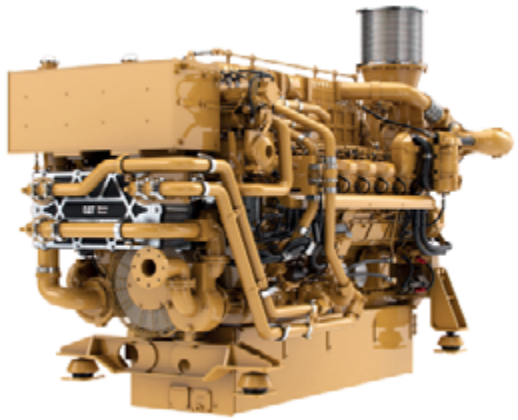
3516E

Propulsion Engines
Commercial Applications



ENGINE SPECIFICATIONS

CONFIGURATION	V 12, 4-Stroke Cycle Diesel
EMISSIONS	IMO II / III Switchable, III, U.S. EPA Tier 4
RATED ENGINE SPEED	1600 / 1800 rpm (see table)
DISPLACEMENT	78.1 L / 4765 in^3
ASPIRATION	Twin Turbocharged - Aftercooled
GOVERNOR	Electronic (ADEM5)
FLYWHEEL HOUSING	SAE No. 00 with SAE No. 00 Flywheel (183 teeth)

BORE X STROKE	170 mm x 215 mm / 6.7 in x 8.5 in
REFILL CAPACITY LUBE OIL SYSTEM W/OIL FILTER CHANGE	250 hour Shallow Sump: 190 L / 50 gal 1000 hour Deep Sump: 800 L / 211 gal
OIL CHANGE INTERVAL	250 / 1000 hour available
ROTATION (FROM FLYWHEEL END)	Clockwise or Counterclockwise (see table)
COOLING	Heat Exchanger or Keel Cooled

KEY FEATURES & BENEFITS

- Utilizes Caterpillar's SCR technology to enable IMO III and U.S. EPA Tier 4 certification
- Utilizes a closed loop air assisted DEF dosing strategy that contributes to efficient mixing and control, improved catalyst service life, adapts to urea quality
- Enhanced control of fuel injection optimized through crank timing and ADEM5 ECM technology monitors engine operation and helps to minimize fuel consumption
- Strengthened cylinder heads and valves for durability and peak cylinder pressure capability resulting in high engine duty cycle

STANDARD EQUIPMENT

- Corrosion-resistant aftercooler core
- Dual ADEM5 engine control modules with electronic unit injection and low-pressure fuel system
- Dual water-cooled turbochargers
- Vibration damper and guard
- Meets SOLAS regulations
- Duplex fuel and oil filtration
- Auxiliary fresh water pump
- Gear driven centrifugal jacket water pump with enhanced capacity

OPTIONAL ATTACHMENTS

- Plate-type heat exchanger with integrated SCAC and jacket water expansion tanks
- Special appearance packages with chrome covers
- Marine society certifications
- Power take-off
- Certified marine alarm and protection safety system
- Standard instrument panel with color touchscreen display
- Mounting rails and trunnion mount options
- Engine mounted fuel cooler (SCAC water cooled)
- Sea water pump with 25% added capacity for cooling auxiliary vessel equipment
- Closed crankcase ventilation

RATINGS & FUEL CONSUMPTION

PROPULSION ENGINES

Rating	mhp	bhp	bkW	rpm	Rotation	U.S. g/h	g/bkW-hr	IMO	U.S. EPA	EU	China
A	2536	2501	1865	1600	CW / CCW	114.8	198.0	II/III	NC	NC	NC
A	2719	2682	2000	1600	CW / CCW	122.8	197.6	II/III	NC	NC	NC
A	3046	3004	2240	1800	CW / CCW	140.7	202.2	II/III	NC	NC	NC
B	2855	2816	2100	1600	CW / CCW	129.2	198.0	II/III	NC	NC	NC
B	3195	3151	2350	1800	CW / CCW	146.4	200.4	II/III	NC	NC	NC
C	2991	2950	2200	1600	CW / CCW	135.9	198.8	II/III	NC	NC	NC
C/D*	3433	3386	2525	1800	CW / CCW	157.0	200.1	II/III*	NC	NC	NC
A	2536	2501	1865	1600	Std	114.6	197.7	III	T4C	NC	NC
A	2719	2682	2000	1600	Std	122.7	197.4	III	T4C	NC	NC
A	3046	3004	2240	1800	CW / CCW	140.7	202.2	III	T4C	NC	NC
B	2855	2816	2100	1600	Std	128.9	197.6	III	T4C	NC	NC
B	3195	3151	2350	1800	CW / CCW	146.4	200.4	III	T4C	NC	NC
C	2991	2950	2200	1600	Std	135.5	198.1	III	T4C	NC	NC
C	3433	3386	2525	1800	CW / CCW	157.0	200.1	III	T4C	NC	NC
D	3549	3500	2610	1800	CW / CCW	162.3	200.1	III	T4C	NC	NC

BSFC (g/bkW-h) and VFC (U.S. g/h) are provided at rated RPM & Power.
*2525 bkW must comply with D-Tier rated duty cycle when operated as IMO II with Aftertreatment not installed or disabled

Rating Definition Generator Sets and Auxiliary Engines:

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.

B Rating (Heavy Duty)
Typical applications: For vessels operating at rated load and rated speed up to 80% of the time with Caterpillar: Confidential Green
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.

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.

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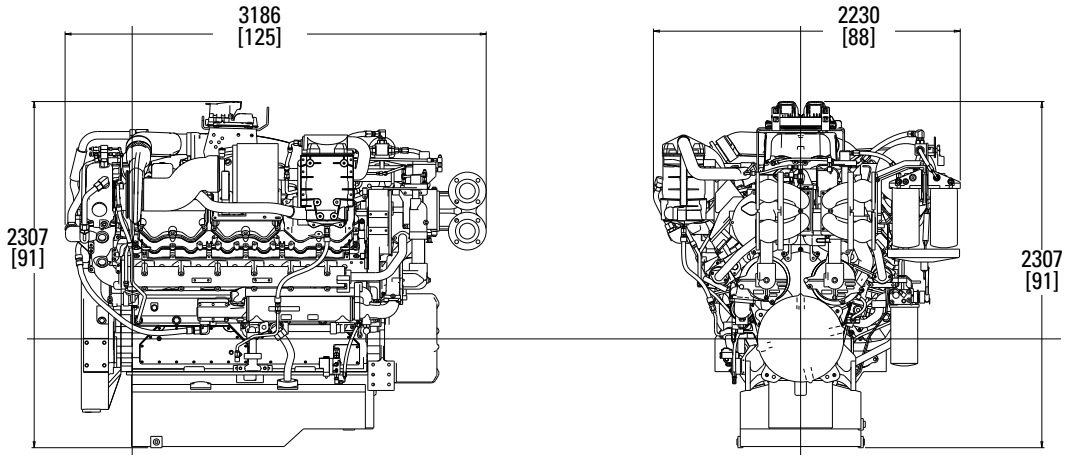
ENGINE DIMENSIONS & WEIGHT

LENGTH (APPROX.)	125 in / 3186 mm
HEIGHT (APPROX.)	91 in / 2307 mm
WIDTH (APPROX.)	88 in / 2230 mm
DRY WEIGHT (APPROX.)	22084 lb / 10017 kg

Note: Dimensions and Weight are nominal and should not be relied upon for design. Contact dealer for your specific engine parameters.



CLEAN EMISSIONS MODULE (CEM)

Dimensions and Weight

Model	Length (1)	Height (2)	Width (3)	Weight
16 Brick Z-Flow	3678.8 mm 144.83 in	1003.3 mm 39.50 in	1769.9 mm 69.67 in	1399 kg 3084.3 lb
16 Brick U-Flow	2945.4 mm 115.96 in	1003.2 mm 39.50 in	1769.7 mm 69.67 in	1390 kg 3064.43 lb
Dosing Cabinet	948.6 mm 37.35 in	534.5 mm 21.05 in	477.3 mm 18.79 in	---

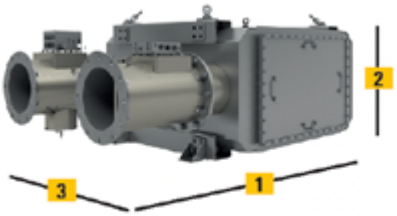
The 3516E engine requires Selective Catalyst Reduction (SCR) technology.

The easy-to-install Cat® SCR System is an exhaust gas aftertreatment solution compliant with U.S. EPA Tier 4 / IMO III emission standards.

- Proven technology to meet U.S. EPA Tier 4 / IMO III emission standards
- IMO II-III switchable calibrations available
- Maintains engine efficiency, durability and reliability
- Easy to install with minimum impact to vessel design
- Compact package from one single source
- Available for new builds and retrofits
- For detailed dimensions and installation requirements, please refer to latest revision of A&I guide LEBM0023.

Aftertreatement Model

Available in U-flow configurations (shown) and Z-flow configurations.



Dosing Cabinet

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