

# MARINE POWER PRODUCTS GUIDE



**CATERPILLAR MARINE**  
JUNE 2014

**MAK**

**CAT**<sup>®</sup>



# 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

111 Southchase Blvd.  
Fountain Inn, SC 29644/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

## 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:

**MARINE.CAT.COM**

# Caterpillar Propulsion

## **AFRICA**

### **Caterpillar Propulsion Maritime Namibia (Proprietary) Limited**

Product Support

P.O. Box 4407

2nd Street East & John Newman

Walvis Bay, Namibia, Africa

## **BRAZIL**

### **Caterpillar Propulsao Maritima Do Brasil LTDA**

Sales

Rua do Mercado, 17 - Sbj 201 - Centro

20010-120

Rio de Janeiro, RJ, Brazil

## **CHINA**

### **Caterpillar Propulsion International Trading (Shanghai) Co. LTD Guangzhou Branch**

Product Support Sales

RM 4306, Building B, China Shine Plaza

No. 9 Lin He Xi Road, Tian He District

510610 Guangzhou, China

### **Caterpillar Propulsion International Trading (Shanghai) Co. LTD**

Product Support, Sales

6F, Lei Shing International Plaza, No. 1319

West Yan'an Road

200050 Shanghai, China

## **ITALY**

### **Caterpillar Propulsion Italy S.R.L**

Sales

Torre WTC – 19 Piano, Via de Marini 1

16149 Genova, Italy

## **KOREA**

### **Caterpillar Propulsion Korea Branch Office**

Product Support, Sales

LeadersMark #2502, Woo-dong 1514

Haeundae-gu, Busan, Korea

## **SINGAPORE**

### **Caterpillar Propulsion Production PTE LTD**

Product Support, Production & Purchasing,  
Sales

85 Tuas South Avenue 1

637419 Singapore, Singapore

### **Caterpillar Propulsion Singapore PTE LTD**

Product Support, Production &

Purchasing, Sales

85 Tuas South Avenue 1

637419 Singapore

## **SPAIN**

### **Caterpillar Propulsion Spain S.L**

Sales

Avda de Zumalakarregui 1, Entr A

20008 San Sebastian, Spain

## **SWEDEN**

### **Caterpillar Propulsion Sweden AB**

Press & Media, Product Support,

Production & Purchasing, Sales,

Service 24 hours

Tärnvägen 15

475 40 Hönö, Sweden

### **Caterpillar Propulsion Production AB**

Press & Media, Product Support,

Production & Purchasing, Sales,

Service 24 hours

Längesand 1, Box 1005

475 31 Öckerö, Sweden

## **TURKEY**

### **Caterpillar Propulsion Istanbul Makina Ticaret LTH.STI.**

Product Support, Sales

Fatih Sultan Mehmet Cad. Yayabey

Sokak No. 12 Kat 2

34810 Kavacik-Istanbul, Turkey

## **UNITED ARAB EMIRATES**

### **Caterpillar Propulsion International Middle East FZE**

Product Support, Sales

Dubai Airport Free Zone. East wing

6E-A650. P.O. Box 54517

Dubai

United Arab Emirates

## **UNITED STATES**

### **Karl Senner, LLC**

Product Support, Sales

25 West Third Street

Kenner, Louisiana 70062

United States

# Contents

Visit [MARINE.CAT.COM](http://MARINE.CAT.COM) for detailed specification sheets and product information.

	Page
<b>Abbreviations</b> .....	6
<b>Customer Support Programs for Cat®</b>	
<b>Marine Products</b> .....	7-8
<b>Cat Financial</b> .....	9
<b>Commercial Account</b> .....	10
<b>Cat Controls and Displays</b> .....	11-13
<b>MaK Controls and Displays</b> .....	14-18
<b>Caterpillar Propulsion</b> .....	19-20
<b>Marine Propulsion Engine</b>	
Rating Definitions .....	21-23
Propulsion Engines .....	24
Emissions Information .....	25-26
Cat Marine Custom Solutions .....	27
Ratings by Engine Model .....	28-54
<b>Cat Marine Generator Sets</b>	
Rating Conditions .....	55
Ratings by Engine Model .....	56-73
<b>Cat Marine Auxiliary Engines</b> .....	74-80
<b>MaK™ Marine Propulsion Engines</b> .....	82-83
Ratings by Engine Model .....	84-105
<b>MaK Marine Generator Sets</b> .....	106-107
Ratings by Engine Model .....	108-129

Caterpillar follows a policy of continual product improvement. For this reason, some material and specifications could change without notice. Please reference TMI Web for most current information.

# Abbreviations

**bhp** — Brake Horsepower

**bkW** — Brake Kilowatts

**DIN** — German Standards  
Organization

**DF** — Dual Fuel

**ekW** — Electrical Kilowatts

**EPA** — Environmental Protection  
Agency

**EU** — European Union

**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

**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

**WE** — Width of Engine

**Note:** For Engine Emissions Information abbreviations see page 27-28.

# 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 four levels (Silver, Gold, Platinum, and Platinum Plus). Four levels 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** is new for 2014. This program 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** is also new for 2014. This program 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 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



# Commercial Account

Cat Financial Commercial Account is a payment method that enables you to buy parts 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 Cat dealer or Cat Rental Store in the U.S. or participating dealers in 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 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](http://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.

## **Marine Analog Power Display (MAPD)**

MAPD is an innovative system of electronically controlled analog gauges that monitor engine operation, offering accuracy and dependability with

visual simplicity. All gauges are LED backlit, automatically calibrated, and available in two sizes.



# MaK Controls and Displays

## **New Diagnostic System for On-Line Engine Data Transmission**

Based on several years of Caterpillar experience, Caterpillar Motoren will launch a new diagnostic system in early 2015.

The new system will be based on data transfer via internet to a central Caterpillar data warehouse and offers intensive diagnostics by Caterpillar engine specialists and use of a common data base. The DICARE system has been discontinued and will not be offered due to lack of ability to support the software platform in the future.

For detailed information please call Caterpillar Motoren, application and installation department, (49) 431-39 95 01.

## **Modular Alarm and Control System (MACS)**

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

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

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

## Functions

MACS consists of the following software functions:

- Controls
  - Start/stop control
  - Diesel/gas mode control (only dual-fuel engines)
  - Engine control
  - Load sharing
  - Engine automation
  - Gas management system (only dual-fuel engines)
- Monitoring and alarm system
  - Includes Modbus TCP or Modbus RTU interface to the ship
- Protection system

## Components

### Shutdown Unit (SDU)

The SDU is the independent engine protection system which shuts down the engine in case of a major fault that may damage the engine. It shuts off gas supply during each engine shutdown

and additionally stops the ignition fuel system in the event of an engine overspeed. The local and remote manual emergency stops are hardwired to the SDU. All automatic shutdowns except the overspeed event and manual emergency stop can be overridden. Each shutdown event is displayed via LEDs at the SDU itself and on the display in the local control panel, or at the remote panel. In the case of an SDU device fault, the engine will continue to run and the alarm will be raised by the engine's alarm system and ship's alarm system.



### Digital Control Unit (DCU)

The DCU Modbus communicates to the ship. The 5.7" (145 mm) display can be set for automatic or night mode and can display multiple instrument views and alarm and event lists. The user can switch between English or metric units. Various modules integrate directly with the DCU, such as the SDU, required for MCS classed applications.

The alarm system determines critical engine conditions, activates alarms and, if necessary, shuts down the engine. The DCU can actuate the secondary safety stop valve and the gas shut-off signal. Complete alarm management is handled by the DCU.

## **PLCs**

The start and stop functionality and additional automation functions are processed by PLC TB only. It involves the diesel gas mode control, the engine automation, and the gas management system. Moreover, this unit includes parts of the alarm and monitoring system related to gas mode such as gas mode interlock or gas shut-off function.

The PLC EC is mainly used as an additional I/O module in the engine cabinet and is linked to PLC TB via Modbus TCP. Measurement values from all sensors and switches connected to the PLC EC are transmitted to the PLC TB for further processing. Also, control signals for outputs are determined in PLC TB and are then transmitted to PLC EC. This PLC is used to tie up all signals coming from and going to the ship's systems as well as signals for the GUV.

If one of the PLCs fails, the engine can still be started by means of the mechanical emergency start or the emergency start function implemented in the DCU. The engine can run in diesel mode only and must be operated attended. External and internal starting interlocks are not processed in that emergency case.

## **Engine Control System**

The engine control system is composed of three ECUs controlling the fuel systems, air-fuel ratio (only dual-fuel engines), speed, and FCT. Droop mode is also implemented. This system has its own set of sensors for control of all relevant functions and in diesel mode is operated independently from the start/stop system (PLCs), alarm system (DCU) or protection system (SDU).

## **Temperature Modules**

Four to seven temperature modules, two to three of the RTD type and two to four of the TC type, are necessary to connect all PT100 sensors and thermocouples and to transmit those values to the engine alarm and control system. These modules are linked to the DCU and PLC TB via CANbus. All devices are capable of transmitting diagnostic messages of faulty sensors.



***The following components are not part of the MACS system, but need to be mentioned to explain relevant interfaces and interactions between those components and MACS.***

## **Oil Mist Detector (OMD) and CTM**

The OMD and big end bearing temperature device transmit measurement values and diagnostics to the alarm system in the DCU. In addition to that, both modules provide hardwired outputs for pre-alarm and shutdown that are connected to the PLC or SDU.

## **In-Cylinder Pressure Module (ICPM) (only 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 ECU and the MACS.

## **GVU (only dual-fuel engines)**

The GVU is controlled and monitored by MACS. Its limit switches and sensors are connected to I/O modules of PLC EC or directly to the ECUs.

## **Remote Panel (RP)**

Multiple RPs can be mounted where needed.

Each RP can monitor eight DCUs. The 8.4" (213 mm) touch-screen display can be set for automatic or night mode and can show one, two, or four engines at a time.



RPs provide visualized engine status and measurement values remote from the engine. An RP uses the same configuration as each DCU and requires a DCU to display the engine's data.

## **Remote Monitoring**

Remote indicators and optional displays receive measurement values from all engines provided by Modbus TCP.

The GVU (standard scope of supply for dual-fuel engines) is connected to MACS. To fulfil MCS and ATEX requirements, ATEX-approved I/O modules (ex barrier) are used to link valves and sensors with the engine alarm and control system.

Several remote panels can be used on a ship to display the current status and the measurement values from all MaK engines installed. Those panels are connected to the DCU via Modbus TCP. The remote panel provides the alarm list in the same style as the DCU in the LCP. All safety-relevant signals are communicated hardwired and are connected to the terminals inside the engine cabinet. Additional alarms are transmitted on Modbus.

## **Large Engine Safety System (LESS)**

LESS is a compact engine control, monitoring and protection system available for MaK M 20 C, M 25 C, M 32 C, and M 43 C. Functions included are control of the engine (start/stop), monitoring of the actual status of sensors, and the protection system (e.g., emergency stops, interlocks). The system is designed for automatic shutdown, manual stop inputs, and has configurable inputs (shutdown, reduction, start interlock), override and remote reset, adjustable speed, and overload contacts as well as fuel setting and rpm signals.

The engine control box includes engine protection and monitoring, rpm control switch, LED panel and graphical display, and Modbus output to the alarm system.

This system is completely equipped for data transfer to the alarm system and requires less installation and commissioning time.

# 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 expert, 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 propeller shaft off-line, the small reduction in vessel power is outweighed by a substantial increase in propulsion efficiency and fuel savings.



## 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 available with a controllable pitch propeller or a fixed-pitch propeller for maximum uptime. The controllable pitch propeller is normally used for constant shaft speeds and the fixed pitch propeller is normally 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.



**Azimuth  
Thrusters**



**Remote  
Control System**



**Tunnel  
Thrusters**

# Marine Propulsion Engine Rating Definitions

## 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 applications could include but are not limited to vessels such as freighters, tugboats, bottom trawlers, or deep river tugboats.** Typical operation ranges from 5000 to 8000 hours per year.

### For 3516B Engines Only:

- ◆ **Ahp** – Fast commercial vessels with high load factors. Requires CF-4 or superior lube oil and 30°C or colder aftercooler water.

### For C280-6, C280-8, C280-12, and C280-16 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 applications could include but are not limited to vessels such as mid-water trawlers, purse seiner, crew and supply boats, ferries, or towboats.** Typical operation ranges from 3000 to 5000 hours per year.

- ◆ **For 3508B, 3512B, and 3516B Engines Only:**
- ◆ **Bhp** – Fast commercial and passenger vessels including catamarans and SWATH vessels with high load factors.

# 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 applications could include but are not limited to vessels such as ferries, harbor tugs, fishing boats, offshore service boats, displacement hull yachts, or short trip coastal freighters.** Typical operation ranges from 2000 to 4000 hours per year.

### **For 3508B, 3512B, and 3516B Engines Only:**

- ◆ **Chp** – Fast commercial and passenger vessels and cruising yachts with moderate load factors.

### **For C280-6, C280-8, C280-12, and C280-16 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 applications could include but are not limited to vessels such as offshore patrol boats, customs boats, police boats, some fishing boats, fireboats, or harbor tugs.** Typical operation ranges from 1000 to 3000 hours per year.

**For 3508B, 3512B, and 3516B Engines Only:**

- ◆ **Dhp** – Patrol craft, fast passenger vessels, and cruising yachts with low load factors.

## 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 applications could include but are not limited to vessels such as pleasure craft, harbor patrol boats, harbor master boats, some fishing or patrol boats.** Typical operation ranges from 250 to 1000 hours per year.

**For 3508B, 3512B, and 3516B Engines Only:**

- ◆ **Ehp** – Fast patrol craft and fast yachts with low load factors.

## 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

### Recreational Marine

Platform	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
C7, C9, C12	EPA Tier 2					EPA Tier 3					
C18-C32											

### Commercial Marine

Platform	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
C1.5, C2.2											
C4.4, C6.6, C7.1											
C7, C9, C12	EPA Tier 2					EPA Tier 3					
C18 (<600 kW)											
C18 (≥600 kW) - C32	EPA Tier 2										
C32 (≥1400 kW)											
3500 (600-1399 kW)											
3500 (1400-1999 kW)											
3500, C175 (2000-3699 kW)											
C280 (>2000 kW)											

## 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 Commercial standards

## IMO/EU Certification

Tier	Date	NO <sub>x</sub> 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

\*In NO<sub>x</sub> Emission Control Areas (Tier II standards apply outside ECAs).

## IMO Certification

**IMO I** — 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.

**IMO II** — Emissions data measurement is consistent with the procedures described in the NO<sub>x</sub> 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 specific engines in vessels with a keel lay date from Jan. 1, 2011 until Dec. 31, 2015. Other rules may apply.

**IMO III** — Emissions data measurement is consistent with the procedures described in the NO<sub>x</sub> Technical Code 2008. The engine exhaust emissions meet the International Maritime Organization's Regulation 13 of Revised Annex VI to the MARPOL Convention. IMO III applies to Emission Control Area (ECA) defined areas. Other rules may apply.

**NST** — Engines ≤ 130 kW 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 kW 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)

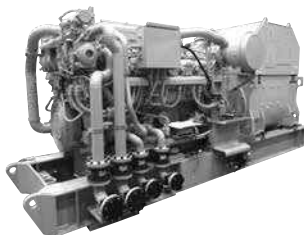
**NC** — Not Certified for specific regulations.

**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

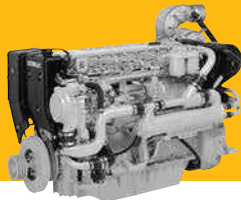
Find a custom solution for your operation that comes with full standard warranty and the worldwide Cat dealer support network. For a specific rating, option, or product configuration not currently available, talk to your local Caterpillar representative about your particular requirements, such as:



- Specific ratings
- 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

# 3056

## PROPULSION ENGINE



Mechanical  
Control  
System

### RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C	127	125	93	2600	8.2	243.0	NC - NST - NC
C	188	185	138	2100	9.7	223.2	NC - I - RCD
C	208	205	153	2500	11.2	232.5	NC - I - RCD

Contact local dealer for availability.

	LE	H	WE
min.	42.05 in/1068 mm	31.5 in/801 mm	25.4 in/645 mm
max.	42.05 in/1068 mm	31.5 in/801 mm	30.6 in/779 mm

### In-line 6, 4-Stroke-Cycle Diesel

Aspiration	NA, TA	
Bore x Stroke	3.94 x 5.0 in	100 x 127 mm
Displacement	365 cu in	6.0 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	1312 lb	595 kg

Electronic  
Control  
System



# C7

## PROPULSION ENGINE

### RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA -	IMO -	EU
A	255	250	187	2400	12.9	220.1	NC -	I -	NC
B	280	275	205	2400	14.0	217.3	NC -	I -	NC
C	320	315	235	2400	17.0	230.0	NC -	I -	NC
D	375	370	276	2600	20.5	235.5	NC -	I -	NC

Electronic  
Control  
System



# C7 ACERT™

## PROPULSION ENGINE

### RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA -	IMO -	EU
E	461	455	339	2800	25.1	230.5	NC -	II -	NC

Contact local dealer for availability.

	LE	H	WE
min.	48.1 in/1221.8 mm	36.1 in/916.9 mm	36.2 in/919.6 mm
max.	48.1 in/1221.8 mm	36.1 in/916.9 mm	36.2 in/919.6 mm

### In-line 6, 4-Stroke-Cycle Diesel

Aspiration	TA	
Bore x Stroke	4.33 x 5.0 in	110 x 127 mm
Displacement	442 cu in	7.24 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	1760 lb	798 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



# C8.7

## PROPULSION ENGINE

### RATINGS AND FUEL CONSUMPTION

#### Preliminary

	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

# 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

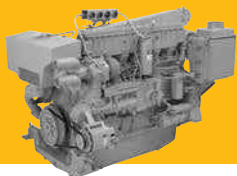
	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA -	IMO -	EU
E	669	660	492	2300	34.1	220.0	NC -	II -	NC
E	715	705	526	2300	36.5	220.3	NC -	II -	NC

	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





### RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA -	IMO -	EU
A	270	365	272	1800	17.8	208.0	NC -	NC -	NC
A	406	400	298	1800	19.5	208.0	NC -	NC -	NC

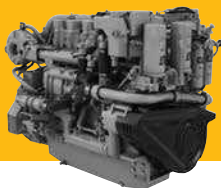
	LE	H	WE
<b>min.</b>	57.3 in/1454.2 mm	50.3 in/1278.5 mm	36.0 in/913.5 mm
<b>max.</b>	57.3 in/1454.2 mm	50.3 in/1278.5 mm	36.0 in/913.5 mm

### In-line 6, 4-Stroke-Cycle Diesel

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

# C18 ACERT

## PROPULSION ENGINE



Electronic  
Control  
System

### 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

#### 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 <sup>1</sup>	680	670	500	1800-2100	34.7	223.6	T3C	- II	- IW
C <sup>1</sup>	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

<sup>1</sup>Wide Operating Speed Range (WOSR)

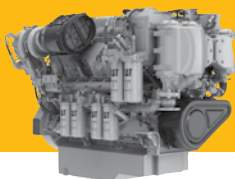
Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp)

	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

Electronic  
Control  
System



# C32 ACERT

## PROPULSION ENGINE

### COMMERCIAL APPLICATIONS

### RATINGS AND FUEL CONSUMPTION

#### IMO Tier II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA	-IMO	- EU
A <sup>1</sup>	669	660	492	1600-1800	32.3	208.4	NC	- II	- IW
A <sup>1</sup>	760	750	559	1600-1800	36.2	205.8	NC	- II	- IW
A <sup>1</sup>	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 <sup>1</sup>	1014	1000	746	1600-1800	48.1	204.9	NC	- II	- IW
B <sup>1</sup>	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 <sup>1</sup>	1470	1450	1081	2000-2300	77.2	226.8	NC	- II	- IW

#### EPA Tier 3 & IMO Tier II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA	-IMO	- EU
A <sup>1</sup>	760	750	559	1600-1800	37.5	213.2	T3CR	- II	- IW
A <sup>1</sup>	862	850	634	1600-1800	42.8	214.2	T3CR	- II	- IW
A <sup>1</sup>	862	850	634	1800-2100	45.4	227.9	T3CR	- II	- IW
A <sup>1</sup>	1014	1000	746	1600-1800	49.8	212.1	T3CR	- II	- IW
B <sup>1</sup>	1217	1200	895	1800-2100	62.6	222.2	T3CR	- II	- IW
C <sup>1</sup>	1319	1300	970	1800-2100	67.9	222.7	T3CR	- II	- IW
C <sup>1</sup>	1470	1450	1081	2100-2300	75.9	223.1	T3CR	- II	- IW

<sup>1</sup>Wide Operating Speed Range (WOSR)

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

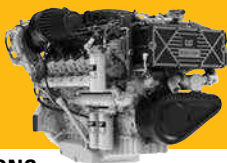
	LE	H	WE
min.	83.5 in/2121 mm	60.9 in/1547 mm	60.17 in/1528 mm
max.	89.9 in/2284 mm	62.5 in/1587 mm	60.17 in/1528 mm

### 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

# C32 ACERT

## PROPULSION ENGINE



Electronic  
Control  
System

### HIGH PERFORMANCE APPLICATIONS

### RATINGS AND FUEL CONSUMPTION

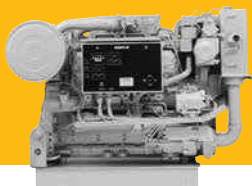
#### EPA Tier 3 and IMO Tier II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA -	IMO -	EU
D	1622	1600	1193	2300	82.1	218.2	T3C -	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

	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



### RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA -	IMO -	EU
A	715	705	526	1200	35.9	216.8	NC -	NC -	NC
A	867	855	637	1600	41.6	207.1	NC -	NC -	NC
A	867	855	637	1800	43.5	216.8	NC -	NC -	NC
B	816	805	600	1300	41.3	218.5	NC -	NC -	NC
B	918	905	675	1600	43.8	206.2	NC -	NC -	NC
B	973	960	716	1800	48.6	215.7	NC -	NC -	NC
C	831	820	611	1300	42.1	218.4	NC -	NC -	NC
C	1014	1000	746	1800	50.6	215.5	NC -	NC -	NC
D	1166	1150	857	1800	58.7	217.4	NC -	NC -	NC

Contact local dealer for availability.

	LE	H	WE
min.	81.8 in/2077 mm	71.0 in/1803 mm	67.1 in/1703 mm
max.	81.8 in/2077 mm	71.0 in/1803 mm	67.1 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	2105 cu in	34.5 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	11,499 lb	5216 kg

# 3508B

## 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	202.5	NC - I - NC
A	867	855	637	1600	40.8	203.2	NC - I - NC
A	867	855	637	1800	42.0	209.3	NC - I - NC
A	1014	1000	746	1600	47.3	201.8	NC - I - NC
A	1014	1000	746	1800	48.7	207.3	NC - I - NC
B	862	850	634	1200	40.7	204.1	NC - I - NC
B	973	960	716	1600	45.4	201.9	NC - I - NC
B	973	960	716	1800	46.7	207.3	NC - I - NC
B	1065	1050	783	1600	49.5	200.8	NC - I - NC
B	1065	1050	783	1800	50.9	206.5	NC - I - NC
C	913	900	671	1200	43.5	205.6	NC - I - NC
C	1014	1000	746	1600	47.3	201.8	NC - I - NC
C	1115	1100	820	1600	47.3	200.9	NC - I - NC
C	1115	1100	820	1800	53.3	206.3	NC - I - NC
Bhp	1217	1200	895	1785	58.7	208.2	NC - I - NC
Chp	1318	1300	969	1835	64.1	209.9	NC - I - NC
Dhp	1420	1400	1044	1880	69.6	211.6	NC - I - NC
Ehp	1521	1500	1118	1925	75.1	213.1	NC - I - NC

Contact local dealer for availability.

	LE	H	WE
min.	90.9 in/2310 mm	71.0 in/1803 mm	67.1 in/1703 mm
max.	90.9 in/2310 mm	71.0 in/1803 mm	67.1 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	2105 cu in	34.5 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx.)	10,181-11,499 lb	4618-5261 kg

Electronic  
Control  
System



# 3508C

## PROPULSION ENGINE

### 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

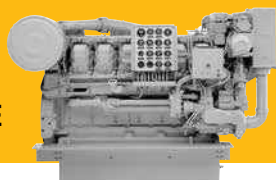
	LE	H	WE
min.	83.4 in/2117 mm	72.0 in/1829 mm	67.0 in/1703 mm
max.	83.4 in/2117 mm	72.0 in/1829 mm	67.0 in/1703 mm

### 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

# 3512

## PROPULSION ENGINE



Mechanical  
Control  
System

### RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	1224	1207	900	1200	58.1	204.9	NC - NC - NC
A	1298	1280	954	1600	64.2	213.7	NC - NC - NC
A	1298	1280	954	1800	64.7	215.3	NC - NC - NC
B	1318	1301	970	1200	62.8	205.5	NC - NC - NC
B	1379	1360	1014	1600	68.3	214.0	NC - NC - NC
B	1465	1445	1077	1800	72.2	212.8	NC - NC - NC
C	1428	1408	1050	1200	68.6	207.5	NC - NC - NC
C	1430	1410	1051	1600	73.1	220.8	NC - NC - NC
C	1521	1500	1118	1800	76.3	216.6	NC - NC - NC
D	1775	1750	1305	1800	92.8	225.9	NC - NC - NC

Contact local dealer for availability.

	LE	H	WE
min.	107 in/2715 mm	80.8 in/2053 mm	67.1 in/1703 mm
max.	107 in/2715 mm	80.8 in/2053 mm	67.1 in/1703 mm

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

Aspiration	TTA	
Bore x Stroke	6.7 x 7.5 in	170 x 190 mm
Displacement	3158 cu in	51.8 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	14,398-14,411 lb	6531-6537 kg



Electronic  
Control  
System



# 3512B

## PROPULSION ENGINE

### RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	1115	1100	820	1200	52.0	201.5	NC - I - NC
A	1298	1280	954	1600	60.4	201.1	NC - I - NC
A	1318	1300	969	1200	62.2	203.8	NC - I - NC
A	1521	1500	1118	1600	69.8	198.3	NC - I - NC
A	1521	1500	1118	1800	72.6	205.1	NC - I - NC
A <sup>1</sup>	1521	1500	1118	1200	74.3	210.9	NC - I - NC
A <sup>2</sup>	1521	1500	1118	1800	73.5	206.0	NC - I - NC
A <sup>1</sup>	1699	1675	1249	1600	75.8	192.8	NC - I - NC
A <sup>1</sup>	1835	1810	1350	1600	88.0	207.1	NC - I - NC
B	1171	1155	861	1200	54.5	201.1	NC - I - NC
B	1278	1260	939	1200	59.7	201.8	NC - I - NC
B	1369	1350	1007	1200	64.6	203.6	NC - I - NC
B	1379	1360	1014	1600	63.4	198.6	NC - I - NC
B	1379	1360	1014	1800	65.2	205.1	NC - I - NC
B	1597	1575	1174	1600	72.9	197.1	NC - I - NC
B	1597	1575	1174	1800	75.9	205.1	NC - I - NC
B <sup>1</sup>	1775	1750	1305	1600	78.9	192.1	NC - I - NC
B <sup>1</sup>	1938	1911	1425	1600	92.8	206.9	NC - I - NC
C	1227	1210	902	1200	57.6	201.3	NC - I - NC
C	1430	1410	1051	1600	65.7	198.3	NC - I - NC
C	1430	1410	1051	1800	67.3	204.3	NC - I - NC
C	1496	1475	1100	1200	71.3	207.2	NC - I - NC
C	1673	1650	1230	1600	76.3	196.9	NC - I - NC
C	1673	1650	1230	1800	79.3	204.7	NC - I - NC
C <sup>1</sup>	1876	1850	1379	1600	83.4	192.0	NC - I - NC
C <sup>1</sup>	2040	2012	1500	1600	97.1	205.5	NC - I - NC
Bhp	1825	1800	1342	1785	87.2	206.4	NC - I - NC
Chp	1977	1950	1454	1835	96.0	209.7	NC - I - NC
Dhp	2129	2100	1566	1880	101.3	205.4	NC - I - NC
Ehp	2282	2250	1678	1925	109.6	207.4	NC - I - NC

<sup>1</sup>High displacement engine (HD)

<sup>2</sup>Wide operating speed range

Contact local dealer for availability.

#### LE

#### H

#### WE

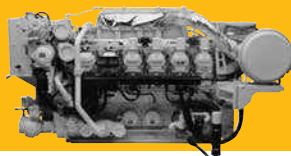
min.	111 in/2819 mm	71.1 in/1806 mm	67.1 in/1703 mm
max.	121 in/3067 mm	82.3 in/2091 mm	70.2 in/1785 mm
HD	120 in/3039 mm	81.7 in/2074 mm	78.3 in/1988 mm

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

Aspiration	TTA	
Bore x Stroke	6.7 x 7.5 in	170 x 190 mm
Bore x Stroke <sup>2</sup>	6.7 x 8.5 in	170 x 215 mm
Displacement	3158 cu in	51.8 liter
Displacement <sup>2</sup>	3576 cu in	58.6 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx.)	14,398-14,411 lb	6531-6537 kg

# 3512C

## PROPULSION ENGINE



Electronic  
Control  
System

### 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 <sup>1</sup>	1521	1500	1118	1200	71.5	203.0	NC - II - IW
A <sup>1</sup>	1699	1676	1250	1600	79.7	202.6	NC - II - IW
A <sup>1</sup>	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 <sup>1</sup>	1622	1600	1194	1200	76.2	202.8	NC - II - IW
B <sup>1</sup>	1774	1749	1305	1600	82.5	200.7	NC - II - IW
B <sup>1</sup>	1938	1911	1425	1600	89.0	208.5	NC - II - IW
B <sup>1</sup>	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 <sup>1</sup>	1723	1700	1268	1200	83.4	204.0	NC - II - IW
C <sup>1</sup>	1876	1851	1380	1600	86.4	199.0	NC - II - NC
C <sup>1</sup>	2040	2012	1500	1600	93.7	208.8	NC - II - IW
C <sup>1</sup>	2400	2365	1765	1800	116.5	214.5	NC - II - IW
C <sup>1</sup>	2400	2365	1765	1800	119.2	214.5	NC - I - NC
D <sup>1</sup>	2577 <sup>2</sup>	2541	1895	1800	128.4	215.2	NC - I - NC
D <sup>1</sup>	2587	2551	1902	1800	124.4	207.7	NC - II - IW

<sup>1</sup>High displacement engine (HD)

<sup>2</sup>B Series uprate

LE

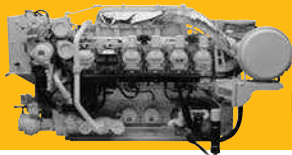
H

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 <sup>1</sup>	6.69 x 8.46 in	170 x 215 mm
Displacement	3161 cu in	51.8 liter
Displacement <sup>1</sup>	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



### RATINGS AND FUEL CONSUMPTION

#### EPA Tier 3 Ratings

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A <sup>1</sup>	1359	1340	1000	1600	67.0	212.8	T3C - II - NC
A <sup>1</sup>	1522	1501	1120	1600	74.6	211.5	T3C - II - NC
A <sup>1</sup>	1522	1501	1120	1800	75.4	213.7	T3C - II - NC
A <sup>1</sup>	1835	1810	1350	1600	88.7	208.6	T3C - II - NC
B <sup>1</sup>	1597	1575	1175	1600	77.9	210.6	T3C - II - NC
B <sup>1</sup>	1597	1575	1175	1800	79.0	213.6	T3C - II - NC
B <sup>1</sup>	1937	1910	1425	1600	93.5	208.5	T3C - II - NC
B <sup>1</sup>	2280	2249	1678	1800	114.8	217.3	T3C - II - NC
C <sup>1</sup>	1672	1649	1230	1600	81.3	209.8	T3C - II - NC
C <sup>1</sup>	1672	1649	1230	1800	83.0	214.3	T3C - II - NC
C <sup>1</sup>	2039	2011	1500	1600	98.6	208.8	T3C - II - NC
C <sup>1</sup>	2399	2366	1765	1800	120.8	217.4	T3C - II - NC

<sup>1</sup>High displacement engine (HD)

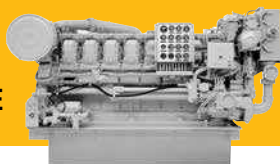
	LE	H	WE
min.	104.2 in/2645 mm	87.5 in/2222.6 mm	80.2 in/2037 mm
max.	104.2 in/2645 mm	87.5 in/2222.6 mm	80.2 in/2037 mm

#### 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

# 3516

## PROPULSION ENGINE



Mechanical  
Control  
System

### RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	1622	1603	1195	1200	76.1	201.2	NC - NC - NC
A	1734	1710	1275	1600	85.9	214.0	NC - NC - NC
A	1734	1710	1275	1800	86.5	215.5	NC - NC - NC
B	1698	1676	1250	1200	79.5	202.0	NC - NC - NC
B	1835	1810	1350	1600	91.0	214.1	NC - NC - NC
B	1947	1920	1432	1800	96.5	214.1	NC - NC - NC
C	2028	2000	1491	1800	103.2	219.8	NC - NC - NC

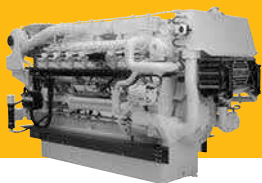
Contact local dealer for availability.

	LE	H	WE
min.	145.3 in/3690 mm	80.8 in/2053 mm	67.1 in/1703 mm
max.	145.3 in/3690 mm	80.8 in/2053 mm	67.1 in/1703 mm

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

Aspiration	TTA	
Bore x Stroke	6.7 x 7.5 in	170 x 190 mm
Displacement	4210 cu in	69 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	17,699 lb	8028 kg

Electronic  
Control  
System



# 3516B

## PROPULSION ENGINE

### RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
A	1673	1650	1230	1200	77.1	198.9	NC - I - NC
A <sup>1</sup>	1901	1875	1398	1200	87.9	199.8	NC - I - NC
A	2028	2000	1491	1600	95.0	200.1	NC - I - NC
A	2028	2000	1491	1800	94.0	200.1	NC - I - NC
A <sup>2</sup>	2028	2000	1491	1800	103.9	202.2	NC - I - NC
A <sup>1</sup>	2292	2260	1685	1600	102.6	193.2	NC - I - NC
A <sup>1</sup>	2481	2447	1825	1600	112.8	195.5	NC - I - NC
B	1775	1750	1305	1200	81.7	198.8	NC - I - NC
B	2129	2100	1566	1600	99.5	201.7	NC - I - NC
B	2129	2100	1566	1800	98.6	200.0	NC - I - NC
B <sup>1</sup>	2408	2375	1771	1600	106.9	191.6	NC - I - NC
B <sup>1</sup>	2611	2575	1920	1600	112.8	195.2	NC - I - NC
C	1876	1850	1379	1200	86.6	207.0	NC - I - NC
C	2231	2200	1640	1600	104.4	202.1	NC - I - NC
C	2231	2200	1640	1800	103.4	200.4	NC - I - NC
C <sup>1</sup>	2535	2500	1864	1600	111.9	190.5	NC - I - NC
C <sup>1</sup>	2718	2682	2000	1600	122.8	194.9	NC - I - NC
Ahp	2718	2682	2000	1925	128.9	204.7	NC - I - NC
Bhp	2434	2400	1790	1785	110.4	196.4	NC - I - NC
Chp	2636	2600	1939	1835	120.2	196.8	NC - I - NC
Dhp	2839	2800	2088	1880	132.7	201.8	NC - I - NC
Ehp	3042	3000	2237	1925	143.3	203.4	NC - I - NC

<sup>1</sup>High displacement engine (HD)

<sup>2</sup>Wide operating speed range

Contact local dealer for availability.

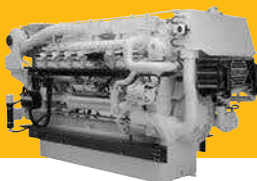
	LE	H	WE
min.	131.9 in/3349 mm	69.0 in/1753 mm	67.0 in/1703 mm
max.	146.7 in/3725 mm	82.3 in/2091 mm	80.8 in/2053 mm
HD	141.1 in/3584 mm	81.9 in/2082 mm	84.4 in/2144 mm

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

Aspiration	TTA	
Bore x Stroke	6.7 x 7.5 in	170 x 190 mm
Bore x Stroke <sup>2</sup>	6.7 x 8.5 in	170 x 215 mm
Displacement	4210 cu in	69 liter
Displacement <sup>2</sup>	4766 cu in	78 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	17,185-17,699 lb	7795-8028 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 <sup>1</sup>	2292	2260	1686	1600	107.5	202.4	NC - II - IW
A <sup>1</sup>	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 <sup>1</sup>	2407	2375	1771	1600	112	200.8	NC - II - IW
B <sup>1</sup>	2611	2575	1920	1600	118.6	206.7	NC - II - IW
B <sup>1</sup>	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 <sup>1</sup>	2534	2500	1864	1600	117.0	199.3	NC - II - NC
C <sup>1</sup>	2720	2682	2000	1600	123.4	198.5	NC - II - IW
C <sup>1</sup>	3196	3151	2350	1800	148.6	209.2	NC - I - NC
C <sup>1</sup>	3196	3151	2350	1800	154.7	200.9	NC - II - IW
D <sup>1</sup>	2855	2816	2100	1600	114.9	199.0	NC - II - IW
D <sup>1</sup>	3434	3386	2525	1800	159.8	201.0	NC - I - NC
D <sup>1</sup>	3434	3386	2525	1800	165.0	207.6	NC - II - IW

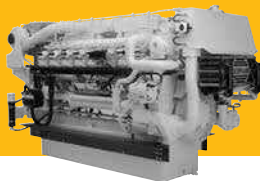
<sup>1</sup>High displacement engine (HD)

	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 <sup>1</sup>	6.69 x 8.46 in	170 x 215 mm
Displacement	4211 cu in	69 liter
Displacement <sup>1</sup>	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

#### EPA Tier 3 and Tier 4 Ratings

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA	- IMO -	EU
A <sup>1</sup>	2161	2131	1590	1600	103.6	207.0	T3C	- II -	NC
A <sup>1</sup>	2480	2446	1825	1600	118.9	206.9	T3C	- II -	NC
B <sup>1</sup>	2270	2239	1670	1600	108.9	207.0	T3C	- II -	NC
B <sup>1</sup>	2610	2574	1920	1600	125.0	206.7	T3C	- II -	NC
B <sup>1</sup>	3045	3003	2240	1800	147.6	209.2	T4C	- II -	NC
C <sup>1</sup>	2379	2346	1750	1600	114.1	207.0	T3C	- II -	NC
C <sup>1</sup>	2712	2675	1995	1600	129.8	206.6	T3C	- II -	NC
C <sup>1</sup>	3194	3150	2350	1800	115.4	209.9	T4C	- II -	NC

<sup>1</sup>High displacement engine (HD)

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

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

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

# C175-16

## PROPULSION ENGINE



Electronic  
Control  
System

### 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	129.9	206.2	NC	- II -	NC
A	2832	2792	2082	1600	140.6	214.5	NC	- II -	NC
A	3045	3003	2239	1800			NC	- II -	NC
A	3302	3256	2428	1800			NC	- II -	NC
B	2948	2907	2168	1600	146.1	214.1	NC	- II -	NC
B	3468	3420	2550	1800			NC	- II -	NC

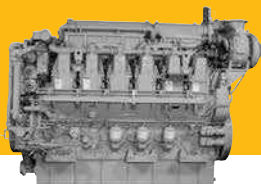
	LE	H	WE
min.	177.8 in/4515 mm	97.6 in/2478 mm	72.6 in/1845 mm
max.	177.8 in/4515 mm	97.6 in/2478 mm	72.6 in/1845 mm

#### 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



Electronic  
Control  
System



# C280-6

## PROPULSION ENGINE

### 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.

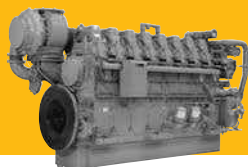
	LE	H	WE
min.	158 in/4013 mm	108 in/2743 mm	71 in/1803 mm
max.	158 in/4013 mm	108 in/2743 mm	71 in/1803 mm

### 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

# C280-8

## PROPULSION ENGINE



Electronic  
Control  
System

### RATINGS AND FUEL CONSUMPTION

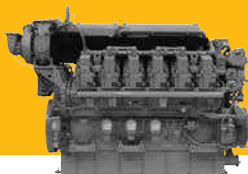
	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA -IMO - EU
CS	3127	3084	2300	900	136	187.9	NC - II - NC
CS	3345	3299	2460	1000	153	197.7	T4C - II - NC
MC	3440	3393	2530	900	150	188.4	NC - II - NC
MC	3684	3634	2710	1000	168	197.0	T4C - II - NC

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

### 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

# C280-16

## PROPULSION ENGINE



Electronic  
Control  
System

### 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

### RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
C9	253	189	1500	10.9	183.3	NC - II - NC
C9	288	215	1500	14.2	209.9	NC - II - NC
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
3516B	2303	1717	1500	108.9	201.6	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			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

# DEP

## DIESEL ELECTRIC PROPULSION – 60 HZ

### RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
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
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
3516C	2435	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
3516C	3176	2368	1800	157.3	210.9	T4C - II - 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	NC - II - NC
C280-16	6786	5060	900	318.7	200.1	NC - II - NC

# 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.

# C1.5

## 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
<b>60 Hertz</b>	13.0	16.5	1800	1.2	268.2	T3C - NST - IW
<b>50 Hertz</b>	11.0	13.5	1500	1.0	264.1	T3C - NST - IW

#### Generator Set – Single Phase

	ekW @ 1.0pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
<b>60 Hertz</b>	12.0	12.0	1800	1.2	290.5	T3C - NST - IW
<b>50 Hertz</b>	10.0	10.0	1500	1.0	290.5	T3C - NST - IW

	<b>L</b>	<b>H</b>	<b>WE</b>
<b>Open Set</b>	41.9 in/1065 mm	28.7 in/733 mm	19.8 in/504 mm
<b>Enclosed Set</b>	46 in/1170 mm	30.8 in/783 mm	24 in/608 mm

### In-line 3, 4-Stroke-Cycle Diesel

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





### RATINGS AND FUEL CONSUMPTION

#### Generator Set

	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
<b>60 Hertz</b>	19.5	24.0	1800	1.63	242.9	T3C - NST - IW
<b>60 Hertz</b>	27.0	34.0	1800	2.24	241.0	T3C - NST - IW
<b>50 Hertz</b>	16.0	20.0	1500	1.37	248.8	T3C - NST - IW
<b>50 Hertz</b>	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
<b>60 Hertz</b>	19.0	19.0	1800	1.63	249.3	T3C - NST - IW
<b>60 Hertz</b>	27.0	27.0	1800	2.24	241.0	T3C - NST - IW
<b>50 Hertz</b>	16.0	16.0	1500	1.37	248.8	T3C - NST - IW
<b>50 Hertz</b>	22.5	22.5	1500	1.88	242.8	T3C - NST - IW

	<b>L</b>	<b>H</b>	<b>WE</b>
<b>Open Set</b>	45 in/1147 mm	32 in/825 mm	20.5 in/521 mm
<b>Enclosed Set</b>	46 in/1170 mm	31 in/775 mm	24 in/608 mm

### In-line 4, 4-Stroke-Cycle Diesel

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

# C4.4

## GENERATOR SET



Mechanical  
Control  
System

### RATINGS AND FUEL CONSUMPTION

	Generator Set			U.S. g/h	g/bkW-hr	EPA-IMO -	EU
	ekW @ .8pf	kVA	rpm				
<b>60 Hertz</b>	42.0R <sup>1</sup>	53.0	1800	3.4	235.2	NC - NST -	NC
<b>60 Hertz</b>	44.0 <sup>1</sup>	55.0	1800	3.4	224.5	NC - NST -	NC
<b>60 Hertz</b>	56.0R <sup>1</sup>	70.0	1800	4.5	233.5	NC - NST -	NC
<b>60 Hertz</b>	58.5 <sup>1</sup>	73.0	1800	4.2	208.6	NC - NST -	NC
<b>60 Hertz</b>	72.0R <sup>1</sup>	90.0	1800	5.8	234.0	NC - NST -	NC
<b>60 Hertz</b>	76.0 <sup>1</sup>	95.0	1800	5.8	221.7	NC - NST -	NC
<b>60 Hertz</b>	95.0R <sup>1</sup>	119.0	1800	7.3	223.3	NC - NST -	NC
<b>60 Hertz</b>	99.0 <sup>1</sup>	123.0	1800	7.3	214.2	NC - NST -	NC
<b>50 Hertz</b>	36.0R <sup>1</sup>	45.0	1500	2.9	234.0	NC - NST -	CC2
<b>50 Hertz</b>	38.0 <sup>1</sup>	47.5	1500	2.9	221.7	NC - NST -	CC2
<b>50 Hertz</b>	49.0R <sup>1</sup>	61.0	1500	3.9	231.2	NC - NST -	CC2
<b>50 Hertz</b>	51.5 <sup>1</sup>	64.5	1500	3.9	220.0	NC - NST -	CC2
<b>50 Hertz</b>	65.0R <sup>1</sup>	81.0	1500	4.9	219.0	NC - NST -	CC2
<b>50 Hertz</b>	69.0 <sup>1</sup>	86.0	1500	4.9	206.3	NC - NST -	CC2
<b>50 Hertz</b>	82.0R <sup>1</sup>	103.0	1500	6.5	230.3	NC - NST -	NC
<b>50 Hertz</b>	86.0 <sup>1</sup>	107.0	1500	6.5	219.6	NC - NST -	NC

R – Radiator cooled only.

<sup>1</sup>ABS, BV, DnV, GL, LR, RINA, CCS approved generator set packages available.

	<b>L</b>	<b>H</b>	<b>WE</b>
<b>Open Min.</b>	55.5 in/1409 mm	51.9 in/1318 mm	28.5 in/724 mm
<b>Open Max.</b>	62.6 in/1590 mm	55.3 in/1405 mm	28.5 in/724 mm
<b>Enclosed</b>	68.9 in/1750 mm	39.4 in/1000 mm	47.8 in/1215 mm

### In-line 4, 4-Stroke-Cycle Diesel

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

Electronic  
Control  
System



# C4.4 ACERT GENERATOR SET

## RATINGS AND FUEL CONSUMPTION

### Preliminary

	Generator Set			U.S. g/h	g/bkW-hr	EPA-IMO -	EU
	ekW @ .8pf	kVA	rpm				
<b>60 Hertz</b>	60	75	1800	5.0	241.9	T3C-NST-	CC2
<b>60 Hertz</b>	75	94	1800	5.9	231.3	T3C-NST-	CC2
<b>60 Hertz</b>	99	124	1800	7.5	220.3	T3C-NST-	CC2
<b>60 Hertz</b>	118	148	1800	8.3	204.5	T3C-NST-	CC2
<b>50 Hertz</b>	65	81	1500	5.2	236.8	T3C-NST-	CC2
<b>50 Hertz</b>	80	100	1500	6.2	227.5	T3C-NST-	CC2
<b>50 Hertz</b>	99	124	1500	7.4	217.9	T3C-NST-	CC2

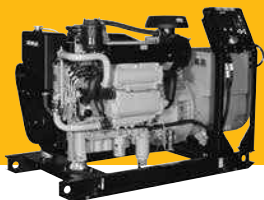
	<b>L</b>	<b>H</b>	<b>WE</b>
<b>Min.</b>	66.9-69.6 in/1699-1769 mm	49 in/1245 mm	37.6 in/956 mm
<b>Max.</b>	66.9-69.6 in/1699-1769 mm	49 in/1245 mm	37.6 in/956 mm

### In-line 4, 4-Stroke-Cycle Diesel

<b>Aspiration</b>	TA	
<b>Bore x Stroke</b>	4.13 x 5.0 in	105 x 127 mm
<b>Displacement</b>	269 cu in	4.4 liter
<b>Rotation (from flywheel end)</b>	Counterclockwise	
<b>Generator set weight (approx)</b>	2518-2644 lb	1142-1290 kg

# C6.6 ACERT

## GENERATOR SET



Electronic  
Control  
System

### RATINGS AND FUEL CONSUMPTION

	Generator Set			U.S. g/h	g/bkW-hr	EPA - IMO - EU
	ekW @ .8pf	kVA	rpm			
<b>60 Hertz</b>	113R	141	1800	8.7	223.7	NC - II - IW
<b>60 Hertz</b>	125	156	1800	8.74	203.1	NC - II - IW
<b>60 Hertz</b>	138R	173	1800	11.0	231.6	NC - II - IW
<b>60 Hertz</b>	150	187	1800	11.0	213.1	NC - II - IW
<b>60 Hertz</b>	158R	198	1800	12.0	220.7	NC - II - IW
<b>60 Hertz</b>	170	212	1800	12.0	205.1	NC - II - IW
<b>50 Hertz</b>	93R	116	1500	7.1	221.8	NC - II - IW
<b>50 Hertz</b>	100	125	1500	7.1	206.3	NC - II - IW
<b>50 Hertz</b>	118R	148	1500	9.1	224.1	NC - II - IW
<b>50 Hertz</b>	125	156	1500	9.1	211.5	NC - II - IW
<b>50 Hertz</b>	136R	170	1500	10.7	228.6	NC - II - IW
<b>50 Hertz</b>	143	178	1500	10.7	217.4	NC - II - IW

R – Radiator cooled only.

MCS approved packages available.

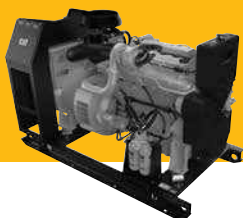
Contact local dealer for availability.

	<b>LG</b>	<b>H</b>	<b>WE</b>
<b>min.</b>	75.0-1905.0 mm	37.8 in/961 mm	51.8 in/1315 mm
<b>max.</b>	104.7 in/2660 mm	37.8 in/961 mm	55.7 in/1416 mm

### In-line 6, 4-Stroke-Cycle Diesel

<b>Aspiration</b>	TA	
<b>Bore x Stroke</b>	4.13 x 5.0 in	105 x 127 mm
<b>Displacement</b>	402.7 cu in	6.6 liter
<b>Rotation (from flywheel end)</b>	Counterclockwise	
<b>Generator set weight (approx)</b>	2972-3675 lb	1348-1667 kg

Electronic  
Control  
System



# C7.1 ACERT GENERATOR SET

## RATINGS AND FUEL CONSUMPTION

### EPA Tier 3 & IMO Tier II

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

\*Radiator cooled ratings are preliminary.

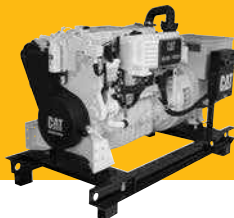
	LE	H	WE
<b>min.</b>	76.2 in/1935 mm	49.7 in/1263 mm	37.6 in/956 mm
<b>max.</b>	83.3 in/2116 mm	49.7 in/1263 mm	37.6 in/956 mm

### In-line 6, 4-Stroke-Cycle Diesel

<b>Aspiration</b>	TA	
<b>Bore x Stroke</b>	4.13 x 5.3 in	105 x 135 mm
<b>Displacement</b>	433.3 cu in	7.01 liter
<b>Rotation (from flywheel end)</b>	Counterclockwise	
<b>Generator set weight (approx)</b>	3465-4483 lb	1575-2038 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.

	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

**HEAT EXCHANGER/KEEL COOLED**



# C18 ACERT GENERATOR SET

## RATINGS AND FUEL CONSUMPTION

### IMO Tier II

	Generator Set					
	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
<b>60 Hertz</b>	340*	425	1800	25.4	217.0	NC - II - IW
<b>60 Hertz</b>	425	531	1800	31.5	215.0	NC - II - IW
<b>50 Hertz</b>	275*	344	1500	19.9	209.5	NC - II - IW
<b>50 Hertz</b>	350	438	1500	25.2	209.0	NC - II - IW
<b>50 Hertz</b>	400	500	1500	28.7	208.0	NC - II - IW
<b>50 Hertz</b>	450	563	1500	32.3	209.0	NC - II - IW
<b>60 Hertz</b>	400R	500	1800	31.5	215.1	NC - II - NC
<b>50 Hertz</b>	330R	413	1500	25.2	209.0	NC - II - NC
<b>50 Hertz</b>	390R	488	1500	28.7	208.0	NC - II - NC
<b>50 Hertz</b>	435R	544	1500	32.3	208.7	NC - II - NC

### EPA Tier 3 & IMO Tier II

	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
<b>60 Hertz</b>	425	531	1800	32.3	220.0	T3C - II - IW
<b>60 Hertz</b>	550	688	1800	40.2	213.3	T3C - II - IW
<b>60 Hertz</b>	400R	500	1800	32.2	220.0	T3C - II - IW
<b>60 Hertz</b>	525R	656	1800	40.4	214.0	T3C - II - IW

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

\*Preliminary

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

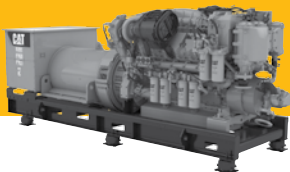
### In-line 6, 4-Stroke-Cycle Diesel

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

# C32 ACERT GENERATOR SET

HEAT EXCHANGER/KEEL COOLED

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
<b>60 Hertz</b>	730	913	1800	51.8	210.4	NC - II - IW
<b>60 Hertz</b>	940	1175	1800	64.9	207.2	NC - II - IW
<b>50 Hertz</b>	550	688	1500	37.9	203.8	NC - II - IW
<b>50 Hertz</b>	830	1038	1500	57.0	207.0	NC - II - IW

### EPA Tier 3 & IMO Tier II

	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
<b>60 Hertz</b>	730	913	1800	54.3	220.8	T3C - II - IW
<b>60 Hertz</b>	940	1175	1800	68.0	217.3	T3C - II - IW

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

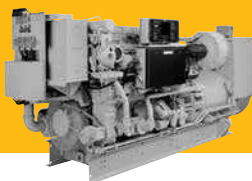
	LG	H	W
<b>min.</b>	168.2 in/4271 mm	65.6 in/1667 mm	60.2 in/1528 mm
<b>max.</b>	175.3 in/4452 mm	65.6 in/1667 mm	60.2 in/1528 mm

## Vee 12, 4-Stroke-Cycle Diesel

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



Electronic  
Control  
System



# 3508B

## GENERATOR SET

### RATINGS AND FUEL CONSUMPTION

	Generator Set							
	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA -	IMO -	EU
<b>60 Hertz</b>	600	750	1200	42.6	213.2	NC -	I -	NC
<b>60 Hertz</b>	715	894	1800	49.3	208.7	NC -	I -	NC
<b>60 Hertz</b>	910* <sup>1</sup>	1138	1800	66.9	204.4	NC -	I -	NC
<b>50 Hertz</b>	590	738	1000	41.9	206.4	NC -	I -	NC
<b>50 Hertz</b>	630	788	1500	44.2	202.0	NC -	I -	NC
<b>50 Hertz</b>	800 <sup>1</sup>	1000	1500	57.4	195.8	NC -	I -	NC

\*Only certified for D2 standard generator set operation.

<sup>1</sup>ABS, BV, DnV, GL, LR approved generator set packages available.

Contact local dealer for availability.

	LE	LG	H	WE
<b>min.</b>	82.7 in/2101 mm	145.8 in/3704 mm	71.1 in/1806 mm	67.1 in/1703 mm
<b>max.</b>	82.7 in/2101 mm	167.5 in/4256 mm	71.9 in/1826 mm	67.1 in/1703 mm

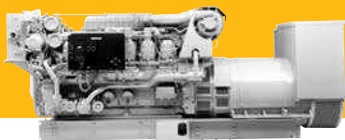
### Vee 8, 4-Stroke-Cycle Diesel

<b>Aspiration</b>	TTA	
<b>Bore x Stroke</b>	6.7 x 7.5 in	170 x 190 mm
<b>Displacement</b>	2105 cu in	34.5 liter
<b>Rotation (from flywheel end)</b>	Counterclockwise	
<b>Generator set weight (approx)</b>	16,940-19,640 lb	7684-8909 kg

# 3512B

## 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	
<b>60 Hertz</b>	1030	1287	1200	69.2	205.2	NC - I	-NC
<b>60 Hertz</b>	1070	1338	1800	73.4	208.3	NC - I	-NC
<b>60 Hertz</b>	1360	1700	1800	90.9	202.5	NC - I	-NC
<b>50 Hertz</b>	880	1000	1000	60.3	208.0	NC - I	-NC
<b>50 Hertz</b>	965	1212	1500	64.2	200.7	NC - I	-NC
<b>50 Hertz</b>	1200	1500	1500	77.6	195.6	NC - II	-NC

Contact local dealer for availability.

	LE	LG	H	WE
<b>min.</b>	104.0 in/2641 mm	178.6 in/4536 mm	80.8 in/2053 mm	67.1 in/1703 mm
<b>max.</b>	104.0 in/2641 mm	189.1 in/4804 mm	81.6 in/2072 mm	84.4 in/2144 mm

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

<b>Aspiration</b>	TTA	
<b>Bore x Stroke</b>	6.7 x 7.5 in	170 x 190 mm
<b>Displacement</b>	3158 cu in	51.8 liter
<b>Rotation (from flywheel end)</b>	Counterclockwise	
<b>Generator set weight (approx)</b>	22,120-24,661 lb	10 034-11 186 kg

Electronic  
Control  
System



# 3512C

## GENERATOR SET

### RATINGS AND FUEL CONSUMPTION

	Generator Set					
	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
<b>60 Hertz<sup>1</sup></b>	1550	1937	1800	102.2	199.0	NC - II - NC
<b>60 Hertz<sup>1</sup></b>	1700	2125	1800	113.0	200.3	NC - II - NC

<sup>1</sup>High displacement engine (HD)

	LG	H	W
<b>min.</b>	200.2 in/5085.3 mm	83.9 in/2131.1 mm	84.3 in/2142.1 mm
<b>max.</b>	200.2 in/5085.3 mm	83.9 in/2131.1 mm	84.3 in/2142.1 mm

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

<b>Aspiration</b>	TTA	
<b>Bore x Stroke</b>	6.7 x 8.46 in	170 x 215 mm
<b>Displacement</b>	3574 cu in	58.56 liter
<b>Rotation (from flywheel end)</b>	Counterclockwise	
<b>Generator set weight (approx)</b>	28,136 lb	12,762 kg

# 3516B

## GENERATOR SET

Electronic  
Control  
System



### RATINGS AND FUEL CONSUMPTION

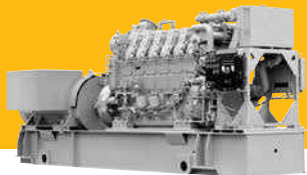
	Generator Set					
	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
<b>60 Hertz</b>	1285	1606	1200	80.5	208.6	NC - I - NC
<b>60 Hertz</b>	1825	2281	1800	125.3	198.8	NC - I - NC
<b>50 Hertz</b>	1180	1475	1000	80.6	203.1	NC - I - NC
<b>50 Hertz</b>	1460	1825	1500	102.2	203.4	NC - I - NC
<b>50 Hertz</b>	1600	2000	1500	111.9	208.4	NC - II - NC

Contact local dealer for availability.

	LE	LG	H	WE
<b>min.</b>	125.2 in/3181 mm	199.8 in/5076 mm	80.8 in/2053 mm	67.1 in/1703 mm
<b>max.</b>	125.2 in/3181 mm	220.9 in/5611 mm	82.7 in/2100 mm	84.4 in/2144 mm

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

<b>Aspiration</b>	TTA	
<b>Bore x Stroke</b>	6.7 X 7.5 in	170 x 190 mm
<b>Displacement</b>	4210 cu in	69.0 liter
<b>Rotation (from flywheel end)</b>	Counterclockwise	
<b>Generator set weight (approx)</b>	25,030-29,845 lb	11 354-13 538 kg



# C280-6

## GENERATOR SET

### RATINGS AND FUEL CONSUMPTION

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

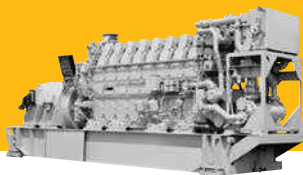
	LE	LG	H	WE
<b>min.</b>	145 in/3691 mm	280.3 in/7120 mm	154.9 in/3934 mm	77.2 in/1961 mm
<b>max.</b>	145 in/3691 mm	280.3 in/7120 mm	154.9 in/3934 mm	77.2 in/1961 mm

### In-line 6, 4-Stroke-Cycle Diesel

<b>Aspiration</b>	TA	
<b>Bore x Stroke</b>	11.0 x 11.8 in	280 x 300 mm
<b>Displacement</b>	6773 cu in	111 liter
<b>Rotation (from flywheel end)</b>	Counterclockwise	
<b>Engine dry weight (approx)</b>	34,500 lb	15 680 kg
<b>Generator weight (approx)</b>	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	
<b>60 Hertz</b>	2200	2750	900	136.5	188.6	NC - II	-NC
<b>60 Hertz</b>	2420	3025	900	150.1	188.5	NC - II	-NC
<b>50 Hertz</b>	2350	2938	1000	148.2	191.5	NC - II	-NC
<b>50 Hertz</b>	2600	3250	1000	161.4	189.3	NC - II	-NC

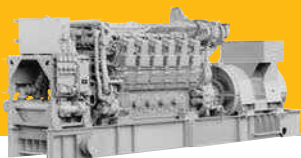
C280-8 ratings listed above are also available in Tier 2 configurations.

Contact local dealer for availability.

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

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



# C280-12

## GENERATOR SET

### RATINGS AND FUEL CONSUMPTION

	Generator Set					
	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr	EPA - IMO - EU
<b>60 Hertz</b>	3300	4125	900	212.7	195.4	NC - II - NC
<b>60 Hertz</b>	3640	4550	900	233.8	195.5	NC - II - NC
<b>50 Hertz</b>	3520	4400	1000	232.7	199.9	NC - II - NC
<b>50 Hertz</b>	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
<b>min.</b>	161 in/4087 mm	316.5 in/8040 mm	160.8 in/4085 mm	78.7 in/2000 mm
<b>max.</b>	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

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

# C280-16

## GENERATOR SET



Electronic  
Control  
System

### RATINGS AND FUEL CONSUMPTION

	Generator Set					EPA - IMO - EU		
	ekW @ .8pf	kVA	rpm	U.S. g/h	g/bkW-hr			
<b>60 Hertz</b>	4400	5500	900	272.9	188.5	NC	II	-NC
<b>60 Hertz</b>	4840	6050	900	300.2	188.6	NC	II	-NC
<b>50 Hertz</b>	4700	5875	1000	296.4	191.5	NC	II	-NC
<b>50 Hertz</b>	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
<b>min.</b>	197 in/5007 mm	366.7 in/9314 mm	164.1 in/4167 mm	78.3 in/1990 mm
<b>max.</b>	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

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



Electronic  
Control  
System



# C9<sup>HEAT EXCHANGER/ KEEL COOLED</sup>

## GENERATOR SET ENGINE

### 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

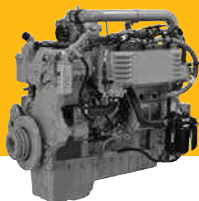
	LE	H	WE
<b>min.</b>	43.9 in/1116.5 mm	43.8 in/1113.7 mm	38.3 in/973.5 mm
<b>max.</b>	43.9 in/1116.5 mm	43.8 in/1113.7 mm	38.3 in/973.5 mm

### In-line 6, 4-Stroke-Cycle Diesel

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

# C15 HEAT EXCHANGER

## VARIABLE SPEED AUXILIARY



Electronic  
Control  
System

### 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

Electronic  
Control  
System



HEAT EXCHANGER

# C18

**GENERATOR SET ENGINE  
/AUXILIARY**

## 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

### 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

# C32

## HEAT EXCHANGER/KEEL COOLED

Electronic  
Control  
System

### 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

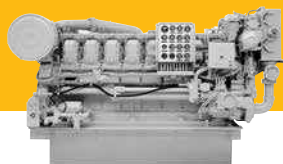
### EPA Tier 3 & IMO Tier II

	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

### RATINGS

	bhp	bkW	ekW	rpm	EPA - IMO - EU
3508	804	599	560	1200	NC - NC - NC
3512	1281	955	910	1200	NC - NC - NC
3516	1650	1230	1170	1200	NC - NC - NC
3516	2026	1511	1440	1800	NC - NC - NC
3508	598	446	415	1000	NC - NC - NC
3516	1475	1100	1040	1000	NC - NC - NC
3516	1817	1355	1285	1500	NC - NC - NC

Contact local dealer for availability.

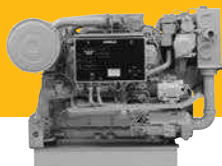
		LE	H	WE
3508	<b>min.</b>	92.2 in/2350 mm	71.9 in/1826 mm	67.1 in/1703 mm
	<b>max.</b>	92.2 in/2350 mm	71.9 in/1826 mm	67.1 in/1703 mm
3512	<b>min.</b>	113.8 in/2890 mm	81.6 in/2072 mm	67.1 in/1703 mm
	<b>max.</b>	113.8 in/2890 mm	81.6 in/2072 mm	67.1 in/1703 mm
3516	<b>min.</b>	146.9 in/3730 mm	81.8 in/2078 mm	67.1 in/1703 mm
	<b>max.</b>	146.9 in/3730 mm	81.8 in/2078 mm	67.1 in/1703 mm

### Vee 8, Vee 12, Vee 16, 4-Stroke-Cycle Diesel

<b>Aspiration</b>	TA	
<b>Bore x Stroke</b>	6.7 x 7.5 in	170 x 190 mm
<b>Displacement</b>	<b>3508</b> — 2105 cu in	34.5 liter
	<b>3512</b> — 3158 cu in	51.8 liter
	<b>3516</b> — 4210 cu in	69 liter
<b>Engine dry weight (approx)</b>	<b>3508</b> — 11,350 lb	5148 kg
	<b>3512</b> — 14,250 lb	6464 kg
	<b>3516</b> — 17,550 lb	7961 kg

# 3500B Series

## GENERATOR SET ENGINE/AUXILIARY



### RATINGS

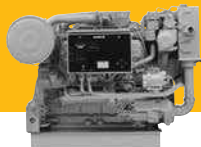
	bhp	bkW	ekW	rpm	EPA - IMO - EU
3508B	915	682	600	1200	NC - I - NC
3508B	1019	760	715	1800	NC - I - NC
3508B	1298	968	910	1800	NC - I - NC
3512B	1478	1102	1030	1200	NC - I - NC
3512B	1509	1125	1070	1800	NC - I - NC
3512B	1910	1424	1360	1800	NC - I - NC
3516B	1855	1383	1285	1200	NC - I - NC
3516B	2549	1901	1825	1800	NC - II - NC
3508B	870	649	590	1000	NC - I - NC
3508B	903	673	630	1500	NC - I - NC
3508B	1148	856	800	1500	NC - I - NC
3512B	1251	933	880	1000	NC - I - NC
3512B	1368	1020	965	1500	NC - I - NC
3512B	1686	1257	1200	1500	NC - II - NC
3516B	1726	1287	1180	1000	NC - I - NC
3516B	2100	1566	1460	1500	NC - I - NC
3516B	2303	1717	1600	1500	NC - II - NC

Contact local dealer for availability.

		LE	H	WE
<b>3508B</b>	<b>min.</b>	90.9 in/2310 mm	71.1 in/1806 mm	67.1 in/1703 mm
	<b>max.</b>	92.5 in/2350 mm	71.9 in/1826 mm	67.1 in/1703 mm
<b>3512B</b>	<b>min.</b>	114 in/2890 mm	80.8 in/2053 mm	67.1 in/1703 mm
	<b>max.</b>	120 in/3038 mm	81.7 in/2073 mm	78.3 in/1988 mm
<b>3516B</b>	<b>min.</b>	125.2 in/3181 mm	80.8 in/2053 mm	67.1 in/1703 mm
	<b>max.</b>	125.2 in/3181 mm	82.7 in/2100 mm	84.4 in/2144 mm

### Vee 8, Vee 12, Vee 16, 4-Stroke-Cycle Diesel

<b>Aspiration</b>	TA	
<b>Bore x Stroke</b>	6.7 x 7.5 in	170 x 190 mm
<b>Displacement</b>	<b>3508B</b> —	2105 cu in
	<b>3512B</b> —	3158 cu in
	<b>3516B</b> —	4210 cu in
		69 liter
<b>Engine dry weight (approx)</b>	<b>3508B</b> —	11,276-11,500 lb
	<b>3512B</b> —	14,250-15,345 lb
	<b>3516B</b> —	17,537-17,700 lb
		5115-5216 kg
		6464-6960 kg
		7955-8029 kg



# 3500C Series

## GENERATOR SET ENGINE/AUXILIARY

### RATINGS

#### 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 <sup>1</sup>	2183	1628	1550	1800	NC - II - NC
3512C <sup>1</sup>	2394	1786	1700	1800	NC - II - NC
3516C <sup>1</sup>	3151	2350	2250	1800	NC - II - NC

#### EPA Tier 4

	bhp	bkW	ekW*	rpm	EPA - IMO - EU
3516C	3176	2368	2250	1800	T4C - II - NC

(DEP cycle meets EPA Tier 4)

<sup>1</sup>Ratings are high displacement (HD)

\*ekW is based on a 95% generator efficiency.

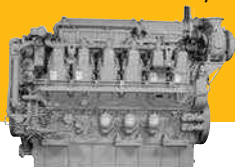
		LE	H	WE
3512C	min.	104.1 in/2644 mm	83.2 in/2113 mm	80.2 in/2036 mm
	max.	128.8 in/3272 mm	84.8 in/2154 mm	85.0 in/2160 mm
3516C	min.	125.4 in/3185 mm	83.9 in/2130 mm	84.3 in/2142 mm
	max.	125.4 in/3185 mm	83.9 in/2130 mm	84.3 in/2142 mm

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

Aspiration	TA	
Bore x Stroke	6.69 x 8.46 in	170 x 215 mm
Displacement	3512C — 3574 cu in	58.57 liter
	3516C — 4765 cu in	78.09 liter
Engine dry weight (approx)	3512C — 17,261-17,386 lb	7829-7886 kg
	3516C — 17,550-21,164 lb	7961-9600 kg

# C280 Series

## AUXILIARY



### 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	NC - II - NC
C280-8	3299	2460	1000	153.2	197.9	NC - II - NC
C280-8	3393	2530	900	159.4	200.2	NC - II - NC
C280-8	3634	2710	1000	170.3	199.7	NC - II - NC
C280-12	4640	3460	900	214.9	197.5	NC - II - NC
C280-12	4962	3700	1000	237.7	204.2	NC - II - NC
C280-12	5096	3800	900	237.2	198.2	NC - 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
<b>C280-6</b>	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
<b>C280-8</b>	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
<b>C280-12</b>	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
<b>C280-16</b>	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	<b>C280-6</b> — 6773 cu in	111 liter
	<b>C280-8</b> — 9031 cu in	148 liter
	<b>C280-12</b> — 13,546 cu in	222 liter
	<b>C280-16</b> — 18,062 cu in	296 liter
	<b>C280-6</b> — 34,496 lb	15 680 kg
Engine dry weight (approx)	<b>C280-8</b> — 41,800 lb	19 000 kg
	<b>C280-12</b> — 57,276 lb	25 980 kg
	<b>C280-16</b> — 62,832 lb	28 500 kg





# 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 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.

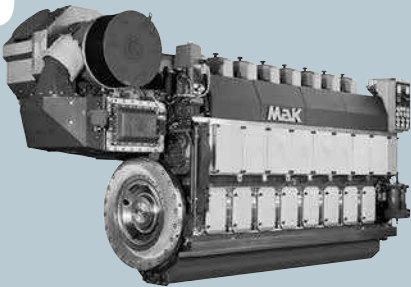
**Cat Common Rail (Cat CR)** is a fully flexible fuel system, providing benefits like smokeless engine operation and reduced fuel consumption at varying loads without increasing NOx exhaust gas emissions.

Designed for multi-engine installation, Cat CR is suitable to operate on Heavy Fuel Oil (HFO), Marine Diesel Oil (MDO) and Diesel Oil (DO).

Flexible Camshaft Technology and Cat CR can be retrofitted to MaK C-engine series.

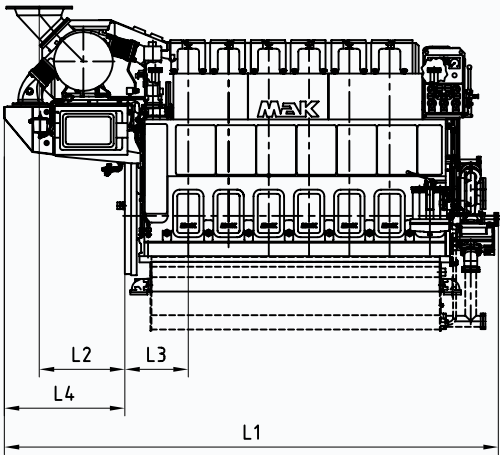
# M 20 C

Propulsion Engine



## DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	Weight	
											Wet sump	Dry sump
<b>6 M 20 C</b>	4049	702	520	988	1714	630	330	941	1558	627	11.5	10.9
<b>8 M 20 C</b>	4846	802	520	1125	1856	630	330	941	1693	710	14.5	13.8
<b>9 M 20 C</b>	5176	802	520	1125	1856	630	330	941	1693	710	16.0	15.0



## TECHNICAL DATA

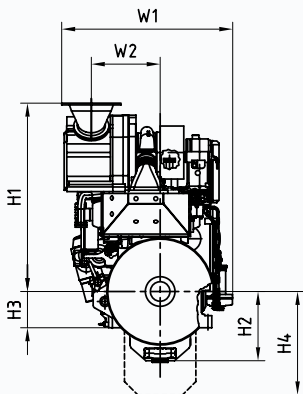
Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100%	85%
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
<b>6 M 20 C</b>	1020	1390	900	24.1	9.0	189	188
	1080	1469	900	25.5	9.0	191	189
	1140	1550	1000	24.2	10.0	190	189
	1200	1632	1000	25.5	10.0	192	190
<b>8 M 20 C</b>	1360	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
<b>9 M 20 C</b>	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,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%



Engine centre distance: 2010 mm

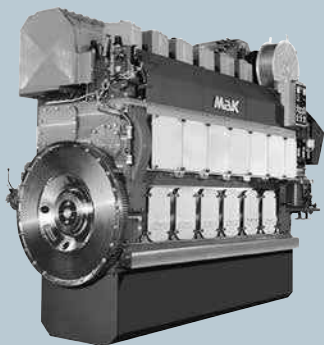
Removal of cylinder liner:

in transverse direction 1910 mm

in longitudinal direction 2085 mm

Engine with turbocharger at free end available, ask for dimensions

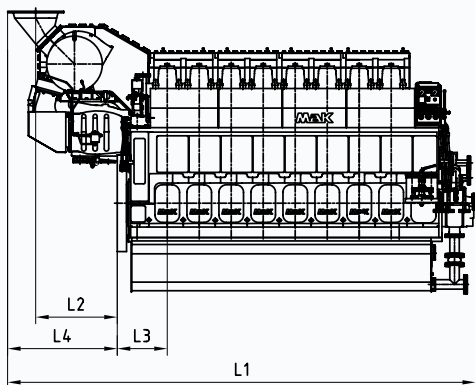
# M 25 C



## Propulsion Engine

### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	Weight	
											Wet sump	Dry sump
<b>6 M 25 C</b>	5345	1068	672	1390	2526	861	460	1191	2261	977	23.5	21.2
<b>8 M 25 C</b>	6289	1097	672	1474	2578	861	460	1191	2316	977	30.0	28.5
<b>9 M 25 C</b>	6719	1097	672	1474	2578	861	460	1191	2316	977	32.0	30.0

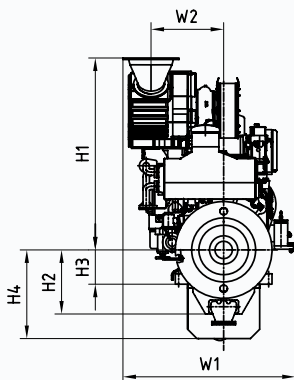


## TECHNICAL DATA

	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100 %	85 %
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
<b>6 M 25 C</b>	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
<b>8 M 25 C</b>	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
<b>9 M 25 C</b>	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,  $\pm 0.3$  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

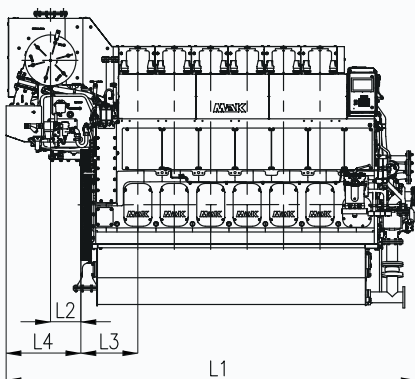
M 25 E Propulsion System



## Propulsion Engine

### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	Weight	
											Wet sump	Dry sump
<b>6 M 25 E</b>	4840	358	672	883	2525	861	460	1191	2080	850	23.5	21.2
<b>8 M 25 E</b>	5700	338	672	883	2670	861	460	1191	2230	937	30.0	28.5
<b>9 M 25 E</b>	6130	338	672	883	2670	861	460	1191	2230	937	30.0	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
<b>6 M 25 E</b>	2100	2856	720	28.56	9.6	187	185
	2100	2856	750	27.4	10.0	187	185
<b>8 M 25 E</b>	2800	3808	720	28.56	9.6	187	185
	2800	3808	750	27.4	10.0	187	185
<b>9 M 25 E</b>	3150	4284	720	28.56	9.6	187	185
	3150	4284	750	27.4	10.0	187	185

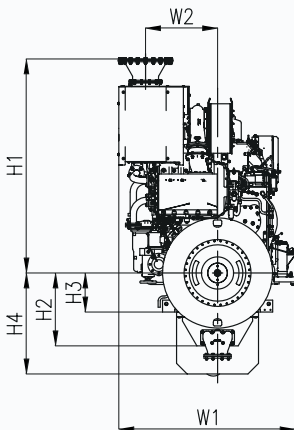
Stroke: 400 mm

Bore: 255 mm

Specific lubricating oil consumption 0.6 g/kWh,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%

Reduced part load fuel consumption



Engine centre distance: 2500 mm

Removal of cylinder liner:

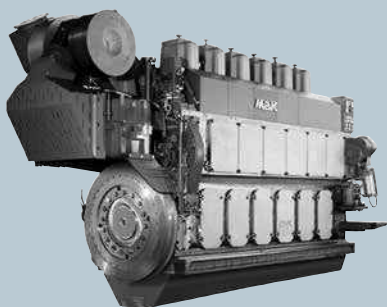
in transverse direction 2510 mm

in longitudinal direction 2735 mm

Engine with turbocharger at free end  
available, ask for dimensions

Please contact us for lead times

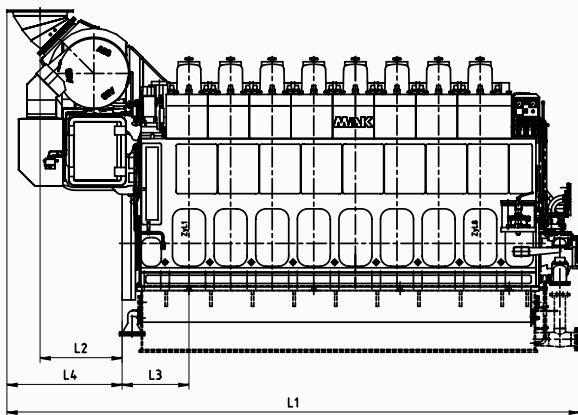
# M 32 C



## Propulsion Engine

### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	W3	Weight	
												Wet sump	Dry sump
<b>6 M 32 C</b>	5936	788	852	1170	2784	1052	550	1392	2418	962	2140	41.6	39.5
<b>8 M 32 C</b>	7298	1044	852	1467	2969	1052	550	1392	2229	962	2140	51.7	49.0
<b>9 M 32 C</b>	7828	1044	852	1467	2969	1052	550	1392	2229	962	2140	55.0	52.0



# TECHNICAL DATA

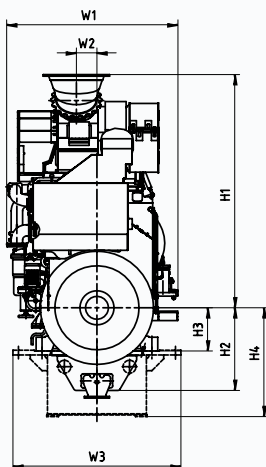
Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100 %	85 %
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
<b>6 M 32 C</b>	2880	3920	600	24.9	9.6	177	176
	3000	4080	600	25.9	9.6	177	176
<b>8 M 32 C</b>	3840	5220	600	24.9	9.6	177	176
	4000	5440	600	25.9	9.6	177	176
<b>9 M 32 C</b>	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,  $\pm 0.3$  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:

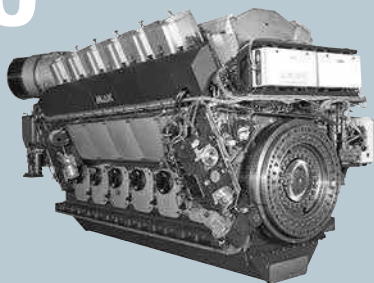
in transverse direction 3040 mm

in longitudinal direction 3405 mm

Engine with turbocharger at free end available, ask for dimensions

Cat Common Rail: ask for availability

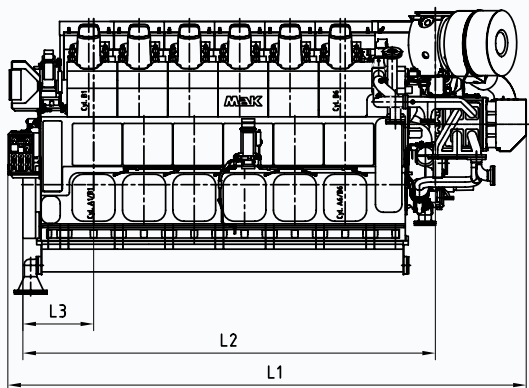
# VM 32 C



## Propulsion Engine

### DIMENSIONS (mm) AND WEIGHTS (t)

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

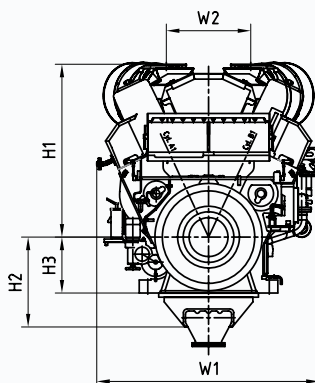


## TECHNICAL DATA

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
<b>12 M 32 C</b>	6000	8160	720	460	22.5	11.0	178	177
	6000	8160	750	460	21.6	11.5	179	179
	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
<b>16 M 32 C</b>	8000	10880	720	460	22.5	11.0	178	177
	8000	10880	750	460	21.6	11.5	181	180
	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

Bore: 320 mm

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



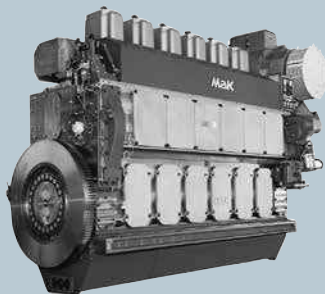
Engine centre distance: 3500 mm

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

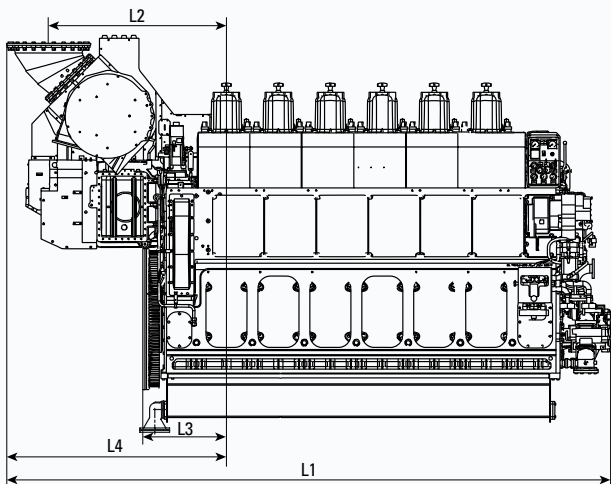
# M 32 E



## Propulsion Engine

### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	Weight	
											Wet sump	Dry sump
<b>6 M 32 E</b>	6148	1812	852	2240	2771	1052	550	1220	2368	126	39.6	37.5
<b>8 M 32 E</b>	7318	1837	852	2265	2908	1052	550	1220	2182	190	49.1	46.4
<b>9 M 32 E</b>	7848	1837	852	2265	2908	1052	550	1220	2182	190	52.4	49.4



# TECHNICAL DATA

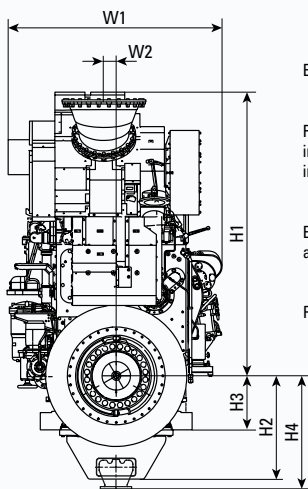
Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
						100 %	85 %
	kW	mhp	rpm	bar	m/s	g/kWh	g/kWh
<b>6 M 32 E</b>	3300	4488	720	24.8	11.0	179	179
	3300	4488	750	23.8	11.5	179	179
<b>8 M 32 E</b>	4400	5984	720	24.8	11.0	179	179
	4400	5984	750	23.8	11.5	179	179
<b>9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

Stroke: 460 mm

Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%



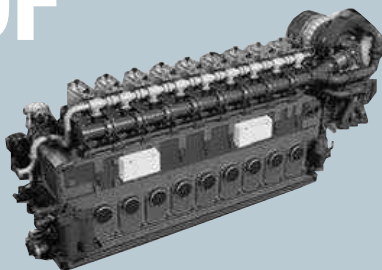
Engine centre distance: 2800 mm

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

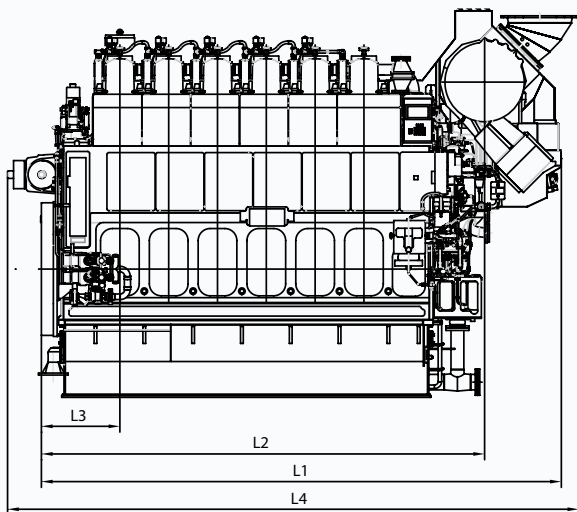
# M 34 DF



## Propulsion Engine

### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	H4	W1	W2	Weight (t)
<b>6 M 34 DF</b>	5645	4812	852	6202	2749	1052	550	2817	2291	127	39,5
<b>8 M 34 DF</b>	6870	5872	852	7430	2925	1052	550	2995	2291	190	49
<b>9 M 34 DF</b>	7400	6402	852	7960	2925	1052	550	2995	2291	190	52





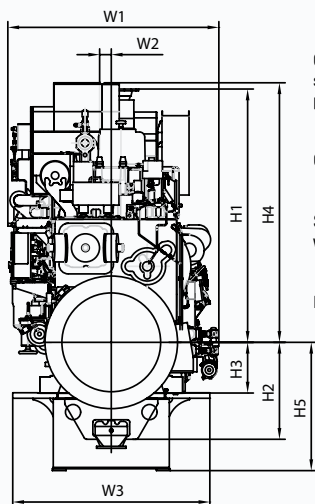
# TECHNICAL DATA

Type	Output range		Speed	Mean eff. pressure	Mean piston speed	Spec.fuel consumption	Total spec. energy consumption
	kW	mhp	rpm	bar	m/s	100% / 85%	100%/85%
<b>6 M 34 DF</b>	3000	4080	720	19.9	11.0	188/187	7708/7875
	3000	4080	750	19.1	11.5	188/187	7708/7875
<b>8 M 34 DF</b>	4000	5440	720	19.9	11.0	188/187	7708/7875
	4000	5440	750	19.1	11.5	188/187	7708/7875
<b>9 M 34 DF</b>	4500	6120	720	19.9	11.0	188/187	7708/7875
	4500	6120	750	19.1	11.5	188/187	7708/7875

Stroke: 460 mm

Bore: 340 mm

Without engine driven pumps. Tolerance for SFOC and efficiency +/- 5 %.  
Maximum continuous rating according to ISO 3046/1.



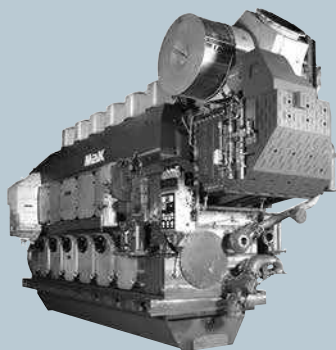
Global application and installation support for engine and gas system periphery.

Operator and technician training.

Strong, global dealer support network with marine focus.

Please contact us for lead times

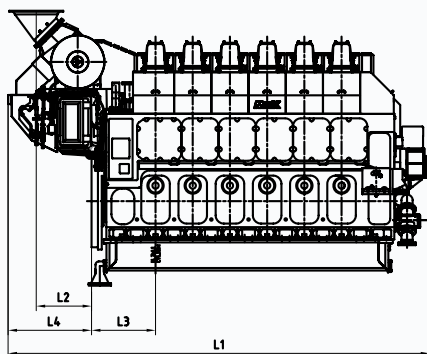
# M 43 C



## Propulsion Engine

### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	W1	W2	Weight
<b>6 M 43 C</b>	8271	1086	1255	1638	3734	1396	750	2878	215	94.0
<b>7 M 43 C</b>	9068	1119	1255	1704	4105	1396	750	2878	232	107.0
<b>8 M 43 C</b>	9798	1119	1255	1704	4105	1396	750	2878	232	114.0
<b>9 M 43 C</b>	10528	1119	1255	1704	4105	1396	750	2878	232	127.0



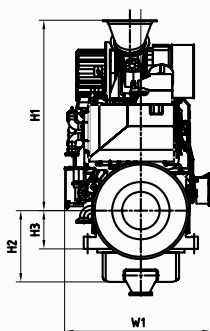
# TECHNICAL DATA

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
<b>6 M 43 C</b>	5400	7344	500	24.4	10.2	175	175
	5400	7344	514	23.7	10.5	175	175
	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
<b>7 M 43 C</b>	6300	8568	500	24.4	10.2	175	175
	6300	8568	514	23.7	10.5	175	175
	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
<b>8 M 43 C</b>	7200	9792	500	24.4	10.2	175	175
	7200	9792	514	23.7	10.5	175	175
	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
<b>9 M 43 C</b>	8100	11016	500	24.4	10.2	175	175
	8100	11016	514	23.7	10.5	175	175
	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,  $\pm 0.3$  g/kWh  
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%

Engine centre distance: 3400 mm



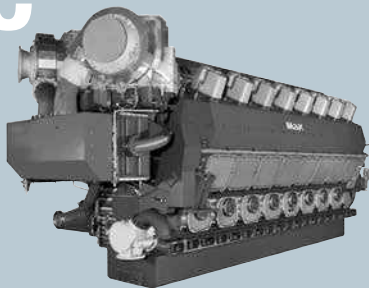
Removal of cylinder liner:  
in transverse direction 4165 mm  
in longitudinal direction 4610 mm

This engine is only available with dry oil sump

Engine with turbocharger at free end available,  
ask for dimensions

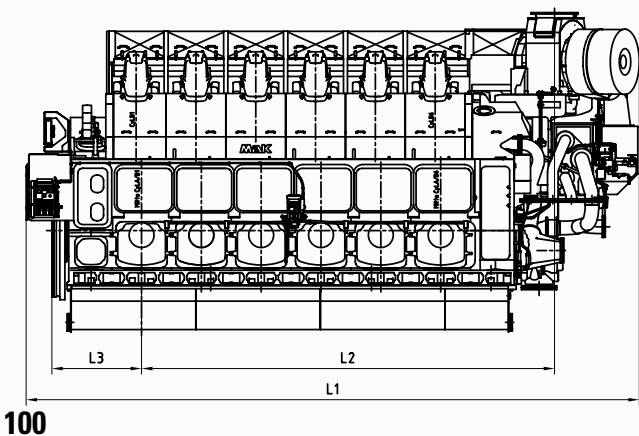
# VM 43 C

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

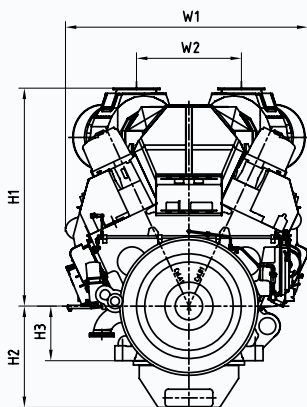
Type	Output range		Speed	Mean. eff pressure	Mean piston speed	Spec. fuel consumption	
	kW	mhp				100 %	85 %
<b>12 M 43 C</b>	10800	14688	500	24.4	10.2	175	175
	10800	14688	514	23.7	10.5	175	175
	12000	16320	500	27.1	10.2	176	175
	12000	16320	514	26.4	10.5	176	175
	12600	17136	500	28.4	10.2	177	176
	12600	17136	514	27.7	10.5	177	176
<b>16 M 43 C</b>	14400	19584	500	24.4	10.2	175	175
	14400	19584	514	23.7	10.5	175	175
	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,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%



Engine centre distance: 4500 mm

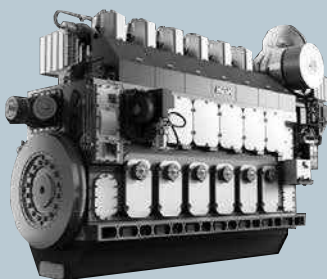
Removal of cylinder liner:  
in transverse direction 3700 mm

This engine is only available with dry oil sump

Engine with turbocharger at flywheel end  
available, ask for dimensions

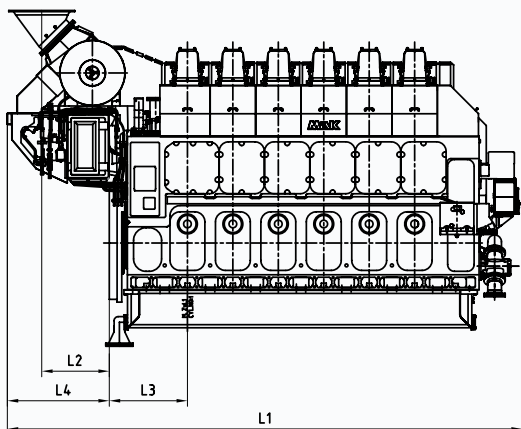
# M 46 DF

Propulsion Engine



## DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	L4	H1	H2	H3	W1	W2	Weight
<b>6 M 46 DF</b>	8271	1086	1255	1638	3734	1396	750	2878	215	94.0
<b>7 M 46 DF</b>	8985	1119	1255	1704	4105	1396	750	2878	232	107.0
<b>8 M 46 DF</b>	9800	1119	1255	1704	4105	1396	750	2878	232	114.0
<b>9 M 46 DF</b>	10525	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		Total spec. energy consumption
	kW	mhp				100% / 85%	100% / 85%	
<b>6 M 46 DF</b>	5400	7344	500	21.3	10.2	186/185	7441/7524	
	5400	7344	514	20.7	10.5	186/185	7441/7524	
<b>7 M 46 DF</b>	6300	8568	500	21.3	10.2	186/185	7441/7524	
	6300	8568	514	20.7	10.5	186/185	7441/7524	
<b>8 M 46 DF</b>	7200	9792	500	21.3	10.2	186/185	7441/7524	
	7200	9792	514	20.7	10.5	186/185	7441/7524	
<b>9 M 46 DF</b>	8100	11016	500	21.3	10.2	186/185	7441/7524	
	8100	11016	514	20.7	10.5	186/185	7441/7524	

Stroke: 610 mm

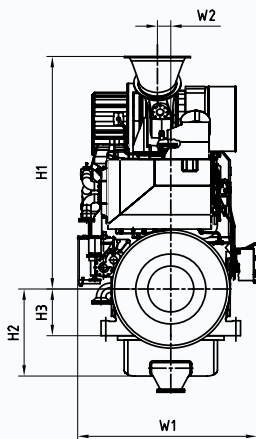
Bore: 460 mm

Specific lubricating oil consumption 0.6 g/kWh,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5% for liquid fuel

LCV = 31.5 MJ/Nm<sup>3</sup> for gas fuel

Note: 5% tolerance +1% per pump



Engine centre distance: 3400 mm

Removal of cylinder liner:

in transverse direction 4165 mm

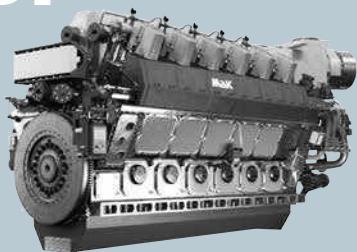
in longitudinal direction 4610 mm

This engine is only available with dry oil sun

Engine with turbocharger at free end available, ask for dimensions

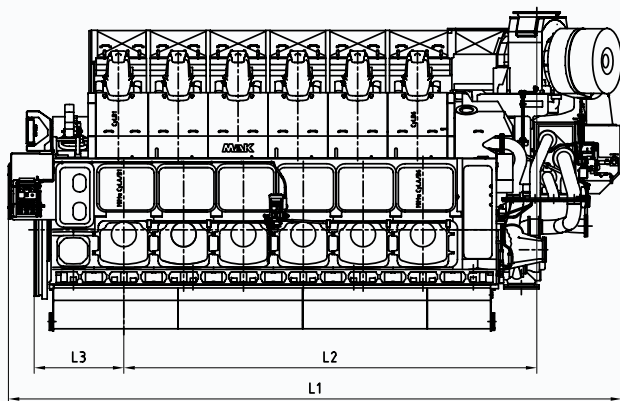
# VM 46 DF

Propulsion Engine



## DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	L3	H1	H2	H3	W1	W2	Weight
<b>12 M 46 DF</b>	9847	6628	1440	3497	1625	875	3890	1685	160.0
<b>16 M 46 DF</b>	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					
<b>12 M 46 DF</b>	10800	14688	500	21.3	10.2	184/184	7272/7417
	10800	14688	514	20.7	10.5	184/184	7272/7417
<b>16 M 46 DF</b>	14400	19584	500	21.3	10.2	184/184	7272/7417
	14400	19584	514	20.7	10.5	184/184	7272/7417

Stroke: 610 mm

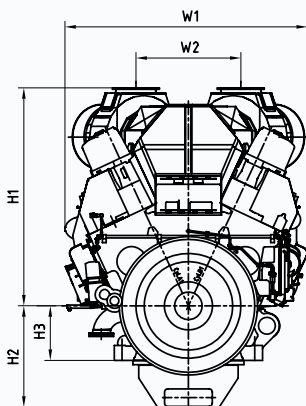
Bore: 460 mm

Specific lubricating oil consumption 0.6 g/kWh,  $\pm$  0.3 g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5% for liquid fuel

LCV = 31.5 MJ/Nm<sup>3</sup> 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 flywheel end  
available, ask for dimensions.

Please contact us for lead times

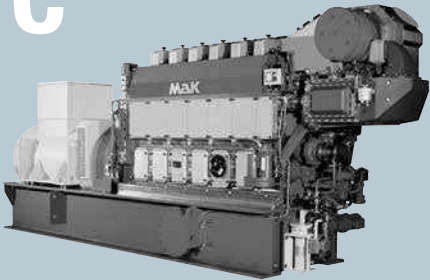


# MaK Marine Generator Sets

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 NO<sub>x</sub> limits according to IMO Code Revised MARPOL, Annex VI, NO<sub>x</sub> Technical Code 2008, (IMO Tier II).

# M 20 C

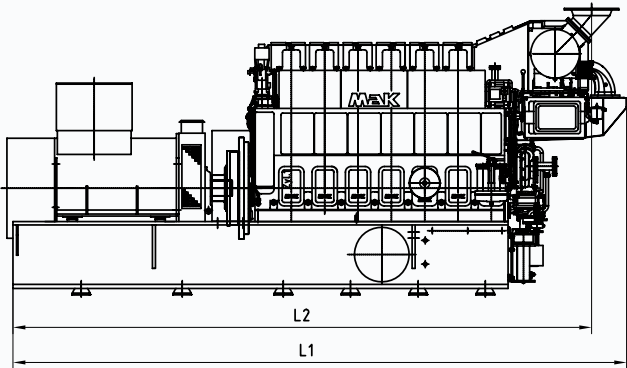


## Generator Set

### 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
<b>6 M 20 C</b>	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
<b>8 M 20 C</b>	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
<b>9 M 20 C</b>	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

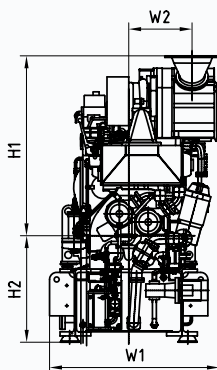
Stroke: 300 mm

Bore: 200 mm

Specific lubricating oil consumption 0.6 g/kWh,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%

Generator efficiency: 0.96, cos  $\varphi$ : 0.8



Genset centre distance: min. 2010 mm

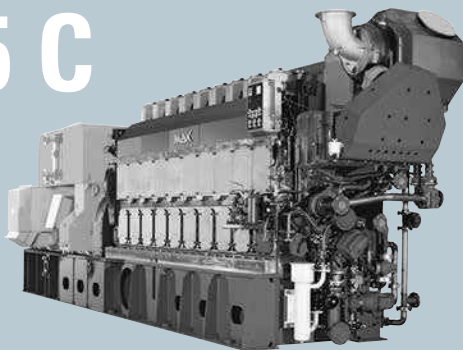
Removal of cylinder liner:

in transverse direction 2964 mm

in longitudinal direction 3139 mm

Engine with turbocharger at driving end available, ask for dimensions

# M 25 C

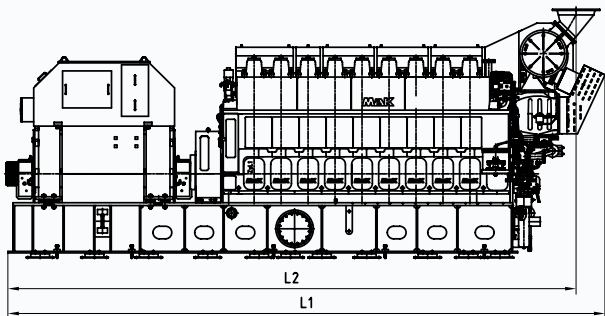


## Generator Set

### DIMENSIONS (mm) AND WEIGHTS (t)

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

\* Dependent on generator make/type

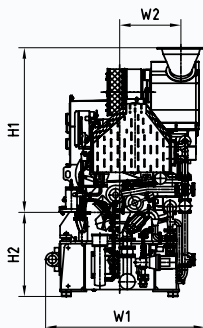


## TECHNICAL DATA

Type	Engine rating	Output range		Frequency	Speed	Mean eff. pressure	Mean piston speed	Spec. fuel consumption	
								100 %	85 %
<b>6 M 25 C</b>	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	g/kWh
	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
<b>8 M 25 C</b>	2000	1918	2400	50	750	26.1	10.0	186	184
	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
<b>9 M 25 C</b>	2666	2557	3199	50	750	26.1	10.0	187	184
	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,  $\pm 0.3$  g/kWh  
LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%  
Generator efficiency: 0.96,  $\cos \varphi$ : 0.8



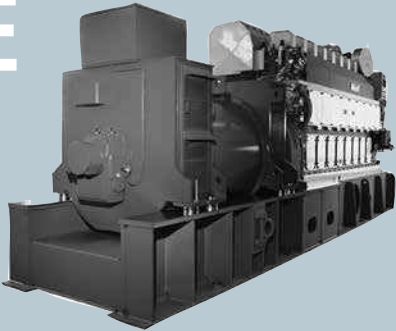
Genset centre distance: min. 2700 mm

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

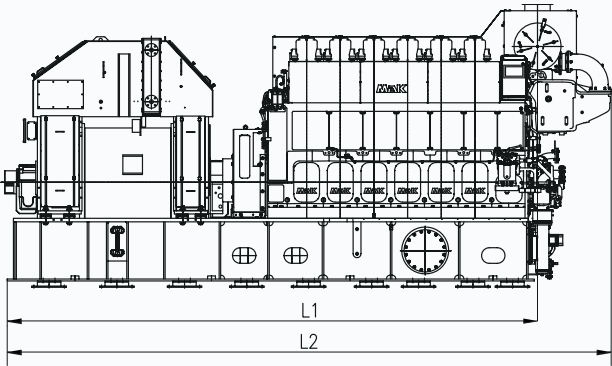
## Generator Set



### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1	L2	H1	H2	W1	W2	Dry weight *
6 M 25 E	6776	7717	2555	1340	2357	850	43.0
8 M 25 E	7636	8577	2700	1340	2357	937	53.0
9 M 25 E	8066	9007	2700	1340	2357	937	56.0

\* Dependent on generator make/type





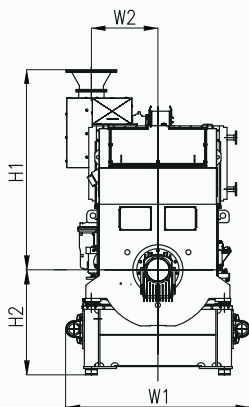
# TECHNICAL DATA

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
<b>6 M 25 E</b>	2100	2016	2625	60	720	28.56	9.6	187	185
	2100	2016	2625	50	750	27.4	10.0	187	185
<b>8 M 25 E</b>	2800	2688	3500	60	720	28.56	9.6	187	185
	2800	2688	3500	50	750	27.4	10.0	187	185
<b>9 M 25 E</b>	3150	3024	3938	60	720	28.56	9.6	187	185
	3150	3024	3938	50	750	27.4	10.0	187	185

Bore: 255 mm  
Stroke: 400 mm

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

Reduced part load fuel consumption



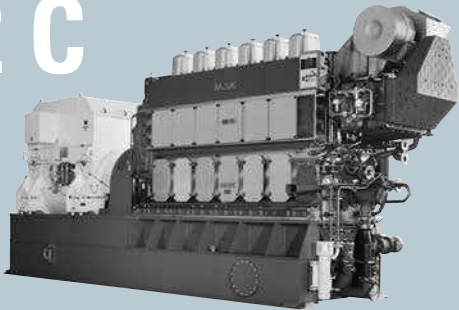
Genset centre distance: min. 2700 mm

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

Engine with turbocharger at driving end available, ask for dimensions

Please contact us for lead times

# M 32 C

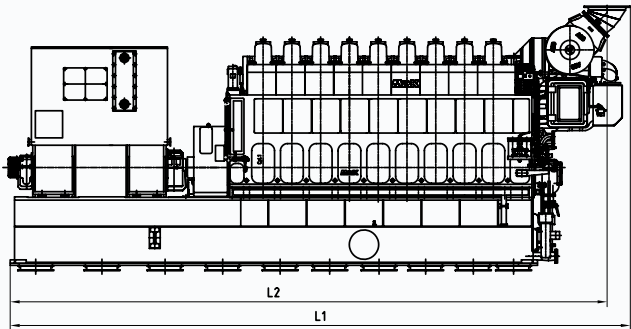


## Generator Set

### 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	962	92.0
9 M 32 C	11419	10991	2969	1900	2600	962	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
<b>6 M 32 C</b>	2880	2762	3456	50/60	600	24.9	9.6	177	176
	3000	2877	3600	50/60	600	25.9	9.6	177	176
<b>8 M 32 C</b>	3840	3683	4608	50/60	600	24.9	9.6	177	176
	4000	3836	4800	50/60	600	25.9	9.6	177	176
<b>9 M 32 C</b>	4320	4143	5184	50/60	600	24.9	9.6	177	176
	4500	4316	5400	50/60	600	25.9	9.6	177	176

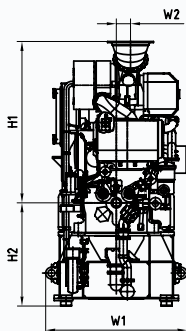
Stroke: 480 mm

Bore: 320 mm

Specific lubricating oil consumption 0.6 g/kWh,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%

Generator efficiency: 0.96,  $\cos \varphi$ : 0.8



Genset centre distance: min. 3000 mm

Removal of cylinder liner:

in transverse direction 4940 mm

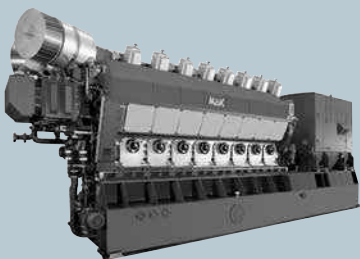
in longitudinal direction 5305 mm

Engine with turbocharger at driving end available, ask for dimensions

Cat Common Rail : ask for availability

# VM 32 C

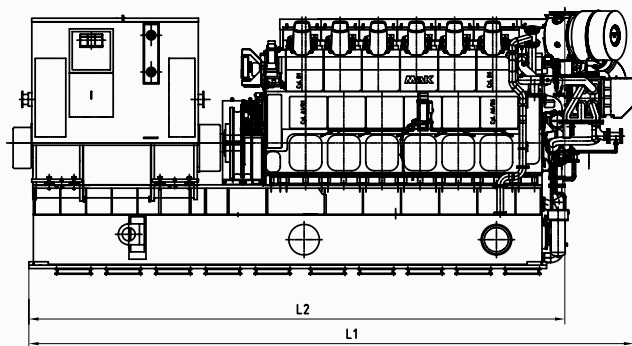
## Generator Set



### DIMENSIONS (mm) AND WEIGHTS (t)

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

\* Dependent on generator make/type

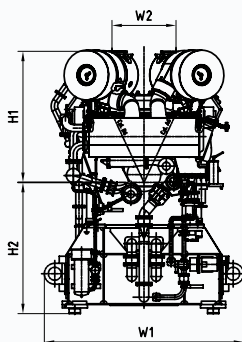


# TECHNICAL DATA

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
<b>12 M 32 C</b>	6000	5754	7200	60	720	460	22.5	11.0	178	177
	6000	5754	7200	50	750	460	21.6	11.5	179	179
	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
<b>16 M 32 C</b>	8000	7672	9600	60	720	460	22.5	11.0	178	177
	8000	7672	9600	50	750	460	21.6	11.5	179	179
	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

Bore: 320 mm

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

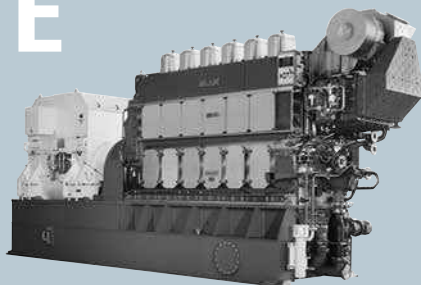


Genset centre distance: min. 3500 mm

Removal of cylinder liner:  
 in transverse direction 5156 mm

Engine with turbocharger at driving end  
 available, ask for dimensions

# M 32 E

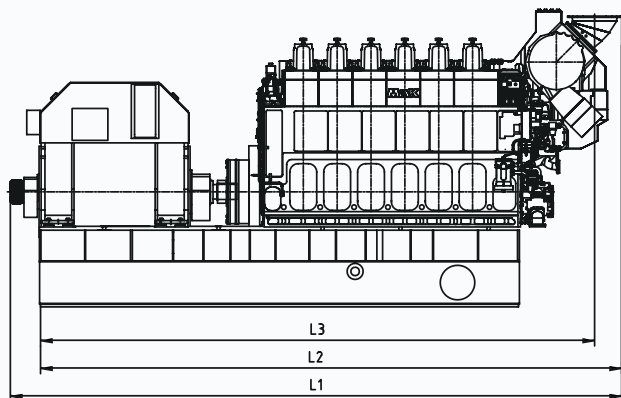


## Generator Set

### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1 *	L2	L3	H1	H2	W1	W2	Weight
<b>6 M 32 E</b>	9566	9094	8672	2771	1800	2432	126	71.0
<b>8 M 32 E</b>	10626	10154	9732	2908	1800	2432	190	89.4
<b>9 M 32 E</b>	11156	10684	10262	2908	1800	2432	190	95.4

\* Dependent on generator make/type

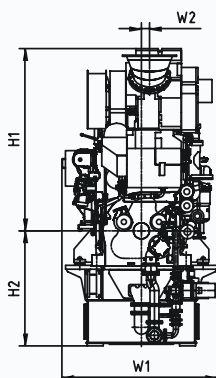


# TECHNICAL DATA

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
<b>6 M 32 E</b>	3300	3165	3960	60	720	23.7	11.0	179	179
	3300	3165	3960	50	750	22.7	11.5	179	179
<b>8 M 32 E</b>	4400	4220	5280	60	720	23.7	11.0	179	179
	4400	4220	5280	50	750	22.7	11.5	179	179
<b>9 M 32 E</b>	4950	4747	5940	60	720	23.7	11.0	179	179
	4950	4747	5940	50	750	22.7	11.5	179	179

Stroke: 460 mm  
Bore: 320 mm

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



Genset centre distance: min. 3000 mm

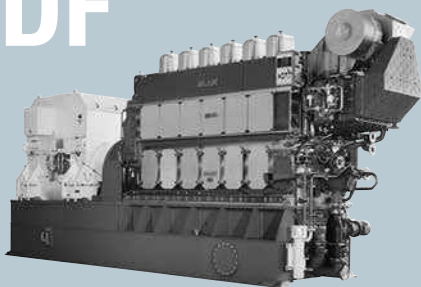
Removal of cylinder liner:  
in transverse direction 4940 mm  
in longitudinal direction 5305 mm

Engine with turbocharger at driving end  
available, ask for dimensions

Please contact us for lead times

# M 34 DF

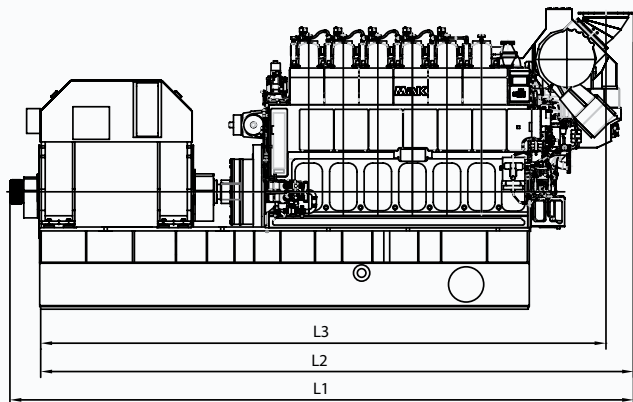
## Generator Set



### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1 *	L2	L3	H1	H2	W1	W2	Weight
<b>6 M 34 DF</b>	9566	9094	8672	2771	1800	2432	126	73.0
<b>8 M 34 DF</b>	10626	10154	9732	2908	1800	2432	190	92.0
<b>9 M 34 DF</b>	11156	10684	10262	2908	1800	2432	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	Total spec. energy consumption
								100%/85%	100%/85%
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	kJ/kWh
<b>6 M 34 DF</b>	3000	2877	3600	60	720	19.9	11.0	188/187	7708/7875
	3000	2877	3600	50	750	19.1	11.5	188/187	7708/7875
<b>8 M 34 DF</b>	4000	3836	4800	60	720	19.9	11.0	188/187	7708/7875
	4000	3836	4800	50	750	19.1	11.5	188/187	7708/7875
<b>9 M 34 DF</b>	4500	4316	5400	60	720	19.9	11.0	188/187	7708/7875
	4500	4316	5400	50	750	19.1	11.5	188/187	7708/7875

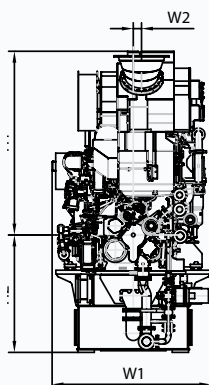
Stroke: 460 mm

Bore: 340 mm

Specific lubricating oil consumption 0.6 g/kWh,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%

Generator efficiency: 0.96, cos  $\phi$ : 0.8



Genset centre distance: min. 3000 mm

Removal of cylinder liner:

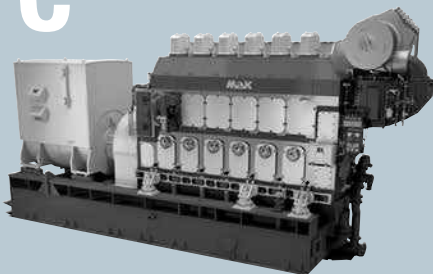
in transverse direction 4940 mm

in longitudinal direction 5305 mm

Engine with turbocharger at driving end available, ask for dimensions

Please contact us for lead times

# M 43 C

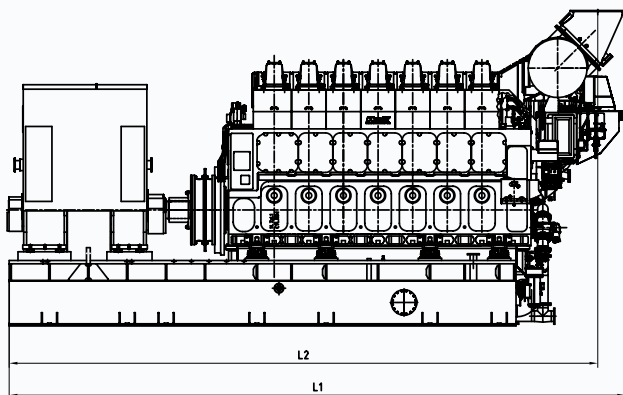


## Generator Set

### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1 *	L2	H1	H2	W1	W2	Weight
<b>6 M 43 C</b>	12202	11651	3834	2444	3400	215	178.0
<b>7 M 43 C</b>	12999	12414	4205	2444	3400	232	195.0
<b>8 M 43 C</b>	13729	13144	4205	2444	3400	232	210.0
<b>9 M 43 C</b>	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
<b>6 M 43 C</b>	5400	5179	6480	50/60	500/514	24.4/23.8	10.2/10.5	175	175
	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
<b>7 M 43 C</b>	6300	6042	7560	50/60	500/514	24.4/23.8	10.2/10.5	175	175
	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
<b>8 M 43 C</b>	7200	6905	8640	50/60	500/514	24.4/23.8	10.2/10.5	175	175
	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
<b>9 M 43 C</b>	8100	7768	9720	50/60	500/514	24.4/23.8	10.2/10.5	175	175
	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

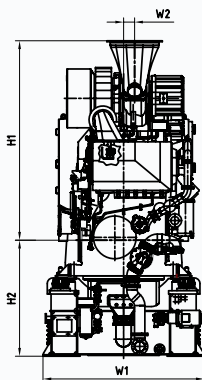
Stroke: 610 mm

Bore: 430 mm

Specific lubricating oil consumption 0.6 g/kWh,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5%

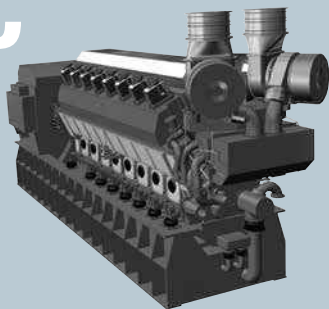
Generator efficiency: 0.96, cos  $\phi$ : 0.8



Genset centre distance: min. 3700 mm

Removal of cylinder liner:  
in transverse direction 6609 mm

# VM 43 C

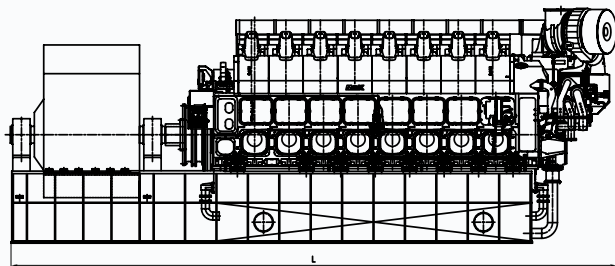


## Generator Set

### DIMENSIONS (mm) AND WEIGHTS (t)

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

\* Dependent on generator make/type

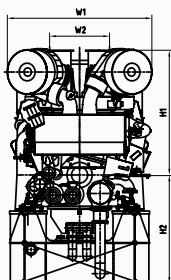


# TECHNICAL DATA

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
<b>12 M 43 C</b>	10800	10357	12960	50/60	500/514	24.4/23.8	10.2/10.5	175	175
	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	177	176
<b>16 M 43 C</b>	14400	13810	17280	50/60	500/514	24.4/23.8	10.2/10.5	175	175
	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	177	176

Stroke: 610 mm  
Bore: 430 mm

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

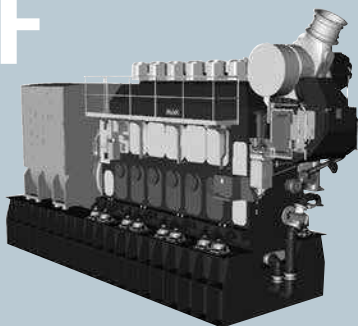


Genset centre distance: min. 4500 mm

Removal of cylinder liner: 6720 mm

# M 46 DF

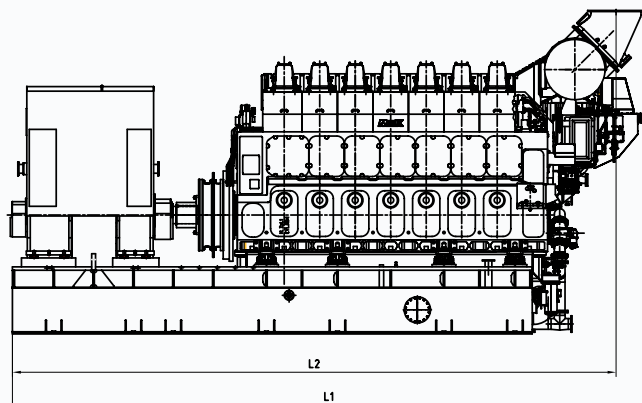
## Generator Set



### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1 *	L2	H1	H2	W1	W2	Weight
<b>6 M 46 DF</b>	12202	11651	3834	2444	3400	215	178.0
<b>7 M 46 DF</b>	12999	12414	4205	2444	3400	232	195.0
<b>8 M 46 DF</b>	13729	13144	4205	2444	3400	232	210.0
<b>9 M 46 DF</b>	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		Total spec. energy consumption
	kW	kWe	kVA	Hz	rpm	bar	m/s	100%/85%	100%/85%	100%/85%
<b>6 M 46 DF</b>	5400	5179	6480	50/60	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524	7441/7524
<b>7 M 46 DF</b>	6300	6042	7560	50/60	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524	7441/7524
<b>8 M 46 DF</b>	7200	6905	8640	50/60	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524	7441/7524
<b>9 M 46 DF</b>	8100	7768	9720	50/60	500/514	21.3/20.7	10.2/10.5	186/185	7441/7524	7441/7524

Stroke: 610 mm

Bore: 460 mm

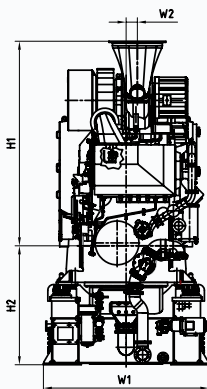
Specific lubricating oil consumption 0.6 g/kWh,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5% for liquid fuel

LCV = 31.5 MJ/Nm<sup>3</sup> for gas fuel

Generator efficiency: 0.96, cos  $\phi$ : 0.8

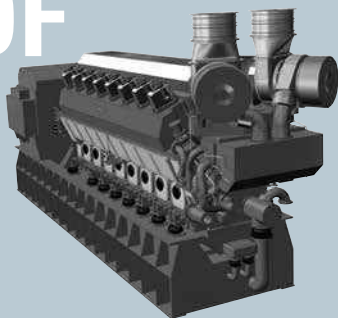
Note: 5% tolerance +1% per pump



Genset centre distance: min. 3700 mm

Removal of cylinder liner:  
in transverse direction 6609 mm

# VM 46 DF

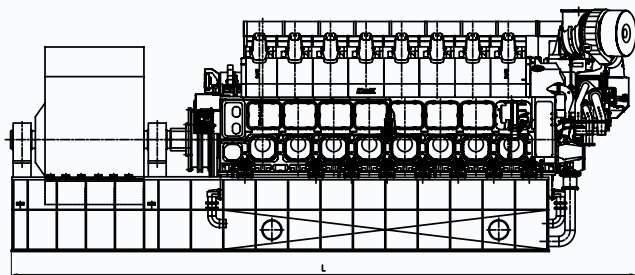


## Generator Set

### DIMENSIONS (mm) AND WEIGHTS (t)

Type	L1 *	H1	H2	W1	W2	Weight
<b>12 M 46 DF</b>	14740	3497	3020	3890	1685	275.0
<b>16 M 46 DF</b>	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	Total spec. energy consumption
								100 % / 85 %	100 % / 85 %
	kW	kWe	kVA	Hz	rpm	bar	m/s	g/kWh	kJ/kWh
<b>12 M 46 DF</b>	10800	10357	12960	50/60	500/514	21.3/20.7	10.2/10.5	184/184	7272/7417
<b>16 M 46 DF</b>	14400	13810	17280	50/60	500/514	21.3/20.7	10.2/10.5	184/184	7272/7417

Stroke: 610 mm

Bore: 460 mm

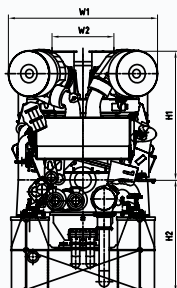
Specific lubricating oil consumption 0.6 g/kWh,  $\pm 0.3$  g/kWh

LCV = 42700 kJ/kg, without engine-driven pumps, tolerance 5% for liquid fuel

LCV = 31.5 MJ/Nm<sup>3</sup> for gas fuel

Generator efficiency: 0.96, cos  $\phi$ : 0.8

Note: 5% tolerance +1% per pump



Genset centre distance: min. 4500 mm

Removal of cylinder liner:  
in transverse direction 6720mm

Please contact us for lead times

# Notes





For more information please visit:  
**MARINE.CAT.COM**  
E-mail: [cat\\_power@cat.com](mailto:cat_power@cat.com)

**BUILT FOR IT.™**

©2014 Caterpillar. All rights reserved. CAT, CATERPILLAR, BUILT FOR IT, their respective logos, ACERT, ADEM, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.