GOVERNMENTAL & DEFENSE SOLUTIONS

EDITION 2024

CATERPILLAR®

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Caterpillar follows a policy of continual product improvement. For this reason, some material and specifications could change without notice.

WE ARE CATERPILLAR

CATERPILLAR IS A **$60 BILLION DOLLAR COMPANY.**

THE CAT® DEALER NETWORK IS THE **LARGEST** IN THE INDUSTRY & COVERS OVER **190 COUNTRIES.** THERE ARE **156 DEALERS** SERVING 192 COUNTRIES WORLDWIDE.

CATERPILLAR IS INVOLVED IN **18 DIFFERENT INDUSTRIES** GLOBALLY.

- DEFENSE
- MARINE
- AGRICULTURE
- SNOW REMOVAL
- GOVERNMENTAL LOCAL/STATE
- OIL & GAS
- PAVING
- WASTE SOLUTIONS
- CONSTRUCTION
- DEMOLITION
- ELECTRIC POWER
- FORESTRY
- INDUSTRIAL POWER
- LANDSCAPING
- MINING
- OEM SOLUTIONS
- QUARRY & AGGREGATES
- SCRAP RECYCLING

LET'S DO THE WORK.™

YOUR REQUIREMENTS DRIVE OUR PURPOSE

And Inspire Our Solutions

Naval operations, coast guards and armed forces have trusted the strength, durability and reliability of Caterpillar Marine for decades to power their vessels and ensure safer, dependable missions shore to shore. Caterpillar recently invested heavily in research and development (R&D) to create a range of power solutions that meet and exceed the requirements of navies and coast guards around the world.

Our engines deliver high power density, long-term durability and high fuel efficiency, reducing downtime or increasing mission readiness. Our products are also backed by the Cat dealer network, which holds the standard for keeping vessel engines and gensets in top-notch condition with **parts and services you can count on.**

Caterpillar Marine monitors current and historical events worldwide to ensure awareness of global and national threats that demand military reinforcement and natural disasters that compel humanitarian aid. **We understand the escalating requirements of naval and coast guard operations.** In response, we have elevated our engineering efforts and commitment to deliver powerful products and services to support those operations in even more robust ways.

UPTIME

Your operations are a matter of critical importance, so **equipment availability is not optional. With your missions, every minute matters,** and we're here for you, offering reliable power solutions and technology to support the call.

- Dependable power products
- Accessible service
- Digital services support

YOUR MISSION-READINESS IS OUR MISSION

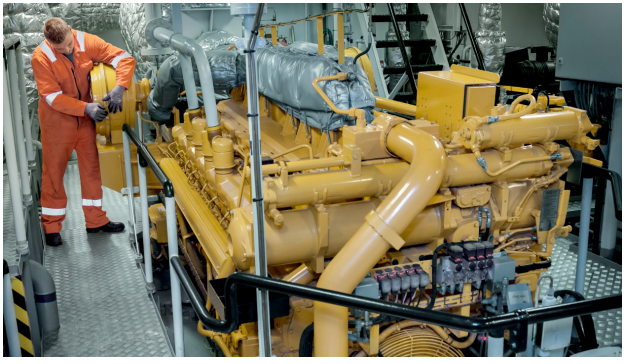
Whether for planned operations or emergency recon on suspicious vessels traveling too fast along your coastlines, we ensure you have the **right services at the right time and place so your vessels can go the distance and speed you need.**

- Powerful, stealth-equipped engines and gensets
- Global parts and service availability
- Digital equipment monitoring

AT YOUR SERVICE—AROUND-THE-CLOCK, AROUND THE GLOBE

Offshore or dockside, during peacetime or combat, in any waters around the world, **Cat Marine dealers are there to service your vessels.**

- Robust dealer network that's as tough as our engines
- Accessible, on-demand parts and service
- Comprehensive service agreements



DIGITAL SOLUTIONS TO STRENGTHEN YOUR FLEET

Your missions require next-level readiness and endurance. It's non-negotiable. Cat Marine **digital tools and solutions help you automate, digitize and streamline operations for optimizing power performance.**

- Real-time engine performance monitoring
- Planned maintenance (PM) schedules
- Asset tracking and location monitoring
- Integrated Cyber Analysis System (ICAS)-approved equipment

YOUR VESSELS, OUR POWER

For the Toughest Military Operations

Caterpillar Marine understands what governmental customers value and how your operations demand reliable uptime and power and faultless operation as a matter of safety and protection from internal subversion, foreign aggression and terrorism.

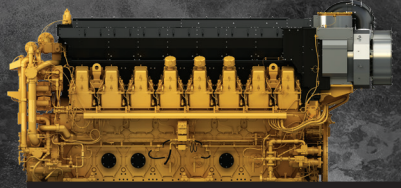
We consistently test shock, strength, noise, vibration, power and more to ensure that **our propulsion and auxiliary engines and gensets have the survivability, high-power density, low weight, compact design and mechanical and thermal stability you need** to extend the performance and life of your vessels and allow you to focus on your critical tasks at sea.

We have engines operating successfully in naval and defense platforms worldwide. So, no matter how critical your requirements, we can supply you with a complete, fully integrated propulsion system covering a **broad power range from 300 kW to 8 MW** to specifically accommodate your operations.

PRODUCT LINE

GOVERNMENTAL & DEFENSE

MARINE PROPULSION ENGINES



Cat® C280 Series *1.7 - 8 MW / 2,325 - 10,880 HP*

Cat® 3500 Series *1 - 3 MW / 1,304 - 4,023 HP*

Cat® C32, C32B *1.2 - 1.8 MW / 1,599 - 2,413 HP*

Cat® CI8, CI3D, C9.3, C7.I *298 - 847 bkW*

MARINE GENERATOR SETS

Cat® C280, 3500, C32, CI8, C9.3, C7.I, C4.4 Series *38 - 4,840 ekW*

COMBAT VESSELS

- Surface combatants with military-tough design characteristics
- Frigates, destroyers, corvettes and landing platform dock (LPD) ships
- Built for speed and maneuverability
- Used in scouting threats, escorting other vessels and patrolling borders
- Require high-powered performance and mil shock capability
- **Recommendation:**
  - **Cat C280 propulsion engines**

OFFSHORE PATROL VESSELS (OPVs)

- Fast-attack craft, inshore patrol craft, with patrolling and sprint modes
- Used in search and rescue, surveillance and environmental monitoring
- Require flexible engine load profile, with quick, high-power response and endurance
- **Recommendation:**
  - **Cat C32B propulsion engines**
  - **Cat 3516E propulsion engines**

AUXILIARY VESSELS

- Replenishment vessels, attack transport ships, repair ships, harbor support ships, tracking ships, research vessels and hospital ships
- Built for endurance, reliability and performance
- Used to support other vessels and for specific missions, e.g., exploration and medical
- **Recommendation:**
  - **Cat 3516E propulsion engines**
  - **Cat C280 propulsion engines**
  - **Cat C32B gensets**

SUBMARINES

- **Recommendation:**
  - **Cat 3500-series gensets**
  - **Cat 3512 diesel electric gensets***
  - **Cat 3516 diesel electric gensets***

**Design to order (DTO) product*

UNMANNED/AUTONOMOUS VESSELS

- **Recommendation:**
  - **All Cat diesel gensets**
  - **All Cat propulsion engines**

CATERPILLAR NAVAL DESIGN & APPLICATION CAPABILITIES

A Service for Success

The complexities of shipbuilding—from concept phase all the way to delivery—can be a tough and challenging process. Avoid the stress of determining the right power solutions, system integration and engineering requirements by calling on **Caterpillar Marine's Naval Design & Application (ND&A) services. We're here to help, with reinforcement.**

We will assist you in navigating through concept, preliminary design, detailed design, construction and delivery. Our team offers decades of experience supporting naval ship programs worldwide, providing consulting expertise to shipyards in the most specific and technical matters and across all phases of construction. Count on us every step of the way.

Our comprehensive ND&A services will help you capture and manage information in your shipbuilding projects, applying a proactive approach that supports next-generation capabilities for surface ships, submarines and unmanned platforms.

- Technical engineering support
- Design integration and interface support
- Custom design to order (DTO)
- Advanced data analytics
- Operational Failure Mode & Effects Analysis (FMEA)
- Root cause failure analysis

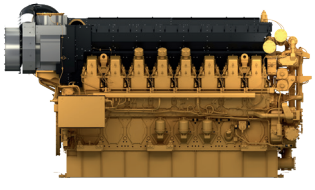
Caterpillar Marine ND&A services routinely consult on military projects and programs related to No Manning Required Ships (NOMARS), Large Unmanned Service Vessels (LUSVs) and other government-specific initiatives.

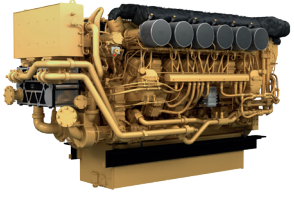
For more information on Caterpillar Marine ND&A services, contact Leif Gross at Leif.Gross@cat.com.

CAT PROPULSION ENGINES

Built to Perform, Built to Endure

CAT HIGH-SPEED & MEDIUM-SPEED SOLUTIONS: PROPULSION ENGINE SPEC SHEETS





Cat Marine propulsion engines meet your rigorous standards, with high-speed and medium-speed solutions, allowing you to face the roughest, most critical missions.

We offer a complete range of conventional and electronic propulsion solutions to support naval and defense applications, with **power ranging from 300 kW (400 mhp) to 8 MW (10700 mhp).**

Count on our products and solutions for reliability, durability, power and efficiency, adding peace of mind to every mission.

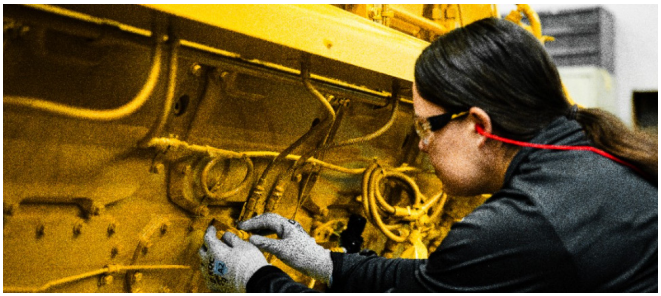
PROVEN, RELIABLE

And Ready for What's Next

The lifeblood of your naval vessel is an advanced engine, and the Cat® C280 delivers with a lighter, more power dense and time-tested technology*. It's a beacon of reliability and innovation that can withstand the test of countless scenarios.

PERFORMANCE WITHOUT COMPROMISE

The enhanced C280 series packs reliability and durability into its more power-dense frame, delivering remarkable weight-to-power ratio and thus allowing for more ordonnance on board.



** Compared to previous C280 models*

PROTECT THE CREW

The more you can trust your engine, the more you can focus on the task at hand. The C280 goes beyond the required, providing cutting-edge safety features to ensure maximum survivability of the vessel—and its passengers. You can be sure the C280 will provide trustworthy performance in the most challenging deployments.

A LEGACY OF RELIABILITY

The dependability of the C280 is a standard built through countless hours of testing and refinement. With 30+ years of proven performance on the books, the C280 series has helped crews operate with confidence in countries around the world. Listening to our customers' feedback, we strive to build engines to deliver the tough, proven and tested performance demanded by Navies and Coast Guards around the world.

C280-16

Electronic Control System

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

IMO II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
CS	6255	6169	4600	900	285	199.7	II	NC	NC	NC
CS	6690	6598	4920	1000	308	201.9	II	NC	NC	NC
MC	6879	6785	5060	900	313	199.0	II	NC	NC	NC
MC	7369	7268	5420	1000	341	202.3	II	NC	NC	NC
MC/ FCV	7682	7577	5650	1000	359	204.8	II	NC	NC	NC
MC/ FCV	8158	8046	6000	1000	379	203.2	II	NC	NC	NC
******	8834	8713	6500	1000	405	200.8	II	NC	NC	NC
FCVR	9898	9763	7280	1000	454	200.6	II	NC	NC	NC
Navy	10877	10728	8000	1000	499	200.9	II	NC	NC	NC

IMO III and U.S. EPA Tier 4

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
CS*	6255	6169	4600	900	272	190.3	III	T4C	NC	NC

C280 fuel rate is at full load on the prop curve, BSFC is at full power condition.
Arrangements are available with front mounted turbochargers or rear mounted turbochargers
FMT requires remote mounted (Shipped Loose) heat exchanger for the Oil Cooler.
FMT duplex Oil filters are ship loose and require remote mounting and plumbing.
Single circuit cooling system is not available with FMT configuration.

** 4600 bkW IMO III rating available with E2 cycle for CPP applications only.*
*** Special rating request only. For applications with CPP optimized to 85% of rated power. Please consult A&I team for details.*

Navy Rating: This rating is used for vessel applications that involve varying loads, with limited time at powers greater than 90%. ICFN – ISO standard fuel stop power. Estimated annual usage 3000-5000 hours per year.

(continued)

C280-16

Electronic Control System

PROPULSION ENGINE

(continued)

SPECIFICATIONS

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

DIMENSIONS

LE	H	WE
188.2 in/4780 mm	132.6 in/3367 mm	78.7 in/1999 mm

C280-12

Electronic Control System

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

IMO II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
CS	4704	4640	3460	900	213	198.6	II	NC	NC	NC
CS	5031	4962	3700	1000	231	201.2	II	NC	NC	NC
MC	5167	5096	3800	900	233	197.6	II	NC	NC	NC
MC	5520	5444	4060	1000	252	200.0	II	NC	NC	NC
MC/FCV	6118	6035	4500	1000	288	205.7	II	NC	NC	NC

IMO III and U.S. EPA Tier 4

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
CS	5031	4962	3700	1000	225	196.0	III	T4C	NC	NC
MC	5520	5444	4060	1000	247	195.5	III	T4C	NC	NC

C280 fuel rate is at full load on the prop curve, BSFC is at full power condition.

SPECIFICATIONS

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

DIMENSIONS

LE	H	WE
162.2 in/4121 mm	132.6 in/3368 mm	78.7 in/1999 mm

C280-8

PROPULSION ENGINE

COMING SOON

Contact your Cat Dealer to learn more about application and availability.

Electronic Control System

RATINGS AND FUEL CONSUMPTION

IMO II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
CS	3127	3084	2300	900	143	199.7	II	NC	NC	NC
CS	3345	3299	2460	1000	154	201.9	II	NC	NC	NC
MC	3440	3393	2530	900	156	199.0	II	NC	NC	NC
MC	3684	3634	2710	1000	170	202.3	II	NC	NC	NC
MC	4078	4023	3000	1000	189	203.2	II	NC	NC	NC

IMO III and U.S. EPA Tier 4

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
CS	3345	3299	2460	1000	148	193.3	III	T4C	NC	NC
MC	3684	3634	2710	1000	163	194.1	III	T4C	NC	NC

C280 fuel rate is at full load on the prop curve, BSFC is at full power condition.

SPECIFICATIONS

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

DIMENSIONS

LE	H	WE
175.7 in/4463 mm	115.3 in/2930 mm	75.4 in/1914 mm

C280-6

PROPULSION ENGINE

Electronic Control System

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
CS	2352	2320	1730	900	107	198.6	II	NC	NC	NC
CS	2515	2481	1850	1000	116	201.2	II	NC	NC	NC
MC	2583	2548	1900	900	117	197.6	II	NC	NC	NC
MC	2760	2722	2030	1000	126	200.0	II	NC	NC	NC

C280 fuel rate is at full load on the prop curve, BSFC is at full power condition.

SPECIFICATIONS

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

DIMENSIONS

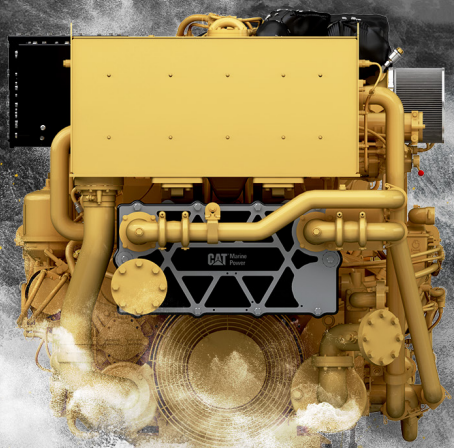
LE	H	WE
134.8 in/3426 mm	115.4 in/2929 mm	70.6 in/1794 mm

TOUGHER THAN EVER.

FOR GOVERNMENTAL & DEFENSE

Designed for Mission Readiness
Engineered for Power Density
Greater Acceleration for Fast Intervention
Best Serviceability

**compared to previous 3516E models*



THE **3516E**

POWER RANGE: 2.8 - 3 MW

PATROL VESSELS | AUXILIARY VESSELS

3516E

Electronic Control System

PROPULSION ENGINE (High Performance Applications)

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
D	3196	3151	2350	1800	154.1	211.1	II/ III[1]	T4[1]	NC	NC
D	3549	3500	2610	1800	–	–	II/ III[1]	T4[1]	NC	NC
D	3807	3755	2800	1800	179.7	206.5	II/ III[1]	T4[1]	NC	NC
D	4079	4023	3000	1800	193.1	207.1	II/ III[1]	T4[1]	NC	NC

[1] *Contact factory for IMO III and T4 availability.*

SPECIFICATIONS

Vee 16, 4-Stroke-Cycle Diesel		
Aspiration	Sequential Turbocharged-Aftercooled	
Bore x Stroke	6.69 x 8.46 in	170 x 215 mm
Displacement	4765 cu in	78.1 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	24,250 lb	11,000 kg

DIMENSIONS

	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

3516E

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	2536	2501	1865	1600	114.8	198.0	II/III	T4C	NC	NC
A	2720	2682	2000	1600	122.8	197.6	II/III	T4C	NC	NC
A	3046	3004	2240	1800	140.7	202.2	II/III	T4C	NC	NC
B	2855	2816	2100	1600	129.2	198.0	II/III	T4C	NC	NC
B	3195	3151	2350	1800	146.4	200.4	II/III	T4C	NC	NC
C	2991	2950	2200	1600	135.9	198.8	II/III	T4C	NC	NC
C	3433	3386	2525	1800	157.0	200.1	III	T4C	NC	NC
D*	3433	3386	2525	1800	157.0	200.1	II	NC	NC	NC
D	3549	3500	2610	1800	162.3	200.1	III	T4C	NC	NC

All ratings are high displacement.
All ratings, except 2610 bkW, can be configured as an IMO II engine without aftertreatment.
** IMO II 2525 bkW must comply with D-Tier rated duty cycle when operated with Aftertreatment not installed or disabled.*

SPECIFICATIONS

Vee 16, 4-Stroke-Cycle Diesel		
Aspiration	TTA	
Bore x Stroke	6.69 x 8.46 in	170 x 215 mm
Displacement	4765 cu in	78 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	21,164 lb	9600 kg

DIMENSIONS

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

3516C

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	2028	2000	1491	1600	92.2	198.9	II	NC	NC	NC
A[1]	2162	2132	1590	1600	100.3	203.0	NC	NC	NC	C-II
A[1]	2292	2260	1685	1600	104.1	198.6	II	NC	NC	NC
A[1]	2482	2448	1825	1600	111.2	196.1	II	NC	NC	C-II
B	2130	2100	1566	1600	96.3	198.0	II	NC	NC	NC
B[1]	2271	2240	1670	1600	104.9	202.1	NC	NC	NC	C-II
B[1]	2407	2375	1771	1600	108.4	196.9	II	NC	NC	NC
B[1]	2611	2575	1920	1600	116.3	194.9	II	NC	NC	C-II
B[1]	3046	3005	2240	1800	143.6	206.3	II	NC	NC	C-II
C	2231	2200	1640	1600	101.0	198.1	II	NC	NC	NC
C[1]	2380	2347	1750	1600	110.4	203.1	NC	NC	NC	C-II
C[1]	2534	2500	1864	1600	113.3	195.5	II	NC	NC	NC
C[1]	2712	2675	1995	1600	125.0	201.6	NC	NC	NC	C-II
C[1]	2720	2682	2000	1600	121.0	194.7	II	NC	NC	NC
C[1]	3196	3150	2350	1800	149.9	205.3	II	NC	NC	C-II
D[1]	2855	2816	2100	1600	127.4	195.2	II	NC	NC	NC
D[1]	3434	3385	2525	1800	159.9	203.7	II	NC	NC	NC

[1] High displacement engine (HD)

(continued)

3516C

PROPULSION ENGINE

(continued)

SPECIFICATIONS

Vee 16, 4-Stroke-Cycle Diesel		
Aspiration	TTA	
Bore x Stroke	6.69 x 7.48 in	170 x 190 mm
Bore x Stroke[1]	6.69 x 8.46 in	170 x 215 mm
Displacement	4211 cu in	69 liter
Displacement[1]	4765 cu in	78 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	17,550 - 19,025 lb	7964 - 8629 kg

[1] *High displacement engine (HD)*

DIMENSIONS

	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

3512E

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	1360	1341	1000	1600	61.0	196.4	II/III	T4C	EUV	NC
A	1523	1502	1120	1600	67.7	194.6	II/III	T4C	EUV	NC
A	1523	1502	1120	1800	71.0	204.1	II/III	T4C	NC	NC
A	1724	1700	1268	1600	76.3	193.7	II/III	T4C	EUV	NC
A	1835	1810	1350	1600	81.3	193.9	II/III	T4C	EUV	NC
A	2028	2000	1491	1600	90.1	194.4	II/ IIII	T4C	NC	NC
A	2282	2250	1678	1800	104.9	201.2	II/III	T4C	NC	NC
B	1598	1576	1175	1800	73.9	202.4	II/III	T4C	NC	NC
B	2142	2112	1575	1600	95.4	194.8	II/III	T4C	NC	NC
B	2408	2375	1771	1800	110.9	201.5	II/III	T4C	NC	NC
C	1673	1650	1230	1800	77.0	201.5	II/III	T4C	NC	NC
C	2244	2213	1650	1600	100.1	195.2	II/III	T4C	NC	NC
C	2585	2550	1901	1800	118.3	200.3	II/III	T4C	NC	NC

All high displacement engines (HD).
All ratings can be configured as an IMO II engine without aftertreatment.

(continued)

(continued)

SPECIFICATIONS

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

DIMENSIONS

	LE	H	WE
min.	104.2 in/2624 mm	87.5 in/2222.6 mm	80.2 in/2037 mm
max.	104.2 in/2624 mm	87.5 in/2222.6 mm	80.2 in/2037 mm

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	2028	2000	1491	1600	92.2	198.9	II	NC	NC	NC
A[1]	2162	2132	1590	1600	100.3	203.0	NC	NC	NC	C-II
A[1]	2292	2260	1685	1600	104.1	198.6	II	NC	NC	NC
A[1]	2482	2448	1825	1600	111.2	196.1	II	NC	NC	C-II
B	2130	2100	1566	1600	96.3	198.0	II	NC	NC	NC
B[1]	2271	2240	1670	1600	104.9	202.1	NC	NC	NC	C-II
B[1]	2407	2375	1771	1600	108.4	196.9	II	NC	NC	NC
B[1]	2611	2575	1920	1600	116.3	194.9	II	NC	NC	C-II
B[1]	3046	3005	2240	1800	143.6	206.3	II	NC	NC	C-II
C	2231	2200	1640	1600	101.0	198.1	II	NC	NC	NC
C[1]	2380	2347	1750	1600	110.4	203.1	NC	NC	NC	C-II
C[1]	2534	2500	1864	1600	113.3	195.5	II	NC	NC	NC
C[1]	2712	2675	1995	1600	125.0	201.6	NC	NC	NC	C-II
C[1]	2720	2682	2000	1600	121.0	194.7	II	NC	NC	NC
C[1]	3196	3150	2350	1800	149.9	205.3	II	NC	NC	C-II
D[1]	2855	2816	2100	1600	127.4	195.2	II	NC	NC	NC
D[1]	3434	3385	2525	1800	159.9	203.7	II	NC	NC	NC

[1] High displacement engine (HD)

(continued)

3512C
PROPULSION ENGINE

(continued)

SPECIFICATIONS

Vee 16, 4-Stroke-Cycle Diesel		
Aspiration	TTA	
Bore x Stroke	6.69 x 7.48 in	170 x 190 mm
Bore x Stroke[1]	6.69 x 8.46 in	170 x 215 mm
Displacement	4211 cu in	69 liter
Displacement[1]	4765 cu in	78 liter
Rotation (from flywheel end)	Counterclockwise or clockwise	
Engine dry weight (approx)	17,550 - 19,025 lb	7964 - 8629 kg

[1] *High displacement engine (HD)*

DIMENSIONS

	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

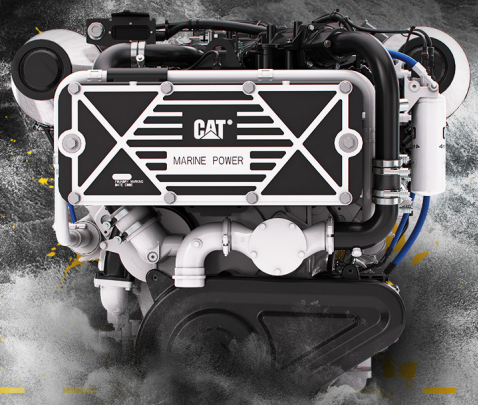
C32B

FOR GOVERNMENTAL & DEFENSE

Designed for Mission Readiness
Engineered for Power Density & Performance
Quieter for Stealth Mode Application
Best Serviceability

POWER RANGE: 1.3 - 1.7 MW

INSHORE PATROL CRAFT | FAST INTERCEPTORS



CAT®

RATINGS AND FUEL CONSUMPTION

IMO II/III and U.S. EPA Tier 3

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
E	2025	2000	1491	2300	105.0	226.4	II	T3R	RCD	C-II

Contact your local dealer for availability.

SPECIFICATIONS

Vee 12, 4-Stroke-Cycle Diesel		
Aspiration	TA	TA
Bore x Stroke	5.71 x 6.38 in	145 x 162 mm
Displacement	1959 cu in	32.1 liter
Rotation (from flywheel end)	CCW	CCW
Engine dry weight (approx)	6934 lb	3145 kg

DIMENSIONS

	LE	H	WE
min.	82.9 in/2106 mm	59.9 in/1445 mm	57.8 in/1469 mm
max.	82.9 in/2106 mm	59.9 in/1445 mm	57.8 in/1469 mm

(continued)

C32B
Electronic Control System
PROPULSION ENGINE (High Performance Applications)

(continued)

RATINGS AND FUEL CONSUMPTION

IMO II/III and U.S. EPA Tier 3

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
D	1825	1800	1342	2300	93.5	224.5	II/III	T3R	RCD	C-II
D	2025	2000	1491	2300	104	223.5	II/III	T3R	RCD	C-II
E	2230	2200	1641	2300	114	223.1	II/III	T3R	RCD	C-II
E	2433	2400	1790	2300	123	220.5	II/III	T3R	RCD	C-II

Contact your local dealer for availability.

IMO II Only*

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
D	1825	1800	1342	2300	90.0	216.0	II	–	–	–
D	2025	2000	1491	2300	100.0	216.1	II	–	–	–
E	2230	2200	1641	2300	114.0	223.1	II	–	–	–
E	2433	2400	1790	2300	123.0	220.5	II	–	–	–

**Up to 10% lower fuel consumption at part load & cruising speed vs. EPA Tier3*
**Up to 10% lower fuel consumption at part load & cruising speed vs. EPA Tier3*
Sea Water Aftercooled
Contact your local dealer for availability

SPECIFICATIONS

Vee 12, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	5.71 x 6.38 in	145 x 162 mm
Displacement	1959 cu in	32.1 liter
Rotation (from flywheel end)	CCW	
Engine dry weight (approx)	7736 lb	3509 kg

DIMENSIONS

	LE	H	WE
min.	87.8 in/2231 mm	58.1 in/1478 mm	58.0 in/1474 mm
max.	87.8 in/2231 mm	58.1 in/1478 mm	58.0 in/1474 mm

RATINGS AND FUEL CONSUMPTION

IMO II/III and U.S. EPA Tier 3

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
D	1622	1600	1193	2300	83.5	225.3	II	T3R	RCD	C-II
D	1622	1600	1193	2300	83.5	225.3	II/III	NC	NC	NC
E	1724	1700	1268	2300	88.2	224.0	II	T3R	RCD	C-II
E	1825	1800	1342	2300	92.3	221.4	II	T3R	RCD	C-II
E	1925	1900	1418	2300	97.7	221.8	II	T3R	RCD	C-II

Contact your local dealer for availability.
Sea Water Aftercooled

SPECIFICATIONS

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

DIMENSIONS

	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

(continued)

RATINGS AND FUEL CONSUMPTION

IMO II/IMO III

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A[1]	669	660	492	1600-1800	31.3	204.4	II	NC	NC	NC
A[1]	760	750	559	1600-1800	35.1	201.9	II	NC	NC	C-II
A[1]	760	750	559	1600-1800	36.3	209.1	II/III	NC	NC	NC
A[1]	811	800	597	1600-1800	39.1	210.5	II	NC	NC	C-II
A[1]	862	850	634	1600-1800	39.7	201.4	II	NC	NC	C-II
A	964	950	709	1600	43.8	198.8	II	NC	NC	NC
A[1]	1014	1000	746	1600-1800	46.6	201.0	II	NC	NC	C-II
A[1]	1014	1000	746	1600-1800	48.2	208.1	II/III	NC	NC	NC
B[1]	1217	1200	895	1800-2000	57.4	206.5	II	NC	NC	NC
B[1]	1217	1200	895	1800-2000	57.4	206.5	II/III	NC	NC	NC
B	1217	1200	895	2100	60.6	218.0	NC	NC	NC	C-II
B	1319	1300	970	2100	62.5	207.2	II	NC	NC	C-II
B	1319	1300	970	2100	62.5	207.2	II/III	NC	NC	NC
C	1319	1300	970	1800	60.5	200.7	II	NC	NC	NC
C	1319	1300	970	1800	60.5	200.7	II/III	NC	NC	NC
C[1]	1319	1300	970	1800-2100	65.9	218.5	II	NC	NC	NC
C[1]	1470	1450	1081	2000-2300	74.8	222.5	II	NC	NC	C-II
C[1]	1470	1450	1081	2000-2300	74.8	222.5	II/III	NC	NC	NC
D[1,2]	1622	1600	1193	2000-2300	79.4	214.0	II	NC	NC	NC

[1] Wide Operating Speed Range (WOSR)
Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp)
[2] Sea Water Aftercooled
Contact your local dealer for availability.

(continued)

(continued)

RATINGS AND FUEL CONSUMPTION

IMO II and U.S. EPA Tier 3

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A[1]	760	750	559	1600-1800	36.3	209.1	II	T3C	NC	C-II

IMO III, U.S. EPA Tier 4 Final and EU Stage V

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	1014	1000	746	1600-1800	48.0	207.2	III	T4C	EUV	NC
A[1]	1014	1000	746	1600-1800	48.0	206.9	III	T4C	EUV	NC
B	1217	1200	895	1800-2100	57.9	208.1	III	T4C	EUV	NC
B[1]	1217	1200	895	1800-2100	57.3	205.8	III	T4C	EUV	NC
C	1319	1300	970	1800-2100	63.3	210.1	III	T4C	EUV	NC
C[1]	1319	1300	970	1800-2100	62.3	206.6	III	T4C	EUV	NC
C[1]	1470	1450	1081	2050-2150	71.1	211.5	III	T4C	NC	NC

(continued)

[1] Wide Operating Speed Range (WOSR)
Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp)
Sea Water Aftercooled

C32
Electronic Control System
PROPULSION ENGINE (Commercial Applications)

(continued)

SPECIFICATIONS

Vee 12, 4-Stroke-Cycle Diesel		
Aspiration	TTA	
Bore x Stroke	5.71 x 6.38 in	145 x 162 mm
Displacement	1659 cu in	32.1 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	6950 - 7160 lb	3152 - 3248 kg

DIMENSIONS

	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

RATINGS AND FUEL CONSUMPTION

IMO II and U.S. EPA Tier 3

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
E	1015	1001	747	2300	52.1	224.5	II	T3R	RCD	C-II
E	1150	1136	847	2300	56.5	214.5	II	T3R	RCD	NC

SPECIFICATIONS

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

DIMENSIONS

	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

(continued)

RATINGS AND FUEL CONSUMPTION

IMO II

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	460	454	339	1800	21.9	208	II	NC	NC	NC
A	485	479	357	1800	23	207.3	II	NC	NC	NC
A	608	600	447	1800	29.1	209.1	II	NC	NC	NC
B	560	553	412	2100	27.8	217.1	II	NC	NC	NC
B	680	670	500	2100	34.1	219.6	II	NC	NC	NC
C	725	715	533	2100	36.4	219.6	II	NC	NC	NC
D[2]	885	873	651	2200	43.7	216	II	NC	NC	NC

IMO II and U.S. EPA Tier 3

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	475	469	350	1800	23.1	212.3	II	T3C	RCD	C-II
A	608	600	447	1800	29.2	210.2	II	T3C	RCD	C-II
B[1]	680	670	500	1800-2100	33.6	216.1	II	T3C	RCD	C-II
C[1]	725	715	533	1800-2100	36	217.5	II	T3C	RCD	C-II
D	814	803	599	2100	41.1	220.8	II	NC	RCD	C-II

[1] Wide Operating Speed Range (WOSR)
Heat Exchanger (32° C Sea Water Temp), Keel Cooled (52° C SCAC Temp)
[2] Sea Water Aftercooled

(continued)

C18

PROPULSION ENGINE (Commercial Applications)

(continued)

EU Stage V

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	591	583	435	1800	29.0	214.5	NC	NC	EUV	NC
B[1]	680	670	500	1800 - 2100	34.1	219.7	NC	NC	EUV	NC
D	814	803	599	2100	40.8	223.3	NC	NC	EUV	NC

[1] Wide Operating Speed Range (WOSR)
Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp)
Sea Water Aftercooled

SPECIFICATIONS

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

DIMENSIONS

	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

3406C

Mechanical Control System

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	370	365	272	1800	17.2	203.2	NC	NC	NC	NC
B	406	400	298	1800	18.9	204	NC	NC	NC	NC

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	5.4 x 6.5 in	137.2 x 165.1 mm
Displacement	891 cu in	14.6 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2921 lb	1325 kg

DIMENSIONS

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

C12

Electronic Control System

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	345	340	254	1800	16.1	204.4	II	NC	NC	NC
B	390	385	287	1800	18.0	201.9	II	NC	NC	NC
C	460	454	339	2100	21.3	202.2	II	NC	NC	NC
C	497	490	366	2300	23.3	205	NC	NC	NC	NC
D	578	570	425	2300	27.1	204.9	NC	NC	NC	NC
E	609	600	448	2300	28.4	204	NC	NC	NC	NC
E	669	660	492	2300	33.0	215.6	II	NC	NC	NC
E	715	705	526	2300	35.0	214	II	NC	NC	NC

SPECIFICATIONS

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

DIMENSIONS

	LE	H	WE
min.	62.0 in/1574 mm	39.5 in/1005 mm	38.1 in/969 mm
max.	62.0 in/1574 mm	39.5 in/1005 mm	38.1 in/969 mm

C9.3

Electronic Control System

PROPULSION ENGINE

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
B	381	375	280	1800	18.7	214.9	II	T3C	RCD	C-II
C	421	416	310	2100	21.2	216.2	II	T3C	RCD	C-II
D	483	476	355	2300	24.1	218.1	II	T3C	RCD	C-II

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	4.53 x 5.87 in	115 x 149 mm
Displacement	568 cu in	9.3 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2083 - 2474 lb	945 - 1122 kg

DIMENSIONS

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

UNDERWATER AND SURFACE AUTONOMOUS VESSELS ARE THE FUTURE OF WARFARE AND OF FLEETS.

RELIABILITY, UPTIME, MISSION READINESS - CATERPILLAR SOLUTIONS FOR LARGE AND SMALL AUTONOMOUS VESSELS PLATFORM SUPPORT THE SUCCESS OF YOUR MISSION.

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RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
B	284	280	209	2300	14.9	215.1	II	T3C	RCD	C-II
C	355	350	261	2500	18.3	211.5	II	T3C	RCD	C-II
D	406	400	298	2600	20.3	206.1	II	T3C	RCD	C-II
D	431	425	317	2700	22.9	215.6	II	T3C	RCD	C-II

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	4.13 x 5.31 in	105 x 135 mm
Displacement	428 cu in	7.01 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	1676 lb	760 kg

DIMENSIONS

	LE	H	WE
min.	43.1 in/1095 mm	34.5 in/876 mm	31.4 in/798 mm
max.	43.1 in/1095 mm	34.5 in/876 mm	31.4 in/798 mm

(continued)

RATINGS AND FUEL CONSUMPTION

	mhp	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
E	406	400	298	2900	21.8	220.5	II	T3R	RCD	C-II
E	456	450	336	2900	24.4	219.9	II	T3R	RCD	C-II
E	507	500	373	2900	27.3	221.0	II	T3R	RCD	C-II

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	4.13 x 5.31 in	105 x 135 mm
Displacement	428 cu in	7.01 L
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	1676 lb	760 kg

DIMENSIONS

	LE	H	WE
min.	43.1 in/1095 mm	34.5 in/876 mm	31.4 in/798 mm
max.	43.1 in/1095 mm	34.5 in/876 mm	31.4 in/798 mm

RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
C4.4[1]	95.3	71.1	1500	5.3	258.6	NST	T3C	EUV	NC
C4.4[1]	116.4	86.8	1500	6.2	227.5	NST	T3C	EUV	C-II
C4.4[1]	145.6	108.6	1500	7.4	217.9	NST	T3C	EUV	C-II
C7.1	146.5	109.3	1500	7.9	229.6	NST	T3C	EUV	C-II
C7.1	172.9	129	1500	9.2	227.5	NST	T3C	EUV	C-II
C7.1	219.8	164	1500	11.2	216.5	II/III	T3C	NC	C-II
C9.3	292	218	1500	13.5	198.7	II	NC	NC	NC
C9.3	282	210	1500	13.4	204.7	II/III	NC	NC	NC
C9.3	362	270	1500	16.6	198.3	II	NC	NC	NC
C9.3	351	262	1500	16.9	206.9	II/III	NC	NC	NC
C18	404	301	1500	19.2	205.6	II	NC	NC	NC
C18	514	383	1500	24.4	205.0	II	NC	NC	NC
C18[2]	514	383	1500	24.9	206.6	II/III	NC	NC	NC
C18	514	383	1500	23.7	198.9	NC	NC	EUV	NC
C18	587	438	1500	28.7	208.2	II	NC	NC	NC
C18	587	438	1500	28.2	204.8	II/III	NC	NC	NC
C18	617	460	1500	28.2	197.3	NC	NC	EUV	NC
C18	660	492	1500	31.3	204.7	II	NC	NC	NC
C18	660	492	1500	31.1	203.8	II/III	NC	NC	NC
C32	791	590	1500	36.7	200.0	II	NC	NC	C-I
C32	923	688	1500	42.6	199.1	II	NC	NC	C-I
C32	1172	874	1500	53.8	198.2	III	NC	NC	NC
C32	1172	874	1500	55.2	203.1	II/III	NC	NC	NC
C32	1172	874	1500	55.4	204.0	NC	NC	EUV	NC

[1] *C4.4 electronic.*
[2] *Only available via DTO. Fuel sulfur restrictions apply.*

(continued)

DEP
DIESEL ELECTRIC PROPULSION - 50 HZ

(continued)

RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
3512C[3]	1826	1362	1500	82.0	193.7	II	NC	NC	NC
3512E[3]	1694	1263	1500	76.2	194.2	II/III	NC	NC	NC
3516C[3]	2303	1717	1500	106.8	200.0	II	NC	NC	NC
3516C[3]	2602	1940	1500	118.7	196.9	II	NC	NC	NC
3516E[3]	2301	1716	1500	103.3	193.7	II/III	NC	NC	NC
3516E[3]	2598	1937	1500	116.3	193.2	II/III	NC	NC	NC
C280-6	2481	1850	1000	116	201.2	II	NC	NC	NC
C280-6	2722	2030	1000	126	200.0	II	NC	NC	NC
C280-8	3299	2460	1000	153	200.1	II	NC	NC	NC
C280-8	3634	2710	1000	168	199.8	II	NC	NC	NC
C280-12	4962	3700	1000	231	201.2	II	NC	NC	NC
C280-12	5445	4060	1000	252	200.0	II	NC	NC	NC
C280-16	6598	4920	1000	306	200.1	II	NC	NC	NC
C280-16	7268	5420	1000	336	199.8	II	NC	NC	NC

C280 fuel rate at rated power, BSFC is at full power condition.
[3] *High displacement engine (HD)*

RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
C4.4[1]	95.3	71.1	1800	5.5	247.1	NST	T3C	EUV	NC
C4.4[1]	109.2	81.5	1800	5.9	222.8	NST	T3C	EUV	C-II
C4.4[1]	145.6	108.6	1800	7.5	217.5	NST	T3C	EUV	C-II
C4.4[1]	172.9	129	1800	8.3	211.0	NST	T3C	EUV	C-II
C7.1	172.9	129	1800	9.5	221.2	NST	T3C	EUV	C-II
C7.1	219.7	163.9	1800	11.3	212.6	II/III	T3C	NC	C-II
C7.1	256.4	191.3	1800	13.2	208.6	II/III	T3C	NC	C-II
C7.1	293.0	218.6	1800	14.9	207.1	II/III	T3C	NC	C-II
C9.3	369	275	1800	18.0	211.0	II	T3C	NC	C-II
C9.3	363	271	1800	17.9	212.7	II/III	NC	NC	NC
C9.3	436	325	1800	21.1	208.7	II	T3C	NC	C-II
C18	499	372	1800	24.6	212.5	II	NC	NC	C-I
C18	624	465	1800	30.5	211.0	II	NC	NC	NC
C18	624	465	1800	31.2	216.0	II	T3C	NC	C-II
C18	624	465	1800	31.1	215.1	NC	NC	EUV	NC
C18	803	599	1800	39.1	209.9	II	NC	NC	NC
C18	803	599	1800	39.9	214.1	II/III	NC	NC	C-II
C18	803	599	1800	39.2	210.6	NC	NC	EUV	NC
C32	916	683	1800	43.9	206.8	II	NC	NC	C-I
C32	1047	781	1800	50.1	206.4	II	NC	NC	C-I
C32	1047	781	1800	52.6	216.6	II/III	NC	NC	NC
C32	1333	994	1800	62.8	203.3	II/III	NC	NC	C-I
C32	1333	994	1800	62.0	200.5	III	T4C	NC	NC
C32	1333	994	1800	63.8	206.5	NC	NC	EUV	NC

[1] C4.4 electronic
[2] High displacement engine (HD)

(continued)

DEP
DIESEL ELECTRIC PROPULSION - 60 HZ

(continued)

RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
3512C[2]	1920	1432	1800	88.9	199.8	II	NC	NC	NC
3512C[2]	2186	1630	1800	106.7	210.6	II	NC	NC	NC
3512C[2]	2400	1790	1800	115.9	208.3	II	NC	NC	NC
3512E[2]	2189	1632	1800	100.7	198.6	II/III	T4C	NC	NC
3512E[2]	2399	1789	1800	109.6	197.0	II/III	T4C	NC	NC
3516C[2]	2575	1920	1800	118.3	198.2	II	NC	NC	NC
3516C[2]	2809	2095	1800	127.7	196.7	II	NC	NC	NC
3516C[2]	2984	2225	1800	136.1	196.8	II	NC	NC	NC
3516C[2]	3151	2350	1800	144.2	197.4	II	NC	NC	NC
3516E[2]	2576	1921	1800	118.3	198.1	II/III	T4C	NC	NC
3516E[2]	2823	2105	1800	130.1	198.9	II/III	T4C	NC	NC
3516E[2]	3176	2368	1800	146.8	199.4	II/III	T4C	NC	NC
C280-6	2320	1730	900	106	197.7	II	NC	NC	NC
C280-6	2548	1900	900	115	194.4	II	NC	NC	NC
C280-8	3084	2300	900	138	193.2	III	T4C	NC	NC
C280-8	3084	2300	900	139	195.0	II	NC	NC	NC
C280-8	3393	2530	900	149	189.2	III	T4C	NC	NC
C280-8	3393	2530	900	151	192.4	II	NC	NC	NC
C280-12	4640	3460	900	210	195.2	III	T4C	NC	NC
C280-12	4640	3460	900	213	197.7	II	NC	NC	NC
C280-12	5096	3800	900	228	193.4	III	T4C	NC	NC
C280-12	5096	3800	900	229	194.4	II	NC	NC	NC
C280-16	6169	4600	900	269	188.6	III	T4C	NC	NC
C280-16	6169	4600	900	279	195.0	II	NC	NC	NC
C280-16	6786	5060	900	300	190.8	III	T4C	NC	NC
C280-16	6786	5060	900	302	192.4	II	NC	NC	NC

[2] High displacement engine (HD)
C280 fuel rate at rated power, BSFC is at full power condition.

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C280 SERIES

AUXILIARY

RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
C280-6	2320	1730	900	106	197.7	II	NC	NC	NC
C280-6	2481	1850	1000	116	201.2	II	NC	NC	NC
C280-6	2548	1900	900	115	194.4	II	NC	NC	NC
C280-6	2722	2030	1000	126	200.0	II	NC	NC	NC
C280-8	3084	2300	900	138	193.2	III	T4C	NC	NC
C280-8	3084	2300	900	139	195.0	II	NC	NC	NC
C280-8	3299	2460	1000	153	200.1	II	NC	NC	NC
C280-8	3393	2530	900	149	189.2	III	T4C	NC	NC
C280-8	3393	2530	900	151	192.4	II	NC	NC	NC
C280-8	3634	2710	1000	168	199.8	II	NC	NC	NC
C280-12	4640	3460	900	210	195.2	III	T4C	NC	NC
C280-12	4640	3460	900	213	197.7	II	NC	NC	NC
C280-12	4962	3700	1000	231	201.2	II	NC	NC	NC
C280-12	5096	3800	900	228	193.4	III	T4C	NC	NC
C280-12	5096	3800	900	229	194.4	II	NC	NC	NC
C280-12	5444	4060	1000	252	200.0	II	NC	NC	NC
C280-16	6169	4600	900	269	188.6	III	T4C	NC	NC
C280-16	6169	4600	900	249	195.0	II	NC	NC	NC
C280-16	6598	4920	1000	306	200.1	II	NC	NC	NC
C280-16	6785	5060	900	300	190.8	III	T4C	NC	NC
C280-16	6785	5060	900	302	192.4	II	NC	NC	NC
C280-16	7268	5420	1000	336	199.8	II	NC	NC	NC

C280 fuel rate is at rated power, BSFC is at full power condition.
Custom package solutions available via DTO, contact your local dealer for more information.

(continued)

Electronic Control System

C280 SERIES

AUXILIARY

(continued)

SPECIFICATIONS

In-line 6, In-line 8, Vee 12, Vee 16, 4-Stroke-Cycle Diesel			
Aspiration		TA	
Bore x Stroke		11.0 x 11.8 in	280 x 300 mm
Displacement	**C280-6**	6773 cu in	111 liter
	C280-8	9031 cu in	148 liter
	C280-12	13,546 cu in	222 liter
	C280-16	18,062 cu in	296 liter
Engine dry weight (approx)	**C280-6**	34,496 lb	15,680 kg
	C280-8	41,800 lb	19,000 kg
	C280-12	57,276 lb	25,980 kg
	C280-16	62,832 lb	28,500 kg

DIMENSIONS

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

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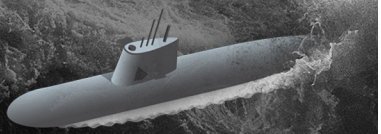

GET IN TOUCH WITH OUR TEAM TO
DISCUSS YOUR NEXT PROJECT

3500 SERIES

AUXILIARY/DIESEL ELECTRIC PROPULSION

RATINGS AND FUEL CONSUMPTION

	bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
3512C	1920	1432	1800	88.9	199.7	II	NC	NC	NC
3512C[1]	2183	1628	1800	99.0	195.2	II	NC	NC	NC
3512C[1]	2394	1786	1800	108.9	196.4	II	NC	NC	NC
3516C[1]	3151	2350	1800	143.6	196.5	II	NC	NC	NC
3512E[1]	2188	1632	1800	100.7	197.0	II/III	T4C	NC	NC
3512E[1]	2400	1789	1800	109.6	197.0	II/III	T4C	NC	NC
3516E[1]	2576	1921	1800	118.3	198.1	II/III	T4C	NC	NC
3516E[1]	2822	2105	1800	130.1	198.9	II/III	T4C	NC	NC
3516E[1]	3176	2368	1800	146.8	199.4	II/III	T4C	NC	NC
3512E[1]	1694	1263	1500	74.6	190.0	II/III	NC	NC	NC
3516E[1]	2301	1716	1500	107	200.5	II/III	NC	NC	NC
3516E[1]	2595	1937	1500	118.7	197.2	II/III	NC	NC	NC

[1] Ratings are high displacement (HD).
** ekW is based on a 95% generator efficiency.*
Contact dealer for design-to-order generator set solutions.

3500 SERIES

AUXILIARY/DIESEL ELECTRIC PROPULSION

(continued)

SPECIFICATIONS

Vee 12, Vee 16, 4-Stroke-Cycle Diesel			
Aspiration		TA	
Bore x Stroke		6.7 x 8.5 in	170 x 215 mm
Displacement	**3512E**	3576 cu in	58.6 liter
	3516E	4766 cu in	78.1 liter
Engine dry weight (approx)	**3512E**	19,103 lb	8665 kg
	3516E	22,408 lb	10,164 kg

DIMENSIONS

		LE	H	WE
3512E	**min.**	127.2 in/3232 mm	86.8 in/2205 mm	85.0 in/2160 mm
	max.	127.2 in/3232 mm	86.8 in/2205 mm	85.0 in/2160 mm
3516E	**min.**	148.5 in/3773 mm	87.6 in/2224 mm	89.9 in/2284 mm
	max.	148.5 in/3773 mm	87.6 in/2224 mm	89.9 in/2284 mm

3500E SERIES

AUXILIARY/DIESEL ELECTRIC PROPULSION

(continued)

SPECIFICATIONS

Vee 12, Vee 16, 4-Stroke-Cycle Diesel			
Aspiration		TA	
Bore x Stroke		6.7 x 8.5 in	170 x 215 mm
Displacement	**3512E**	3576 cu in	58.6 liter
	3516E	4766 cu in	78.1 liter
Engine dry weight (approx)	**3512E**	19,103 lb	8665 kg
	3516E	22,408 lb	10,164 kg

DIMENSIONS

		LE	H	WE
3512E	**min.**	127.2 in/3232 mm	86.8 in/2205 mm	85.0 in/2160 mm
	max.	127.2 in/3232 mm	86.8 in/2205 mm	85.0 in/2160 mm
3516E	**min.**	148.5 in/3773 mm	87.6 in/2224 mm	89.9 in/2284 mm
	max.	148.5 in/3773 mm	87.6 in/2224 mm	89.9 in/2284 mm

C32

GENERATOR SET ENGINE/AUXILIARY

RATINGS AND FUEL CONSUMPTION

IMO II/IMO III

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
791	590	1500	36.7	199.9	II	NC	NC	NC
923	688	1500	42.6	199.1	II	NC	NC	NC
1172	874	1500	55.2	203.1	II	NC	NC	NC
1172	874	1500	55.2	203.1	II/III	NC	NC	NC
916	683	1800	43.9	206.8	II	NC	NC	NC
1047	781	1800	50.1	206.4	II	NC	NC	C-II
1047	781	1800	52.6	216.6	II/III	NC	NC	NC
1333	994	1800	62.8	203.3	II	NC	NC	C-II
1333	994	1800	62.8	203.3	II/III	NC	NC	NC

Contact your local dealer for availability.

IMO III and U.S. EPA Tier 4

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
1172	874	1500	53.9	198.3	III	NC	EUV	NC
1333	994	1800	61.9	200.5	III	T4C	EUV	NC

Contact your local dealer for availability.

SPECIFICATIONS

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

DIMENSIONS

	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

C18

GENERATOR SET ENGINE/AUXILIARY

RATINGS AND FUEL CONSUMPTION

IMO II

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
404	301	1500	19.2	205.6	II	NC	NC	NC
514	383	1500	24.4	205.0	II	NC	NC	NC
514[1]	383	1500	24.1	202.7	II/III	NC	NC	NC
587	438	1500	27.9	205.0	II	NC	NC	NC
587	438	1500	27.5	201.9	II/III	NC	NC	NC
660	492	1500	31.3	204.7	II	NC	NC	NC
660	492	1500	31.1	203.8	II/III	NC	NC	NC
499	372	1800	24.6	212.5	II	NC	NC	NC
624	465	1800	30.5	211.0	II	NC	NC	NC
803	599	1800	39.1	209.9	II	NC	NC	NC
803	599	1800	39.9	214.1	II/III	NC	NC	NC

[1] Only available via DTO. Fuel sulfur restrictions apply.

IMO II and U.S. EPA Tier 3

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
624	465	1800	31.2	216.0	II	T3C	NC	C-II
803	599	1800	39.1	209.9	II	NC	NC	C-II
803	599	1800	39.9	214.1	II/III	NC	NC	NC

EU Stage V

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
514	383	1500	23.7	198.9	NC	NC	EUV	NC
617	460	1500	28.2	197.3	NC	NC	EUV	NC
624	465	1800	31.1	215.1	NC	NC	EUV	NC
803	599	1800	39.2	210.6	NC	NC	EUV	NC

(continued)

C18

GENERATOR SET ENGINE/AUXILIARY

(continued)

SPECIFICATIONS

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	
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	4299 lb	1950 kg

DIMENSIONS

	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

C9.3

GENERATOR SET ENGINE/AUXILIARY

RATINGS AND FUEL CONSUMPTION

Constant Speed

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
292	218	1500	13.5	198.7	II	NC	NC	NC
282	210	1500	13.4	204.7	II/III	NC	NC	NC
362	270	1500	16.6	198.3	II	NC	NC	NC
351	262	1500	16.9	206.9	II/III	NC	NC	NC
369	275	1800	18.0	211.0	II	T3C	NC	C-II
363	271	1800	17.9	212.7	II/III	NC	NC	NC
436	325	1800	21.1	208.7	II	T3C	NC	C-II

Variable Speed Auxiliary

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
375	280	1800	19.3	219.1	II	T3C	NC	C-II

[1] Contact your local dealer for details on availability on IMO III ratings. Power may vary slightly from IMO II rating.

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	4.53 x 5.87 in	115 x 149 mm
Displacement	568 cu in	9.3 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	2083 - 2474 lb	945 - 1122 kg

DIMENSIONS

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

RATINGS AND FUEL CONSUMPTION

Variable Speed Auxiliary

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
249.4	186	2400	14.6	240.0	II	T3C	NC	NC
199.8	149	2400	12.6	256.5	II	T3C	NC	NC
172.9	129	2400	11.3	266.3	II	T3C	EUV	NC

Constant Speed Auxiliary

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
146.2	109.3	1500	7.9	233.6	NST	T3C	EUV	C-II
172.9	129.0	1500	9.2	224.0	NST	T3C	EUV	C-II
219.9	164.0	1500	11.2	210.0	II	T3C	NC	C-II
172.9	129.0	1800	9.5	221.2	NST	T3C	EUV	C-II
219.9	164.0	1800	11.3	212.6	II	T3C	NC	C-II
256.5	191.3	1800	13.2	208.6	II	T3C	NC	C-II
292.3	218.6	1800	14.9	207.1	II	T3C	NC	C-II

(continued)

C7.1
Electronic Control System
GENERATOR SET ENGINE / AUXILIARY

(continued)

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	4.13 x 5.31 in	105 x 135 mm
Displacement	428 cu in	7.01 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	1512 - 1653 lb	686 - 750 kg

DIMENSIONS

	LE	H	WE
min.	43.8 in/1112 mm	41.6 in/1056 mm	32.2 in/817 mm
max.	43.8 in/1112 mm	41.6 in/1056 mm	32.6 in/829 mm

C7.1

Electronic Control System

VARIABLE SPEED AUXILIARY ENGINE

RATINGS AND FUEL CONSUMPTION

Variable Speed Auxiliary

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
280	208	2300	14.9	215.1	II	T3C	NC	C-II

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	4.13 x 5.31 in	105 x 135 mm
Displacement	428 cu in	7.01 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	1676 lb	760 kg

DIMENSIONS

	LE	H	WE
min.	43.1 in/1095 mm	34.5 in/876 mm	31.4 in/798 mm
max.	43.1 in/1095 mm	34.5 in/876 mm	31.4 in/798 mm

C4.4

Electronic Control System

GENERATOR SET ENGINE / AUXILIARY

RATINGS AND FUEL CONSUMPTION

bhp	bkW	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
95.3	71.1	1500	5.3	247.5	NST	T3C	EUV	NC
116.4	86.8	1500	5.7	225.1	NST	T3C	EUV	C-II
145.6	108.6	1500	6.8	217.0	NST	T3C	EUV	C-II
95.3	71.1	1800	5.5	247.1	NST	T3C	EUV	NC
109.3	81.5	1800	5.3	222.8	NST	T3C	EUV	C-II
145.6	108.6	1800	6.7	217.5	NST	T3C	EUV	C-II
173.0	129.0	1800	7.9	211.0	NST	T3C	EUV	C-II

SPECIFICATIONS

In-line 4, 4-Stroke-Cycle Diesel		
Aspiration	T, TA	
Bore x Stroke	4.13 x 5.0 in	105 x 127 mm
Displacement	269 cu in	4.4 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	1200 - 1278 lb	545 - 580 kg

DIMENSIONS

	LE	H	WE
min.	33.7 in/856 mm	40.9 in/1038 mm	30.6 in/778 mm
max.	33.7 in/856 mm	40.9 in/1038 mm	32.0 in/814 mm

C280-16

Electronic Control System

GENERATOR SET

RATINGS AND FUEL CONSUMPTION

IMO II

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
4400	5500	60	900	279	195.0	II	NC	NC	NC
4840	6050	60	900	302	192.4	II	NC	NC	NC
4700	5875	50	1000	306	200.1	II	NC	NC	NC
5200	6500	50	1000	336	199.8	II	NC	NC	NC

IMO III and U.S. EPA Tier 4

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S EPA	EU	China
4400	5500	60	900	269	188.6	III	T4C	NC	NC
4840	6050	60	900	300	190.8	III	T4C	NC	NC

Custom package solutions available via DTO, contact your local dealer for more information

SPECIFICATIONS

Vee 16, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	18,062 cu in	222 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	68,343 lb	31,000 kg
Generator weight (approx)	40,000 lb	18,145 kg

DIMENSIONS

LE	H	WE
188.2 in/4780 mm	132.6 in/3367 mm	78.7 in/1999 mm

C280-12

Electronic Control System

GENERATOR SET

RATINGS AND FUEL CONSUMPTION

IMO II

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
3300	4125	60	900	213	197.7	II	NC	NC	NC
3640	4550	60	900	229	194.4	II	NC	NC	NC
3520	4400	50	1000	231	201.2	II	NC	NC	NC
3880	4850	50	1000	252	200.0	II	NC	NC	NC

IMO III and U.S. EPA Tier 4

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S EPA	EU	China
3300	4125	60	900	210	195.2	III	T4C	NC	NC
3640	4550	60	900	228	193.4	III	T4C	NC	NC

Custom package solutions available via DTO, contact your local dealer for more information

SPECIFICATIONS

Vee 12, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	13546 cu in	222 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	57,276 lb	25,980 kg
Generator weight (approx)	33,000 lb	14,790 kg

DIMENSIONS

LE	H	WE
162.2 in/4121 mm	132.6 in/3368 mm	78.7 in/1999 mm

C280-8

Electronic Control System

GENERATOR SET

RATINGS AND FUEL CONSUMPTION

IMO II

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S EPA	EU	China
2200	2750	60	900	139	195.0	II	NC	NC	NC
2420	3025	60	900	151	192.4	II	NC	NC	NC
2350	2938	50	1000	153	200.1	II	NC	NC	NC
2600	3250	50	1000	168	199.8	II	NC	NC	NC

IMO III and U.S. EPA Tier 4

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S EPA	EU	China
2200	2750	60	900	138	193.2	III	T4C	NC	NC
2420	3025	60	900	149	189.2	III	T4C	NC	NC

C280 fuel rate is at full load on the prop curve, BSFC is at full power condition.

SPECIFICATIONS

In-line 8, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	9031 cu in	148 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	41,800 lb	19,000 kg
Generator weight (approx)	25,000 lb	11,340 kg

DIMENSIONS

LE	H	WE
175.7 in/4463 mm	115.3 in/2930 mm	75.4 in/1914 mm

C280-6

Electronic Control System

GENERATOR SET

RATINGS AND FUEL CONSUMPTION

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
1650	2063	60	900	106	197.7	II	NC	NC	NC
1820	2275	60	900	115	194.4	II	NC	NC	NC
1760	2200	50	1000	116	201.2	II	NC	NC	NC
1940	2425	50	1000	126	200.0	II	NC	NC	NC

Custom package solutions available via DTO, contact your local dealer for more information

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	11.0 x 11.8 in	280 x 300 mm
Displacement	6773 cu in	111 liter
Rotation (from flywheel end)	Counterclockwise	
Engine dry weight (approx)	34,500 lb	15,680 kg
Generator weight (approx)	18,000 lb	8165 kg

DIMENSIONS

LE	H	WE
134.8 in/3426 mm	115.4 in/2929 mm	70.6 in/1794 mm

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3500

CUSTOM GENERATOR SET

RATINGS AND FUEL CONSUMPTION

	ekW @.8pf	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
3512C	1360	60	1800	88.9	199.7	II	NC	NC	NC
3512C	1550	60	1800	99.0	195.2	II	NC	NC	NC
3512C	1700	60	1800	108.9	196.4	II	NC	NC	NC
3516C	2250	60	1800	143.6	196.5	II	NC	NC	NC
3512E	1550	60	1800	100.7	197.0	II/III	T4C	NC	NC
3512E	1700	60	1800	109.6	197.0	II/III	T4C	NC	NC
3516E	1825	60	1800	118.3	198.1	II/III	T4C	NC	NC
3516E	2000	60	1800	130.1	198.9	II/III	T4C	NC	NC
3516E	2250	60	1800	146.8	199.4	II/III	T4C	NC	NC
3512E	1200	50	1500	74.6	190.0	II/III	NC	NC	NC
3516E	1630	50	1500	107.0	200.5	II/III	NC	NC	NC
3516E	1840	50	1500	118.7	197.2	II/III	NC	NC	NC

Custom package solutions available via DTO, contact your local dealer for more information.
ekW is based on a 95% generator efficiency

RATINGS AND FUEL CONSUMPTION

IMO II/IMO III

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
550	688	50	1500	37.2	199.8	II	NC	NC	NC
830	1038	50	1500	55.9	203.1	II	NC	NC	NC
830	1038	50	1500	56.7	206.3	II/III	NC	NC	NC
730	913	60	1800	50.8	206.4	II	NC	NC	C-II
730	913	60	1800	52.6	216.6	II/III	NC	NC	NC
940	1175	60	1800	62.8	203.3	II	NC	NC	C-II
940	1175	60	1800	62.8	203.3	II/III	NC	NC	NC
525R	656	50	1500	37.2	199.8	II	NC	NC	NC
795R	994	50	1500	55.9	203.1	II	NC	NC	NC
795R	994	50	1500	56.7	206.3	II/III	NC	NC	NC
675R	844	60	1800	50.8	206.4	II	NC	NC	C-II
675R	844	60	1800	52.6	216.6	II/III	NC	NC	NC
880R	1100	60	1800	62.8	203.3	II	NC	NC	C-II
880R	1100	60	1800	62.8	203.3	II/III	NC	NC	NC

Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp).
Check with your local dealer for availability.

(continued)

C32
GENERATOR SET
Electronic Control System

(continued)

RATINGS AND FUEL CONSUMPTION

IMO III and U.S. EPA Tier 4 Final

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
830	1038	50	1500	54.1	198.3	III	NC	NC	NC
940	1175	60	1800	61.9	200.4	III	T4C	NC	NC
795R	994	50	1500	54.1	198.3	III	NC	NC	NC
880R	844	60	1800	61.9	200.4	III	T4C	NC	NC

Heat Exchanger (32°C Sea Water Temp), Keel Cooled (52°C SCAC Temp)
Check with your local dealer for availability.

SPECIFICATIONS

Vee 12, 4-Stroke-Cycle Diesel		
Aspiration	TTA	
Bore x Stroke	5.7 x 6.4 in	145 x 162 mm
Displacement	1959 cu in	32.1 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	15,721 lb	7131 kg

DIMENSIONS

	LE	H	WE
min.	168.2 in/4271 mm	65.6 in/1667 mm	
max.	175.3 in/4452 mm	65.6 in/1667 mm	

RATINGS AND FUEL CONSUMPTION

IMO II

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
280	350	50	1500	19.4	205.9	II	NC	NC	NC
360	450	50	1500	24.5	205.4	II	NC	NC	NC
360[1]	450	50	1500	24.3	203.7	II/III	NC	NC	NC
410	513	50	1500	27.9	204.5	II	NC	NC	NC
410	513	50	1500	27.5	201.9	II/III	NC	NC	NC
465	581	50	1500	31.4	205.4	II	NC	NC	NC
465	581	50	1500	31.2	203.8	II/III	NC	NC	NC
345	431	60	1800	24.7	213.3	II	NC	NC	C-II[2]
430	538	60	1800	30.6	211.3	II	NC	NC	C-II[2]
565	706	60	1800	39.3	210.4	II	NC	NC	C-II[2]
565	706	60	1800	39.9	214.1	II/III	NC	NC	NC
260R	325	50	1500	19.2	205.6	II	NC	NC	NC
335R	419	50	1500	24.4	205.0	II	NC	NC	NC
335R[1]	419	50	1500	24.3	203.7	II/III	NC	NC	NC
390R	486	50	1500	27.9	205.0	II	NC	NC	NC
390R	486	50	1500	27.5	201.9	II/III	NC	NC	NC
445R	556	50	1500	31.3	204.7	II	NC	NC	NC
445R	556	50	1500	31.2	203.8	II/III	NC	NC	NC
310R	388	60	1800	24.7	213.3	II	NC	NC	NC
395R	494	60	1800	30.5	211.0	II	NC	NC	NC
530R	663	60	1800	39.1	209.9	II	NC	NC	NC
530R	663	60	1800	39.9	214.1	II/III	NC	NC	NC

Generator set package includes SRMP generator.
[1] Only available via DTO. Fuel sulfur restrictions apply.
[2] Only available by DTO.

(continued)

C18
GENERATOR SET
Electronic Control System

(continued)

RATINGS AND FUEL CONSUMPTION

IMO II and U.S. EPA Tier 3

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
430	538	60	1800	31.3	214.9	II	T3C	NC	C-II[2]
565	706	60	1800	38.9	206.9	II	NC	NC	C-II[2]
565	706	60	1800	39.9	214.1	II/III	NC	NC	NC
395R	594	60	1800	31.2	216	II	T3C	NC	C-II[2]
530R	663	60	1800	38.9	206.9	II	NC	NC	C-II[2]
530R	663	60	1800	39.9	214.1	II/III	NC	NC	NC

Generator set package includes SRMP generator.
[2] Only available by DTO.

SPECIFICATIONS

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	
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	8733 - 9974 lb	3961 - 4524 kg

DIMENSIONS

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

RATINGS AND FUEL CONSUMPTION

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
200	250	50	1500	13.2	199.1	II	NC	NC	NC
195	244	50	1500	13.2	204.8	II/III	NC	NC	NC
250	313	50	1500	16.5	198.5	II	NC	NC	NC
245	306	50	1500	16.8	207.0	II/III	NC	NC	NC
250	313	60	1800	17.6	212.3	II	T3C	NC	C-II[2]
250	313	60	1800	17.7	213.4	II/III	NC	NC	NC
300	375	60	1800	20.8	208.9	II	T3C	NC	C-II[2]
185R	231	50	1500	13.2	199.1	II	NC	NC	NC
180R	225	50	1500	13.2	204.8	II/III	NC	NC	NC
235R	294	50	1500	16.5	198.5	II	NC	NC	NC
230R	288	50	1500	16.8	207.0	II/III	NC	NC	NC
224R	280	60	1800	17.6	212.3	II	T3C	NC	NC
224R	280	60	1800	17.7	213.4	II/III	NC	NC	NC
274R	343	60	1800	20.8	208.9	II	T3C	NC	NC

[2] *Only available via DTO.*

(continued)

C9.3
GENERATOR SET
Electronic Control System

(continued)

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	4.13 x 5.31 in	115 x 149 mm
Displacement	568 cu in	9.3 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	5219 lb	2367 kg

DIMENSIONS

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

C7.1
GENERATOR SET

RATINGS AND FUEL CONSUMPTION

IMO II and IMO II/III Switchable, U.S. EPA Tier 3

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
100	125	50	1500	7.9	233.7	NST	T3C	EUV	C-II
118	148	50	1500	9.2	224.1	NST	T3C	EUV	C-II
150	188	50	1500	11.2	210.2	II/III	T3C	NC	C-II
118	148	60	1800	9.5	221.5	NST	T3C	EUV	C-II
150	188	60	1800	11.3	212.9	II/III	T3C	NC	C-II
175	219	60	1800	13.2	208.9	II/III	T3C	NC	C-II
200	250	60	1800	14.9	207.3	II/III	T3C	NC	C-II
92R	115	50	1500	7.8	223.7	NST	T3C	EUV	C-II
111R	139	50	1500	9.3	221.8	NST	T3C	EUV	C-II
143R	179	50	1500	11.3	207.5	II/III	T3C	NC	C-II
106R	133	60	1800	9.1	228.7	NST	T3C	EUV	C-II
138R	173	60	1800	11.1	212.8	II/III	T3C	NC	C-II
163R	204	60	1800	12.7	215.9	II/III	T3C	NC	C-II

Engine type approval available from ABS, BV, DNV, LR, NKK, RINA, CRS, CCS.
All ratings subject to IMO can be configured as an IMO II engine without aftertreatment.

SPECIFICATIONS

In-line 6, 4-Stroke-Cycle Diesel		
Aspiration	TA	
Bore x Stroke	4.13 x 5.3 in	105 x 135 mm
Displacement	433.3 cu in	7.01 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	3355 - 4718 lb	1522 - 2140 kg

DIMENSIONS

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

C4.4
GENERATOR SET

RATINGS AND FUEL CONSUMPTION

IMO II and U.S. EPA Tier 3

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
65	81	50	1500	5.3	247.7	NST	T3C	EUV	NC
80	100	50	1500	5.7	221.7	NST	T3C	EUV	C-II
99	124	50	1500	6.8	210.8	NST	T3C	EUV	C-II
65	81	60	1800	5.5	248.0	NST	T3C	EUV	NC
75	94	60	1800	5.3	217.7	NST	T3C	EUV	C-II
99	124	60	1800	6.7	208.9	NST	T3C	EUV	C-II
118	148	60	1800	7.9	206.6	NST	T3C	EUV	C-II
58R	73	50	1500	5.3	247.4	NST	T3C	EUV	NC
73R	91	50	1500	5.7	209.0	NST	T3C	EUV	C-II
88R	110	50	1500	6.8	196.1	NST	T3C	EUV	C-II
56R	64	60	1800	5.5	247.2	NST	T3C	EUV	NC
66R	83	60	1800	5.3	213.3	NST	T3C	EUV	C-II
90R	113	60	1800	6.7	204.9	NST	T3C	EUV	C-II
105R	131	60	1800	7.9	200.8	NST	T3C	EUV	C-II

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

(continued)

C4.4
GENERATOR SET

Electronic Control System

(continued)

SPECIFICATIONS

In-line 4, 4-Stroke-Cycle Diesel		
Aspiration	T, TA	
Bore x Stroke	4.13 x 5.0 in	105 x 127 mm
Displacement	269 cu in	4.4 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	2736 - 3389 lb	1241 - 1537 kg

DIMENSIONS

	LE	H	WE
min.	66.4 in/1687 mm	49 in/1245 mm	38.3 in/974 mm
max.	80.2 in/2037 mm	78.7 in/1999 mm	38.8 in/986 mm

C4.4
GENERATOR SET

Mechanical Control System

RATINGS AND FUEL CONSUMPTION

ekW@.8pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
38.0	47.5	50	1500	2.9	195.1	NST	NC	NC	NC
51.0	64.5	50	1500	3.9	201.5	NST	NC	NC	NC
69.0	86.0	50	1500	4.9	207.7	NST	NC	NC	NC
86.0	107.0	50	1500	6.5	206.1	NST	NC	NC	NC
44.0	55.0	60	1800	3.4	204.1	NST	NC	NC	NC
58.0	73.0	60	1800	4.2	206.3	NST	NC	NC	NC
76.0	95.0	60	1800	5.8	213.3	NST	NC	NC	NC
99.0	123.0	60	1800	7.3	205.2	NST	NC	NC	NC
36.0R	45.0	50	1500	2.9	195.1	NST	NC	NC	NC
49.0R	61.0	50	1500	3.9	201.5	NST	NC	NC	NC
65.0R	81.0	50	1500	4.9	207.7	NST	NC	NC	NC
82.0R	103.0	50	1500	6.5	206,1	NST	NC	NC	NC
42.0R	53.0	60	1800	3.4	204.1	NST	NC	NC	NC
56.0R	70.0	60	1800	4.5	206.3	NST	NC	NC	NC
72.0R	90.0	60	1800	5.8	213.3	NST	NC	NC	NC
95.0R	119.0	60	1800	7.3	205.2	NST	NC	NC	NC

R - Radiator cooled only.
Engine type approval available from ABS, BV, CCS, CRS, DNV, LR, RINA.

(continued)

C4.4
GENERATOR SET

(continued)

SPECIFICATIONS

In-line 4, 4-Stroke-Cycle Diesel		
Aspiration	NA, T, TA	
Bore x Stroke	4.13 x 5.0 in	105 x 127 mm
Displacement	269 cu in	4.4 L
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	1664 - 2372 lb	754 - 1076 kg

DIMENSIONS

	LE	H	WE
Open min.	56.0 in/1422 mm	39.8 in/1010 mm	27.6 in/700 mm
Open max.	73.3 in/1861 mm	46.2 in/1174 mm	32.3 in/821 mm
Enclosed	68.9 in/1750 mm	47.8 in/1215 mm	39.4 in/1000 mm

C2.2
GENERATOR SET

RATINGS AND FUEL CONSUMPTION

Three Phase ekW@.8pf	Single Phase ekW@1.0pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
18.0		22.5	60	1800	1.63	256.4	NST	T3C	NC	NC
25.0		31.25	60	1800	2.24	239.8	NST	T3C	NC	NC
15.0		18.75	50	1500	1.37	242.6	NST	NC	NC	NC
20.0		25.0	50	1500	1.88	233.0	NST	NC	NC	NC
	18.0	18.0	60	1800	1.63	256.4	NST	T3C	NC	NC
	25.0	25.0	60	1800	2.24	239.8	NST	T3C	NC	NC
	15.0	15.0	50	1500	1.37	242.6	NST	NC	NC	NC
	20.0	20.0	50	1500	1.88	233.0	NST	NC	NC	NC

SPECIFICATIONS

In-line 4, 4-Stroke-Cycle Diesel		
Aspiration	NA, T	
Bore x Stroke	3.31 x 3.94 in	84 x 100 mm
Displacement	135 cu in	2.2 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	857/1027 lb	389/466 kg

DIMENSIONS

	LE	H	WE
Open	47.9 in/1219 mm	32.8 in/835 mm	22.3 in/567 mm
Enclosed	50.7 in/1290 mm	31.0 in/775 mm	24.7 in/628 mm

C1.5
GENERATOR SET

Mechanical Control System

RATINGS AND FUEL CONSUMPTION

Three Phase ekW@.8pf	Single Phase ekW@1.0pf	kVA	Hz	rpm	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
12.0		15.0	60	1800	1.2	269.0	NST	T3C	NST	NC
10.0		12.5	50	1500	1.0	259.4	NST	NC	NST	NC
	12.0	12.0	60	1800	1.2	269.0	NST	T3C	NST	NC
	10.0	10.0	50	1500	1.0	259.4	NST	NC	NST	NC

SPECIFICATIONS

In-line 3, 4-Stroke-Cycle Diesel		
Aspiration	NA	
Bore x Stroke	3.31 x 3.5 in	84 x 90 mm
Displacement	91 cu in	1.5 liter
Rotation (from flywheel end)	Counterclockwise	
Generator set weight (approx)	703/908 lb	319/412 kg

DIMENSIONS

	LE	H	WE
Open	40.8 in/1038 mm	27.1 in/689 mm	21.1 in/535 mm
Enclosed	43.1 in/1095 mm	27.9 in/711 mm	24 in/608 mm

CAT® Defense

SERVICES & SOLUTIONS
TO MEET YOUR MISSION'S NEEDS.

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cat .com/defense

HIGH-POWERED TECHNOLOGIES

For More Power & Confidence At Sea

Caterpillar Marine offers powerful technologies to help governmental customers operate and manage their vessels and engines efficiently and cost effectively, while supporting you in meeting environmental standards.

CAT SELECTIVE CATALYTIC REDUCTION (SCR)

The easy-to-install Cat SCR System is an exhaust gas aftertreatment solution compliant with U.S. Environmental Protection Agency (EPA) Tier 4 Final and International Maritime Organization (IMO) III emissions standards. It is a solution for reducing NO_x emissions without sacrificing the efficiency, durability and reliability of Cat Marine engines that our customers expect. Governments are already offering regional incentives that benefit ship owners who invest in NO_x emissions reduction technology like SCR.

Caterpillar evaluated multiple options and concluded that SCR is the optimal solution for marine applications to meet U.S. EPA Tier 4 and IMO III requirements. We also found that this technology allows for the lowest total cost of ownership compared to other solutions, such as exhaust gas recirculation (EGR).

SCR Features & Benefits

- Designed for NO_x emissions reduction; meets IMO III, U.S. EPA Tier 4 Final, and EU Stage V emission standards
- Compact package and flexible mounting configurations
- A fully integrated and certified solution, all available from the engine original equipment manufacturer (OEM)
- Available for new vessel construction and retrofit or repower projects
- Easy to install with minimum impact to vessel design
- Common control and monitoring system for reliable and safe operation
- Global dealer network for installation and service in any location

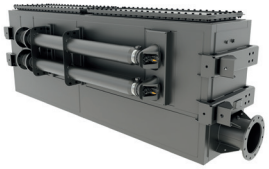
CAT EMISSION MODULES (CEMs)

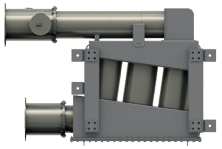
This compact and easy-to-install aftertreatment technology was designed as part of the SCR System for Cat Marine applications. You will benefit from an optimized system with minimum impact to vessel design. Thus, we offer several different CEM configurations to suit all industries and vessel types.

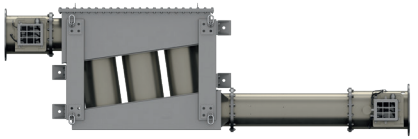
Cat C7.1 and C9.3 CEM Airless, IMO II/III switchable

Cat C18 double CEM with Y-Pipe Airless, IMO II/III switchable

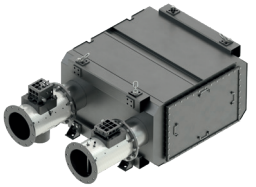
Cat C18 CEM Airless, EU Stage V with DPF



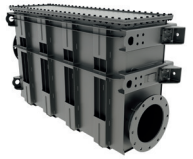




Cat C18 and C32 CEM Air-Assist, U.S. EPA Tier 4 and IMO III U-Flow or Z-Flow configured



Cat 3500 series CEM Air-Assist, U.S. EPA Tier 4, IMO II/III switchable U-Flow or Z-Flow configured



Cat C32/3512 series EU Stage V, DPF

Cat C280 CEM Air-Assist, U.S. EPA Tier 4 and IMO III switchable vertical stack

Examples: Dosing cabinet

Contact your local dealer for more information.

All pictures shown are for illustration purposes only. Product may vary due to product enhancement.

Propulsion Control System

Cat MPC100 – Propulsion Control System for Conventional Drive Systems

MPC100 is a new Propulsion Control System solution for both single and twin propeller applications. By providing redundant control capability it is integrating both primary and secondary (back-up) control ability of engine and marine transmission. Built in trolling valve control together with very flexible configuration allows MPC100 to be adopted to each installation as well as customized to high demands of each captain.

- Highly reliable with built in redundancy
- Simplified installation and configuration
- Safety and quality compliance (CE, USCG, ABYC, IACS)
- Supporting both 12 and 24 VDC powered applications
- Highly configurable for multiple powertrain configurations using Cat Electronic Technician (ET)
- Supporting all Cat electronically controlled propulsion engines from Cat C7.1 – C280.
- Compatible with all major marine transmissions
- Up to 8 command stations
- Built in control of the engine, transmission incl. trolling valve
- Mode selector incl. worm up, trolling, advanced trolling, slow vessel and cruising mode with possibility to adapt modes of operation
- Synchronization mode allowing user to operate twin propeller boats using single lever
- Optional back-up control capability
- Configurable shaft brake control
- Engine start interlocks

Propulsion Control System

Cat MPC300 – is the new Propulsion Control Systems

MPC300 is a new Propulsion Control System designed specifically for commercial vessels, super yachts, and governmental applications. Cat® MPC300's main strength lies in its innovative redundancy design, seamlessly integrating backup components for all critical system sections.

- Provides hot standby for innovative redundant design of power supply, control processor and communication channels
- Suitable for commercial and safety-critical application
- Offers programmable auxiliary I/Os, NMEA 2K and Modbus RTU for ease of integration
- Nicely Integrates with Modern Bridge Designs
- Facilitates single- and twin-screw propulsion applications Shaft brake control and shaft speed sensor (optional)
- Enables up to 8 remote command stations
- Supports all electronically controlled Cat® Marine Propulsion Engines and major marine transmissions
- Configurable shaft brake control

Type approved by Marine Class Societies

- Bureau Veritas
- American Bureau of Shipping
- Croatian Register of Shipping
- ABS Quality Evaluations, Inc

CAT MARINE DISPLAY (CMD)

The CMD provides operators with easy-to read, high-resolution graphics to monitor all vessel operations. The configurable screen allows for full user customization and visual simplicity. All electronics are environmentally sealed for increased durability and safety and are built to perform reliably in extreme conditions.

CMD13

CMD5

CMD8

The CMD is available with a 5'', 8" or 13" screen size. While CMD5 offers a more compact size and front and rear waterproof IP 66 rating, as well as appreciated tactile feel of the navigation keys.

New CMD8 and CMD13 Gen II displays offer appealing design and easy to use touch screen navigations. Additional features include multiple graphic skin options, configurable splash and monitoring screens, embedded manuals, Modbus, and IT camera support. They are also Integrated Cyber Analysis System (ICAS)-approved.

CAT CONTROL PANELS

Propulsion engine, genset and auxiliary engine control panels provide complete control and monitoring from local and remote locations. This includes engine start/stop capability, alarm and protection, user and integration interfaces. System modularity allows expansion of remote monitoring, input/output capabilities and programmable relays.

Marine Propulsion Engine Control Panels
C7.1 - C32

Remote Analogue Panel

For remote monitoring of engine basic parameters (available with C7.1 only).

MECP IB

Inexpensive, basic control panel that can be mounted directly on the engine. For non MCS approved installations.

C9.3 - 3500 (C280)*

**See dealer for availability.*

MECP II/LECP II

MCS type-approved panel for manned and un-manned engine rooms. It provides local throttle control, a color display, advanced diagnostics, and integration possibilities. This engine control panel is enhanced by a built-in connectivity solution, allowing easy onboarding and access to a variety of Customer Value Agreement (CVA) offerings.

MECP IIIB/LECP III

Includes all the features of the MECP II and has additional I/O, supports more expansion modules, and has extra space for customer options. This engine control and integration panel is enhanced by a built-in connectivity solution, allowing easy onboarding and access to a variety of CVAs.

Marine Genset & Auxiliary Engine Control Panels

C4.4 - C7.1

MGGP 200
(for electronically controlled engines only)

Basic gauge panel providing basic instrumentation of engine parameters, as well as alarm indication and engine start/stop buttons.

MCS3

MCS type-approved panel provides generator and engine monitoring for manned and un-manned engine rooms. It includes MODbus and CANbus (J1939) interfaces (on electronically controlled engines only), AC monitoring, and optional load share control for multiple genset installations. Multi-position—left, right, rear, plus power—remote mountable.

C4.4 - C32

EMCP 4.2B
(for electronically controlled engines only)

Non MCS type-approved panel provides generator and engine monitoring.

MGCP II

MSC type-approved panel for manned and un-manned engine rooms. It provides local throttle control, a color display and advanced diagnostics and communications. This generator control and integration panel is enhanced by a built-in connectivity solution, allowing easy onboarding and access to a variety of CVA offerings.

C9.3 - 3500 (C280)*

**See dealer for availability.*

MGCP IIIB/LECP III

MSC type-approved panel for manned and un-manned engine rooms. It provides local throttle control, a color display and advanced diagnostics and communications. This generator control and integration panel is enhanced by a built-in connectivity solution, allowing easy onboarding and access to a variety of CVA offerings.

L2

Includes a CMPD as the main operator interface. It also has switches for engine protection override, prelube override, torque limit and manual speed control.

CONTROL PANEL ACCESSORIES

RTD Module

Monitors 8 RTD temperature sensors. It is generally used on a generator.

Thermocouple Module

Monitors 20 thermocouple temperature sensors. It is generally used on an engine.

Remote Panel 220E (MECP/MGCP II and III only)

Can remotely monitor and start/stop two engines or gensets. Multiple remote panels can be installed on a ship.

Remote Panel 410E (MECP/MGCP II and III only)

Can remotely monitor and start/stop eight engines or gensets and four IP cameras. Multiple remote panels can be installed on a ship.

Remote I/O 410 Module (MECP/MGCP II and III only)

Provides additional switch and sensor inputs for the control panel, as well as relay outputs. Up to four Remote I/Os can be used with the IIIB panels, one with the II panels.

Relay Module (MECP/MGCP III only)

Provides 14 programmable relays. It can be connected to the Local Control Panel or to a remote panel.

Power Analyzer Module (MGCP II and III only)

Provides generator power information, such as phase voltage, current, power factor, Total Harmonic Distortion (THD), etc.

MSDU – Emergency Shutdown Module

Basic shutdown unit available as an option with C4.4 and C7.1 electronically controlled engine.

WE HAVE WHAT TOMORROW TAKES

CARBON REDUCTION. FUEL FLEXIBILITY. OPERATIONAL EFFICIENCY. ELECTRIFICATION.

WE HAVE WHAT TOMORROW TAKES

Innovating and Integrating. Driven to help you achieve operational success.

Helping You Navigate the Energy Transition

Cat Marine products have high standards for quality, performance and reliability. There is an escalating need for lower-carbon intensity fuel solutions and power sources that reduce fuel usage, decrease your vessel's environmental impact and lower total cost of ownership.

That's why Caterpillar is focused on innovating methanol-powered solutions, and electric and hybrid systems for reducing CO2 emissions. Plus, state-of-the-art supervisory controls will integrate system components for suitable performance and efficient plug-and-play simplicity.

All from one source: Caterpillar Marine.

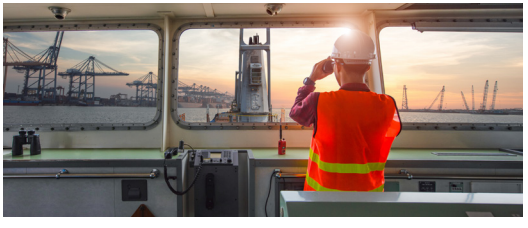
Caterpillar Marine offers diesel solutions and is developing options like methanol, electric and hybrid to support our customers' energy transition.

PRODUCTS & SERVICES FROM CATERPILLAR MARINE

We are innovating and integrating for a better tomorrow to help naval and defense customers achieve operational success.

At Caterpillar, we've been helping customers solve big problems for nearly a century. We know that as a governmental entity, you demand sturdy, high-performing, cutting-edge products and services. Whether decreasing carbon, increasing fuel flexibility, moving toward electrification or operating more efficiently and safely, you can count on Cat Marine products and services to help you achieve your energy transition goals.

Here are some examples of how we are putting our experience to work to tackle carbon reduction challenges on the water.



Ensuring you can accomplish your missions—with fuel flexibility
Emissions reduction and adaptability to your missions, with renewables and biofuels

- Fuel flexibility through use of renewables and biofuels
- Investment in alternative fuel research
- Emissions upgrade solutions for existing fleets

Reduced emissions for supporting greater access to strictly regulated ports—with efficiency and reliability
Current emission regulations and future standards

- Flexible and configurable for ease of installation
- Designed to improve uptime, time between overhauls and cost
- Integral Cat control system for simple diagnostics and service

Providing hybrid flexibility—that integrates traditional and lower-carbon power for higher fuel efficiency, lower maintenance cost and quieter operation for stealth

Integrated power systems

- Hybrid solutions that integrate engines, gensets and energy storage
- Intelligent controls that enable seamless use of onboard power sources
- Scalable options that support a wide range of propulsion and power generation applications

Participating in marine environmental awareness programs

The right solutions to comply with increasingly strict port regulations on emissions standards

- Offering marine power solutions that meet Tier 4 and IMO III
- Engineering dual-fuel and (future) methanol power engines for operations that produce lower emissions
- Promoting environmentally sustainable practices

MAINTENANCE

Renewable, Synthetic, and Biodiesel Liquid Fuels for Use in Diesel Engines

NOTICE: In North America, the use of biodiesel from "BQ-9000" accredited producers and "BQ-9000" certified marketers is required. Refer to the "Recommendations" section for details.

Failures that result from the use of any fuel are not Caterpillar factory defects. Therefore, the cost of repair or any other corst or damage would NOT be covered by the applicable Caterpillar warranty.

RECOMMENDATIONS FOR THE USE OF BIODIESEL IN CATERPILLAR ENGINES

The biodiesel blend levels acceptable for use in Cat engines in various machines, marine, and locomotive commercial applications are given in Table 15. Consult your Cat dealer for further information on compatibility of non-metallic materials such as fuel lines, and other connections to the engine.

Biodiesel fuel must be per the quality recommendations given in Table 16. Otherwise, the fuel may result in performance issues and engine downtime.

In North America, obtain biodiesel from BQ-9000 accredited producers and BQ-9000 certified marketers. Look for the BQ-9000 biodiesel quality accreditation program certification logo that is available to distributors that meet the requirements of BQ-9000. In other areas of the world, the use of biodiesel that is BQ-9000 accredited and certified, or that is accredited and certified by a comparable biodiesel quality body to meet similar biodiesel quality control standards, is required. For more information on the BQ-9000 program, go to: **http://www.BQ-9000.org**

RECOMMENDATIONS FOR BIODIESEL FUEL APPLICATION IN CATERPILLAR ENGINES[1]

Engine Models	Model Specific	Biodiesel Acceptable Blend Levels
ACERT engines; C7 through C32; C-9 through C-18; C280 Series; 3300 Series and 3400 Series; 3500 Series and 3600 Series	Engine models without aftertreatment devices	Up to B100 (For use of blend levels higher than B20, ensure fuel is per specs and consult with your Cat dealer)
	Engine models with aftertreatment devices and engine models per Stage V Emissions Regulations	Up to B20
Cat engine model C175	All other C175 engines	Up to B100 (For use of blend levels higher than B20, ensure fuel is per specs and consult with your Cat dealer)
	EU Stage IIIB model, EU Stage V (Locomotive)	Up to B7
Cat engine models: C1.7 through C7.1 (High Pressure Common Rail (HPCR) Fuel System)	C1.7, C2.2, C2.8, C3.4B, C3.6, C4.4, C6.6, C7.1 engine models Tier 4 / EU Stage IV / EU Stage V / China NR IV or later Emissions Regulation, with aftertreatment devices	Up to B20
	C2.8, C3.6, C4.4, C6.6, C7.1 engine models Tier 3 / EU Stage IIIA / China NR IV or later Emissions Regulation, without aftertreatment devices	Up to B20[3]
	C3.3B, C3.8 engine models with aftertreatment devices	Up to B7[2]
Cat engine models: 3003 through 3066	All engine models	Up to B7[2]

IMO CERTIFICATION

The International Maritime Organization (IMO) regulates exhaustgas emissions on diesel engines > 130 kW. Since January 1, 2011 theIMO has regulated NO x exhaust emission to their prescribed IMO IIIlevels except for special emissions control areas (ECA's). There arefour NO x emission control areas that are currently regulated by IMOto stage III. These include the North American ECA, U.S. Caribbean ECA, North Sea ECA, and the Baltic Sea ECA. Vessels that operate within these ECA's must be compliant with IMO III. Engines that are used for emergency power are not subject to IMO regulations.

Engine Models	Model Specific	Biodiesel Acceptable Blend Levels
Cat engine models: C0.5 through C7.1 (Mechanical (PLN) Fuel System)	C0.5, C0.7, C1.1, C1.5, C1.6, C2.2, C3.3, C4.4 engine models Tier 2 / EU Stage II / China NR II or earlier Emissions Regulation, without aftertreatment devices.	Up to B7[2]
	C1.3, C1.8, C2.4, C2.6, C3.3B, C3.4 engine models without aftertreatment devices	Up to B20
	C0.5, C0.7, C1.1, C1.7, <19kW engine models, Stage V Emissions Regulations, without aftertreatment devices	Up to B20
	C0.5, C0.7, C1.1, C1.5, C1.7, C2.2, C3.3,C3.4, C3.6, C4.4, C7.1 engine models Tier 3 / EU Stage IIIA / China NR III or later Emissions Regulation, without aftertreatment devices	Up to B20[3]
CAT engine models: C4.4, C6.4 and C6.6 Engine Serial Prefix 444, C4E, 666, C6E	C4.4 engines (S/N 44400001-04303)	Up to B7[2]
	C6.6 engines (S/N CE600001-14623 and S/N 66600001-09015)	Up to B7[2]
	C4.4 engines (S/N C4E05524-Up and 44404304-Up)	Up to B20[3]
	C6.4 and certain C6.6 engines (S/N CE614624-Up and 66609016-Up)	Up to B20[3]

[1] EU Regulations require the biodiesel blends used in Stage V engines and Special-Purpose Engines (SPE) operated within the European Union (EU) to contain no more than 8% v/v FAME unless specified otherwise in the engine-specific Operation and Maintenance Manual. B8 can be used where B7 is specified.

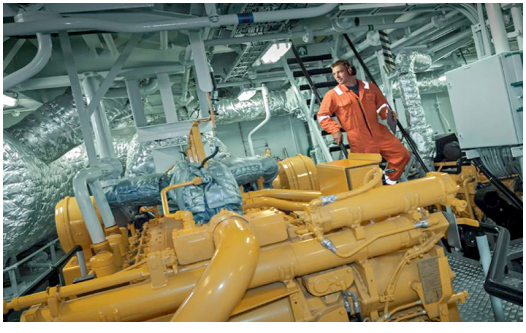
[2] Use of Biodiesel blends above 7% may cause premature wear of the fuel pump and damage to the low-pressure fuel system components as both may contain material incompatible with higher Biodiesel blends.

[3] Higher blends, up to B35, where mandated can be used in these engines.

THE POWER OF THE CAT MARINE GLOBAL DEALER NETWORK

Working Together On Every Mission

Cat Marine offers a legacy in tough, time-critical applications supported by a dedicated, global dealer network. Our broad capabilities ensure customer access to complete solutions for your marine equipment needs, and our acute attention to 24/7 operations are ready for your requirements.



PRO-LEVEL EXPERTISE & AVAILABILITY

Cat dealer service locations around the world are at the ready with dealer personnel who know, understand and respect governmental customers' purpose and mission. With our robust field service capability, we maximize your vessel uptime by ensuring a prompt response by qualified, experienced technicians who have the skills and equipment to quickly diagnose and fix problems right on your ship.

Count on them to know Cat Marine products and solutions and deliver support wherever and whenever you need it, with the level of performance and premium support you expect.

Wherever your missions lead, our expertly skilled Cat dealers are there for you, offering:

- Over 80 years of experience
- 157 Cat Marine locations shore to shore
- Service to 192 countries
- Expert engine technicians
- Engaged parts specialists
- On-sea and at-the-dock service efficiency

Extensive equipment expertise and knowledge equip Cat Marine dealers to diagnose quickly to offer solutions and fix problems fast where and when you need it.

CAT DEALER LOCATOR & ACCESSIBILITY MAP

To find your nearest dealer, scan here or visit:
https://www.cat.com/en_US/support/dealer-locator

AUTHORIZED MARINE DEALERS (AMDs)

Our AMD network complements the service offered by Cat dealers, with even more locations worldwide to further protect your uptime. Count on them for parts, basic maintenance, minor repairs, warranty service work and more.

DEDICATED THROUGH-LIFE SUPPORT FOR GOVERNMENTAL

Cat Marine engines offer exceptional availability*, and we have a proven track record of high-quality power solutions, with 3,500+ engines in place for military or government applications. We amplify that quality with a renowned, worldwide Cat dealer network and robust array of parts and services offerings.

Whether you're called for a standard border patrol operation or an emergency at sea, **Cat parts and services will keep your vessels mission ready.** With power designed to reach maximum speed in a matter of seconds and maintain that speed for full operations, your engine's condition is critical to getting your crews there and back efficiently and safely.

Caterpillar Marine's services portfolio and network of Cat dealers are as tough as our power solutions, enabling you to maintain uptime and stay in control—wherever your missions lead.

- Robust power and technology solutions proven to go the distance and speed you need
- On-demand parts and service availability through the Cat dealer network
- Digital solutions that deliver actionable insights about engine health and performance

**Operational availability: over 99.78%*
Average mean time between failure (MTBF): 8,000 hours

COUNT ON US

We offer premium on-site and field service capabilities that include rapid response time by highly qualified and experienced field service technicians.

CONTACT CAT® MARINE SUPPORT

GENUINE CAT PARTS

OUR PARTS ENSURE POWERFUL PERFORMANCE

Get the most power from your vessels, even on your toughest days at sea, by using Genuine Cat Parts. They are designed as an element of the Cat system and are **endurance-tested to keep you mission-ready for the long haul.**

MORE INFORMATION

ONLINE, ANYTIME: PARTS.CAT.COM

Thousands of Genuine Cat Parts, searchable by model and serial number, are right at your fingertips with the Parts.Cat.Com online and mobile app. Count on secure, self-service purchasing 24/7 from any location worldwide, with fulfillment by a Cat dealer at your site or theirs.

SHOP NOW

PLANNED MAINTENANCE

Keep a Cat® Marine engine Planned Maintenance kit on board, at the ready, so your crews have more time to focus on your mission-critical tasks and systems.

READ MORE

CAT® REMAN

When you select Cat Reman marine components, you'll receive like-new performance at a fraction of the cost of new when you return your end-of-life core and get a same-as-new, 12-month Caterpillar Limited Warranty.* Cat Reman components help reduce downtime versus rebuilding a component, while sustainability benefits offer less energy and materials used compared to the manufacture of new parts.

LEARN MORE

*Cost savings based on return of core; core conditions apply. Warranty can vary by model and application; limitations apply. For complete details about the applicable Caterpillar Limited Warranty, contact an authorized Cat dealer.

ENGINE UPGRADES: FOR PERFORMANCE & EMISSIONS IMPROVEMENTS

Keep your engines shipshape with engine upgrades to meet naval and defense, as well as environmental, standards for protecting your shores, your crews and your investment.

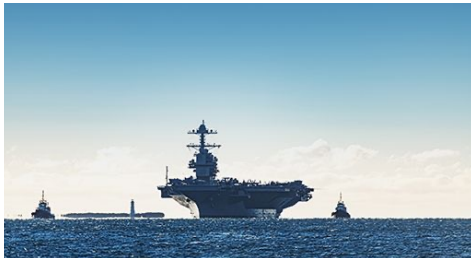
Cat® Marine engine upgrades may be integrated into your engine overhaul schedule to update your engines to the latest available technology. They can be completed dockside or on the water to improve availability for navigating any circumstance.

PERFORMANCE UPGRADES

These are available for select Cat 3500-, 3600- and C280-series engines to improve their performance.

EMISSIONS UPGRADES & RETROFITS

Emission Upgrades are currently available for select Cat® 3500, 3600, and C280 engines. Upgrade to the latest emissions technology available for your engines.



DIGITAL SOLUTIONS

We understand that unscheduled downtime is unacceptable in naval and defense operations. Caterpillar Marine's innovative digital solutions allow vessel monitoring from anywhere, to ensure equipment health and increase time to diagnose and offer solutions. Actionable data from sensors to software enable operational excellence for quick decision making that results in improved uptime.

CAT® REMOTE FLEET VISION (RFV)

Cat digital applications may be included as part of your CVA to help resolve emerging issues before they become big problems. The technology provides features that support your goals. Cat's digital applications provide robust visibility to engine data, so you stay alert to vessel performance, efficiency and availability to help improve the life and health of your equipment.

- **Assimilates timely, reliable, engine data** from satellite, cellular and local network connections.
- **Displays a full view of your engine's current operation,** with data trends and visualization to identify engine health issues.
- **Remotely monitors engine data** for making smart, fast decisions from any location.
- **Locates, tracks and manages assets with just a few clicks.**
- **Prompts alerts and notifications** that indicate potential problems.
- **Monitors, forecasts and optimizes vessel fuel consumption** individually and across the entire fleet.

CUSTOMIZED SERVICE AGREEMENTS: CVAS

We tailor Cat Marine Customer Value Agreements (CVAs) to help you deliver the business outcomes you need and ensure your vessels maintain ever-critical mission readiness. For example, with well monitored filters and fluids, you can extend your planned maintenance (PM) periods to reduce cost. Additionally, to mitigate risk, you may add extended service coverage to your CVAs to limit the financial impact of a catastrophic engine failure.

CVAs keep you informed of maintenance and repair needs, cost and unexpected risks to achieve the greatest possible availability for any critical operation throughout the life of your Cat Marine engine.

Consult with your Cat dealer to build a CVA that delivers the outcomes you need:

- **Improved uptime:** 24/7 condition-based monitoring, available through your Cat dealer
- **Emissions reduction to support your energy transition:** lifecycle repair options or engine upgrade solutions
- **Maintenance/overhaul cost reduction:** fleet demand planning enabled by Caterpillar fleet manager
- **Risk mitigation to avoid last-minute repairs:** Dealer-led repair options or PM kits as convenient, self-service solutions
- **Capacity and uptime opportunities:** Data-driven insights and engine health monitoring through strategic digital solutions

CONTACT YOUR DEALER TO DISCUSS THE RIGHT DIGITAL SOLUTION THAT CAN IMPROVE YOUR OPERATION.

MaK™

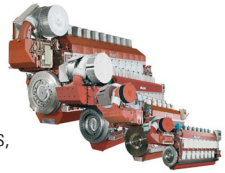
SERVICES FOR THE LIFETIME OF YOUR ENGINE

The MaK Brand
For decades, MaK engines have been in service around the world for customers who trust in their reliability. MaK offers exceptionally engineered and innovative products, components and services. With our worldwide network of distributors and expertise, we grant our customers fast service and high availability.

Services Solutions
- **Customizable services** based on the customer's operational needs including system enhancements and improved fuel efficiency
- **Fleet management and services agreements,** such as CVAs (Customer Value Agreements), tailored to the needs of our local and global customers

REParts (Repair and Exchange Parts)
- Cost-efficient and high-quality service solutions
- Produced to the same quality standards as our original OEM (Original Equipment Manufacturer) parts

MaK Used
- Offers a cost-efficient alternative to new with the same OEM quality and reliability



InSitu (In Situation) Machining
- On-site repair and rework of cylinders, crankshafts, crankcases and further parts
- Allows service teams to repair large components on-site without disassembly
- Reduces downtime while keeping costs to a minimum

Training Center
- Located at the Caterpillar Motoren headquarters in Kiel, Germany
- Customizable training courses to help our customers gain in-depth knowledge about MaK engines, components, and maintenance procedures

For more information on MaK engines, scan this QR code to connect with your nearest dealer.

MaK

REFERENCES

EMISSIONS STANDARDS

U.S. Environmental Protection Agency (EPA), Transport Canada, China Ministry of the Environment and the European Union (EU) have enacted programs to reduce emissions from all domestic diesel vessels. International vessels are subject to the requirements of the country where the vessel is registered (flagged) and if regulated, typically follow the requirements of the International Maritime Organization (IMO).

Caterpillar Marine has a key focus on emissions regulations to ensure that our marine engines meet global requirements.

U.S. EPA Standards

U.S. EPA applies for marine diesel engines installed in a variety of U.S. flagged recreational and workboat vessels.

High Performance Applications:

EPA Tier 3: Cat C7.1, C18 & C32

Commercial Applications:

EPA Tier 3: Cat C1.5, C2.2, C4.4, C7.1, C9.3, C15, C18, C32 (< 600 kW)

EPA Tier 4: Cat C32, 3500, C280 (> 600 kW)

U.S. EPA Regulations

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

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

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

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

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

Emergency Meets U.S. EPA Marine Tier 2 or Tier 3, as applicable, that otherwise must meet Tier 4 Final.

Canada Regulations

As of January 1, 2016, Category 2 engines (7 to 30 L/cylinder) on Canadian flagged vessels must meet U.S. EPA requirements or have an equivalent certificate that has been provided by another country. Unless otherwise exempted, all other marine engines must meet IMO requirements for vessels constructed after January 1, 2016 (IMO III). Engines on vessels with keel laid in 2017 with combined propulsion power < 750 kW must meet IMO II and are exempt from IMO III: the IMO III exemption is subject to review by December 31, 2022.

China Regulations

China Domestic Marine regulation (GB15097) China Stage II went into effect after July 1, 2022. International vessels subject to the requirements of IMO and are not subject to China Domestic Marine regulations.

Engine Certification Descriptions

C-II Engines meeting China inland water regulations.

IMO Certification

The International Maritime Organization (IMO) regulates exhaust gas emissions on diesel engines > 130 kW. Since January 1, 2011 the IMO has regulated NO_x exhaust emission to their prescribed IMO II levels except for special emissions control areas (ECAs). There are four NO_x ECAs that are currently regulated by IMO to stage III. These include the North American ECA, U.S. Caribbean ECA, North Sea ECA, and the Baltic Sea ECA. Vessels that operate within these ECAs must be compliant with IMO III. Engines that are used for emergency power are not subject to IMO regulations.

EU Certification

Commercial Craft Directive 2016/1628 (EU Stage V)

This directive is in effect and applies to all propulsion and auxiliary engines. Caterpillar has certified some engines with a rated power of greater than 560 bkW to this standard. Most of these are to be used for inland waterway vessels. These engines also became effective by reciprocity agreement with CCNR Stage II, on July 1, 2007. (97/68 directive was repealed January 1, 2017 although 97/68 (IIIA) standards apply to marine engines until Stage V came into effect January 1, 2019 for < 300 kW and January 1, 2020 for ≥ 300 kW and all references to 97/68 are now references to EU 2016/1628 (Stage V)).

Engine Certification Descriptions

IW Meets EU Directive 2016/1629 Technical Requirements for Inland Waterway.

NC Not Certified for specific regulations.

NST Engines ≤ 19 kW are not subject to EU Directive 2016/1629.

RCD Recreational Craft Directive, meets 2013/53/EU. This directive is in effect and applies to all recreational engines used in the EU areas.

EUV Engines meeting Stage V.

MARINE RATING DEFINITION: PROPULSION ENGINES

Rating definitions provide guidelines to help determine the appropriate rating for specific applications based on vessel operation. Cat Marine propulsion engine rating applications for C9 through 3516E are based on load factor, time at full throttle, and operational hours per year.

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

A Rating (Unrestricted Continuous)

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

For C280-6, C280-8, C280-12 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 operation ranges from 3000 to 5000 hours per year.

C Rating (Maximum Continuous)

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

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

Maximum Continuous (MC) Rating or EMD Intermittent 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 CS 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.

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 operating ranges from 1000 to 3000 hours per year.

E Rating (High Performance)

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

DEP Ratings (Diesel Electric Propulsion, Electric Drive)

Typical applications: For 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 ≤ 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 submarines, supply vessels, cruise vessels, research vessels, or any other ship using diesel electric drive systems.

Rating Conditions for 3500s 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 SAE J1995 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 lb/U.S. gal (838.9 g/L). 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 gal/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.

MARINE RATING DEFINITION: GENSETS & 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 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 Cat 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 inHg (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 gal/L).

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.

GLOSSARY

bhp	Brake Horsepower
bkW	Brake Kilowatts
CEM	Clean Emission Module
DEF	Diesel Exhaust Fluid
DIN	German Standards Organization
DTO	Design to Order
ekW	Electrical Kilowatts
EPA	Environmental Protection Agency
EU	European Union
EUI	Electronic Unit Injection
g/bkWh	Grams per Brake Kilowatt Hour
H	Height of Engine
HE	Heat Exchanger Cooled
IMO	International Maritime Organization
ISO	International Standards Organization
kVA	Kilovolt-Ampere
L	Overall Engine Length
LE	Length of Engine from Front of Engine to Rear Face of Flywheel Housing
LG	Length of Engine with Gear/Generator
MCS	Marine Control System
mhp	Metric Horsepower
MW	Megawatt
MWe	Megawatt Electric
NA	Naturally Aspirated
R	Radiator Cooled
SAE	Society of Automotive Engineers
SCAC	Separate Circuit Aftercooled
SCR	Selective Catalytic Reduction
T	Turbocharged
TA	Turbocharged, Aftercooled
TSA	Turbocharged, Supercharged, Aftercooled
TTA	Twin Turbo Aftercooled
U.S. gal/h	U.S. Gallons per Hour
W	Overall Width
WE	Width of Engine

CATERPILLAR MARINE LOCATIONS

HEADQUARTERS

Caterpillar Marine
10203 Sam Houston Park Dr
Houston, TX 77064/USA

AMERICAS NORTH

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

Caterpillar Lafayette Large Engine Center
3701 South St
Lafayette, IN 47905/USA

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No. 5 Tukang Innovation Grove
Singapore 618304
Republic of Singapore

LARGE ENGINE CENTER

LAFAYETTE, INDIANA, USA

Since 1982, the facility has been a center for innovation, operational excellence and lean manufacturing of Cat® 3500, 3600 and C280 engines.

Office: 3.5 acres
Factory: 30+ acres
Land: 250+ acres
Employment: 2,026
Operations: 24/7/365

For more information
please visit:
www.cat.com/marine

LET'S DO THE WORK.™

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