



# C15 ACERT™ Petroleum Engine

400 bkW  
(536 bhp)  
1800-2000 rpm

## HazPak Solutions



Image shown may not reflect actual engine configuration

## CAT® PACKAGE SPECIFICATIONS

### I-6, 4-Stroke-Cycle Diesel

Emissions.....	IMO Tier II certified, EPA Marine Tier 3 certified
Peak Torque at Speed.....	2428 N•m (1791 lb-ft) @ 1350 rpm
Bore.....	137 mm (5.4 in)
Stroke.....	171 mm (6.7 in)
Displacement.....	15.2 L (928 in <sup>3</sup> )
Aspiration.....	Turbocharged-Aftercooled
Governor and Protection.....	Electronic ADEM™ A4
Capacity for Liquids	
Lube System (refill).....	75 L (79.25 U.S. qts)
Cooling System.....	34 L (36 U.S. qts)
Oil Change Interval.....	500 hours
Rotation (from flywheel end).....	Counterclockwise
Flywheel and Flywheel Housing.....	SAE No. 1
Flywheel Teeth.....	113 (SAE 1)

## FEATURES

### Improving Workforce Efficiency

- Standard factory certifications improve worksite safety
  - Class I Division 2 (NEC 500), Class I Zone 2 (NEC 505)
  - ATEX Directive (94/9/EC) Group II
  - Category 3G (Zone 2) with Mechanical Gas Group IIA, Electrical IIC and Temperature Class T3.
- Electrical harness and connectors are certified as intrinsically safe for Zone 2 and for protection against flame propagation
- Certified flameproof intake system to prevent any internal explosions from propagating to external atmosphere
- Industry-standard ADEM A4 control system improves operator interface

### Making Your Investment Work Harder

- Factory-certified engines for hazardous location applications allow simplified rig certification for OEM
- Optimized for demanding well service applications
  - Workover, pumping, cementing, blending, and acidizing
- Maintains high power over broad range of operating speeds, improving performance
- Steady torque rise provides superior load acceptance
- Optimized ambient and altitude capabilities for operating flexibility

### Committed to Sustainable Development

- Meets today's emission standards for well service applications
  - IMO Tier II
  - EPA Marine Tier 3

### Driving Down Total Cost of Ownership

- Improved serviceability versus the competition
- Industry-leading component overhaul life

### Product Support Offered Through Global Cat Dealer Network

- More than 2,200 dealer outlets
- Caterpillar factory-trained dealer technicians service every aspect of your petroleum engine
- Caterpillar parts and labor warranty

### Web Site

For all your petroleum power requirements, visit [www.catoilandgasinfo.com](http://www.catoilandgasinfo.com).



## HAZPAK SOLUTION

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### Factory-supported turnkey solutions

- Factory-matched exhaust and inlet systems
- Integrated Cat control system
- Take the risk out of specification and procurement of individual parts
- All skin temperatures and exhaust gas < 200°C (T3)
- Certified to maintain T3 skin temperatures for up to 45°C ambient applications

### Class-leading safety

- ATEX 94/9/EC
- Machinery Directive 2006/42/EC

### Superior corrosion resistance

- Marine grade solder dipped core radiator
- Optional 3-coat epoxy marine paint system

### Globally supported by Cat dealer network

## STANDARD ENGINE EQUIPMENT

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### Air Inlet System

Dry-type two element air filter with restriction indicator, separate circuit aftercooler with ATEX-approved air shutoff valve, inlet flame arrestor

### Control System

Industry-standard ADEM A4 control system, inlet air shutoff valve for integration with supervisory safety system, electronic governing, programmable ratings, automatic altitude compensation, power compensation for fuel temperature, programmable low and high idle and top engine speed limit, electronic diagnostics and fault logging, engine monitoring and protection system (speeds, temperature, pressure), J1939 broadcast (diagnostic, engine status and control), wiring suitable for Class 1 Division 2 or ATEX Zone 2 areas

### Cooling System

Cooling package designed for 45°C ambient capability; separate cooling circuit for aftercooler; offshore-capable radiators for jacket water and aftercooler circuits are manufactured using steel fabrications, galvanized solder-dipped cooling elements and all stainless steel nuts and bolts; flanged 150 lb RF connections used at cooling system interfaces; coolant pipe work in mild steel with Victaulic connections; water pumps are gear driven, centrifugal; radiator-mounted fan with ATEX-compliant fan drive and guarding; all guards designed, manufactured, and fitted in accordance with the Machinery Directive 2006/42/EC.

### Exhaust System

Exhaust gas cooler, plenum, and outlet box assembly; ATEX compliant – designed to limit the exhaust gas and exhaust duct surface temperatures to T3 (200°C); exhaust gas flametraps suitable for Gas Group IIA; designed and tested in accordance with the recommendations of EN 1834-1; wet and dry exhaust flexibles; ship-loose ATEX-compliant spark arresting muffler

### Flywheel and Flywheel Housing

SAE No. 1 cast iron housing, industrial-style flywheel for SAE-1 housing, pilot bore for 100 mm diameter bearings, provides RH starter bore location

### Fuel System

Electronic unit injector; upward-angled fuel priming pump, primary filter and water separator; engine-mounted secondary fuel filter

### General

Package ambient capability is -10°C to 45°C; mechanical systems are designed for Gas Group IIA; electrical systems are designed for Gas Group IIC; all systems meet temperature class T3 (200°C limit); includes a certificate of conformity for the entire package scope; radiator package, engine, and exhaust system fitted to sub-frame; air filter, fuel/water separator, remote oil filter installed and mounted; earth bonding per standard EN 60079-14; painted per Offshore Paint specification, standard 2-coat acrylic paint.

### Lube System

Oil cooler, LH oil gauge, remote-mounted oil filters for easy service

## OPTIONAL EQUIPMENT

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### Air Compressor

Belt-driven, two-cylinder, single-stage, reciprocating with a rated displacement of 13.2 cfm at 1250 rpm compressor speed; includes two environmental drains and filtered atmospheric air connection

### Charging System

24V 35A EX d ATEX compliant alternator for Gas Group IIB, temperature class T3; heavy-duty, brushless.  
24V 65A alternator, NEC 500 Class 1 Division 2 for Gas Groups C&D, temperature Class T3; heavy-duty, brushless.  
24V 55Ah EX d e II T4 increased safety deep discharge battery pack with integral junction box and isolator switch.

### Control System

- Air, electric, or hydraulic shutdown system input options available
- *Throttle knob speed control* – shipped loose if no control panel option selected; ATEX approved 24V operation; twist knob, locking design; 2-turns, low to high speed; CCW rotation to increase engine speed, push in or turn CW to return to low idle
- *Messenger display* – shipped loose if no control panel option selected; electronic display unit for monitoring key engine operation data and diagnostic information on a full graphic LCD screen; four select buttons to scroll through the engine data and diagnostic screens and navigate through the display configuration menu to change display settings; connection to

the engine control module is via the J1939 CAN data link

- *PCS2 control board* – provides supervisory safety system function and overspeed shutdown control; includes shipped loose start button, run/stop switch, emergency stop button for integration in customer control panel; switches and sensors for exhaust gas temperature, coolant temperature, oil pressure, and engine speed shutdowns; user configurable alarm and shutdown relay inputs
- *3GP flametrap elimination system* – provides gas detection, supervisory safety system function, overspeed shutdown control; allows operation without exhaust flame traps to reduce maintenance; includes shipped-loose start button, run/stop switch, emergency stop button for integration with customer panel; provides up to 20 optional inputs and outputs for customer equipment; designed to give automatic shutdown in the event of engine overspeed, high exhaust temperature, high coolant temperature, low oil pressure, detection of hydrocarbon gas; additional I/O pressure and temperature input switches available on request.

### Fuel System

Fuel cooler, installed, maintains acceptable fuel temperature when running from day tank

### Starting System

Air, electric and hydraulic starters available

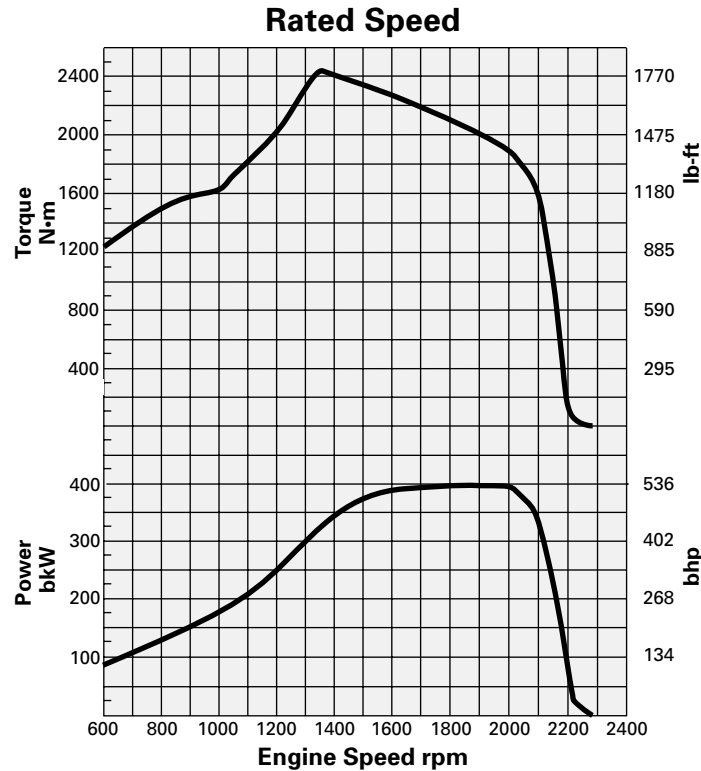
### Paint

Offshore 3-coat epoxy paint system, 325 micron thickness



**PERFORMANCE DATA**

Turbocharged-Aftercooled — 1800-2000 rpm



**Peak Power**

**Peak Torque**

Rating	Speed rpm	Peak Power bkW	Peak Power bhp	Speed rpm	Peak Torque N·m	Peak Torque lb-ft
D	2000	400	536	1350	2437	1797

**RATING DEFINITIONS AND CONDITIONS**

**D Rating** for service where maximum power is required for periodic overloads (time at full load not to exceed 10% of the duty cycle).

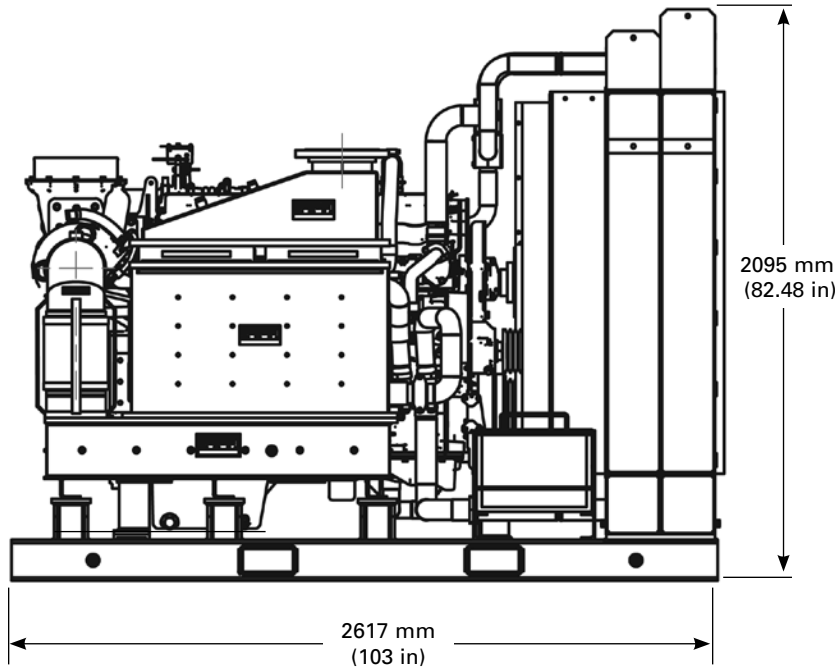
**Engine Performance Diesel Engines — 7 liter and higher** are based on SAE J1995, inlet air standard conditions of 99 kPa (29.31 in Hg) dry barometer and 25°C (77°F) temperature. Performance measured using a standard fuel with fuel gravity of 35° API having a lower heating value of 42 780 kJ/kg (18,390 btu/lb) when used at 29°C (84.2°F) with a density of 838.9 g/L.



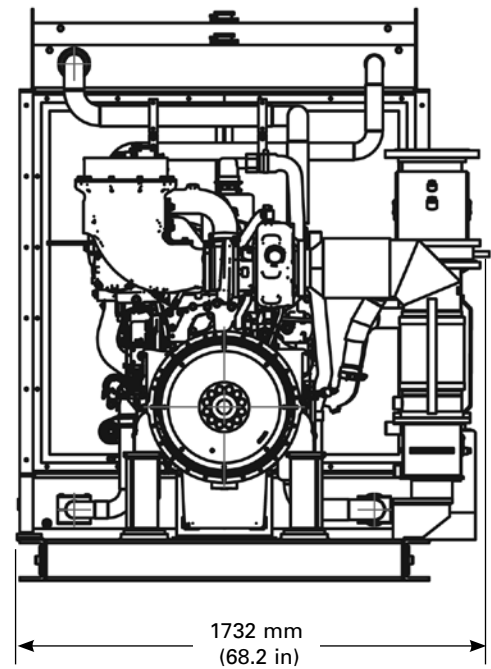
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**Petroleum Engine**  
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**DIMENSIONS**

**RIGHT SIDE VIEW**



**FRONT VIEW**



DIMENSIONS*		
Length	mm (in)	2617 (103)
Width	mm (in)	1732 (68.2)
Height	mm (in)	2095 (82.48)
Weight	kg (lb)	5300 (11,650)

\*Maximum dimensions are shown. Dimensions may be less depending on the alternator, fan adapter, and air shutoff selected.

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