MARINE POWER PRODUCTS GUIDE

CATERPILLAR MARINE
AUGUST 2015

MaK

CAT®

Caterpillar Marine

HEADQUARTERS
Caterpillar Marine
Neumühlen 9
22763 Hamburg/Germany

EUROPE, AFRICA, MIDDLE EAST
Caterpillar Marine
Neumühlen 9
22763 Hamburg/Germany

Caterpillar Marine
Falckensteiner Str. 2,
24159 Kiel/Germany

Caterpillar Marine
22 Cobham Road
Wimborne
Dorset
BH21 7 PW
United Kingdom

AMERICAS
Caterpillar Marine
3450 Executive Way
Miramar Park of Commerce
Miramar, FL 33025/USA

Marine Center of Excellence
560 Rehoboth Road
Griffin, GA 30224/USA

Caterpillar Marine
3701 South Street
Lafayette, IN 47905/USA

Caterpillar Marine
100 NE Adams St.
AC6131
Peoria, IL 61629/USA

Caterpillar Marine
2270 7th Street
2nd Floor Unit 2A
Mandeville, LA 70471/USA

EMD Power Products
9301 West 55th Street
LaGrange, IL 60525

ASIA-PACIFIC
Caterpillar Marine Trading (Shanghai) Co., Ltd.
25/F, Caterpillar Marine Center
1319, Yan'an West Road
200050 Shanghai/P.R. China

Caterpillar Marine Asia Pacific Pte Ltd
No. 5 Tukang Innovation Grove
Singapore 618304
Republic of Singapore

For more information about Caterpillar Marine and current products, as well as legacy products, please visit:
cat.com/marine

Cover image courtesy of Sunseeker International

Caterpillar Propulsion

NAMIBIA
Caterpillar Propulsion Africa
Service
P.O. Box 4407
2nd Street East & John Newman
Walvis Bay, Namibia, Africa

BRAZIL
Caterpillar Propulsion Brazil
Sales, Service
Rua do Mercado, 17 - Sbj 201 - Centro
20010-120
Rio de Janeiro, RJ, Brazil

CHINA
Caterpillar Propulsion Guangzhou
Sales
RM 4306, Building B, China Shine Plaza
No. 9 Lin He Xi Road, Tian He District
510610 Guangzhou, China

Caterpillar Propulsion Shanghai
Sales, Service
6F, Lei Shing International Plaza, No. 1319
West Yan'an Road
200050 Shanghai, China

ITALY
Caterpillar Propulsion Italy
Sales
Torre WTC – 19 Piano, Via de Marini 1
16149 Genova, Italy

KOREA
Caterpillar Propulsion Korea
Sales
2505 Centrum LeadersMark 17
APEC-ro, Haeundae-gu, Busan, Korea

SINGAPORE
Caterpillar Propulsion Singapore
Sales, Service
85 Tuas South Avenue 1
637419 Singapore, Singapore

Caterpillar Propulsion Production Singapore
Production & Purchasing
85 Tuas South Avenue 1
637419 Singapore, Singapore

SPAIN
Caterpillar Propulsion Spain
Sales
Avda de Zumalakarregui 1, Entr A
20008 San Sebastian, Spain

SWEDEN
Caterpillar Propulsion Sweden
Press & Media, Product Support,
Sales, Service
Tärnvägen 15
475 40 Gothenburg, Sweden

Caterpillar Propulsion Production Sweden
Production & Purchasing
Längesand 1, Box 1005
475 22 Gothenburg, Sweden

TURKEY
Caterpillar Propulsion Turkey
Sales, Service
Fatih Sultan Mehmet Cad. Yayabey
Sokak No. 12 Kat 2
34810 Kavacik-Istanbul, Turkey

UNITED ARAB EMIRATES
Caterpillar Propulsion Middle East
Sales, Service
Dubai Airport Free Zone. East wing 6E-A.
P.O. Box 54517
Dubai 118
United Arab Emirates

UNITED STATES
Caterpillar Propulsion U.S.
Sales
2270 7th Street
Mandeville, Louisiana 70471
United States

Contents

Visit MARINE.CAT.COM for detailed specification sheets and product information.

Page

Abbreviations 6

Customer Support Programs for Cat® Marine Products 7-8

Cat Financial 9

Commercial Account 10

Cat Controls and Displays 11-13

MaK™ Controls and Displays 14-19

Caterpillar Propulsion 20-21

Marine Propulsion Engine
- Rating Definitions 22-24
- Rating Conditions 25
- Emissions Information 26-27
- Custom Solutions 28
- Ratings by Engine Model 29-51

Cat Marine Generator Sets and Auxiliary Engines
- Rating Conditions 52

Cat Marine Generator Sets
- Ratings by Engine Model 53-66

Cat Marine Auxiliary Engines 67-74

EMD E 23 (710 Series) Marine Propulsion and Generator Set Engines 76-79

MaK Marine Propulsion Engines 80-81
- Ratings by Engine Model 82-105

MaK Marine Generator Sets 106-107
- Ratings by Engine Model 108-131

Abbreviations

bhp — Brake Horsepower

bkW — Brake Kilowatts

DIN — German Standards Organization

DF — Dual Fuel

ekW — Electrical Kilowatts

EPA — Environmental Protection Agency

EU — European Union

EUI — Electronic Unit Injection

g/bkW-hr — Grams per Brake Kilowatt Hour

H — Height of Engine

HE — Heat Exchanger Cooled

IMO — International Maritime Organization

ISO — International Standards Organization

kVA — Kilovolt-Ampere

L — Overall Engine Length

LE — Length of Engine from Front of Engine to Rear Face of Flywheel Housing

LG — Length of Engine with Gear/Generator

MCS — Marine Control System

mhp — Metric Horsepower

NA — Naturally Aspirated

R — Radiator Cooled

SAE — Society of Automotive Engineers

SCAC — Separate Circuit Aftercooled

T — Turbocharged

TA — Turbocharged Aftercooled

TSA — Turbocharged, Supercharged, Aftercooled

TTA — Twin Turbo Aftercooled

U.S. g/h — U.S. Gallons per Hour

W — Overall Width

WE — Width of Engine

Note: For Engine Emissions Information abbreviations see page 26-27.

Customer Support Programs for Cat Marine Products

Protect your investment, minimize owning/operating costs, and maximize up-time. Contact your local Cat dealer to hear about a variety of support solutions.

Extended Service Coverage (ESC) is available for propulsion engines, marine generator sets and auxiliary engines. ESC is transferable at no cost.

New ESC is available for vessels still under standard warranty and can extend up to 5 years from the initial in-service date. New ESC for Pleasure Craft applications is available in Platinum or Platinum Plus levels of coverage with varying deductible options. Platinum coverage covers the Cat engine and all Cat parts shipped with the engine from the factory. Platinum Plus covers additional Cat engine controls and pilot house displays.

Platinum Plus Three60 includes all Three60 system components except the Quickshift transmission.

New ESC for Commercial Applications is available in Platinum and Platinum Plus levels that allow you to customize an ESC program to your needs.

Advantage ESC is available for pleasure craft and commercial vessels. Current age and number of hours on your Cat engine may affect eligibility. A successful Advantage Inspection and Sea Trial may be required to qualify. Coverage levels for pleasure craft and commercial applications are the same as New ESC.

Overhaul Protection for Commercial Engines (OPC) is available for pleasure craft and commercial vessels. An overhaul registered in OPC is done only at authorized Cat Marine Service facilities. A variety of coverage levels and deductibles are available. Coverage terms are available up to five years.

Overhaul Kit Coverage provides coverage on all the parts included in your choice of overhaul kit. Coverage is available for up to three years. Maximum number of hours of coverage is determined by engine model.

Individual Component Coverage provides coverage on a select list of individual components. Combine Component Coverage with an Overhaul Kit Coverage for a customized or "Bundled Solution" to fit your specific needs.

Coverage terms for all New ESC, Advantage, OPC, Overhaul Kit Coverage and Component Coverage have maximum hour limitations based on the application and model. All pleasure craft propulsion terms are available in 300, 500, or unlimited hours-per-year combinations. Pleasure craft and commercial marine auxiliary and generator set terms, as well as commercial marine propulsion applications are available in 500-hour increments with a minimum of 500 hours per year.

Caterpillar offers two levels of customer support programs.

Pleasure Craft Preventive Maintenance Agreements (PMA) is a worldwide program and locks in future maintenance costs at today's rates, protecting your engine and helping you avoid unbudgeted repair costs. This program is transferable at no cost and provides a documented engine maintenance history, potentially increasing the resale value of your vessel.

Commercial Customer Support Agreements (CSA) ensure maintenance and repairs are performed by highly skilled technicians with genuine Cat and MaK parts. Three flexible options are customized to fit your needs: Inspection, Preventive Maintenance, and Total Maintenance and Repair. A more comprehensive CSA results in higher increases in operating up-time.

Cat Financial

You specify Cat or MaK power solutions because you know Cat engines keep you and your vessel safely on course. Cat Financial has the same commitment to your success with construction, term, or repower financing.

Global Coverage, Local Presence

We've been lending to marine customers for more than 25 years. We know how to support customers in one country, construction in a second country, and registration in a third. Our customers do business around the world so the Cat dealer network has you covered wherever you go.

Need a local expert? With offices in the Americas, Europe, and Asia, and financing representatives all over the world, we know local markets and how to navigate the legal and regulatory environments.

Exceeding Customer Expectations

Strong relationships are the key to our success. Your dedicated marine account manager will guide your financing request through the process. We begin with understanding your critical requirements and developing a tailored solution. We then document, close, and fund the deal.

Get your project moving anywhere in the world with Cat Financial.

Visit us online at **CatPowerFinance.com**
email us at **CatPowerFinance@cat.com**, or contact your regional office today.

Americas
Toll-Free within U.S.:
1-888-200-0408
International Callers:
+1 615-341-8000

Asia-Pacific
+65 6828 7333

Europe, Africa and the Middle East
+44 1564 786 400

CAT Financial

Commercial Account

Cat Financial Commercial Account is a payment method that enables you to buy parts, work tools, and pay for service, repairs, or rentals at any participating Cat Marine Dealer or Cat Rental Store in the United States or participating dealers in Canada.

Exclusive Commercial Account Features & Benefits

Manage Your Cash Flow.
Pay now or pay later. Commercial Account offers two billing methods to let you customize by selecting the one that best fits your business needs.

Best-in-Class Interest Rate.
Commercial Account's best-in-class interest rate makes it less expensive for you to pay for parts, services, and purchases over time.

Peace of Mind.
No matter where your jobs take you, Commercial Account is a quick and easy way to pay for your expenses. Use your account to pay for anything offered at any participating Cat dealer or Cat Rental Store in the U.S. or Canada (with the exception of purchases of new Cat construction equipment).

Special Zero Percent Financing Options.
Your Cat Dealer may offer special financing options that you can take advantage of only with your Commercial Account. Ask your dealer about the Marine Engine Rebuild program currently being offered.

One-time Credit Approval.
Once approved, your account remains open as long as is it is in good standing.

Online Account Information 24/7.
Whether you require instant access to accounts, expenses, statements or reports, our website will provide you higher levels of self-service, flexibility and convenience. You can make payments; view your available credit, last payment, balance due, payment due date, minimum payment amount, and transaction details; and download expenses into your accounting system. If you have Cat Financial lease/loan contracts, you can now combine them with your Commercial Account for a single sign-on to service all your needs.

No Collateral/Security Required.

Apply Today: In the U.S. visit www.CatFinancial.com/CommercialAccount or call 1-888-CAT-8811. In Canada visit http://CatFinance.cat.com/CommercialAccount or call 1-866-686-5024.

Cat Controls and Displays

MCS Controls for Marine Propulsion Engines and Generator Sets

MCS controls provide complete propulsion engine and generator set control and monitoring from local and remote locations, including engine start/stop capability, alarm and protection, and user interface and communication. System modularity allows expansion of remote monitoring, input/output capabilities and programmable relays. With the Shutdown Unit (SDU), the system meets marine classification society requirements for separation of alarm and shutdown systems.

Digital Control Unit (DCU)

The DCU provides local start/stop control, engine and generator set alarm and protection, and Modbus communications to the ship. The 5.7" display can be set for automatic or night mode and can display multiple instrument views and alarm and event lists. The user can switch on the fly between nine languages and English or metric units.

Various modules integrate directly with the DCU, such as the Shutdown Unit (SDU), required for MCS classed applications. Up to four Remote I/O (RIO) modules can be added for additional sensors and relays, the Power Analyzer Module (PAM) for generator monitoring, and the RTD and TC modules for temperature monitoring.

Remote Panel (RP)

Multiple RPs can be mounted where needed, such as the engine control room or bridge. Each RP can control and monitor eight DCUs and four cameras. The 8.4" touch-screen display can be set for automatic or night mode and can show one, two, or four engines at a time.

Specifically Designed for Cat Electronic Marine Propulsion Engines

Three60 Precision Control

Three60 Precision Control is an integrated propulsion and maneuvering solution that revolutionizes slow speed control of traditional shaft and propeller drive line vessels. It simultaneously actuates and controls engines, transmissions, thrusters, and propellers with intuitive easy movements for instantaneous control of vessel direction and speed.

Multi-Station Control System (MSCS)

MSCS provides engine and transmission control for single or dual engine applications with up to eight control stations. Control can be easily transferred from one station to another and the fully redundant backup system ensures propulsion system operation if the primary control system fails. Transmission shift logic prevents stalling the engine during quick shifting maneuvers.

gplink

gplink is a satellite/cellular-based tracking, monitoring, and notification system that protects Cat powered vessels by monitoring engine operating parameters, engine diagnostic codes, and on-board critical systems such as bilge levels, fire alarms, low batteries, and power interruption.

gplink provides immediate notification via e-mail, SMS and/or phone of any critical alarm or event. Trained Caterpillar technical experts can remotely access fault codes, and operating conditions, review a vessel's alarm status, troubleshoot engine conditions, and could defer a visit to the vessel. The vessel owner can also view the status of the engines remotely on a phone, tablet, or computer.

Color Marine Power Display (CMPD)

CMPD can monitor and display operating parameters for two engines and transmissions including diagnostics, visual alarms, and streaming video from up to four camera inputs. The user can select from seven languages, two gauge types, and daylight or night mode screens.

Cat Marine Display

The Cat Marine Display provides the operator with easy-to-read, high resolution graphics to monitor all vessel operations. The configurable screen allows for full user customization and visual simplicity.

All electronics are pressure sealed for increased durability and safety and are built to reliably perform in extreme conditions. The Cat Marine Display is available with a 7" or 13" screen size.

Cat Connect

Connectivity can improve vessel performance by providing reliable equipment management for daily vessel operations. The easily accessible onboard data becomes a valuable tool to help increase productivity, decrease operating costs, enhance safety awareness, and simplify compliance. Multiple levels of services are available to manage engines, vessels, or fleets.

EQUIPMENT MANAGEMENT

PRODUCTIVITY

SAFETY

SUSTAINABILITY

MaK Controls and Displays

New Technology Platform for Onboard and Remote Engine Analysis and Condition Monitoring

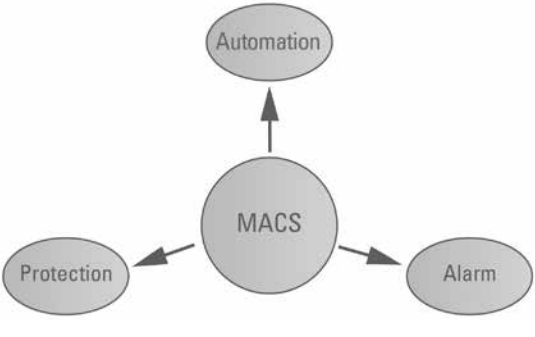
Caterpillar is now offering a comprehensive technology solution to provide onboard and remote condition monitoring and analytics for MaK engines, as well as other critical systems on the vessel. Caterpillar Marine Asset Intelligence (MAI) gives onboard and shore users a better understanding of equipment health and performance and enables Caterpillar experts to provide advisory services. For detailed information, please contact Caterpillar MAI at +1 757 965 5963.

Modular Alarm and Control System (MACS)

MACS is Marine Classification Society (MCS) approved and available for MaK M 25 E, M 32 E, M 34 DF, and M 46 DF.

The MACS consists of several base functions that are required for each engine type, such as start-stop control or protection system. In addition, modular-built function blocks are added as optional scope of supply or for the dual-fuel engine, such as FCT, slow turn, GVU control, and leakage monitoring.

The system design remains identical, independent from the engine type equipped with the new MACS.



MACS Functions

MACS consists of the following software functions:

- Automation
  - Start/stop function
  - Diesel/gas mode control (only dual-fuel engines)
  - Engine diesel automation
  - Engine gas automation (only dual-fuel engines)
- Monitoring and alarm system
  - Includes Modbus TCP or Modbus RTU interface to the ship
- Protection system

MACS Components

Diesel Control Unit (DCU)

The engine's alarm system and the local display are consolidated in the DCU, located in the local control panel. The 5.7" display can display multiple instrument views as well as an alarm and event list. The user can switch on the fly between languages and units.

Various modules communicate directly with the DCU. By this it receives status and measurement values from all I/O modules, the engine control system (ECM) and the protection system (SDU). Furthermore the DCU provides all measurement values, status values and alarms on Modus RTU or Modbus TCP for the vessel's system and via Modbus TCP for the Cat remote monitoring system.

The alarm system determines critical engine conditions, activates alarms and, if necessary, shuts down the engine. The DCU has the ability of actuating the secondary safety stop valve and the gas shutoff signal. That means the DCU is able to stop the engine almost as reliably as the protection system (SDU). All alarms are stored in an alarm history and are shown in a manner requested by the marine class societies (MCS). The complete alarm management is handled by the DCU. All information is visualized via the screen in the LCP and additional remote panels (RP).

Shutdown Unit (SDU)

The SDU is the independent engine protection system and shuts down the engine in case of a major fault that may damage the engine. The SDU has its own sensors for all implemented shutdown functions and is connected to a separate safety stop valve. The local and remote manual emergency stops are connected hardwired to the SDU. All switch inputs causing an engine shutdown are monitored for wire break. All automatic shutdowns except the overspeed event can be overridden. Each shutdown event is displayed additionally via LEDs at the SDU itself as well as on the display in the local control panel or at the remote panel. Of course, each alarm is also transmitted to the ship's alarm system. In case of an SDU device fault the engine will continue to run and a device fault alarm will be raised at the alarm system.

PLC System

The PLC system contains the monitoring and automation system. It involves the start and stop functionality as well as the engine diesel and engine gas automation.

It consists of two parts whereas one part (TB part) is mounted in the terminal box on the engine and the other part (EC part) is located in the engine cabinet next to the engine. The TB part is the main controller collecting engine sensor signals and actuating valves on the engine. The EC part is mainly used as an additional I/O module and ties up all signals coming from and going to an external system as the ship's alarm system.

The PLC communicates via partly redundant busses with the ECM, temperature input modules (TC, RTD), the in-cylinder pressure module (ICPM; only on dual fuel engines), and the engine alarm system. Internally generated alarm signals are transmitted via bus to the DCU.

If the PLC system fails, the engine can still be started by means of the mechanical emergency start function. The engine must then be operated attended. External and internal starting interlocks are not processed in that emergency case.

Temperature Modules

Several temperature modules of the RTD type and TC type are necessary to connect all temperature sensors. This includes all temperatures except for conrod bearings. The modules transmit the measured values via bus to the engine alarm, engine automation, and engine control system. All devices are capable of transmitting diagnostic messages in case of faulty sensors.

(The following components are not part of the MACS.)

Engine Control System (ECM)

The engine control system consists of one or more ECMs. This system is controlling the fuel systems, air fuel ratio, engine speed, and FCT. For load sharing, droop mode is implemented. Isochronous load sharing is implemented in the ECM or an external control module. The ECM has its own set of sensors for all control relevant functions and can operate independently from start/stop system (PLCs), alarm system (DCU), or protection system (SDU). Measurement values for performance purposes are received via bus.

Oil Mist Detector (OMD)

The OMD monitors the oil mist concentration in the crankcase. It provides hardwired outputs for pre-alarm, shutdown, and device fault that are connected to the PLC system or protection system (SDU). A remote indication is possible via a separate serial interface or the engine alarm system provides data via Modbus (dependent on OMD type). The oil mist monitoring is obligatory for all engine types.

Conrod Temperature Module (CTM)

The big end bearing temperature device reads the temperature for all conrod bearings and transmits the measurement values and diagnostics to the alarm system (DCU). In addition it provides hardwired outputs for pre-alarm and shutdown. For most engines big end bearing monitoring is optional.

In-Cylinder Pressure Module (ICPM)

On dual fuel engines each cylinder is equipped with a cylinder pressure sensor. Those sensors are connected directly to the ICPM. The ICPM computes combustion characteristics for each cylinder including knock intensity per cylinder. The results are transmitted once per combustion cycle via CAN interface to the engine control system and MACS.

Gas Valve Unit (GVU)

The GVU is completely monitored and controlled by the Cat system. Monitoring and automation functions are included in the MACS system; fuel gas pressure is controlled directly by the engine control system.

Remote Panel (RP)

Remote panels can be used to provide visualization of engine status and measurement values remote from the engine where needed, such as the engine control room or bridge. A remote panel uses the same configuration as each DCU and a healthy DCU is necessary to display engines data. Several remote panels can be installed on a vessel and one remote panel can show data of eight engines. The 8.4" touch-screen display can be set for automatic or night mode and can show one, two, or four engines at a time.

Remote Monitoring

Remote indications and optional displays receiving measurement values from all engines provided by Modbus TCP.

Large Engine Safety System (LESS)

LESS is a compact engine control, monitoring, and protection system. Included functions are control of the engine (start, stop), monitoring of the actual status of sensors, and the protection system (i.e., emergency stops, interlocks).

Engine control boxes include:

- Protection System
- rpm switch control
- LED panel
- Graphic display
- Engine monitoring
- Modbus output to alarm system (Modbus RTU protocol RS 485/422)
- Data transfer via CANbus to DICARE PC (option)
- Exhaust gas mean value system (option)

System designed for:

- Automatic shutdown
- Manual stop inputs
- Configurable inputs (shutdown, reduction, start interlock)
- Override
- Remote reset
- All inputs are wire break and short circuit monitored
- Free adjustable speed contact
- Fuel setting signals
- Overload contact
- rpm signal

Advantages:

- Complete equipped/tested engine
- Less installation space, no separate components, installation-friendly engine
- Less wiring
- Less commissioning time
- Data transfer via Modbus RTU protocol to alarm system

LESS is available for MaK M 20 C, M 25 C, M 32 C, and M 43 C.

Caterpillar Propulsion

Performance You Can Rely On

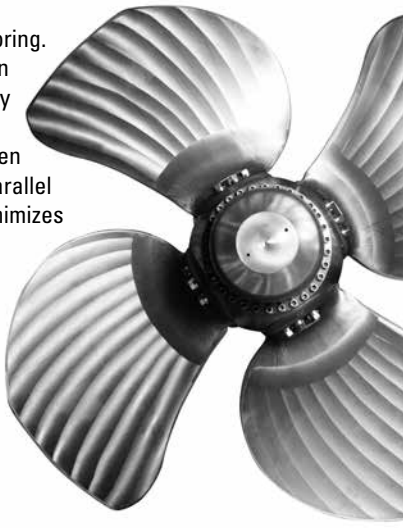
Caterpillar Propulsion supplies complete, world-leading propulsion systems. Custom-designed and optimized for uptime and cost-effective operations, our top-of-the-line controllable pitch propellers, thrusters, gearboxes, control systems, and hubs are all manufactured at our state-of-the-art production facilities in Sweden and Singapore.

Our experts in innovative hydrodynamics give you the dependable, heavy-duty performance you expect.

Main Propellers

The Caterpillar Propulsion controllable pitch propellers (MPP) are designed for heavy-duty applications with a hydraulic servo cylinder in the hub that sets the desired pitch of the propeller blades.

The propeller hub is lubricated by a unique oil circulating system with integrated moisture monitoring. Our patented feathering solution improves the operating flexibility and efficiency of vessels with twin propeller installations. When feathered, the blades are set parallel to the flow in a position that minimizes drag. With one engine and one propeller shaft off-line, the propulsion machinery operates more efficiently compared to using two propellers and engines at low power.



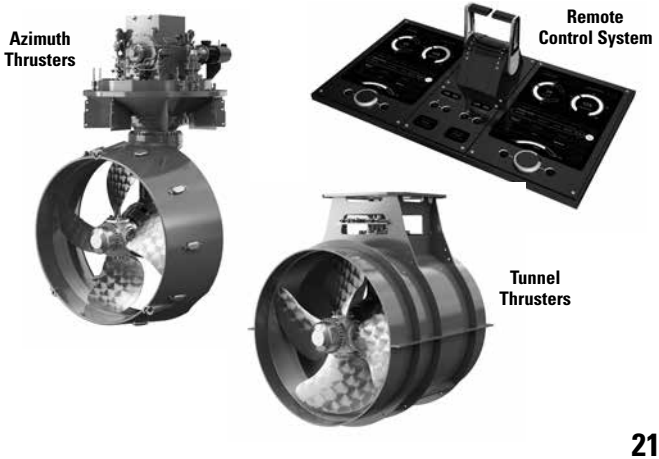
Thrusters

The Azimuth thruster (MTA) is designed to provide unparalleled flexibility and is custom-built for long-term performance. This system is steerable and has a custom-made controllable or fixed-pitch propeller. The thruster unit is available in an L-drive configuration with electric steering or a Z-drive configuration with hydraulic or electric steering.

The transverse thruster (MTT) is designed for maximum uptime and is available with a choice of controllable pitch propeller or a fixed-pitch propeller. The controllable pitch propeller is normally used for constant shaft speeds and the fixed pitch propeller is used for variable and reversing shaft speeds. The MTT is available in two configurations, a heavy-duty MTT suitable for DP-applications and an auxiliary MTT suitable for harbor maneuvering.

Remote Control System

The **MPC 800 Remote Control System** enables the crew to control and oversee the controllable pitch propellers and thrusters for all types of vessels. Using the latest microprocessor technology, all information is clearly displayed on all control stations. The control panels have daylight readable graphical displays, which can be easily configured to control or interface with a wide range of supplementary systems, including clutches, PTH systems, shaft brakes, joysticks, DP systems, VDR and conning systems. A number of service modes can also be configured, including different combinator curves and constant speed modes.



Marine Propulsion Engine Rating Definitions

Rating definitions provide guidelines to help determine the appropriate rating for specific applications based on vessel operation. Cat marine propulsion engine rating applications for C9 through C175-16 are based on load factor, time at full throttle, and operational hours per year.

Contact your local Cat dealer for assistance in determining the appropriate rating for your specific application.

A Rating (Unrestricted Continuous)

Typical applications: For vessels operating at rated load and rated speed up to 100% of the time without interruption or load cycling (80% to 100% load factor). Typical operation ranges from 5000 to 8000 hours per year.

For C280-6, C280-8, C280-12, C280-16, and E 23 Engines Only:

- **Continuous Service (CS) Rating** is suitable for continuous duty applications, including dredges, for operation without interruption or load cycling.

B Rating (Heavy Duty)

Typical applications: For vessels operating at rated load and rated speed up to 80% of the time with some load cycling (40% to 80% load factor). Typical operation ranges from 3000 to 5000 hours per year.

Marine Propulsion Engine Rating Definitions

C Rating (Maximum Continuous)

Typical applications: For vessels operating at rated load and rated speed up to 50% of the time with cyclical load and speed (20% to 80% load factor). Typical operation ranges from 2000 to 4000 hours per year.

For C280-6, C280-8, C280-12, C280-16, and E 23 Engines Only:

- **Maximum Continuous (MC) Rating** is generally used for vessel applications involving varying loads. The engine power actually produced is limited by application guidelines, leaving a power reserve for unusual operating conditions. Operating time at loads above the Continuous Service Rating for a given rpm is limited to one hour in 12 or 8.3% of total operating hours.
- **FCVR – Fast Commercial Vessel Rating:** 85% of operating hours at rated speed, 15% of hours at less than 50% rated power. TBO approximately 20,000-25,000 hours. The propulsion system design should consider heavy ship condition, sea state, hull fouling and propulsion system power losses for proper match between engine and prop/jet.

Marine Propulsion Engine Rating Definitions

D Rating (Intermittent Duty)

Typical applications: For vessels operating at rated load and rated speed up to 16% of the time (up to 50% load factor). Typical operation ranges from 1000 to 3000 hours per year.

E Rating (High Performance)

Typical applications: For vessels operating at rated load and rated speed up to 8% of the time (up to 30% load factor). Typical operation ranges from 250 to 1000 hours per year.

DEP Ratings (Diesel Electric Propulsion, Electric Drive)

Typical applications: For all vessels operating with generator sets that provide power to the propulsion systems. All ratings are Prime Ratings according to ISO 8528-1 for unlimited usage per year at a load factor of $\leq$ 70%. 10% overload capability is required for a maximum of 1 hour out of every 12 and a maximum of 25 hours total per year. **Typical applications could include but are not limited to supply vessels, cruise vessels, research vessels, or any other ship using diesel electric drive systems.**

Cat Marine Propulsion Engines

Rating Conditions for C175 and Smaller Engines

Ratings are based on SAE J1228 standard conditions of 29.61 in Hg (100 kPa) and 77°F (25°C). These ratings also apply at ISO3046-1:2002E, ISO8665, DIN6271-3, and BS5514 conditions of 29.61 in Hg (100 kPa), 81°F (27°C), and 60% relative humidity.

Caterpillar maintains ISO9001:2000 certified quality management systems for engine test facilities to assure accurate calibration of test equipment. Electronically controlled engines are set at the factory at the advertised power corrected to standard ambient conditions. The published fuel consumption rates are in accordance with ISO3046-1:2002E.

Fuel consumption is based on SAEJ1995 with **+/- 3% tolerance** at rated power for fuel having an LHV of 18,390 Btu/lb (42 780 kJ/kg) when used at 84.2°F (29°C) and weighing 7.001 lbs/U.S. gal (838.9 g/liter). Additional ratings may be available for specific customer requirements. Consult your Cat representative for details.

Rating Conditions for C280 Engines

Ratings are based on SAE J1349 standard conditions of 29.61 in Hg (100 kPa) and 77°F (25°C). These ratings also apply at ISO3046-1:2002E, ISO8665, DIN6271-3, and BS5514 standard reference conditions. Ratings also meet classification society maximum temperature requirements of 113°F (45°C) temperature to turbo and 90°F (32°C) seawater temperature without derate.

Fuel consumption is based on ISO3046/1 with **+5% tolerance** at rated power for fuel having an LHV of 18,390 Btu/lb (42 780 kJ/kg) and weighing 7.001 lbs/U.S. gal (838.9 g/liter). Includes engine mounted fresh water and lube oil pumps. BSFC without pumps, 2% less.

Additional ratings may be available for specific customer requirements. Consult your Cat representative for details.

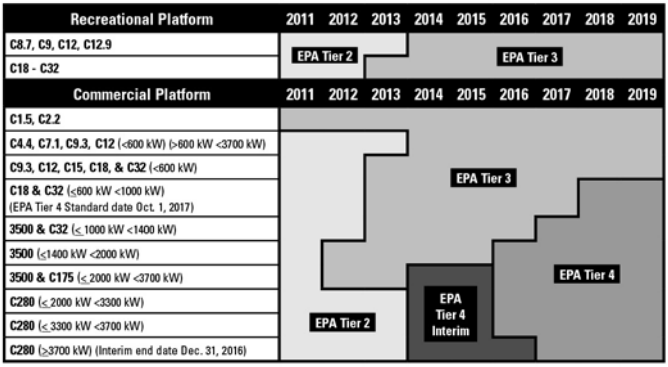
Performance Data

Performance along a typical fixed pitch propeller curve with a 3.0 exponent.

Power rated in accordance with NMMA procedure as crankshaft power. For units equipped with Caterpillar supplied marine gears, reduce crankshaft power by 3% for propeller shaft power.

Emissions Information

U.S. EPA Standards



U.S. EPA Regulations

NC — Not U.S. EPA Marine Certified for use in the U.S. or Canada.

T3C — Meets U.S. EPA Marine Tier 3 Commercial standards.

T3R — Meets U.S. EPA Marine Tier 3 Recreational standards.

T3CR — Meets U.S. EPA Marine Tier 3 Commercial standards and U.S. EPA Marine Tier 3 Recreational standards.

T4C — Meets U.S. EPA Marine Tier 4 Final Commercial standards

Canada Regulations

As of January 1, 2016 Category 2 engines (7 to 30 l/cylinder) on Canadian flagged vessels must meet U.S. EPA requirements or have an equivalent certificate that has been provided by another country. All other marine engines must meet IMO requirements for vessels constructed after December 31, 2010.

IMO/EU Certification

Tier	Date	NOx Limit (g/kWh)		
		n < 130	130 ≤ n < 2000	n ≥ 2000
Tier I	2000	17.0	$45 \cdot n^{-0.2}$	9.8
Tier II	2011	14.4	$44 \cdot n^{-0.23}$	7.7
Tier III	2016*	3.4	$9 \cdot n^{-0.2}$	2.0

IMO Certification

IMOI — Meet IMO emissions standards for the year 2000 as defined by Regulation 13 of Annex VI to the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the protocol of 1997. Applies to specific engines in vessels with a keel lay date from Jan. 1, 2000 until Dec. 31, 2010; other rules may apply.

IMOII — Emissions data measurement is consistent with the procedures described in the NOx Technical Code 2008. The engine exhaust emissions meet the International Maritime Organization's Regulation 13 of Revised Annex VI to the MARPOL Convention. Applies to engines greater than 130 kW on vessels flagged in countries party to the MARPOL Annex VI Convention and the vessel is constructed after Dec 31, 2010. IMO II typically applies outside of NOx Emissions Control Areas (NOx ECA). See IMO.org "status of conventions" for a current list of nations enforcing MARPOL Annex VI. Other rules may apply.

IMOIII — Emissions data measurement is consistent with the procedures described in the NOx Technical Code 2008. The engine exhaust emissions meet the International Maritime Organization's Regulation 13 of Revised Annex VI to the MARPOL Convention. IMOIII applies to NOx Emission Control Areas (NOx ECA) defined areas. Other rules may apply.

NST — Engines ≤ 130 bkW are not subject to IMO regulations

EU Certification

Commercial Craft Directive 97/68/EC (EU Stage IIIA)

This directive is in effect and applies to all propulsion and auxiliary engines. Caterpillar has certified some engines with a rated power of greater than 560 bkW to this standard. Most of these are to be used for inland waterway vessels. These engines also became effective by reciprocity agreement with CCNR Stage II, on July 1, 2007.

Central Commission for Navigation on the Rhine
Commercial Craft — CCNR Stage II diesel engine emissions limits became effective July 1, 2007; this Directive applies to engines with a rated power at or above 37 kW.

Engine Certification Descriptions

CC2 — Meets CCNR Stage II

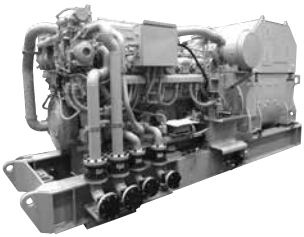
IW — Meets EU Stage IIIA or referred to as, Inland Waterway Commercial Craft Directive, meaning the same as Commercial Craft Directive 97/68/EC (EU Stage IIIA)

NC — Not Certified for specific regulations.

NST — Engines ≤ 19 kW are not subject to CCNR legislation.

RCD — Recreational Craft Directive, meets EU 94/25/EC. This directive is in effect and applies to all recreational engines used in the European Union areas.

Cat Marine Custom Solutions

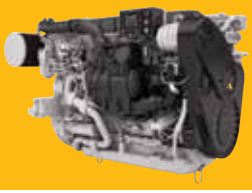


Find a custom solution for your operation that comes with full standard warranty and the worldwide Cat dealer support network. For a specific rating, option, or product configuration not currently available, talk to your local Caterpillar representative about your particular requirements, such as:

- Special ratings available upon request
- Constant and variable Diesel Electric Propulsion (DEP) generator sets
- Custom auxiliary generator sets
- Alarm and protection systems
- Guaranteed power 0/+3% power setting*
- Custom witness tests
- Customized options (e.g. dual starters, generator lube systems)

*Contact local dealer for availability.

Electronic
Control
System



C8.7

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

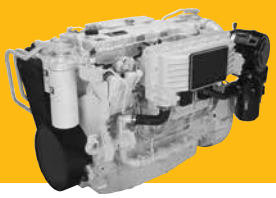
	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
E	650	641	478	2300	33.0	217	T3R - II - IW

	LE	H	WE
min.	47.9 in/1218 mm	38.7 in/984 mm	34.7 in/881 mm
max.	47.9 in/1218 mm	38.7 in/984 mm	34.7 in/881 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TSA	
Bore x Stroke	4.6 x 5.3 in	117 x 135 mm
Displacement	531 cu in	8.7 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2295 lb	1041 kg

C9 ACERT™
PROPULSION ENGINE



Electronic Control System

RATINGS AND FUEL CONSUMPTION

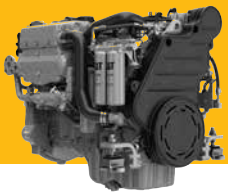
	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
D	510	503	375	2500	26.0	220.3	NC - II - NC
E	575	567	423	2500	29.2	221.9	NC - II - NC

	LE	H	WE
min.	47.2 in/1198 mm	38.7 in/983 mm	38.3 in/974 mm
max.	47.2 in/1198 mm	38.7 in/983 mm	38.3 in/974 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	4.41 x 5.87 in	112 x 149 mm
Displacement	538 cu in	8.8 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2086 lb	946 kg

Electronic
Control
System



C9.3

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
Preliminary							
B	381	375	280	1800	TBD	TBD	T3C - II - IW
C	421	416	310	2100	TBD	TBD	T3C - II - IW
D	483	476	355	2300	TBD	TBD	T3C - II - IW

	LE	H	WE
min.	57.2 in/1452 mm	43.0 in/1093 mm	38.5 in/978 mm
max.	57.2 in/1452 mm	43.0 in/1093 mm	38.5 in/978 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	4.53 x 5.87 in	115 x 149 mm
Displacement	568 cu in	9.3 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2083-2474 lb	945-1122 kg

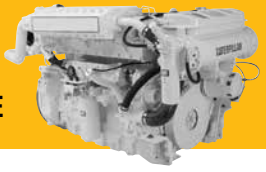
C12
PROPULSION ENGINE

Electronic Control System

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	345	340	254	1800	16.6	208.3	NC - II - NC
B	390	385	287	1800	18.6	205.7	NC - II - NC
C	460	454	339	2100	22.0	205.9	NC - II - NC
C	497	490	366	2300	24.0	208.8	NC - I - NC
D	578	570	425	2300	27.9	208.8	NC - I - NC
E	609	600	448	2300	29.3	208.1	NC - I - NC

C12 ACERT
PROPULSION ENGINE



Electronic Control System

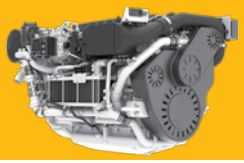
RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
E	669	660	492	2300	34.1	220.0	NC - II - NC
E	715	705	526	2300	36.5	220.3	NC - II - NC

	LE	H	WE
min.	62 in/1574 mm	39.5 in/1005 mm	38.1 in/969 mm
max.	62 in/1574 mm	39.5 in/1005 mm	38.1 in/969 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	5.1 x 5.9 in	130 x 150 mm
Displacement	732 cu in	12 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2588 lb	1174 kg



C12.9

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

Preliminary

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
E	850	838	625	2300	43.3	220.1	T3R - II - IW
E	1000	985	735	2300	50.7	218.9	T3R - II - IW

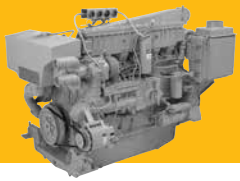
	LE	H	WE
min.	57.6 in/1463 mm	42.7 in/1085 mm	43.7 in/1110 mm
max.	57.6 in/1463 mm	42.7 in/1085 mm	43.7 in/1110 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	5.31 x 5.9 in	135 x 150 mm
Displacement	787 cu in	12.9 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	3479-3523 lb	1578-1598 kg

3406C

PROPULSION ENGINE



Mechanical
Control
System

RATINGS AND FUEL CONSUMPTION

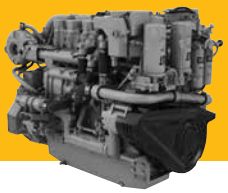
	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	370	365	272	1800	17.8	208.0	NC - NC - NC
B	406	400	298	1800	19.5	208.0	NC - NC - NC

	LE	H	WE
min.	57.3 in/1454.2 mm	50.3 in/1278.5 mm	36.0 in/913.5 mm
max.	57.3 in/1454.2 mm	50.3 in/1278.5 mm	36.0 in/913.5 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	5.4 x 6.5 in	137.2 x 165.1 mm
Displacement	891 cu in	14.6 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2921 lb	1325 kg

Electronic Control System



C18 ACERT
PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

IMO Tier II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	460	454	339	1800	22.6	212.1	NC - II - IW
A	485	479	357	1800	23.7	211.3	NC - II - IW
A	608	600	447	1800	30.0	213.1	NC - II - IW
B	560	553	412	2100	28.7	221.3	NC - II - IW
B	680	670	500	2100	35.2	223.8	NC - II - IW
C	725	715	533	2100	37.6	223.9	NC - II - IW
D	885	873	651	2200	45.0	219.3	NC - II - IW

U.S. EPA Tier 3 and IMO Tier II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	475	469	350	1800	24.5	222.0	T3C - II - IW
A	608	600	447	1800	30.7	218.5	T3C - II - IW
B[1]	680	670	500	1800-2100	34.7	223.6	T3C - II - IW
C[1]	725	715	533	1800-2100	37.2	221.7	T3C - II - IW
D	814	803	599	2100	41.8	221.6	T3C - II - IW
E	1015	1001	747	2300	53.8	228.9	T3CR - II - IW
E	1150	1136	847	2300	58.6	219.8	T3R - II - IW

[1]Wide Operating Speed Range (WOSR)

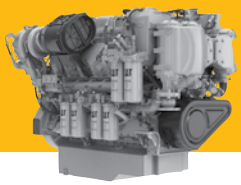
Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp)

	LE	H	WE
min.	73.0 in/1854 mm	47.2 in/1198 mm	44.6 in/1134 mm
max.	76.0 in/1931 mm	51.2 in/1300 mm	47.4 in/1204 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA, TTA	
Bore x Stroke	5.7 x 7.2 in	145 x 183 mm
Displacement	1106 cu in	18.1 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	4000-4299 lb	1814-1950 kg

C32 ACERT
PROPULSION ENGINE



Electronic Control System

COMMERCIAL APPLICATIONS

RATINGS AND FUEL CONSUMPTION

IMO Tier II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA	-IMO-	EU
A[1]	669	660	492	1600-1800	32.3	208.4	NC	- II -	IW
A[1]	760	750	559	1600-1800	36.2	205.8	NC	- II -	IW
A[1]	862	850	634	1600-1800	41.0	205.3	NC	- II -	IW
A	964	950	709	1600	45.2	202.7	NC	- II -	IW
A[1]	1014	1000	746	1600-1800	48.1	204.9	NC	- II -	IW
B[1]	1217	1200	895	1800-2000	59.3	210.5	NC	- II -	IW
B	1319	1300	970	2100	64.1	211.2	NC	- II -	IW
C	1319	1300	970	1800	62.5	204.6	NC	- II -	IW
C[1]	1470	1450	1081	2000-2300	77.2	226.8	NC	- II -	IW

U.S. EPA Tier 3 & IMO Tier II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA	-IMO-	EU
A[1]	760	750	559	1600-1800	37.5	213.2	T3C	- II -	IW
A[1]	862	850	634	1600-1800	42.8	214.2	T3C	- II -	IW
A[1]	862	850	634	1800-2100	45.4	227.9	T3C	- II -	IW
A[1]	1014	1000	746	1600-1800	49.8	212.1	T3C	- II -	IW
B[1]	1217	1200	895	1800-2100	62.6	222.2	T3C	- II -	IW
C[1]	1319	1300	970	1800-2100	67.9	222.7	T3C	- II -	IW
C[1]	1470	1450	1081	2100-2300	75.9	223.1	T3C	- II -	IW

[1]Wide Operating Speed Range (WOSR)

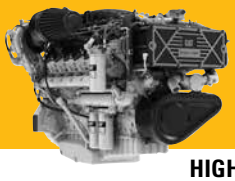
Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp)

	LE	H	WE
min.	83.5 in/2121 mm	60.9 in/1547 mm	60.17 in/1528 mm
max.	89.9 in/2284 mm	62.5 in/1587 mm	60.17 in/1528 mm

Vee 12, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	5.71 x 6.38 in	145 x 162 mm
Displacement	1959 cu in	32.1 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	6950-7160 lb	3152-3248 kg

Electronic Control System



C32 ACERT PROPULSION ENGINE

HIGH PERFORMANCE APPLICATIONS

RATINGS AND FUEL CONSUMPTION

U.S. EPA Tier 3 and IMO Tier II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
D	1622	1600	1193	2300	82.1	218.2	T3CR- II - IW
E	1724	1700*	1268	2300	—	—	T3CR- II - IW
E	1825	1800	1342	2300	97.1	229.7	T3CR- II - IW
E	1925	1900	1417	2300	101.4	227.2	T3R - II - IW

*Contact local dealer for availability.

	LE	H	WE
min.	82.9 in/2106 mm	56.9 in/1445 mm	58.3 in/1482 mm
max.	82.9 in/2106 mm	56.9 in/1445 mm	58.3 in/1482 mm

Vee 12, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	5.71 x 6.38 in	145 x 162 mm
Displacement	1959 cu in	32.1 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	6780 lb	3075 kg

3508C

PROPULSION ENGINE

Electronic Control System

RATINGS AND FUEL CONSUMPTION

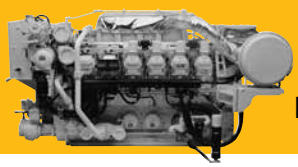
	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	786	775	578	1200	36.9	206.1	NC - II - IW
A	1015	1000	746	1600	48.9	208.3	NC - II - IW
B	862	850	634	1200	40.4	202.8	NC - II - IW
B	1065	1050	783	1600	51.6	209.4	NC - II - IW
C	913	900	671	1200	42.9	203.4	NC - II - IW
C	1115	1100	820	1600	54.2	210.1	NC - II - IW

	LE	H	WE
min.	83.4 in/2117 mm	72.0 in/1829 mm	67.0 in/1703 mm
max.	83.4 in/2117 mm	72.0 in/1829 mm	67.0 in/1703 mm

Vee 8, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	6.7 x 7.5 in	170 x 190 mm
Displacement	2107 cu in	34.5 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	10,935 lb	4960 kg

Electronic Control System



3512C

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	1298	1280	955	1600	61.3	204.0	NC - II - IW
A	1318	1300	969	1200	64.3	210.6	NC - II - IW
A	1420	1400	1044	1600	66.6	202.5	NC - II - IW
A	1520	1500	1118	1800	70.3	200.1	NC - II - IW
A[1]	1521	1500	1118	1200	71.5	203.0	NC - II - IW
A[1]	1699	1676	1250	1600	79.7	202.6	NC - II - IW
A[1]	1836	1810	1350	1600	84.7	207.1	NC - II - IW
B	1378	1359	1014	1600	64.8	203.0	NC - II - IW
B	1420	1400	1044	1200	69.1	210.1	NC - II - IW
B	1521	1500	1118	1600	71.1	201.9	NC - II - IW
B	1597	1575	1174	1800	73.8	199.9	NC - II - IW
B[1]	1622	1600	1194	1200	76.2	202.8	NC - II - IW
B[1]	1774	1749	1305	1600	82.5	200.7	NC - II - IW
B[1]	1938	1911	1425	1600	89.0	208.5	NC - II - IW
B[1]	2282	2250	1678	1800	111.0	209.9	NC - II - IW
C	1429	1409	1051	1600	67.0	202.4	NC - II - IW
C	1521	1500	1118	1200	74.1	210.3	NC - II - IW
C	1622	1600	1194	1600	70.4	201.7	NC - II - IW
C	1673	1650	1230	1800	77.2	199.6	NC - II - IW
C[1]	1723	1700	1268	1200	83.4	204.0	NC - II - IW
C[1]	1876	1851	1380	1600	86.4	199.0	NC - II - NC
C[1]	2040	2012	1500	1600	93.7	208.8	NC - II - IW
C[1]	2400	2365	1765	1800	116.5	214.5	NC - II - IW
D[1]	2587	2551	1902	1800	124.4	207.7	NC - II - IW

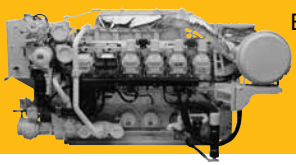
[1]High displacement engine (HD)

	LE	H	WE
min.	102.0 in/2590 mm	75.0 in/1904 mm	80.2 in/2037 mm
max.	105.1 in/2669 mm	88.3 in/2242 mm	87.9 in/2232 mm

Vee 12, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	6.69 x 7.48 in	170 x 190 mm
Bore x Stroke[1]	6.69 x 8.46 in	170 x 215 mm
Displacement	3161 cu in	51.8 liter
Displacement[1]	3574 cu in	58.6 liter
Rotation (from flywheel end)	Counterclockwise or Clockwise	
Engine dry weight (approx)	14,400-16,340 lb	6532-7411 kg

3512C
PROPULSION ENGINE



Electronic Control System

RATINGS AND FUEL CONSUMPTION

U.S. EPA Tier 3 Ratings

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	1359	1340	1000	1600	67.0	212.8	T3C - II - NC
A	1522	1501	1120	1600	74.6	211.5	T3C - II - NC
A	1522	1501	1120	1800	75.4	213.7	T3C - II - NC
A	1835	1810	1350	1600	88.7	208.6	T3C - II - NC
B	1597	1575	1175	1600	77.9	210.6	T3C - II - NC
B	1597	1575	1175	1800	79.0	213.6	T3C - II - NC
B	1937*	1910	1425	1600	93.5	208.5	T3C - II - NC
B	2280*	2249	1678	1800	114.8	217.3	T3C - II - NC
C	1672	1649	1230	1600	81.3	209.8	T3C - II - NC
C	1672	1649	1230	1800	83.0	214.3	T3C - II - NC
C	2039*	2011	1500	1600	98.6	208.8	T3C - II - NC
C	2399*	2366	1765	1800	120.8	217.4	T3C - II - NC

All ratings are high displacement.

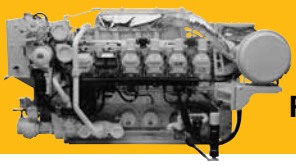
*Contact local dealer for availability. (These ratings will not be available after January 1, 2016.)

	LE	H	WE
min.	104.2 in/2645 mm	87.5 in/2222.6 mm	80.2 in/2037 mm
max.	104.2 in/2645 mm	87.5 in/2222.6 mm	80.2 in/2037 mm

Vee 12, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	6.69 x 8.46 in	170 x 215 mm
Displacement	3574 cu in	58.6 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	16,508 lb	7488 kg

Electronic Control System



3512E

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

Preliminary – U.S. EPA Tier 4 Final and IMO Tier III Ratings

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	1360	1341	1000	1600	TBD	TBD	T4C - III -
A	1523	1502	1120	1600	TBD	TBD	T4C - III -
A	1523	1502	1120	1800	TBD	TBD	T4C - III -
A	1724	1700	1268	1600	TBD	TBD	T4C - III -
A	1835	1810	1350	1600	TBD	TBD	T4C - III -
A	2028	2000	1491	1600	TBD	TBD	T4C - III -
A	2282	2250	1678	1800	TBD	TBD	T4C - III -
B	1598	1576	1175	1800	TBD	TBD	T4C - III -
B	2142	2112	1575	1600	TBD	TBD	T4C - III -
B	2408	2375	1771	1800	TBD	TBD	T4C - III -
C	1673	1650	1230	1800	TBD	TBD	T4C - III -
C	2244	2213	1650	1600	TBD	TBD	T4C - III -
C	2585	2549	1901	1800	TBD	TBD	T4C - III -

All ratings are high displacement.

Engines require SCR Aftertreatment.

Contact dealer for availability and technical detail.

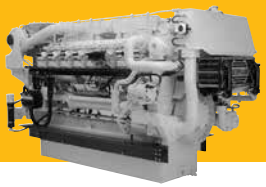
	LE	H	WE
min.	104.2 in/2645 mm	87.5 in/2222.6 mm	80.2 in/2037 mm
max.	104.2 in/2645 mm	87.5 in/2222.6 mm	80.2 in/2037 mm

Vee 12, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	6.69 x 8.46 in	170 x 215 mm
Displacement	3574 cu in	58.6 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	16,508 lb	7488 kg

3516C

PROPULSION ENGINE



Electronic Control System

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	1673	1650	1230	1200	78.9	206.2	NC - II - IW
A	2028	2000	1492	1600	96.3	202.8	NC - II - IW
A[1]	2292	2260	1686	1600	107.5	202.4	NC - II - IW
A[1]	2482	2448	1825	1600	113.2	206.9	NC - II - IW
B	1775	1750	1305	1200	84.2	206.2	NC - II - IW
B	2130	2100	1566	1600	100.4	201.8	NC - II - IW
B[1]	2407	2375	1771	1600	112	200.8	NC - II - IW
B[1]	2611	2575	1920	1600	118.6	206.7	NC - II - IW
B[1]	3046	3004	2240	1800	148.3	210.3	NC - II - IW
C	1876	1850	1379	1200	90.0	207.0	NC - II - IW
C	2231	2200	1641	1600	104.5	201.9	NC - II - IW
C[1]	2534	2500	1864	1600	117.0	199.3	NC - II - NC
C[1]	2720	2682	2000	1600	123.4	198.5	NC - II - IW
C[1]	3196	3151	2350	1800	148.6	209.2	NC - I - NC
C[1]	3196	3151	2350	1800	154.7	200.9	NC - II - IW
D[1]	2855	2816	2100	1600	114.9	199.0	NC - II - IW
D[1]	3434	3386	2525	1800	165.0	207.6	NC - II - IW

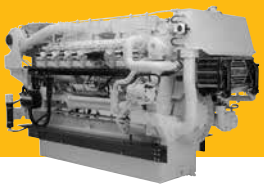
[1]High displacement engine (HD)

	LE	H	WE
min.	143.1 in/3637 mm	77.4 in/1967 mm	80.2 in/2037 mm
max.	148.0 in/3761 mm	84.6 in/2150 mm	84.3 in/2142 mm

Vee 16, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	6.69 x 7.48 in	170 x 190 mm
Bore x Stroke[1]	6.69 x 8.46 in	170 x 215 mm
Displacement	4211 cu in	69 liter
Displacement[1]	4765 cu in	78 liter
Rotation (from flywheel end)	Counterclockwise or Clockwise	
Engine dry weight (approx)	17,550-19,025 lb	7961-8629 kg

Electronic Control System



3516C

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

U.S. EPA Tier 3

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	2161	2131	1590	1600	103.6	207.0	T3C - II - NC
A	2480	2446	1825	1600	118.9	206.9	T3C - II - NC
B	2270	2239	1670	1600	108.9	207.0	T3C - II - NC
B	2610	2574	1920	1600	125.0	206.7	T3C - II - NC
C	2379	2346	1750	1600	114.1	207.0	T3C - II - NC
C	2712	2675	1995	1600	129.8	206.6	T3C - II - NC

All ratings are high displacement.

Contact local dealer for availability. (These ratings will not be available after January 1, 2016.)

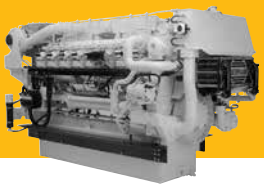
	LE	H	WE
min.	125.7 in/3192 mm	87.6 in/2225 mm	89.9 in/2284 mm
max.	125.7 in/3192 mm	87.6 in/2225 mm	89.9 in/2284 mm

Vee 16, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	6.69 x 8.46 in	170 x 215 mm
Displacement	4765 cu in	78 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	21,164 lb	9600 kg

3516E

PROPULSION ENGINE



Electronic Control System

RATINGS AND FUEL CONSUMPTION

Preliminary – U.S. EPA Tier 4 Final and IMO Tier III Ratings

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	2536	2501	1865	1600	TBD	TBD	T4C - III -
A	2720	2682	2000	1600	TBD	TBD	T4C - III -
A	3046	3004	2240	1800	TBD	TBD	T4C - III -
B	2855	2816	2100	1600	TBD	TBD	T4C - III -
B	3195	3151	2350	1800	TBD	TBD	T4C - III -
C	2991	2950	2200	1600	TBD	TBD	T4C - III -
C	3433	3386	2525	1800	TBD	TBD	T4C - III -

All ratings are high displacement.

Engines require SCR Aftertreatment.

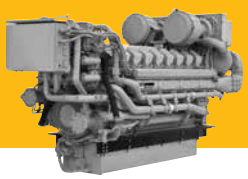
Contact dealer for availability and technical detail.

	LE	H	WE
min.	125.7 in/3192 mm	87.6 in/2225 mm	89.9 in/2284 mm
max.	125.7 in/3192 mm	87.6 in/2225 mm	89.9 in/2284 mm

Vee 16, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	6.69 x 8.46 in	170 x 215 mm
Displacement	4765 cu in	78 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	21,164 lb	9600 kg

Electronic
Control
System



C175-16

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

IMO Tier II Ratings

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	2721	2683	2001	1600	132.6	210.6	NC - II - NC
A	2832	2792	2082	1600	138.2	210.9	NC - II - NC
A	3045	3003	2239	1800	143.8	204.1	NC - II - NC
A	3302	3256	2428	1800	156.1	204.3	NC - II - NC
B	2948	2907	2168	1600	144.3	211.5	NC - II - NC
B	3468	3420	2550	1800	167.8	209.1	NC - II - NC

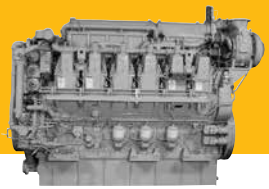
	LE	H	WE
min.	177.8 in/4515 mm	97.6 in/2478 mm	72.6 in/1845 mm
max.	177.8 in/4515 mm	97.6 in/2478 mm	72.6 in/1845 mm

Vee 16, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	6.88 x 8.66	175 x 220 mm
Displacement	5166.88 cu in	84.67 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	28,750 lb	13 041 kg

C280-6

PROPULSION ENGINE



Electronic Control System

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
CS	2352	2320	1730	900	106	194.7	NC - II - NC
CS	2515	2481	1850	1000	118	202.7	NC - II - NC
MC	2583	2548	1900	900	116	194.0	NC - II - NC
MC	2760	2722	2030	1000	128	200.4	NC - II - NC

C280-6 propulsion ratings listed above are also available in Tier 2 configurations.

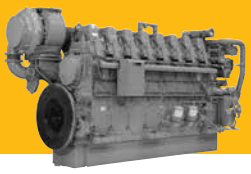
Contact local dealer for availability.

	LE	H	WE
min.	158 in/4013 mm	108 in/2743 mm	71 in/1803 mm
max.	158 in/4013 mm	108 in/2743 mm	71 in/1803 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	6773 cu in	111 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	34,496 lb	15 680 kg

Electronic Control System



C280-8

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
CS	3127	3084	2300	900	136	187.9	NC - II - NC
CS	3345	3299	2460	1000	153	197.7	T4C - II - NC
MC	3440	3393	2530	900	150	188.4	NC - II - NC
MC	3684	3634	2710	1000	168	197.0	T4C - II - NC

C280-8 propulsion ratings listed above are also available in Tier 2 configurations.

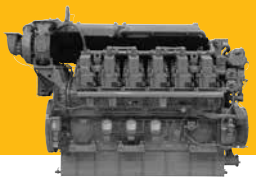
	LE	H	WE
min.	195 in/4953 mm	104 in/2642 mm	71 in/1803 mm
max.	195 in/4953 mm	104 in/2642 mm	71 in/1803 mm

In-line 8, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	9031 cu in	148 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	41,800 lb	19 000 kg

C280-12

PROPULSION ENGINE



Electronic Control System

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
CS	4704	4640	3460	900	211	193.8	NC - II - NC
CS	5031	4962	3700	1000	236	202.7	T4C - II - NC
MC	5167	5096	3800	900	232	194.0	NC - II - NC
MC	5520	5444	4060	1000	255	199.6	T4C - II - NC

C280-12 propulsion ratings listed above are also available in Tier 2 configurations.

	LE	H	WE
min.	182 in/4623 mm	134 in/3404 mm	80 in/2032 mm
max.	182 in/4623 mm	134 in/3404 mm	80 in/2032 mm

Vee 12, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	13,546 cu in	222 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	57,276 lb	25 980 kg

Electronic
Control
System

C280-16

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
CS	6255	6169	4600	900	272	187.9	NC - II - NC
CS	6690	6598	4920	1000	305	197.0	NC - II - NC
MC	6879	6785	5060	900	300	188.4	NC - II - NC
MC	7369	7268	5420	1000	336	197.0	NC - II - NC
FCVR	7682	7577	5650	1000	365	205.3	NC - II - NC

Arrangements are available with front mounted turbochargers or rear mounted turbochargers.

C280-16 propulsion ratings listed above are also available in Tier 2 configurations.

Contact local dealer for availability.

	LE	H	WE
min.	224 in/5690 mm	134 in/3403 mm	80 in/2032 mm
max.	224 in/5690 mm	134 in/3403 mm	80 in/2032 mm

Vee 16, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	18,062 cu in	296 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	68,343 lb	31 000 kg

DEP

DIESEL ELECTRIC PROPULSION – 50 HZ

RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C4.4 ACERT	94.5	70.5	1500	5.2	236.8	NC - II - CC2
C4.4 ACERT	116.4	86.8	1500	6.2	227.5	NC - II - CC2
C4.4 ACERT	145.6	108.6	1500	7.4	217.9	NC - II - CC2
C7.1 ACERT	134.9	100.6	1500	7.8	263.6	NC - II - CC2
C7.1 ACERT	146.5	109.3	1500	7.9	229.6	NC - II - CC2
C7.1 ACERT	162.6	121.3	1500	9.3	251.3	NC - II - CC2
C7.1 ACERT	172.9	129	1500	9.2	227.5	NC - II - CC2
C7.1 ACERT	209.5	156.3	1500	11.3	239.8	NC - II - CC2
C7.1 ACERT	219.8	164	1500	11.2	216.5	NC - II - CC2
C9	253	189	1500	10.9	183.3	NC - II - NC
C9	288	215	1500	14.2	209.9	NC - II - NC
C9.3*	292	218	1500	TBD	TBD	T3C - II - IW
C9.3*	362	270	1500	TBD	TBD	T3C - II - IW
C18 ACERT	404	301	1500	19.9	210.1	NC - II - CC2
C18 ACERT	514	383	1500	25.2	209.1	NC - II - CC2
C18 ACERT	587	438	1500	28.7	208.2	NC - II - CC2
C18 ACERT	660	492	1500	32.3	208.6	NC - II - CC2
C32 ACERT	791	590	1500	37.9	203.8	NC - II - IW
C32 ACERT	923	688	1500	44.0	203.0	NC - II - IW
C32 ACERT	1172	874	1500	57.0	207.0	NC - II - IW
3512B	1686	1257	1500	77.4	195.7	NC - II - NC
3508C	903	673	1500	44.4	209.4	NC - II - NC
3508C	1100	820	1500	53.2	206.1	NC - II - NC
3512C	1826	1362	1500	84.7	197.5	NC - II - NC
3516C	2303	1717	1500	110.3	203.9	NC - II - NC
3516C	2600	1940	1500	122.6	200.8	NC - II - NC
C175-16	3243	2418	1500	153.7	201.9	NC - II - NC
C280-6	2481	1850	1000	118.9	204.3	NC - II - NC
C280-6	2722	2030	1000	131.7	206.2	NC - II - NC
C280-8	3299	2460	1000	153.2	197.9	NC - II - NC
C280-8	3634	2710	1000	170.3	199.7	NC - II - NC
C280-12	4962	3700	1000	237.7	204.2	NC - II - NC
C280-12	5445	4060	1000	263.4	206.2	NC - II - NC
C280-16	6598	4920	1000	306.4	197.9	NC - II - NC
C280-16	7268	5420	1000	340.6	199.7	NC - II - NC

*Preliminary

DEP

DIESEL ELECTRIC PROPULSION – 60 HZ

RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C4.4 ACERT	87.4	65.2	1500	5.0	241.9	NC - II - CC2
C4.4 ACERT	109.2	81.5	1500	5.9	231.3	NC - II - CC2
C4.4 ACERT	145.6	108.6	1500	7.5	220.3	NC - II - CC2
C4.4 ACERT	172.9	129	1500	8.3	204.5	NC - II - CC2
C7.1 ACERT	155.8	116.2	1800	9.1	254.2	NC - II - CC2
C7.1 ACERT	172.9	129	1800	9.5	233.6	NC - II - CC2
C7.1 ACERT	202.7	151.2	1800	11.1	243.5	NC - II - CC2
C7.1 ACERT	219.7	163.9	1800	11.3	219.4	NC - II - CC2
C7.1 ACERT	239.3	178.5	1800	12.7	231.5	NC - II - CC2
C7.1 ACERT	256.4	191.3	1800	13.2	219.5	NC - II - CC2
C7.1 ACERT	293.0	218.6	1800	14.9	216.4	NC - II - CC2
C9	253	189	1800	13.7	230.4	NC - II - CC2
C9	311	232	1800	16.9	231.5	NC - II - CC2
C9	361	269	1800	17.9	211.5	NC - II - CC2
C9.3*	369	275	1800	TBD	TBD	T3C - II - IW
C9.3*	436	325	1800	TBD	TBD	T3C - II - IW
C18 ACERT	624	465	1800	32.8	224.0	T3C - II - NC
C18 ACERT	803	599	1800	25.4	217.0	NC - II - NC
C32 ACERT	916	683	1800	45.3	210.8	NC - II - IW
C32 ACERT	1047	781	1800	57.8	210.4	NC - II - IW
C32 ACERT	1047	781	1800	54.3	220.8	T3C - II - IW
C32 ACERT	1333	994	1800	64.9	207.2	NC - II - IW
C32 ACERT	1333	994	1800	68.0	217.3	T3C - II - IW
3512C	1920	1432	1800	91.9	204.0	NC - II - IW
3512C	2183	1628	1800	110.2	215.1	NC - II - IW
3512C	2400	1790	1800	119.7	212.4	NC - II - IW
3512E	2189	1632	1800	TBD	TBD	T4C - III - NC
3512E	2399	1789	1800	TBD	TBD	T4C - III - NC
3516C	2435[1]	1815	1800	129.0	226.0	T3C - II - NC
3516C	2809	2095	1800	132.0	200.2	NC - II - IW
3516C	2984	2225	1800	140.6	200.1	NC - II - IW
3516C	3151	2350	1800	148.9	201.4	NC - II - IW
3516E	2576	1921	1800	TBD	TBD	T4C - III - NC
3516E	2823	2105	1800	TBD	TBD	T4C - III - NC
3516E	3175	2368	1800	TBD	TBD	T4C - III - NC
C280-6	2320	1730	900	107.4	197.3	NC - II - NC
C280-6	2548	1900	900	118.6	198.4	NC - II - NC
C280-8	3084	2300	900	143.7	198.6	T4C - II - NC
C280-8	3393	2530	900	159.4	200.2	T4C - II - NC
C280-12	4640	3460	900	214.9	197.4	T4C - II - NC
C280-12	5096	3800	900	237.2	198.4	T4C - II - NC
C280-16	6169	4600	900	287.4	198.6	T4C - II - NC
C280-16	6786	5060	900	318.7	200.1	T4C - II - NC

*Preliminary

[1]This rating will not be available after January 1, 2016.

Cat Marine Generator Sets and Auxiliary Engines

Caterpillar has offered packaged power systems for over 70 years. We assure power and performance ratings, as advertised, through extensive factory testing.

Cat Generator Sets typically exceed NEMA and IEEE standards for load acceptance. All rotor designs have been type tested at 150% overspeed for two hours at 338°F (170°C) ambient temperature.

Rating Definition

All Caterpillar Marine Auxiliary engines and generator sets are rated for prime power for continuous electric service according to ISO 8528-1.

Hours per Year	Unlimited
Load Factor	≤ 70%
Overload Capacity	+ 10% maximum of 1 hour in 12 maximum of 25 hours per year

Rating Conditions

Ratings are based on SAE J3046 and J1349 standard conditions of 29.61 in. Hg (100 kPa) and 77°F (25°C). These ratings also apply at ISO8665, ISO3046-1:2002E, DIN6271-3, and BS5514 standard conditions of 29.61 in. Hg (100 kPa), 81°F (27°C), and 60% relative humidity.

Fuel rates are based on fuel oil of 35° API [60°F (16°C)] gravity having an LHV of 18,390 Btu/lb (42 780 kJ/kg) when used at 85°F (29°C) and weighing 7.001 lbs/U.S. gal. (838.9 g/liter).

Marine Auxiliary Engines are mainly used as generator set engines; however, they can be used for electrically driven pumps, winches, conveyors, thrusters, when it is specified. Engines can be radiator cooled or heat exchanger/keel cooled.

Mechanical
Control
System

C1.5
GENERATOR SET

RATINGS AND FUEL CONSUMPTION

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	13.0	16.5	1800	1.2	268.2	T3C - NST - NST
50 Hertz	11.0	13.5	1500	1.0	264.1	T3C - NST - NST

	Generator Set – Single Phase ekW @ 1.0pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	12.0	12.0	1800	1.2	290.5	T3C -NST-NST
50 Hertz	10.0	10.0	1500	1.0	290.5	T3C -NST-NST

	LG	H	W
Open Set	40.8 in/1038 mm	27.1 in/689 mm	21.1 in/535 mm
Enclosed Set	43.1 in/1095 mm	27.9 in/711 mm	24 in/608 mm

In-line 3, 4-Stroke-Cycle Diesel

Aspiration	NA	
Bore x Stroke	3.31 x 3.5 in	84 x 90 mm
Displacement	91 cu in	1.5 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	703/908 lb	319/412 kg

C2.2
GENERATOR SET

Mechanical
Control
System

RATINGS AND FUEL CONSUMPTION

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	19.5	24.0	1800	1.63	242.9	T3C - NST- IW
60 Hertz	27.0	34.0	1800	2.24	241.0	T3C - NST- IW
50 Hertz	16.0	20.0	1500	1.37	248.8	T3C - NST- IW
50 Hertz	22.5	28.0	1500	1.88	242.8	T3C - NST- IW

	Generator Set – Single Phase ekW @ 1.0pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	19.0	19.0	1800	1.63	242.9	T3C - NST - IW
60 Hertz	27.0	27.0	1800	2.24	241.0	T3C - NST - IW
50 Hertz	16.0	16.0	1500	1.37	248.8	T3C - NST - IW
50 Hertz	22.5	22.5	1500	1.88	242.8	T3C - NST - IW

	LG	H	W
Open Set	47.9 in/1219 mm	32.8 in/835 mm	22.3 in/567 mm
Enclosed Set	50.7 in/1290 mm	31 in/775 mm	24.7 in/628 mm

In-line 4, 4-Stroke-Cycle Diesel

Aspiration	NA, T	
Bore x Stroke	3.31 x 3.94 in	84 x 100 mm
Displacement	135 cu in	2.2 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	857/1027 lb	389/466 kg

Mechanical
Control
System

C4.4
GENERATOR SET

RATINGS AND FUEL CONSUMPTION

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA-IMO-	EU
60 Hertz	42.0R	53.0	1800	3.4	235.2	NC-NST-	NC
60 Hertz	44.0	55.0	1800	3.4	224.5	NC-NST-	NC
60 Hertz	56.0R	70.0	1800	4.5	233.5	NC-NST-	NC
60 Hertz	58.5	73.0	1800	4.2	208.6	NC-NST-	NC
60 Hertz	72.0R	90.0	1800	5.8	234.0	NC-NST-	NC
60 Hertz	76.0	95.0	1800	5.8	221.7	NC-NST-	NC
60 Hertz	95.0R	119.0	1800	7.3	223.3	NC-NST-	NC
60 Hertz	99.0	123.0	1800	7.3	214.2	NC-NST-	NC
50 Hertz	36.0R	45.0	1500	2.9	234.0	NC-NST-	CC2
50 Hertz	38.0	47.5	1500	2.9	221.7	NC-NST-	CC2
50 Hertz	49.0R	61.0	1500	3.9	231.2	NC-NST-	CC2
50 Hertz	51.5	64.5	1500	3.9	220.0	NC-NST-	CC2
50 Hertz	65.0R	81.0	1500	4.9	219.0	NC-NST-	CC2
50 Hertz	69.0	86.0	1500	4.9	206.3	NC-NST-	CC2
50 Hertz	82.0R	103.0	1500	6.5	230.3	NC-NST-	NC
50 Hertz	86.0	107.0	1500	6.5	219.6	NC-NST-	NC

R – Radiator cooled only.

ABS, BV, DnV, GL, LR, RINA, CCS approved generator set packages available for all ratings.

	LG	H	W
Open Min.	55.5 in/1409 mm	51.9 in/1318 mm	28.5 in/724 mm
Open Max.	62.6 in/1590 mm	55.3 in/1405 mm	28.5 in/724 mm
Enclosed	68.9 in/1750 mm	39.4 in/1000 mm	47.8 in/1215 mm

In-line 4, 4-Stroke-Cycle Diesel

Aspiration	NA, T, TA	
Bore x Stroke	4.13 x 5.0 in	105 x 127 mm
Displacement	269 cu in	4.4 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	1775-2238 lb	805-1015 kg

C4.4 ACERT
GENERATOR SET

Electronic Control System

RATINGS AND FUEL CONSUMPTION

U.S. EPA Tier 3 & IMO Tier II

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA-IMO - EU
60 Hertz	51R*	64	1800	4.9	235.2	T3C-NST-CC2
60 Hertz	60	75	1800	5.0	241.9	T3C-NST-CC2
60 Hertz	66R*	83	1800	5.8	224.0	T3C-NST-CC2
60 Hertz	75	94	1800	5.9	231.3	T3C-NST-CC2
60 Hertz	90R*	113	1800	7.3	215.2	T3C-NST-CC2
60 Hertz	99	124	1800	7.5	220.3	T3C-NST-CC2
60 Hertz	105R*	131	1800	8.5	210.8	T3C-NST-CC2
60 Hertz	118	148	1800	8.3	204.5	T3C-NST-CC2
50 Hertz	58R*	73	1500	5.1	225.2	T3C-NST-CC2
50 Hertz	65	81	1500	5.2	236.8	T3C-NST-CC2
50 Hertz	73R*	91	1500	6.1	219.4	T3C-NST-CC2
50 Hertz	80	100	1500	6.2	227.5	T3C-NST-CC2
50 Hertz	88R*	110	1500	7.0	205.9	T3C-NST-CC2
50 Hertz	99	124	1500	7.4	217.9	T3C-NST-CC2

Engine type approval available from ABS, BV, DNV, GL, NKK, RINA, CRS.

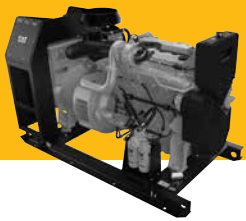
*Radiator cooled ratings are preliminary.

	LG	H	W
Min.	66.4 in/1687 mm	49 in/1245 mm	38.3 in/974 mm
Max.	80.2 in/2037 mm	78.7 in/1999 mm	38.8 in/986 mm

In-line 4, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	4.13 x 5.0 in	105 x 127 mm
Displacement	269 cu in	4.4 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	2736-3389 lb	1241-1537 kg

Electronic
Control
System



C7.1 ACERT GENERATOR SET

RATINGS AND FUEL CONSUMPTION

U.S. EPA Tier 3 & IMO Tier II

	Generator Set					
	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	106R*	133	1800	9.1	254.2	T3C - NST - CC2
60 Hertz	118	148	1800	9.5	233.6	T3C - NST - CC2
60 Hertz	138R*	173	1800	11.1	243.5	T3C - II - CC2
60 Hertz	150	188	1800	11.3	219.4	T3C - II - CC2
60 Hertz	163R*	204	1800	12.7	231.5	T3C - II - CC2
60 Hertz	175	219	1800	13.2	219.5	T3C - II - CC2
60 Hertz	200	250	1800	14.9	216.4	T3C - II - CC2
50 Hertz	92R*	115	1500	7.8	263.6	T3C - NST - CC2
50 Hertz	100	125	1500	7.9	229.6	T3C - NST - CC2
50 Hertz	111R*	139	1500	9.3	251.3	T3C - NST - CC2
50 Hertz	118	148	1500	9.2	227.5	T3C - NST - CC2
50 Hertz	143R*	179	1500	11.3	239.8	T3C - II - CC2
50 Hertz	150	188	1500	11.2	216.5	T3C - II - CC2

*Radiator cooled ratings are preliminary.

Engine type approval available from ABS, BV, DNV, GL, LR, NKK, RINA, CRS, CCS.

	LG	H	W
min.	76.3 in/1940 mm	49.7 in/1263 mm	37.6 in/956 mm
max.	102 in/2582 mm	62.3 in/1583 mm	39.0 in/993 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	4.13 x 5.3 in	105 x 135 mm
Displacement	433.3 cu in	7.01 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	3355-4718 lb	1522-2140 kg

C9
GENERATOR SET

Electronic Control System

RATINGS AND FUEL CONSUMPTION

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	163R	204	1800	13.6	228.8	NC - II - CC2
60 Hertz	175	219	1800	13.7	228.8	NC - II - CC2
60 Hertz	203R	254	1800	16.8	229.5	NC - II - CC2
60 Hertz	215	269	1800	16.9	229.5	NC - II - CC2
60 Hertz	238R	298	1800	17.9	211.7	NC - II - CC2
60 Hertz	250	313	1800	17.9	213.9	NC - II - CC2
50 Hertz	142R	178	1500	10.8	212.2	NC - II - NC
50 Hertz	150	188	1500	10.9	212.1	NC - II - NC
50 Hertz	167R	208	1500	12.4	209.0	NC - II - NC
50 Hertz	175	219	1500	12.9	209.0	NC - II - NC
50 Hertz	192R	240	1500	14.2	206.6	NC - II - NC
50 Hertz	200	250	1500	14.2	206.6	NC - II - NC

R – Radiator cooled only.

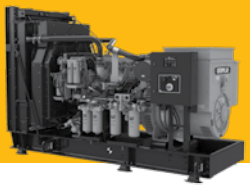
All ratings are available as MCS approvable packages.

	LG	H	WE
min.	82.9 in/2106 mm	46.0 in/1169 mm	39.2 in/996.8 mm
max.	87.2 in/2216 mm	46.0 in/1169 mm	39.2 in/996.8 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	4.41 x 5.87 in	112 x 149 mm
Displacement	538 cu in	8.8 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	3865-4195 lb	1753-1903 kg

Electronic
Control
System



C9.3
GENERATOR SET

RATINGS AND FUEL CONSUMPTION

Preliminary

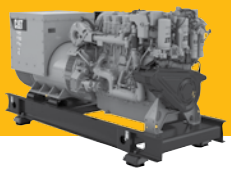
	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	224R	280	1800	TBD	TBD	T3C - II - CC2
60 Hertz	250	313	1800	TBD	TBD	T3C - II - CC2
60 Hertz	274R	343	1800	TBD	TBD	T3C - II - CC2
60 Hertz	300	375	1800	TBD	TBD	T3C - II - CC2
50 Hertz	185R	231	1500	TBD	TBD	T3C - II - CC2
50 Hertz	200	250	1500	TBD	TBD	T3C - II - CC2
50 Hertz	235R	294	1500	TBD	TBD	T3C - II - CC2
50 Hertz	250	313	1500	TBD	TBD	T3C - II - CC2

	LE	H	WE
min.	85.8 in/2179 mm	56.5 in/1436 mm	50.4 in/1260 mm
min.	85.8 in/2179 mm	56.5 in/1436 mm	50.4 in/1260 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	4.13 x 5.31 in	105 x 135 mm
Displacement	568 cu in	9.3 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	5219 lb	2367 kg

C18 ACERT
GENERATOR SET



Electronic Control System

RATINGS AND FUEL CONSUMPTION

IMO Tier II

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
50 Hertz	275	344	1500	19.9	209.5	NC - II - IW
50 Hertz	350	438	1500	25.2	209.0	NC - II - IW
50 Hertz	400	500	1500	28.7	208.0	NC - II - IW
50 Hertz	450	563	1500	32.3	209.0	NC - II - IW
60 Hertz	340	425	1800	25.4	217.0	NC - II - IW
60 Hertz	425	531	1800	31.5	215.0	NC - II - IW
50 Hertz	255R	319	1500	19.2	209.5	NC - II - IW
50 Hertz	330R	413	1500	25.2	209.0	NC - II - NC
50 Hertz	390R	488	1500	28.7	208.0	NC - II - NC
50 Hertz	435R	544	1500	32.3	208.7	NC - II - NC
60 Hertz	315R	394	1800	25.4	217.0	NC - II - IW
60 Hertz	400R	500	1800	31.5	215.0	NC - II - NC

U.S. EPA Tier 3 & IMO Tier II

	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	425	531	1800	32.3	220.0	T3C - II - IW
60 Hertz	550	688	1800	40.4	214.0	T3C - II - IW
60 Hertz	400R	500	1800	32.2	220.0	T3C - II - IW
60 Hertz	525R	656	1800	40.4	214.0	T3C - II - IW

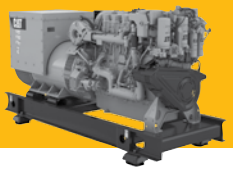
Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp)
Generator set package includes SR4B generator.

	LE	H	WE
min.	119.7 in/3040 mm	66.3 in/1684 mm	60.9 in/1547 mm
max.	119.7 in/3040 mm	66.3 in/1684 mm	60.9 in/1547 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA, TTA	
Bore x Stroke	5.7 x 7.2 in	145 x 183 mm
Displacement	1106 cu in	18.1 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	9713 lb	4406 kg

Electronic
Control
System



C18
GENERATOR SET

RATINGS AND FUEL CONSUMPTION

Preliminary – IMO Tier II

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
50 Hertz	280	350	1500	19.9	209.5	NC - II - IW
50 Hertz	360	450	1500	25.2	209.0	NC - II - IW
50 Hertz	410	513	1500	28.7	208.0	NC - II - IW
50 Hertz	465	581	1500	32.3	209.0	NC - II - IW
60 Hertz	345	431	1800	25.4	217.0	NC - II - IW
60 Hertz	430	538	1800	31.5	215.0	NC - II - IW
50 Hertz	260R	325	1500	19.2	209.5	NC - II - IW
50 Hertz	335R	419	1500	25.2	209.0	NC - II - NC
50 Hertz	390R	488	1500	28.7	208.0	NC - II - NC
50 Hertz	445R	556	1500	32.3	208.7	NC - II - NC
60 Hertz	310R	388	1800	25.4	217.0	NC - II - IW
60 Hertz	395R	494	1800	31.5	215.0	NC - II - NC

U.S. EPA Tier 3 & IMO Tier II

	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	430	538	1800	32.3	220.0	T3C - II - IW
60 Hertz	565	706	1800	40.4	214.0	T3C - II - IW
60 Hertz	395R	594	1800	32.2	220.0	T3C - II - IW
60 Hertz	530R	663	1800	40.4	214.0	T3C - II - IW

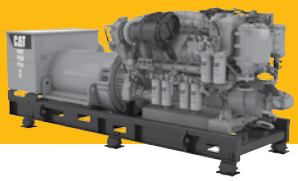
Generator set package includes SRMP generator.

	LE	H	WE
min.	119.7 in/3040 mm	66.3 in/1684 mm	60.9 in/1547 mm
max.	119.7 in/3040 mm	66.3 in/1684 mm	60.9 in/1547 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA, TTA	
Bore x Stroke	5.7 x 7.2 in	145 x 183 mm
Displacement	1106 cu in	18.1 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	9747 lb	4421 kg

C32 ACERT GENERATOR SET



Electronic Control System

RATINGS AND FUEL CONSUMPTION

IMO Tier II

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
50 Hertz	550	688	1500	37.9	203.8	NC - II - IW
50 Hertz	830	1038	1500	57.0	207.0	NC - II - IW
60 Hertz	730	913	1800	51.8	210.4	NC - II - IW
60 Hertz	940	1175	1800	64.9	207.2	NC - II - IW
50 Hertz	525R*	656	1500	37.9	203.8	NC - II - IW
50 Hertz	795R*	994	1500	57.0	207.0	NC - II - IW
60 Hertz	675R*	1100	1800	64.9	207.2	NC - II - IW
60 Hertz	880R*	844	1800	51.8	210.4	NC - II - IW

U.S. EPA Tier 3 & IMO Tier II

	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	730	913	1800	54.3	220.8	T3C - II - IW
60 Hertz	940	1175	1800	68.0	217.3	T3C - II - IW
60 Hertz	675R*	844	1800	54.3	220.8	T3C - II - IW
60 Hertz	880R*	1100	1800	68.0	217.3	T3C - II - IW

*Preliminary

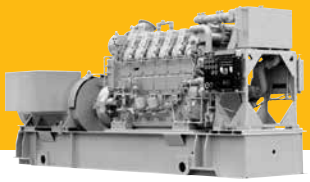
Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp)

	LG	H	W
min.	168.2 in/4271 mm	65.6 in/1667 mm	60.2 in/1528 mm
max.	175.3 in/4452 mm	65.6 in/1667 mm	60.2 in/1528 mm

Vee 12, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	5.7 x 6.4 in	145 x 162 mm
Displacement	1959 cu in	32.1 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	15,721 lb	7131 kg

Electronic
Control
System



C280-6
GENERATOR SET

RATINGS AND FUEL CONSUMPTION

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	1650	2063	900	106.4	195.5	NC - II - NC
60 Hertz	1820	2275	900	116.9	195.5	NC - II - NC
50 Hertz	1760	2200	1000	116.4	200.0	NC - II - NC
50 Hertz	1940	2425	1000	127.7	200.0	NC - II - NC

C280-6 ratings listed above are also available in Tier 2 configurations.
Contact local dealer for availability.

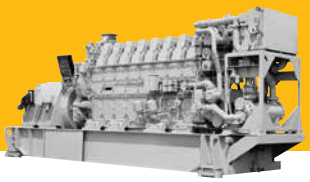
	LE	LG	H	WE
min.	145 in/3691 mm	280.3 in/7120 mm	154.9 in/3934 mm	77.2 in/1961 mm
max.	145 in/3691 mm	280.3 in/7120 mm	154.9 in/3934 mm	77.2 in/1961 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	6773 cu in	111 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	34,500 lb	15 680 kg
Generator weight (approx)	18,000 lb	8165 kg

C280-8

GENERATOR SET



Electronic Control System

RATINGS AND FUEL CONSUMPTION

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	2200	2750	900	136.5	188.6	T4C - II - NC
60 Hertz	2420	3025	900	150.1	188.5	T4C - II - NC
50 Hertz	2350	2938	1000	148.2	191.5	NC - II - NC
50 Hertz	2600	3250	1000	161.4	189.3	NC - II - NC

C280-8 ratings listed above are also available in Tier 2 configurations.

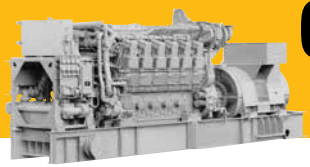
Contact local dealer for availability.

	LE	LG	H	WE
min.	178 in/4511 mm	316.5 in/8040 mm	155.0 in/3937 mm	77.2 in/1961 mm
max.	178 in/4511 mm	316.5 in/8040 mm	155.0 in/3937 mm	77.2 in/1961 mm

In-line 8, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	9031 cu in	148 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	41,800 lb	19 000 kg
Generator weight (approx)	25,000 lb	11 340 kg

Electronic
Control
System



C280-12
GENERATOR SET

RATINGS AND FUEL CONSUMPTION

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	3300	4125	900	212.7	195.4	T4C - II - NC
60 Hertz	3640	4550	900	233.8	195.5	T4C - II - NC
50 Hertz	3520	4400	1000	232.7	199.9	NC - II - NC
50 Hertz	3880	4850	1000	255.5	200.0	NC - II - NC

C280-12 ratings listed above are also available in Tier 2 configurations.
Contact local dealer for availability.

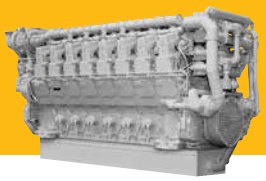
	LE	LG	H	WE
min.	161 in/4087 mm	316.5 in/8040 mm	160.8 in/4085 mm	78.7 in/2000 mm
max.	161 in/4087 mm	316.5 in/8040 mm	160.8 in/4085 mm	78.7 in/2000 mm

Vee 12, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	13,546 cu in	222 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	57,276 lb	25 980 kg
Generator weight (approx)	33,000 lb	14 970 kg

C280-16

GENERATOR SET



Electronic Control System

RATINGS AND FUEL CONSUMPTION

	Generator Set ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
60 Hertz	4400	5500	900	272.9	188.5	T4C - II - NC
60 Hertz	4840	6050	900	300.2	188.6	T4C - II - NC
50 Hertz	4700	5875	1000	296.4	191.5	NC - II - NC
50 Hertz	5200	6500	1000	322.8	189.3	NC - II - NC

C280-16 ratings listed above are also available in Tier 2 configurations.

Contact local dealer for availability.

	LE	LG	H	WE
min.	197 in/5007 mm	366.7 in/9314 mm	164.1 in/4167 mm	78.3 in/1990 mm
max.	197 in/5007 mm	366.7 in/9314 mm	164.1 in/4167 mm	78.3 in/1990 mm

Vee 16, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	18,062 cu in	296 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	68,343 lb	31 000 kg
Generator weight (approx)	40,000 lb	18 145 kg

Electronic
Control
System

C9

GENERATOR SET ENGINE/ AUXILIARY

RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C9	253	189	1800	13.7	228.8	NC - II - CC2
C9	311	232	1800	16.9	229.5	NC - II - CC2
C9	361	269	1800	17.9	211.7	NC - II - CC2
C9	217	162	1500	10.9	212.1	NC - II - NC
C9	253	189	1500	12.9	209.0	NC - II - NC
C9	288	215	1500	14.2	206.6	NC - II - NC

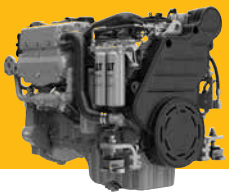
	LE	H	WE
min.	43.9 in/1116.5 mm	43.8 in/1113.7 mm	38.3 in/973.5 mm
max.	43.9 in/1116.5 mm	43.8 in/1113.7 mm	38.3 in/973.5 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	4.41 x 5.87 in	112 x 149 mm
Displacement	538 cu in	8.8 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2088 lb	947 kg

C9.3

GENERATOR SET ENGINE/ AUXILIARY



Electronic Control System

RATINGS AND FUEL CONSUMPTION

Preliminary Constant Speed

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C9.3	292	218	1500	TBD	TBD	T3C - II - CC2
C9.3	362	270	1500	TBD	TBD	T3C - II - CC2
C9.3	369	275	1800	TBD	TBD	T3C - II - CC2
C9.3	436	325	1800	TBD	TBD	T3C - II - CC2

Variable Speed

C9.3	375	280	1800	TBD	TBD	T3C - II - CC2

	LE	H	WE
min.	57.2 in/1452 mm	43.0 in/1093 mm	38.5 in/978 mm
max.	57.2 in/1452 mm	43.0 in/1093 mm	38.5 in/978 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	4.53 x 5.87 in	115 x 149 mm
Displacement	568 cu in	9.3 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2083-2474 lb	945-1122 kg

Electronic Control System

C15

VARIABLE SPEED AUXILIARY

RATINGS AND FUEL CONSUMPTION

bhp	bkW	Aftercooling	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
536	400	SCAC	1800-2000	27.4	218.8	T3C - II - NC
540	403	ATAAC	1800-2000	27.4	218.8	T3C - II - NC

Note: These engines are certified for auxiliary variable speed applications (C1 cycle). Some types of applications can include cranes and pumps. Fuel consumption is at 2000 rpm.

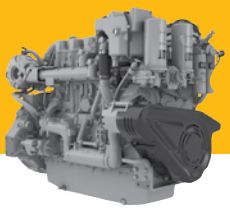
	LE	H	WE
min.	79.3 in/2013 mm	54.8 in/1391 mm	41.35 in/1050.4 mm
max.	80.18 in/2036.6 mm	55.65 in/1413.6 mm	43.6 in/1108 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	5.4 x 6.7 in	137 x 171 mm
Displacement	928 cu in	15.2 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	3538-3730 lb	1605-1692 kg

C18

GENERATOR SET ENGINE/ AUXILIARY



Electronic Control System

RATINGS AND FUEL CONSUMPTION

IMO Tier II

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C18	404	301	1500	19.9	210.0	NC - II - IW
C18	514	383	1500	25.2	209.0	NC - II - IW
C18	587	438	1500	28.7	208.0	NC - II - IW
C18	660	492	1500	32.3	209.0	NC - II - IW
C18	499	372	1800	25.4	217.0	NC - II - IW
C18	624	465	1800	31.5	215.0	NC - II - IW

U.S. EPA Tier 3 & IMO Tier II

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C18	624	465	1800	32.2	220.2	T3C - II - IW
C18	803	599	1800	40.2	213.3	T3C - II - IW

	LE	H	WE
min.	73.0 in/1854 mm	51.2 in/1300 mm	44.6 in/1134 mm
max.	73.0 in/1854 mm	51.2 in/1300 mm	44.6 in/1134 mm

In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA, TTA	
Bore x Stroke	5.7 x 7.2 in	145 x 183 mm
Displacement	1106 cu in	18.1 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	1950 lb	4299 kg

Electronic Control System

C32

GENERATOR SET ENGINE/ AUXILIARY

RATINGS AND FUEL CONSUMPTION

IMO Tier II

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C32	791	590	1500	37.9	203.8	NC - II - IW
C32	923	688	1500	44.0	203.0	NC - II - IW
C32	1172	874	1500	57.0	207.0	NC - II - IW
C32	916	683	1800	45.3	210.8	NC - II - IW
C32	1047	781	1800	51.8	210.4	NC - II - IW
C32	1333	994	1800	64.9	207.2	NC - II - IW

U.S. EPA Tier 3 & IMO Tier II

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C32	1047	781	1800	54.3	220.8	T3C - II - IW
C32	1333	994	1800	68.0	217.3	T3C - II - IW

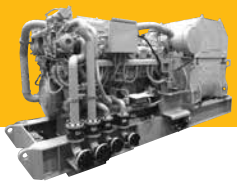
	LE	H	WE
min.	83.5 in/2121 mm	60.9 in/1547 mm	60.2 in/1528 mm
max.	89.9 in/2284 mm	62.5 in/1587 mm	60.2 in/1528 mm

Vee 12, 4-Stroke-Cycle Diesel

Aspiration	TTA	
Bore x Stroke	5.7 x 6.4 in	145 x 162 mm
Displacement	1959 cu in	32.1 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	6950-7160 lb	3152-3248 kg

3500 Series
AUXILIARY/DIESEL ELECTRIC PROPULSION

Mechanical Control System



RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
DEP – 50 HZ						
3512B	1686	1257	1500	77.4	195.7	NC - II - NC
3508C	903	673	1500	44.4	209.4	NC - II - NC
3508C	1100	820	1500	53.2	206.1	NC - II - NC
3512C	1826	1362	1500	84.7	197.5	NC - II - NC
3516C	2303	1717	1500	110.3	203.9	NC - II - NC
3516C	2600	1940	1500	122.6	200.8	NC - II - NC
DEP – 60 HZ						
3512C	1920	1432	1800	91.9	204.0	NC - II - IW
3512C	2183	1628	1800	110.2	215.1	NC - II - IW
3512C	2400	1790	1800	119.7	212.4	NC - II - IW
3516C	2435[1]	1815	1800	129.0	226.0	T3C - II - NC
3516C	2809	2095	1800	132.0	200.2	NC - II - IW
3516C	2984	2225	1800	140.6	200.1	NC - II - IW
3516C	3151	2350	1800	148.9	201.4	NC - II - IW

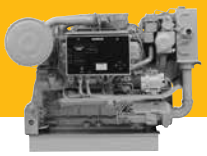
[1]This rating will not be available after January 1, 2016.

Auxiliary – IMO Tier II

	bhp	bkW	ekW*	rpm	EPA - IMO - EU
3508	903	673	640	1500	NC - II - NC
3508	1100	820	780	1500	NC - II - NC
3512	1826	1362	1294	1500	NC - II - NC
3516	2303	1717	1630	1500	NC - II - NC
3516	2600	1940	1840	1500	NC - II - NC
3512C	1920	1432	1360	1800	NC - II - NC
3512C[1]	2183	1628	1550	1800	NC - II - NC
3512C[1]	2394	1786	1700	1800	NC - II - NC
3516C[1]	3151	2350	2250	1800	NC - II - NC

(DEP cycle meets U.S. EPA Tier 4 Final)
[1]Ratings are high displacement (HD)
*ekW is based on a 95% generator efficiency.
Contact dealer for design-to-order generator set solutions.

Electronic Control System



3500E Series

GENERATOR SET ENGINE/ AUXILIARY

RATINGS

Preliminary – U.S. EPA Tier 4 Final

	bhp	bkW	ekW*	rpm	EPA - IMO - EU
3512E	2189	1632	1550	1800	T4C - III - NC
3512E	2399	1789	1700	1800	T4C - III - NC
3516E	2576	1921	1825	1800	T4C - III - NC
3516E	2823	2105	2000	1800	T4C - III - NC
3516E	3175	2368	2250	1800	T4C - III - NC

(DEP cycle meets U.S. EPA Tier 4 Final)

*ekW is based on a 95% generator efficiency.

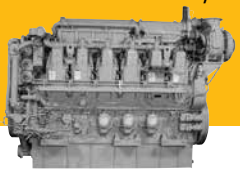
		LE	H	WE
3512E	**min.**	104.1 in/2644 mm	83.2 in/2113 mm	80.2 in/2036 mm
	max.	128.8 in/3272 mm	84.8 in/2154 mm	85.0 in/2160 mm
3516E	**min.**	125.4 in/3185 mm	83.9 in/2130 mm	84.3 in/2142 mm
	max.	125.4 in/3185 mm	83.9 in/2130 mm	84.3 in/2142 mm

Vee 12, Vee 16, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	6.7 x 7.5 in	170 x 190 mm
Displacement	**3508E** — 2107 cu in	34.5 liter
	3512E — 3161 cu in	51.8 liter
Engine dry weight (approx)	**3508E** — 10,395 lb	4960 kg
	3512E — 14,400-16,340 lb	6532-7411 kg

C280 Series
AUXILIARY

Electronic Control System



RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C280-6	2320	1730	900	107.4	197.3	NC - II - NC
C280-6	2481	1850	1000	118.9	204.4	NC - II - NC
C280-6	2548	1900	900	118.6	198.4	NC - II - NC
C280-6	2722	2030	1000	131.7	206.2	NC - II - NC
C280-8	3084	2300	900	143.7	198.6	T4C - II - NC
C280-8	3299	2460	1000	153.2	197.9	NC - II - NC
C280-8	3393	2530	900	159.4	200.2	T4C - II - NC
C280-8	3634	2710	1000	170.3	199.7	NC - II - NC
C280-12	4640	3460	900	214.9	197.5	T4C - II - NC
C280-12	4962	3700	1000	237.7	204.2	NC - II - NC
C280-12	5096	3800	900	237.2	198.2	T4C - II - NC
C280-12	5444	4060	1000	263.4	206.2	NC - II - NC
C280-16	6169	4600	900	287.4	198.6	NC - II - NC
C280-16	6598	4920	1000	306.4	197.9	NC - II - NC
C280-16	6785	5060	900	318.7	200.2	NC - II - NC
C280-16	7268	5420	1000	340.6	199.7	NC - II - NC

		L	LE	H	WE
C280-6	**min.**	168 in/4276 mm	145 in/3691 mm	108 in/2733 mm	68 in/1722 mm
	max.	168 in/4276 mm	145 in/3691 mm	108 in/2733 mm	68 in/1722 mm
C280-8	**min.**	219 in/5561 mm	178 in/4511 mm	104 in/2641 mm	68 in/1722 mm
	max.	219 in/5561 mm	178 in/4511 mm	104 in/2641 mm	68 in/1722 mm
C280-12	**min.**	191 in/4861 mm	161 in/4087 mm	140 in/3550 mm	69 in/1741 mm
	max.	191 in/4861 mm	161 in/4087 mm	140 in/3550 mm	69 in/1741 mm
C280-16	**min.**	216 in/5482 mm	197 in/5007 mm	125 in/3171 mm	67 in/1704 mm
	max.	216 in/5482 mm	197 in/5007 mm	125 in/3171 mm	67 in/1704 mm

In-line 6, In-line 8, Vee 12, Vee 16, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	**C280-6** — 6773 cu in	111 liter
	C280-8 — 9031 cu in	148 liter
	C280-12 — 13,546 cu in	222 liter
	C280-16 — 18,062 cu in	296 liter
Engine dry weight (approx)	**C280-6** — 34,496 lb	15 680 kg
	C280-8 — 41,800 lb	19 000 kg
	C280-12 — 57,276 lb	25 980 kg
	C280-16 — 62,832 lb	28 500 kg

EMD

EMD E 23 (710 Series) Marine Propulsion and Generator Set Engines

Electro-Motive Diesel (EMD) has been in the marine propulsion business since 1935. EMD brings a two-cycle medium-speed engine to the Caterpillar Marine family, with over 78,000 engines in operation around the world.

Built on the successful 710 Series, the current EMD product line consists of a medium-speed two-cycle diesel and dual fuel engine models ranging in power from 1,490 to 4,100 kW. The EMD E 23 offers the following features:

- Predictive maintenance – actual inspection of power assemblies
- Simplicity by design – no special tooling required to maintain
- Industry best transient response – idle to full rated power in approximately 10 seconds in fixed pitch propeller applications
- Low life cycle cost

EMD Technology

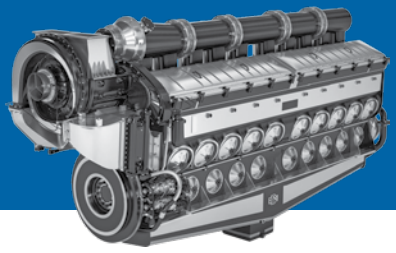
Electronic Unit injection (EUI) is a simple, cost-effective fuel management system. Metering and timing of the fuel are controlled by an Electronic Control Module (ECM) based on the inputs received from the engine control system. EUI is a proven technology that is simple to maintain and has been in service for over 25 years.

Charge Air System – The E 23 turbocharger system is an industry-leading charge and scavenging air management system. Powered by a hybrid gear train/exhaust gas drive system, it provides high pressure charge air at all operating points, allowing for quick transient response.

Accessory Rack – The E 23 has an optional integrated accessory rack that includes lube oil filtration, lube oil cooling, fuel filters, cooling system expansion tank, and a fuel priming pump.

For custom vessel installations these components are available as a ship loose option.

E 23

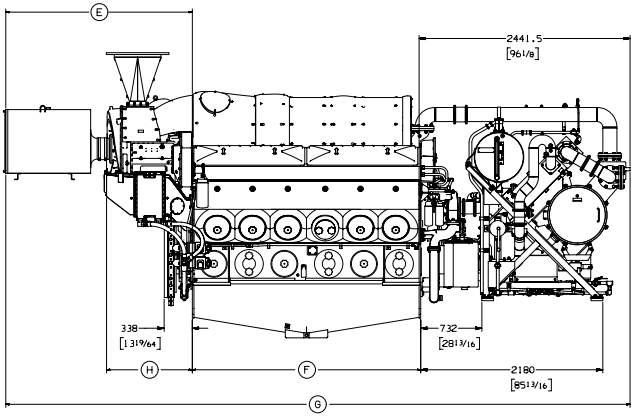


DIMENSIONS (m) AND WEIGHTS (kg)

Type	A	B	C	D	E	F	G	H	Engine Weight	Acc. Rack Weight
8 E 23	3.246	2.573	0.479	2.790	2.134	1.864	6.202	0.929	13,018	1,723
12 E 23	3.410	2.764	0.632	2.948	2.240	2.734	7.178	1.050	17,690	1,723
16 E 23	3.410	2.764	0.632	2.948	2.240	3.715	8.171	1.050	20,865	1,723
20 E 23	3.642	2.966	0.835	3.150	2.240	4.559	9.015	1.050	23,949	1,769

DIMENSIONS (in) AND WEIGHTS (lb)

Type	A	B	C	D	E	F	G	H	Engine Weight	Acc. Rack Weight
8 E 23	127.8	101.3	18.9	109.9	84.0	73.4	244.2	36.66	28,700	3,799
12 E 23	134.3	108.8	24.9	116.1	88.2	107.6	282.6	41.3	39,000	3,799
16 E 23	134.3	108.8	24.9	116.1	88.2	146.3	321.7	41.3	45,999	3,799
20 E 23	143.4	116.8	32.9	124.0	88.2	179.5	354.9	41.3	52,799	3,900



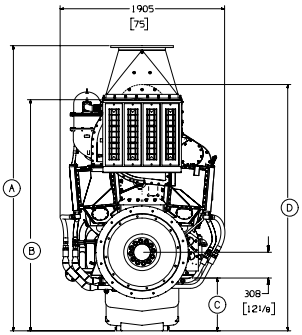
(shown with accessory rack)

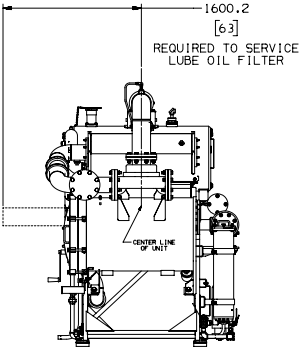
TECHNICAL DATA

Model	Cylinders	Rating	bkW	bhp	rpm	g/bkW-hr	U.S. g/h	EPA	IMO
8 E 23	8	CS	1491	2000	900	201	93	T3	II
12 E 23	12	CS	2237	3000	900	198	138	T3	II
16 E 23	16	CS	2983	4000	900	196	182	T3	II
20 E 23	20	CS	3729	5000	900	209	236	T3	II
8 E 23	8	MC	1641	2200	900	200	103	T3	II
12 E 23	12	MC	2461	3300	900	197	152	T3	II
16 E 23	16	MC	3281	4400	900	195	201	T3	II
20 E 23	20	MC	4101	5500	900	210	261	T3	II

Note: EMD E 23 engines were formerly EMD 710 Series.

750 rpm (50 Hz) and dual fuel options are available. Contact local dealer for detail.





(shown with accessory rack)

Power

MaK Marine Propulsion Engines

Caterpillar Motoren GmbH & Co. KG and the excellent reputation of the MaK brand is based on more than 90 years of experience in the development, manufacture, and service of gas engines, diesel engines, and dual-fuel engines.

The current MaK product line is comprised of six medium-speed four-stroke diesel and dual fuel engine models ranging in power from 1,020 to 16,800 kW. MaK engines feature a high level of reliability, low operating costs, simple installation and maintenance, and meet engine exhaust emission standards. Contact your local dealer for specific emissions compliance.

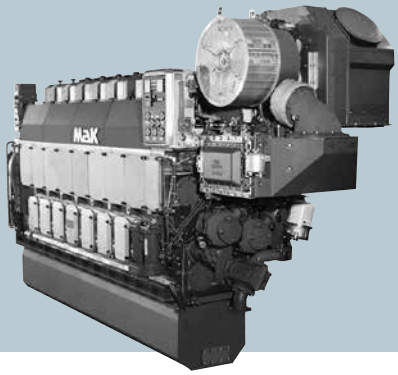
Caterpillar Technology for Emissions Reduction in Medium-Speed Marine Engines

In addition to the right technology to meet emissions standards for IMO Tier II and U.S. EPA Tier 2, Caterpillar offers options for further performance improvement of medium-speed marine engines:

FCT achieves synergy between flexible fuel systems and advanced air systems at the same time as it exploits current MaK engine design to the fullest. At part load, visible smoke is eliminated and performance and load pick-up are improved. Invisible smoke is a clear advantage for all applications. FCT supports reduced part load fuel consumption and dual-fuel engine technology when switching between gas mode and diesel mode.

Flexible Camshaft Technology can be retrofitted to MaK C-engine and E-engine series, except M 20.

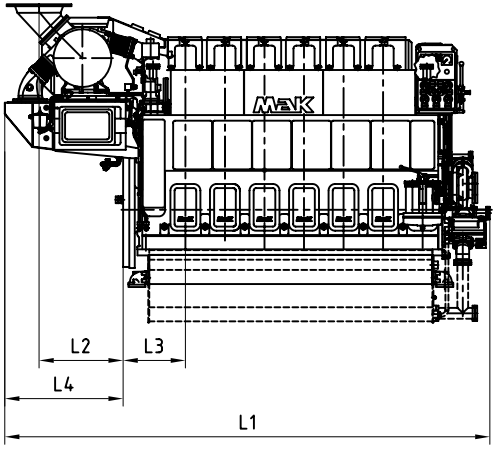
M 20 C



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	Weight	
											Wet sump	Dry sump
6 M 20 C	4049	702	520	988	1714	630	330	941	1591	627	11.5	10.9
8 M 20 C	4846	802	520	1125	1856	630	330	941	1727	710	14.5	13.8
9 M 20 C	5176	802	520	1125	1856	630	330	941	1727	710	16.0	15.0

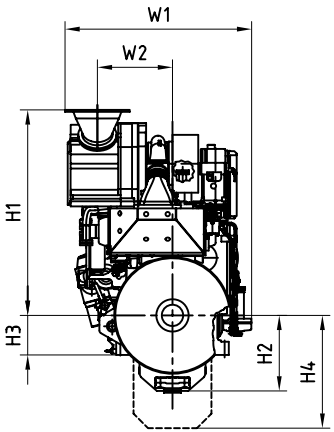


TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100%	85%
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
6 M 20 C	1020	1390	900	24.1	9.0	189	188
	1080	1469	900	25.5	9.0	191	189
	1140	1550	1000	24.2	10.0	190	189
	1200	1632	1000	25.5	10.0	192	190
8 M 20 C	1360	1850	900	24.1	9.0	189	188
	1440	1958	900	25.5	9.0	191	189
	1520	2070	1000	24.2	10.0	190	189
	1600	2176	1000	25.5	10.0	192	190
9 M 20 C	1530	2082	900	24.1	9.0	189	188
	1620	2203	900	25.5	9.0	191	189
	1710	2326	1000	24.2	10.0	190	189
	1800	2448	1000	25.5	10.0	192	190

Stroke: 300 mm
Bore: 200 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%

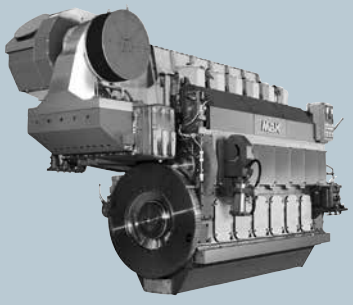


Engine centre distance: 2010 mm

Removal of cylinder liner:
in transverse direction: 1910 mm
in longitudinal direction: 2085 mm

Engine with turbocharger at free end available, ask for dimensions

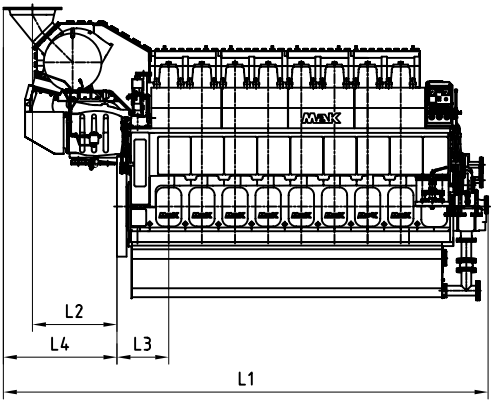
M 25 C



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	Weight	
											Wet sump	Dry sump
6 M 25 C	5345	1068	672	1390	2526	861	460	1191	2237	977	23.5	21.2
8 M 25 C	6289	1097	672	1474	2578	861	460	1191	2291	977	30.0	28.5
9 M 25 C	6719	1097	672	1474	2578	861	460	1191	2291	977	32.0	30.0

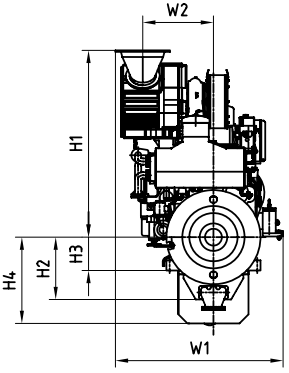


TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100%	85%
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
6 M 25 C	1740	2370	720	23.7	9.6	185	184
	1800	2450	750	23.5	10.0	185	184
	2000	2720	720	27.2	9.6	188	185
	2000	2720	750	26.1	10.0	186	184
8 M 25 C	2320	3160	720	23.7	9.6	185	184
	2400	3260	750	23.5	10.0	185	184
	2666	3630	720	27.2	9.6	189	185
	2666	3630	750	26.1	10.0	187	184
9 M 25 C	2610	3550	720	23.7	9.6	185	184
	2700	3670	750	23.5	10.0	185	184
	3000	4080	720	27.2	9.6	189	185
	3000	4080	750	26.1	10.0	187	184

Stroke: 400 mm
Bore: 255 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%

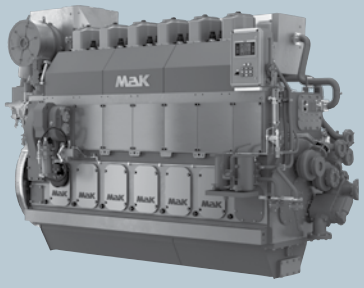


Engine centre distance: 2500 mm

Removal of cylinder liner:
in transverse direction: 2510 mm
in longitudinal direction: 2735 mm

Engine with turbocharger at free end available, ask for dimensions

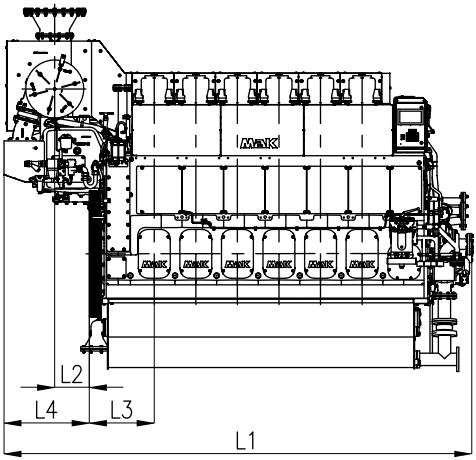
M 25 E



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	Weight	
											Wet sump	Dry sump
6 M 25 E	4840	358	672	883	2525	861	460	1191	2080	850	23.5	21.2
8 M 25 E	5700	338	672	883	2670	861	460	1191	2230	937	30.0	28.5
9 M 25 E	6130	338	672	883	2670	861	460	1191	2230	937	32.0	30.0

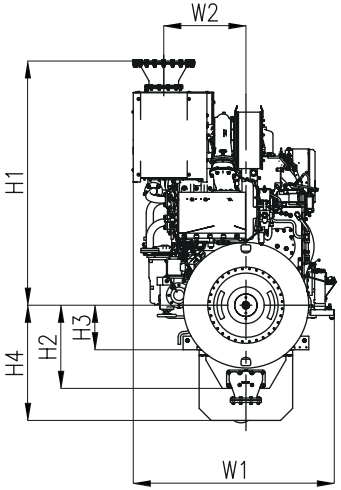


TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100%	85%
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
6 M 25 E	2100	2856	720	28.6	9.6	187	183
	2100	2856	750	27.4	10.0	187	183
8 M 25 E	2800	3808	720	28.6	9.6	187	183
	2800	3808	750	27.4	10.0	187	183
9 M 25 E	3150	4284	720	28.6	9.6	187	183
	3150	4284	750	27.4	10.0	187	183

Stroke: 400 mm
Bore: 255 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Reduced part load fuel consumption available



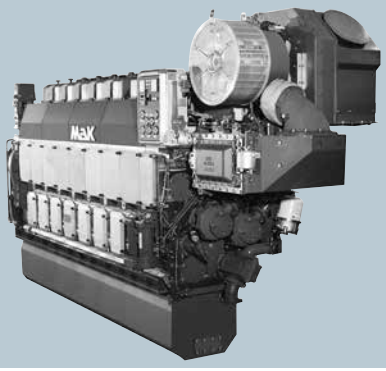
Engine centre distance: 2500 mm

Removal of cylinder liner:
in transverse direction: 2510 mm
in longitudinal direction: 2735 mm

Engine with turbocharger at free end available, ask for dimensions

Please contact us for lead times

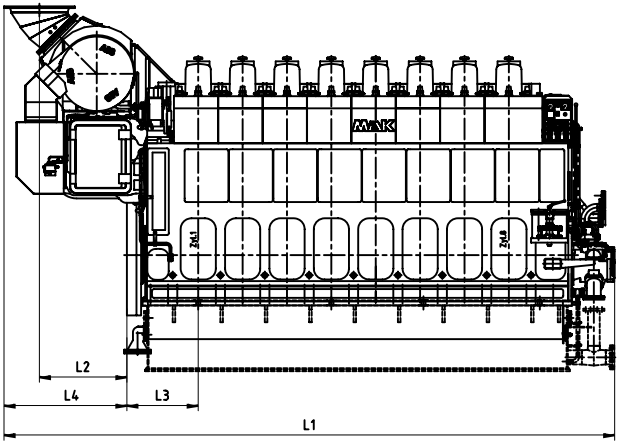
M 32 C



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	W3	Weight	
												Wet sump	Dry sump
6 M 32 C	5936	788	852	1170	2784	1052	550	1392	2368	962	2140	41.6	39.5
8 M 32 C	7293	1044	852	1467	2969	1052	550	1392	2182	262	2140	51.7	49.0
9 M 32 C	7823	1044	852	1467	2969	1052	550	1392	2182	262	2140	55.0	52.0

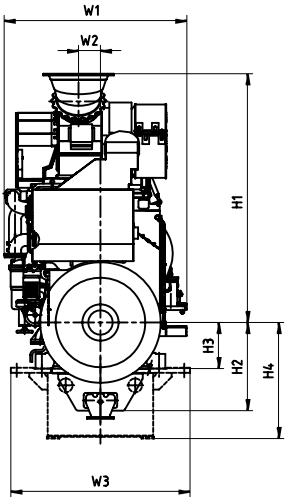


TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100%	85%
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
6 M 32 C	2880	3920	600	24.9	9.6	177	176
	3000	4080	600	25.9	9.6	177	176
8 M 32 C	3840	5220	600	24.9	9.6	177	176
	4000	5440	600	25.9	9.6	177	176
9 M 32 C	4320	5880	600	24.9	9.6	177	176
	4500	6120	600	25.9	9.6	177	176

Stroke: 480 mm
Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%



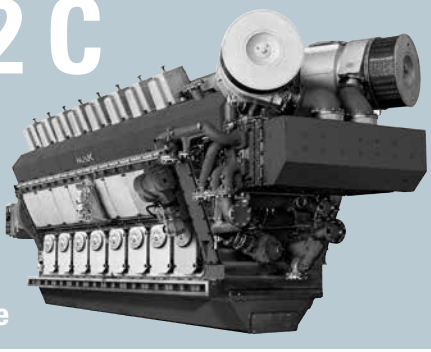
Engine centre distance: 2800 mm*

* If turbocharger is located on opposite coupling side, the water cover of the charge air cooler must be dismantled.

Removal of cylinder liner:
in transverse direction: 3040 mm
in longitudinal direction: 3405 mm

Engine with turbocharger at free end available, ask for dimensions

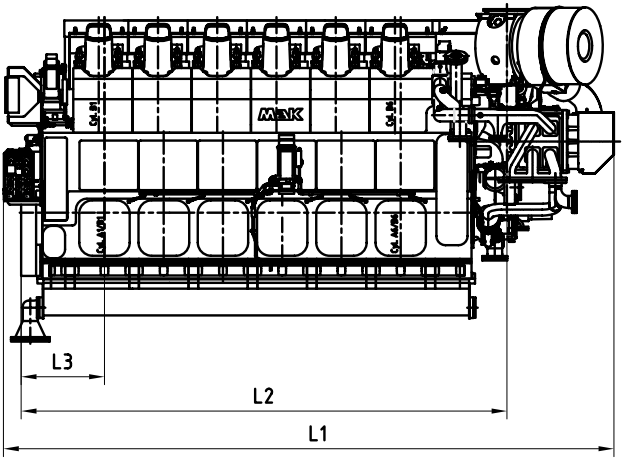
VM 32 C



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	H1	H2	H3	W1	W2	Weight
12 M 32 C	6956	5535	949	2319	1205	750	2985	1133	65.0
16 M 32 C	8328	6885	949	2319	1205	750	2985	1133	82.0

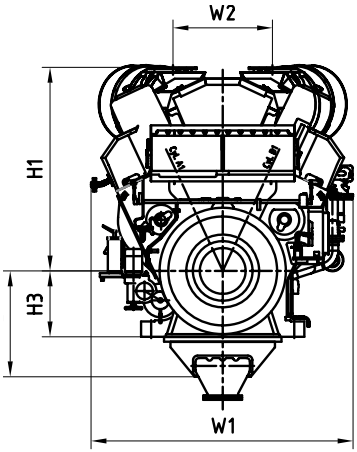


TECHNICAL DATA

Type	Output range		Speed	Stroke	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
							100%	85%
	kW	mhp	rpm	mm	bar	m/s	g/kWh	g/kWh
12 M 32 C	6000	8160	720	460	22.5	11.0	178	177
	6000	8160	750	460	21.6	11.5	179	179
16 M 32 C	8000	10880	720	460	22.5	11.0	178	177
	8000	10880	750	460	21.6	11.5	179	179

Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%



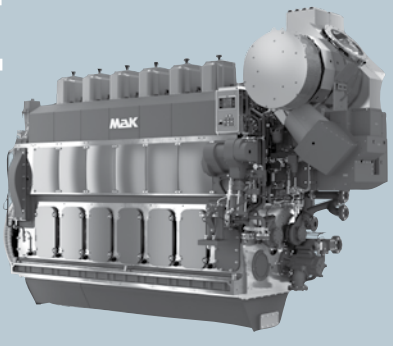
Engine centre distance: 3500 mm

Removal of cylinder liner:
in transverse direction: 2836 mm

This engine is only available with dry oil sump.

Engine with turbocharger at driving end available, ask for dimensions

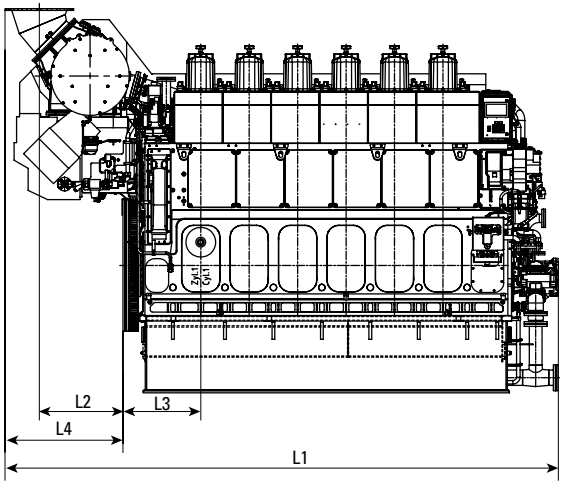
M 32 E



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	W3	Weight	
												Wet sump	Dry sump
6 M 32 E	6055	915	852	1290	2810	1052	550	1392	2195	126	2140	40.7	37.5
8 M 32 E	7320	1021	852	1495	3014	1052	550	1392	2195	191	2140	50.4	46.4
9 M 32 E	7850	1021	852	1495	3014	1052	550	1392	2195	191	2140	53.9	49.4

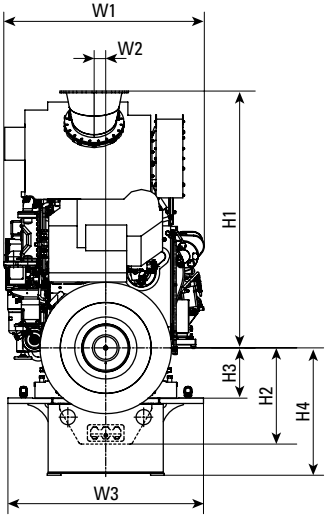


TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100%	85%
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
6 M 32 E	3300	4488	720	24.8	11.0	179	178
	3300	4488	750	23.8	11.5	179	178
8 M 32 E	4400	5984	720	24.8	11.0	179	178
	4400	5984	750	23.8	11.5	179	178
9 M 32 E	4950	6732	720	24.8	11.0	179	178
	4950	6732	750	23.8	11.5	179	178

Stroke: 460 mm
Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Reduced part load fuel consumption available



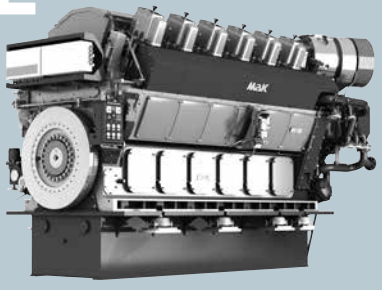
Engine centre distance: 2800 mm

Removal of cylinder liner:
in transverse direction: 3040 mm
in longitudinal direction: 3400 mm

Engine with turbocharger at free end available, ask for dimensions

Please contact us for lead times

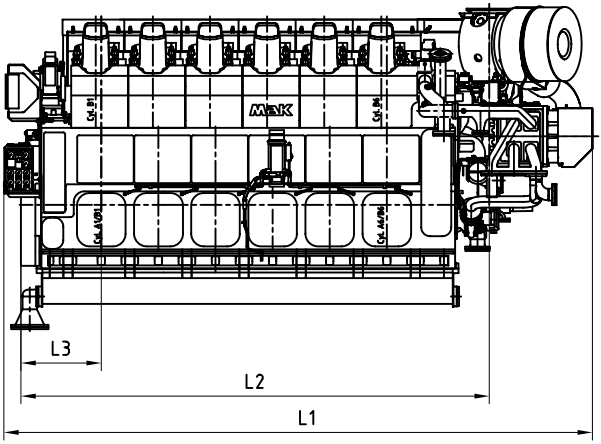
VM 32 E



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	H1	H2	H3	W1	W2	Weight
12 M 32 E	6956	5535	949	2319	1205	750	2985	1133	65.0
16 M 32 E	8328	6885	949	2319	1205	750	2985	1133	82.0



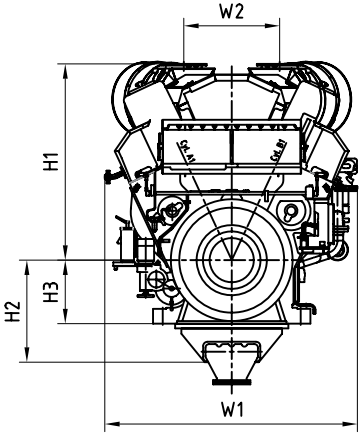
TECHNICAL DATA

Type	Output range		Speed	Stroke	Mean eff. pressure	Mean piston speed	Spec. fuel consumption 100%	Spec. fuel consumption 85%
	kW	mhp	rpm	mm	bar	m/s	g/kWh	g/kWh
12 M 32 E	6360	8650	720	460	23.9	11.0	178	177
	6360	8650	750	460	22.9	11.5	179	179
	6720*)	9139	720	460	25.2	11.0	178	177
	6720*)	9139	750	460	24.2	11.5	179	179
16 M 32 E	8480	11533	720	460	23.8	11.0	178	177
	8480	11533	750	460	22.9	11.5	179	179
	8960*)	12186	720	460	25.2	11.0	181	177
	8960*)	12186	750	460	24.2	11.5	182	179

*) MDO only

Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Reduced part load fuel consumption available

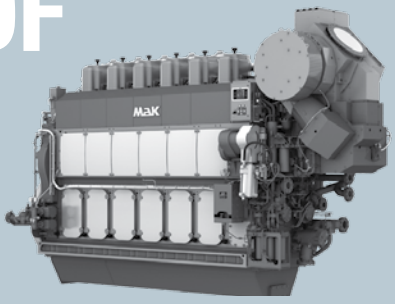


Engine centre distance: 3500 mm

Removal of cylinder liner:
in transverse direction: 2836 mm

Engine with turbocharger at driving end available, ask for dimensions

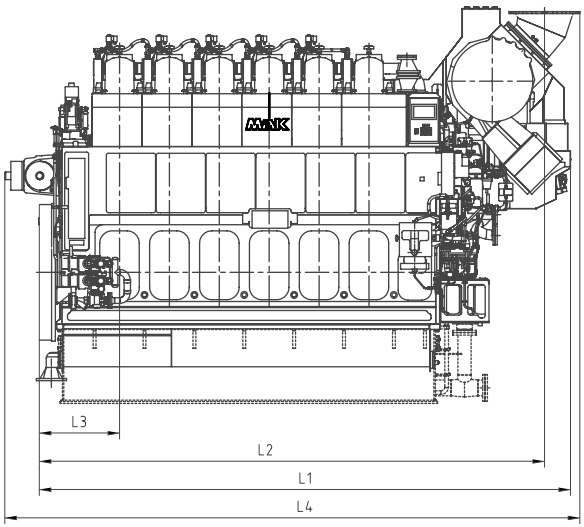
M 34 DF



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	H5	W1	W2	W3	Weight (t)
6 M 34 DF	5645	5366	852	6109	2767	1052	550	2817	1392	2291	126	2140	39.5
8 M 34 DF	6704	6533	852	7325	2970	1052	550	2995	1392	2291	191	2140	49
9 M 34 DF	7234	7063	852	7855	2970	1052	550	2995	1392	2291	191	2140	52

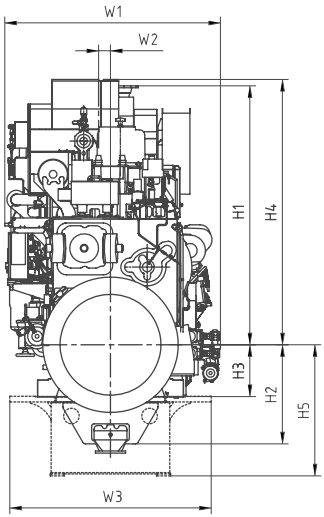


TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption 100% 85%	Total spec. energy consumption 100% 85%
	kW	mhp	rpm	bar	m/s	g/kWh	kJ/kWh
6 M 34 DF	3060	4162	720	20.3	11.0	188/187	7520/7680
	3180	4325	750	20.2	11.5	188/187	7520/7680
8 M 34 DF	4080	5549	720	20.3	11.0	188/187	7520/7680
	4240	5766	750	20.2	11.5	188/187	7520/7680
9 M 34 DF	4590	6242	720	20.3	11.0	188/187	7520/7680
	4770	6487	750	20.2	11.5	188/187	7520/7680

Stroke: 460 mm
Bore: 340 mm

Without engine driven pumps. Tolerance 5% for liquid fuel.
Maximum continuous rating according to ISO 3046/1.



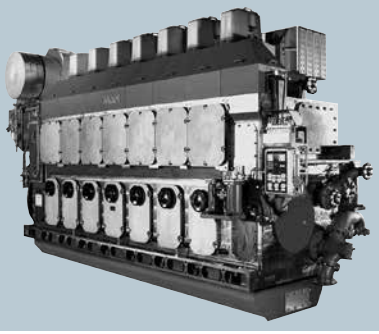
Engine centre distance: 2800 mm

Removal of cylinder liner:
in transverse direction: 3040 mm
in longitudinal direction: 3400 mm

Engine with turbocharger at free end available, ask for dimensions

Please contact us for lead times

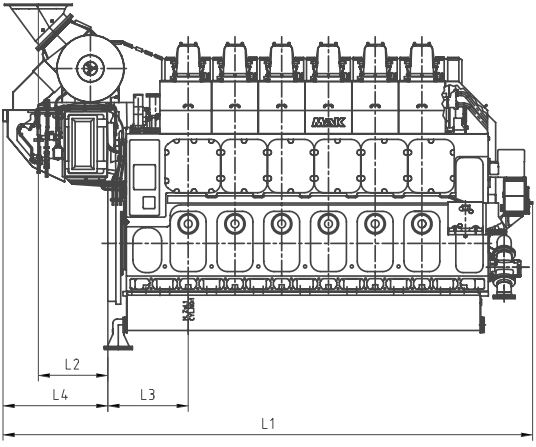
M 43 C



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	W1	W2	Weight
6 M 43 C	8271	1086	1255	1638	3734	1396	750	2878	215	91.0
7 M 43 C	9068	1119	1255	1704	4105	1396	750	2878	232	107.0
8 M 43 C	9798	1119	1255	1704	4105	1396	750	2878	232	117.0
9 M 43 C	10528	1119	1255	1704	4105	1396	750	2878	232	127.0

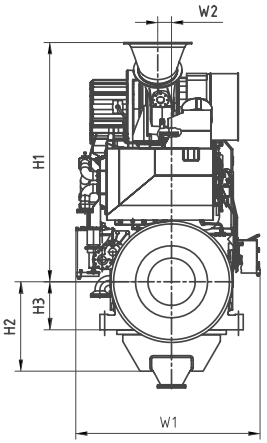


TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
						100%	85%
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
6 M 43 C	6000	8160	500	27.1	10.2	176	175
	6000	8160	514	26.4	10.5	176	175
	6300	8568	500	28.4	10.2	178	176
	6300	8568	514	27.7	10.5	178	176
7 M 43 C	7000	9520	500	27.1	10.2	176	175
	7000	8520	514	26.4	10.5	176	175
	7350	9996	500	28.4	10.2	178	176
	7350	9996	514	27.7	10.5	178	176
8 M 43 C	8000	10880	500	27.1	10.2	176	175
	8000	10880	514	26.4	10.5	176	175
	8400	11424	500	28.4	10.2	178	176
	8400	11424	514	27.7	10.5	178	176
9 M 43 C	9000	12240	500	27.1	10.2	176	175
	9000	12240	514	26.4	10.5	176	175
	9450	12852	500	28.4	10.2	178	176
	9450	12852	514	27.7	10.5	178	176

Stroke: 610 mm
Bore: 430 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%



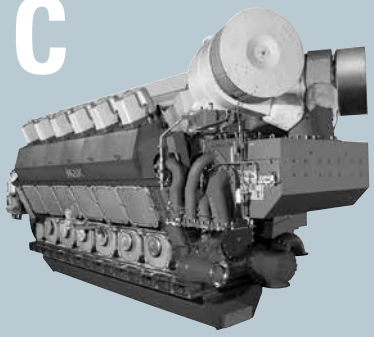
Engine centre distance: 3400 mm

Removal of cylinder liner:
in transverse direction: 4165 mm
in longitudinal direction: 4610 mm

This engine is only available with dry oil sump.

Engine with turbocharger at free end available, ask for dimensions

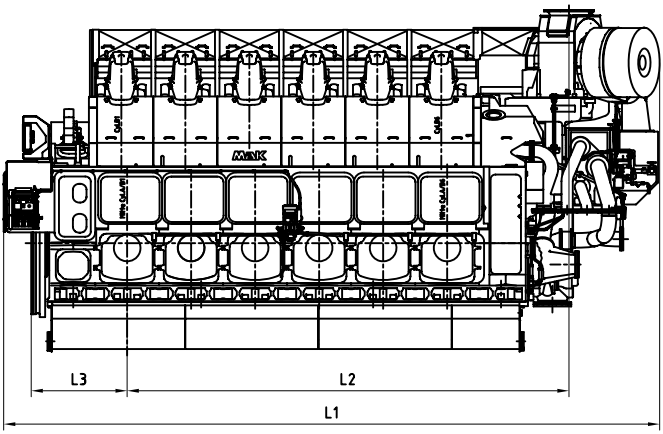
VM 43 C



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	H1	H2	H3	W1	W2	Weight
12 M 43 C	9842	6628	1440	3497	1625	875	3890	1685	160.0
16 M 43 C	11943	8533	1440	3473	1625	875	4027	1670	220.0

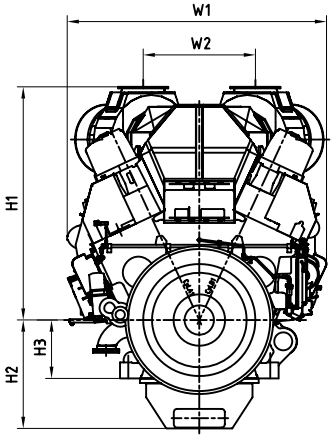


TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100%	85%
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
12 M 43 C	12000	16320	500	27.1	10.2	176	175
	12000	16320	514	26.4	10.5	176	175
	12600	17136	500	28.4	10.2	177	176
	12600	17136	514	27.7	10.5	177	176
16 M 43 C	16000	21760	500	27.1	10.2	176	175
	16000	21760	514	26.4	10.5	176	175
	16800	22848	500	28.4	10.2	177	176
	16800	22848	514	27.7	10.5	177	176

Stroke: 610 mm
Bore: 430 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%



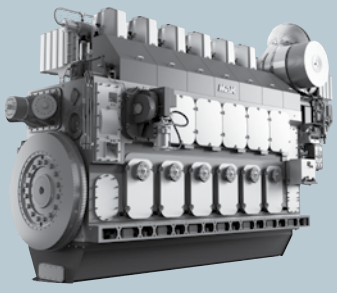
Engine centre distance: 4500 mm

Removal of cylinder liner:
in transverse direction: 3700 mm

This engine is only available with dry oil sump.

Engine with turbocharger at flywheel end available, ask for dimensions

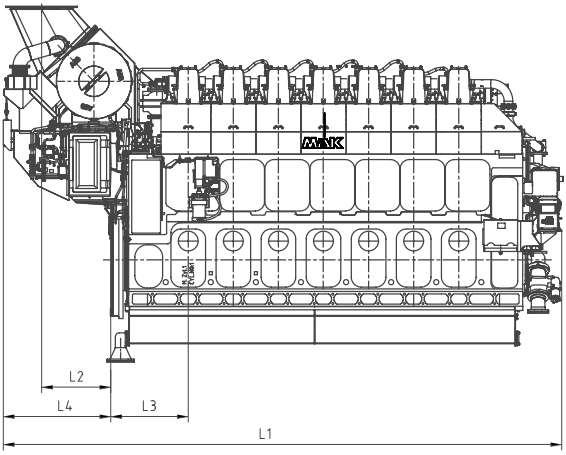
M 46 DF



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	W1	W2	Weight
6 M 46 DF	8330	1086	1255	1723	3734	1396	750	2961	215	96.0
7 M 46 DF	9068	1119	1255	1740	4105	1396	750	2961	232	109.0
8 M 46 DF	9798	1119	1255	1740	4105	1396	750	2961	232	119.0
9 M 46 DF	10768	1119	1255	1740	4105	1396	750	2961	232	131.0



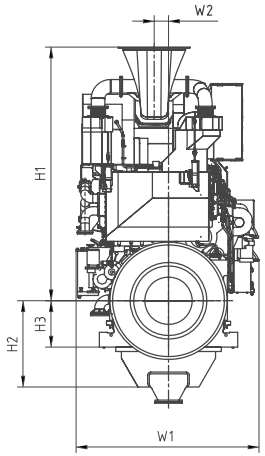
TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption 100% 85%	Total spec. energy consumption 100% 85%
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
	5400	7344	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524
6 M 46 DF	5790*)	7874	500	22.8	10.2	185/183	7350/7460
	5790*)	7874	514	22.2	10.5	186/184	7350/7460
	6300	8568	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524
7 M 46 DF	6755*)	9187	500	22.8	10.2	185/183	7350/7460
	6755*)	9187	514	22.2	10.5	186/184	7350/7460
	7200	9792	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524
8 M 46 DF	7720*)	10499	500	22.8	10.2	185/183	7350/7460
	7720*)	10499	514	22.2	10.5	186/184	7350/7460
	8100	11016	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524
9 M 46 DF	8685*)	11812	500	22.8	10.2	185/183	7350/7460
	8685*)	11812	514	22.2	10.5	186/184	7350/7460

*) MDO only

Stroke: 610 mm
Bore: 460 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5% for liquid fuel
LCV = 31.5 MJ/Nm³ for gas fuel
Note: 5% tolerance +1% per pump



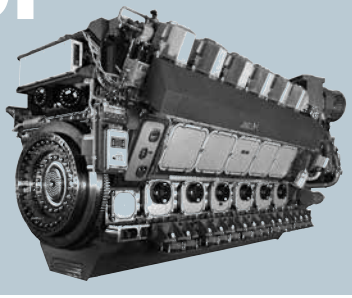
Engine centre distance: 3400 mm

Removal of cylinder liner:
in transverse direction: 4165 mm
in longitudinal direction: 4610 mm

This engine is only available with dry oil sump

Engine with turbocharger at free end available, ask for dimensions

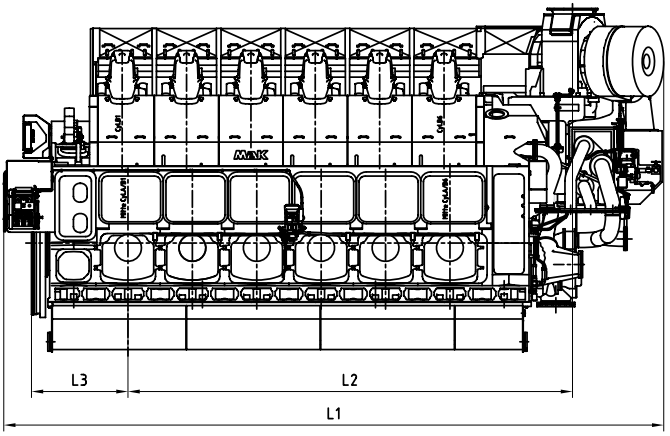
VM 46 DF



Propulsion Engine

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	H1	H2	H3	W1	W2	Weight
12 M 46 DF	9847	6628	1440	3497	1625	875	3890	1685	160.0
16 M 46 DF	11943	8533	1440	3473	1625	875	4027	1670	220.0



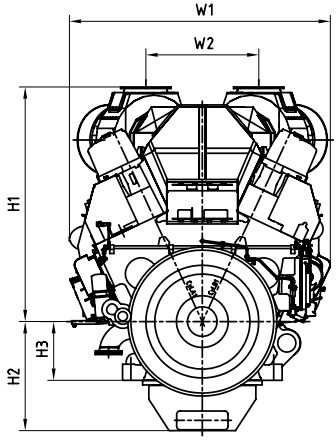
TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption 100% 85%	Total spec. energy consumption 100% 85%
	kW	mhp	rpm	bar	m/s	g/kWh	kJ/kWh
12 M 46 DF	10800	14688	500	21.3	10.2	184/184	7272/7417
	10800	14688	514	20.7	10.5	184/184	7272/7417
	11580*)	15749	500	22.8	10.2	184/182	7350/7370
	11580*)	15749	514	22.2	10.5	185/183	7350/7370
16 M 46 DF	14400	19584	500	21.3	10.2	184/184	7272/7417
	14400	19584	514	20.7	10.5	184/184	7272/7417
	15440*)	20998	500	22.8	10.2	184/182	7350/7370
	15440*)	20998	514	22.2	10.5	185/183	7350/7370

*) MDO only

Stroke: 610 mm
Bore: 460 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5% for liquid fuel
LCV = 31.5 MJ/Nm³ for gas fuel
Note: 5% tolerance +1% per pump



Engine centre distance: 4500 mm

Removal of cylinder liner:
in transverse direction: 3700 mm

This engine is only available with dry oil sump

Engine with turbocharger at free end available, ask for dimensions

Please contact us for lead times

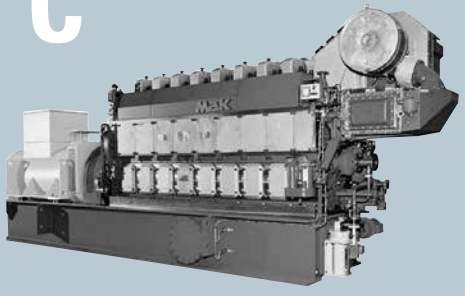
Energy

MaK Marine Generator Sets

The shipping industry today relies on dependable on-board electrical power generation. MaK auxiliary diesel engines ensure the availability of electrical power, wherever and whenever needed. For navigational equipment, monitoring installations, refrigerated containers, lighting, pumps, heating, or ventilation, MaK auxiliary engines are the right choice.

As with the MaK propulsion engines, these auxiliary engines can be operated with the economical Heavy Fuel Oil (HFO) option, and meet the NOx limits according to IMO Code Revised MARPOL, Annex VI, NOx Technical Code 2008, (IMO Tier II).

M 20 C

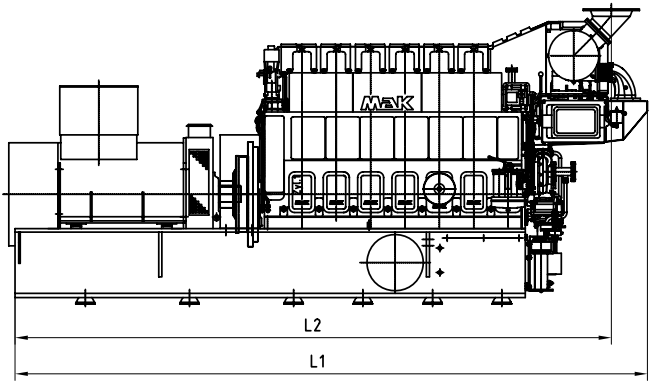


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	L2*	H1	H2	W1	W2	Weight*
6 M 20 C	6073	5727	1779	1054	1680	627	18.8
8 M 20 C	6798	6475	1956	1054	1816	710	23.1
9 M 20 C	7125	6802	1956	1054	1816	710	30.0

* Dependent on generator make/type

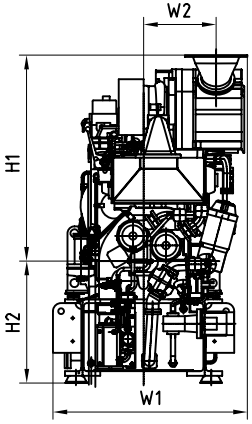


TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
								100%	85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	g/kWh
6 M 20 C	1020	979	1224	60	900	24.1	9.0	189	188
	1080	1036	1296	60	900	25.5	9.0	191	189
	1140	1094	1368	50	1000	24.2	10.0	190	189
	1200	1151	1440	50	1000	25.5	10.0	192	190
8 M 20 C	1360	1306	1632	60	900	24.1	9.0	189	188
	1440	1381	1728	60	900	25.5	9.0	191	189
	1520	1459	1824	50	1000	24.2	10.0	190	189
	1600	1534	1920	50	1000	25.5	10.0	192	190
9 M 20 C	1530	1468	1836	60	900	24.1	9.0	189	188
	1620	1553	1944	60	900	25.5	9.0	191	189
	1710	1641	2052	50	1000	24.2	10.0	190	189
	1800	1726	2160	50	1000	25.5	10.0	192	190

Stroke: 300 mm
Bore: 200 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8

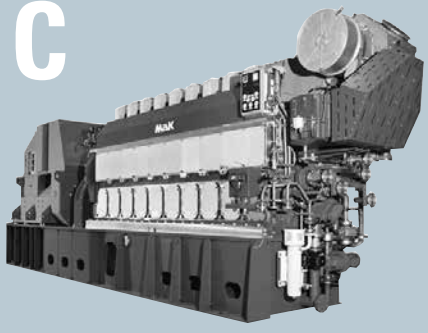


Genset centre distance: min. 2010 mm

Removal of cylinder liner:
in transverse direction: 2964 mm
in longitudinal direction: 3139 mm

Engine with turbocharger at driving end available, ask for dimensions

M 25 C

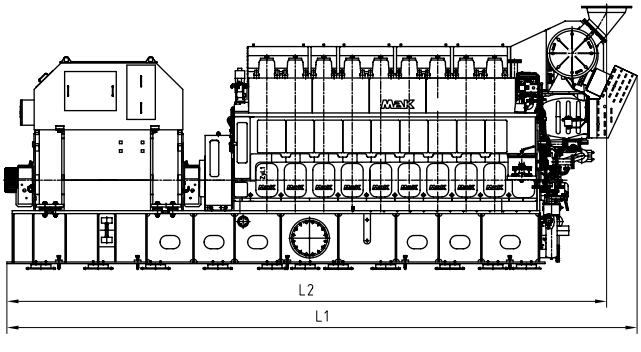


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	L2*	H1	H2	W1	W2	Weight*
6 M 25 C	8070	7638	2571	1340	2479	977	43.0
8 M 25 C	9130	8727	2623	1340	2534	977	53.0
9 M 25 C	9516	9057	2623	1340	2534	977	56.0

* Dependent on generator make/type

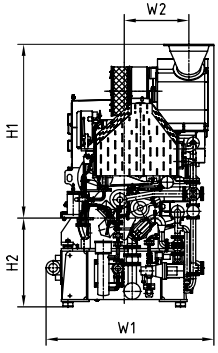


TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
								100%	85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	g/kWh
6 M 25 C	1740	1669	2088	60	720	23.6	9.6	185	184
	1800	1726	2160	50	750	23.5	10.0	185	184
	2000	1918	2400	60	720	27.2	9.6	188	185
	2000	1918	2400	50	750	26.1	10.0	186	184
8 M 25 C	2320	2225	2784	60	720	23.6	9.6	185	184
	2400	2302	2880	50	750	23.5	10.0	185	184
	2666	2557	3199	60	720	27.2	9.6	189	185
	2666	2557	3199	50	750	26.1	10.0	187	184
9 M 25 C	2610	2503	3132	60	720	23.6	9.6	185	184
	2700	2589	3240	50	750	23.5	10.0	185	184
	3000	2877	3600	60	720	27.2	9.6	189	185
	3000	2877	3600	50	750	26.1	10.0	187	184

Stroke: 400 mm
Bore: 255 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8

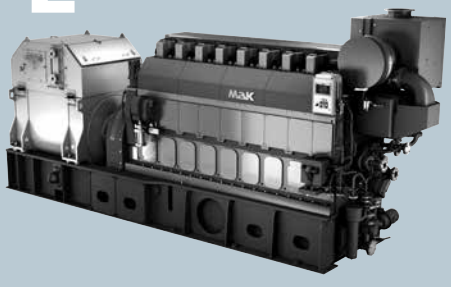


Genset centre distance: min. 2700 mm

Removal of cylinder liner:
in transverse direction: 3850 mm
in longitudinal direction: 4075 mm

Engine with turbocharger at driving end available, ask for dimensions

M 25 E

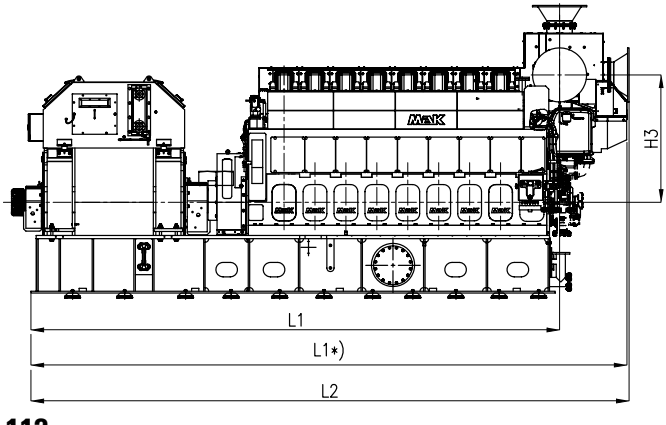


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	H1	H2	W1	W2	L1*)	H3	Dry Weight **)
	Turbocharger nozzle position 0°						Turbocharger nozzle position 90°		
6 M 25 E	6776	7717	2537	1329	2357	850	7579	1734	43.0
8 M 25 E	7347	8283	2737	1329	2357	937	8313	1770	53.0
9 M 25 E	7777	8713	2737	1329	2357	937	8743	1770	56.0

**) Dependent on generator make/type

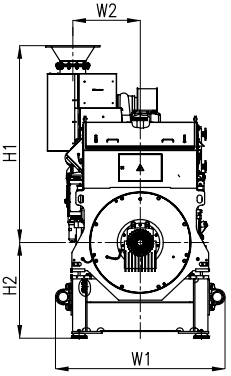


TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
								100%	85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	g/kWh
6 M 25 E	2100	2016	2625	60	720	28.56	9.6	187	183
	2100	2016	2625	50	750	27.4	10.0	187	183
8 M 25 E	2800	2688	3500	60	720	28.56	9.6	187	183
	2800	2688	3500	50	750	27.4	10.0	187	183
9 M 25 E	3150	3024	3938	60	720	28.56	9.6	187	183
	3150	3024	3938	50	750	27.4	10.0	187	183

Stroke: 400 mm
Bore: 255 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8
Reduced part load fuel consumption available

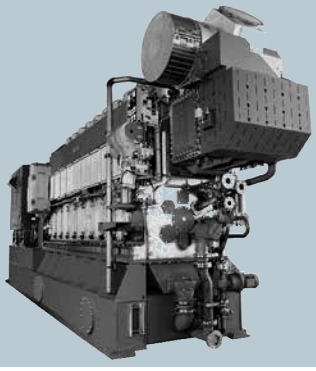


Genset centre distance: min. 2700 mm

Removal of cylinder liner:
in transverse direction: 3850 mm
in longitudinal direction: 4075 mm

Engine with turbocharger at driving end available, ask for dimensions

M 32 C

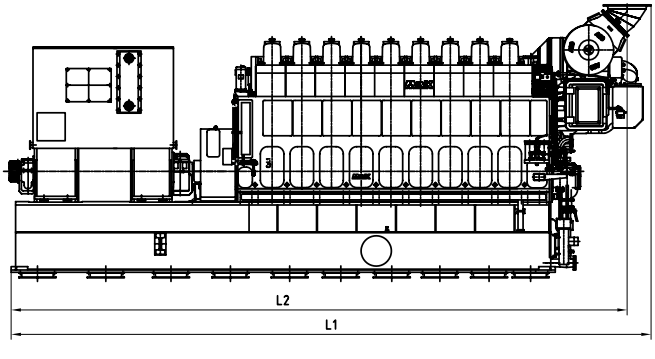


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	L2*	H1	H2	W1	W2	Weight*
6 M 32 C	9302	8869	2901	1900	2639	962	73.0
8 M 32 C	10866	10461	2969	1900	2600	262	92.0
9 M 32 C	11419	10991	2969	1900	2600	262	98.0

* Dependent on generator make/type

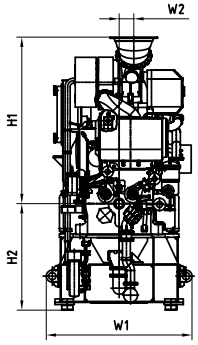


TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
								100%	85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	g/kWh
6 M 32 C	2880	2762	3456	50/60	600	24.9	9.6	177	176
	3000	2877	3600	50/60	600	25.9	9.6	177	176
8 M 32 C	3840	3682	4608	50/60	600	24.9	9.6	177	176
	4000	3836	4800	50/60	600	25.9	9.6	177	176
9 M 32 C	4320	4143	5184	50/60	600	24.9	9.6	177	176
	4500	4316	5400	50/60	600	25.9	9.6	177	176

Stroke: 480 mm
Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8

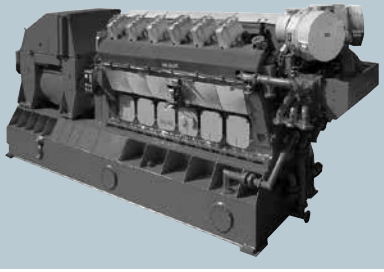


Genset centre distance: min. 3000 mm

Removal of cylinder liner:
in transverse direction: 4940 mm
in longitudinal direction: 5305 mm

Engine with turbocharger at driving end available, ask for dimensions

VM 32 C

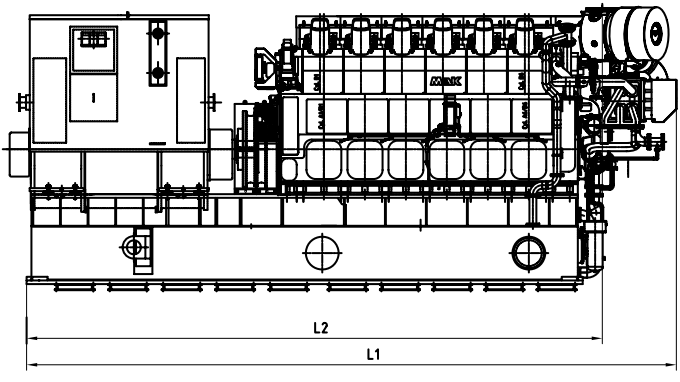


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	L2*	H1	H2	W1	W2	Weight*
12 M 32 C	10703	9484	2319	2320	3526	1133	120.0
16 M 32 C	12149	10930	2319	2320	3526	1133	140.0

* Dependent on generator make/type

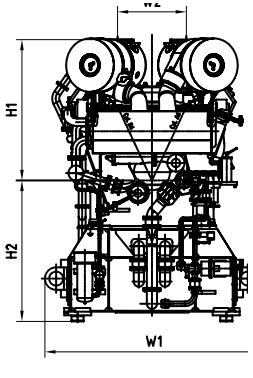


TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Stroke	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
									100%	85%
	kW	kWe	kVA	Hz	rpm	mm	bar	m/s	g/kWh	g/kWh
12 M 32 C	6000	5754	7200	60	720	460	22.5	11.0	178	177
	6000	5754	7200	50	750	460	21.6	11.5	179	179
16 M 32 C	8000	7672	9600	60	720	460	22.5	11.0	178	177
	8000	7672	9600	50	750	460	21.6	11.5	179	179

Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8

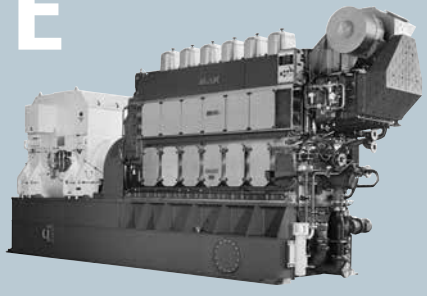


Genset centre distance: min. 3500 mm

Removal of cylinder liner:
in transverse direction: 5156 mm

Engine with turbocharger at driving end available, ask for dimensions

M 32 E

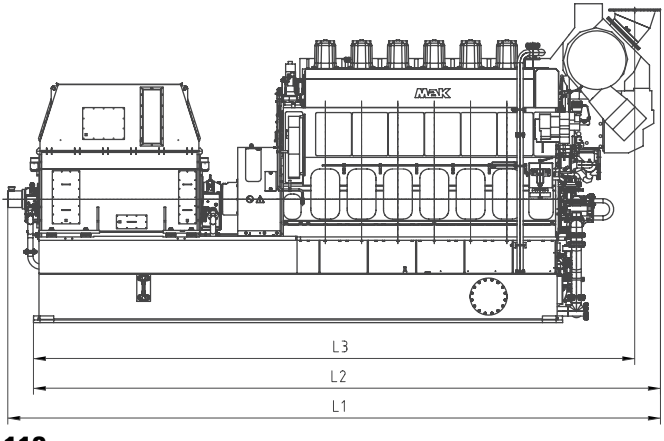


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	L2*	L3	H1	H2	W1	W2	Weight*
6 M 32 E	9566	9094	8672	2767	1800	2600	126	73.0
8 M 32 E	10626	10154	9732	2970	1800	2600	190	92.0
9 M 32 E	11156	10684	10263	2970	1800	2600	190	98.0

* Dependent on generator make/type

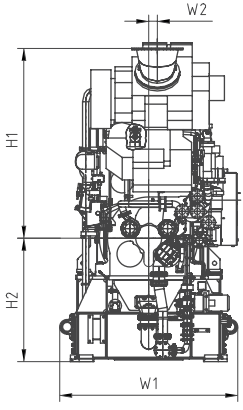


TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
								100%	85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	g/kWh
6 M 32 E	3300	3165	3960	60	720	23.7	11.0	179	178
	3300	3165	3960	50	750	22.7	11.5	179	178
8 M 32 E	4400	4220	5280	60	720	23.7	11.0	179	178
	4400	4220	5280	50	750	22.7	11.5	179	178
9 M 32 E	4950	4747	5940	60	720	23.7	11.0	179	178
	4950	4747	5940	50	750	22.7	11.5	179	178

Stroke: 460 mm
Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8
Reduced part load fuel consumption available



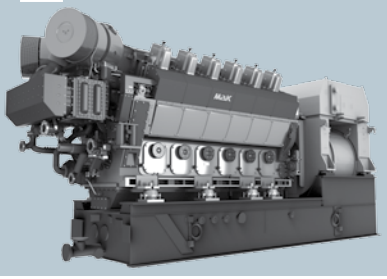
Genset centre distance: min. 3000 mm

Removal of cylinder liner:
in transverse direction: 4940 mm
in longitudinal direction: 5305 mm

Engine with turbocharger at driving end available, ask for dimensions

Please contact us for lead times

VM 32 E

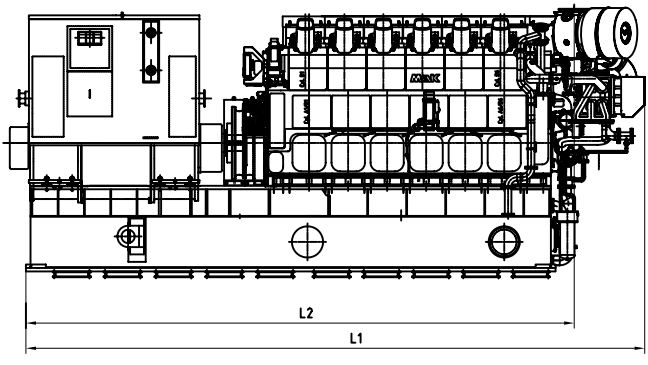


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	L2*	H1	H2	W1	W2	Weight*
12 M 32 E	10703	9484	2319	2320	3526	1133	120.0
16 M 32 E	12149	10930	2319	2320	3526	1133	140.0

* Dependent on generator make/type



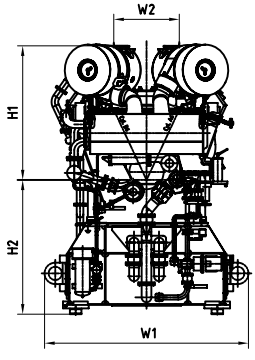
TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Stroke	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
									100%	85%
	kW	kWe	kVA	Hz	rpm	mm	bar	m/s	g/kWh	g/kWh
12 M 32 E	6360	6099	7632	60	720	460	23.8	11.0	178	177
	6360	6099	7632	50	750	460	22.9	11.5	179	179
	6720*)	6444	8064	60	720	460	25.2	11.0	178	177
	6720*)	6444	8064	50	750	460	24.2	11.5	179	179
16 M 32 E	8480	8132	10176	60	720	460	23.8	11.0	178	177
	8480	8132	10176	50	750	460	22.9	11.5	179	179
	8960*)	8593	10752	60	720	460	25.2	11.0	181	177
	8960*)	8593	10752	50	750	460	24.2	11.5	182	179

*) MDO only

Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8
Reduced part load fuel consumption available

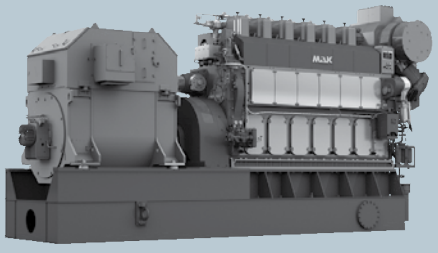


Genset centre distance: min. 3500 mm

Removal of cylinder liner:
in transverse direction: 5156 mm

Engine with turbocharger at driving end available, ask for dimensions

M 34 DF

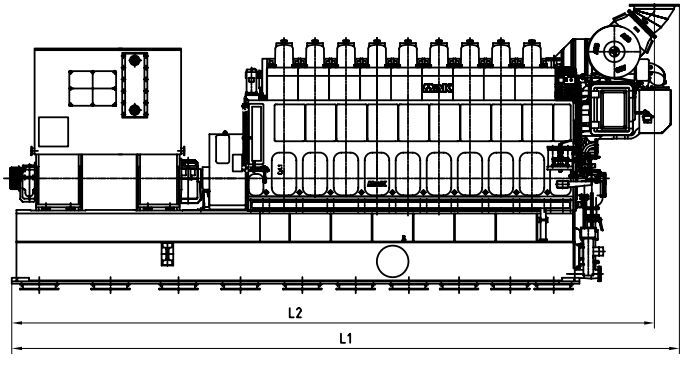


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	L2*	L3	H1	H2	W1	W2	Weight*
6 M 34 DF	9566	9094	8672	2767	1800	2600	126	73.0
8 M 34 DF	10626	10154	9732	2970	1800	2600	191	92.0
9 M 34 DF	11156	10684	10262	2970	1800	2600	191	98.0

* Dependent on generator make/type

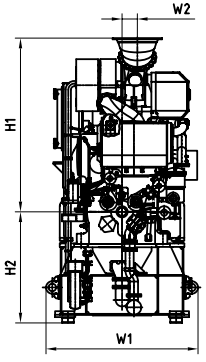


TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption 100% 85%	Total spec. energy consumption 100% 85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	kJ/kWh
6 M 34 DF	3060	2934	3672	60	720	20.3	11.0	188/187	7520/7680
	3180	3050	3816	50	750	20.2	11.5	188/187	7520/7680
8 M 34 DF	4080	3913	4896	60	720	20.3	11.0	188/187	7520/7680
	4240	4066	5088	50	750	20.2	11.5	188/187	7520/7680
9 M 34 DF	4590	4401	5508	60	720	20.3	11.0	188/187	7520/7680
	4770	4574	5724	50	750	20.2	11.5	188/187	7520/7680

Stroke: 460 mm
Bore: 340 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8



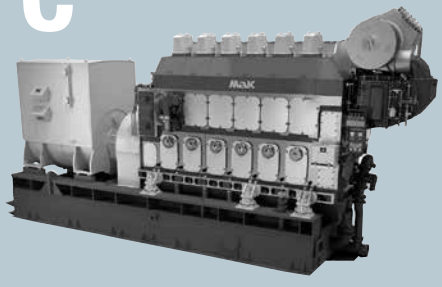
Genset centre distance: min. 3000 mm

Removal of cylinder liner:
in transverse direction: 4940 mm
in longitudinal direction: 5305 mm

Engine with turbocharger at driving end available, ask for dimensions

Please contact us for lead times

M 43 C

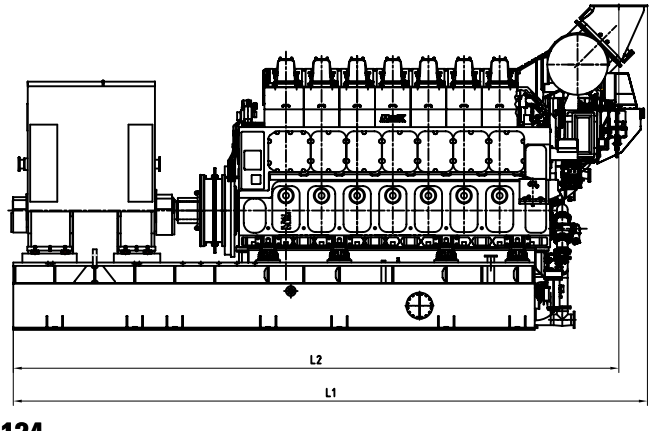


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	L2*	H1	H2	W1	W2	Weight*
6 M 43 C	12202	11651	3834	2444	3400	215	178.0
7 M 43 C	12999	12414	4205	2444	3400	232	195.0
8 M 43 C	13729	13144	4205	2444	3400	232	210.0
9 M 43 C	14459	13874	4205	2444	3400	232	240.0

* Dependent on generator make/type

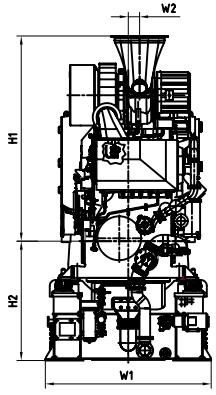


TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
								100%	85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	g/kWh
6 M 43 C	6000	5754	7200	50/60	500/514	27.1/26.4	10.2/10.5	176	175
	6300	6042	7560	50/60	500/514	28.4/27.7	10.2/10.5	178	176
7 M 43 C	7000	6713	8400	50/60	500/514	27.1/26.4	10.2/10.5	176	175
	7350	7049	8820	50/60	500/514	28.4/27.7	10.2/10.5	178	176
8 M 43 C	8000	7672	9600	50/60	500/514	27.1/26.4	10.2/10.5	176	175
	8400	8056	10080	50/60	500/514	28.4/27.7	10.2/10.5	178	176
9 M 43 C	9000	8631	10800	50/60	500/514	27.1/26.4	10.2/10.5	176	175
	9450	9063	11340	50/60	500/514	28.4/27.7	10.2/10.5	178	176

Stroke: 610 mm
Bore: 430 mm

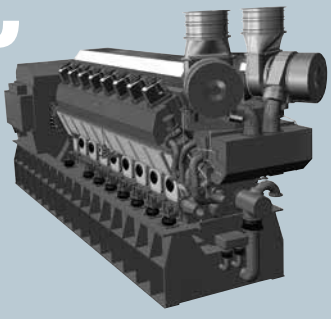
Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8



Genset centre distance: min. 3700 mm

Removal of cylinder liner:
in transverse direction: 6609 mm

VM 43 C

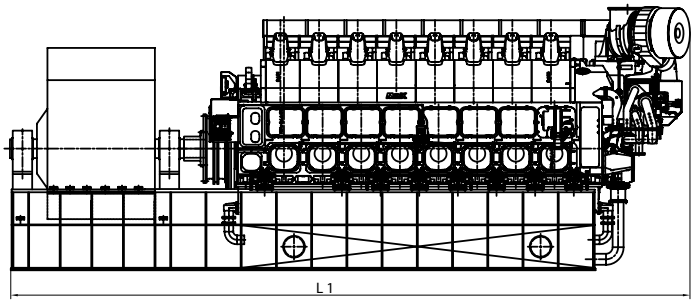


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	H1	H2	W1	W2	Weight*
12 M 43 C	14740	3497	3020	3890	1685	275.0
16 M 43 C	16870	3473	3020	4027	1670	345.0

* Dependent on generator make/type

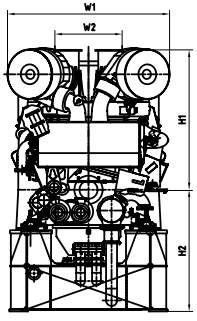


TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption	
								100%	85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	g/kWh
12 M 43 C	12000	11508	14400	50/60	500/514	27.1/26.4	10.2/10.5	176	175
	12600	12083	15120	50/60	500/514	28.4/27.7	10.2/10.5	178	176
16 M 43 C	16000	15344	19200	50/60	500/514	27.1/26.4	10.2/10.5	176	175
	16800	16111	20160	50/60	500/514	28.4/27.7	10.2/10.5	178	176

Stroke: 610 mm
Bore: 430 mm

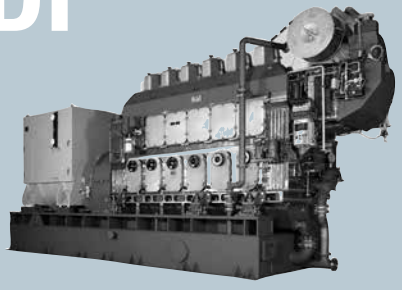
Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%
Generator efficiency: 0.96, cos φ : 0.8



Genset centre distance: min. 4500 mm

Removal of cylinder liner: 6720 mm

M 46 DF

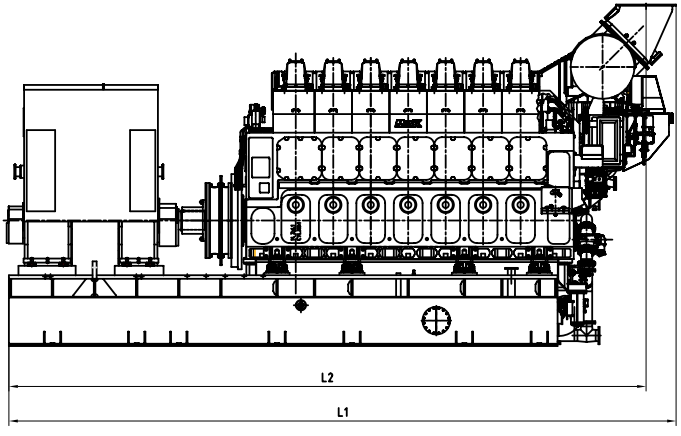


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	L2*	H1	H2	W1	W2	Weight*
6 M 46 DF	12202	11651	3834	2444	3400	215	178.0
7 M 46 DF	12999	12414	4205	2444	3400	232	195.0
8 M 46 DF	13729	13144	4205	2444	3400	232	210.0
9 M 46 DF	14459	13874	4205	2444	3400	232	240.0

* Dependent on generator make/type



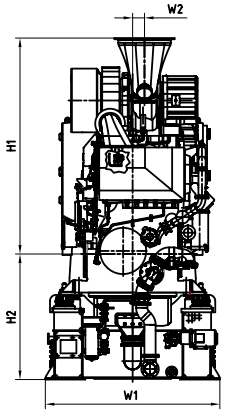
TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption 100%85%	Total spec. energy consumption 100% 85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	kJ/kWh
	5400	5179	6480	50/60	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524
6 M 46 DF	5790*)	5553	6948	50	500	22.8	10.2	185/183	7350/7460
	5790*)	5553	6948	60	514	22.2	10.5	186/184	7350/7460
	6300	6042	7560	50/60	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524
7 M 46 DF	6755*)	6478	8106	50	500	22.8	10.2	185/183	7350/7460
	6755*)	6478	8106	60	514	22.2	10.5	186/184	7350/7460
	7200	6905	8640	50/60	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524
8 M 46 DF	7720*)	7403	9264	50	500	22.8	10.2	185/183	7350/7460
	7720*)	7403	9264	60	514	22.2	10.5	186/184	7350/7460
	8100	7768	9720	50/60	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524
9 M 46 DF	8685*)	8329	10422	50	500	22.8	10.2	185/183	7350/7460
	8685*)	8329	10422	60	514	22.2	10.5	186/184	7350/7460

*) MDO only

Stroke: 610 mm
Bore: 460 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5% for liquid fuel
LCV = 31.5 MJ/Nm³ for gas fuel
Generator efficiency: 0.96, cos φ : 0.8
Note: 5% tolerance + 1% per pump

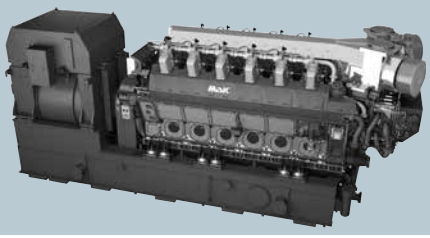


Genset centre distance: min. 3700 mm

Removal of cylinder liner
in transverse direction: 6609 mm

Nozzle position: ask for availability

VM 46 DF

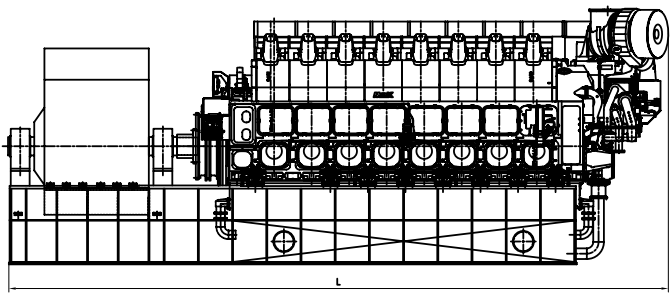


Generator Set

DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1*	H1	H2	W1	W2	Weight*
12 M 46 DF	14740	3497	3020	3890	1685	275.0
16 M 46 DF	16870	3473	3020	4027	1670	345.0

* Dependent on generator make/type



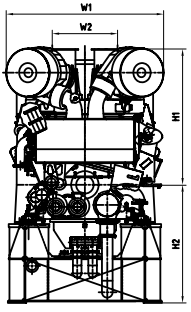
TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec fuel consumption 100%85%	Total spec. energy consumption 100% 85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	kJ/kWh
12 M 46 DF	10880	10357	12960	50/60	500/514	21.3/20.7	10.2/10.5	184/184	7272/7417
	11580*)	11105	13896	50	500	22.8	10.2	184/182	7350/7370
	11580*)	11105	13896	60	514	22.2	10.5	185/183	7350/7370
16 M 46 DF	14400	13810	17280	50/60	500/514	21.3/20.7	10.2/10.5	184/184	7272/7417
	15440*)	14807	18528	50	500	22.8	10.2	184/182	7350/7370
	15440*)	14807	18528	60	514	22.2	10.5	185/183	7350/7370

*) MDO only

Stroke: 610 mm
Bore: 460 mm

Specific lubricating oil consumption 0.6 g/kWh, ± 0.3 g/kWh
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5% for liquid fuel
LCV = 31.5 MJ/Nm³ for gas fuel
Generator efficiency: 0.96, cos φ : 0.8
Note: 5% tolerance + 1% per pump



Genset centre distance: min. 4500 mm

Removal of cylinder liner:
in transverse direction: 6720 mm

Please contact us for lead times

Notes

Notes

Notes

For more information please visit:
MARINE.CAT.COM
E-mail: cat_power@cat.com

BUILT FOR IT.™

LEDM3457-19 (8-15) Printed on recycled paper.

CATERPILLAR®