most demanding environments

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