C18 ACERT™ Petroleum Engine

533 bkW (715 bhp) 2100 rpm

HazPak Solutions

Image shown may not reflect actual engine configuration

CAT® PACKAGE SPECIFICATIONS

I-6, 4-Stroke-Cycle Diesel

Emissions	IMO II Certified
Peak Torque at Speed	2809 N•m (2072 lb-ft) @ 1500 rpm
Bore	145 mm (5.7 in)
Stroke	183 mm (7.2 in)
Displacement	18.1 L (1106 in^3)
Aspiration	Turbocharged-Aftercooled
Governor and Protection	Electronic ADEM™ A4
Weight, Net Dry (approx)	3691 kg (8137 lbs)
Capacity for Liquids	
Lube System (refill)	64 L (16.9 gal)
Cooling System	117.8 L (124.5 gal)
Oil Change Interval	250 hours
Rotation (from flywheel end)	Counterclockwise
Flywheel and Flywheel Housing	SAE 0 or 1
Flywheel Teeth	136 (SAE 0), 113 (SAE 1)

FEATURES

Improving Workforce Efficiency
- Standard factory certifications improve worksite safety
  - ATEX Directive (94/9/EC) Group II
  - Category 3G (Zone 2) with Mechanical Gas Group IIA, Electrical IIC and Temperature Class T3.
- 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 package for hazardous location applications allow simplified rig certification for OEM
- 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 II

Driving Down Total Cost of Ownership
- Improved serviceability versus the competition
- Industry-leading component overhaul life
- Rugged Caterpillar testing on all components improves uptime

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.

HAZPAK SOLUTION

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 certificate of compliance
- ATEX 94/9/EC
- Machinery safety directive

Superior corrosion resistance
- Marine grade solder dipped core radiator

Globally supported by Cat dealer network

STANDARD PACKAGE EQUIPMENT

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, electronic diagnostics and fault logging, engine monitoring and protection system (speeds, temperature, pressure), J1939 broadcast (diagnostic, engine status and control); wiring suitable for 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

Flywheels and Flywheel Housing
SAE No. 1 cast iron housing; flywheel for SAE-1 housing, pilot bore for 100 mm diameter bearings; provides LH and 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 -20°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 declaration 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

Lube System
Oil cooler, LH oil gauge

OPTIONAL EQUIPMENT

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

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.

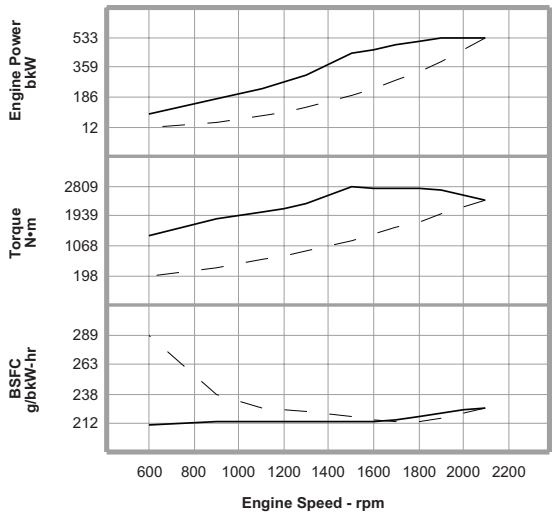
Control System
- Air, electric, or hydraulic shutdown system input options available
- *Throttle knob speed control* – shipped loose if no control panel option selected; ATEX approved 24V operation; twist knob, locking design; 2-turns, low to high speed; CCW rotation to increase engine speed, push in 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 functionality and overspeed shutdown control; includes start button, run/stop switch, emergency stop button, mounting locations for throttle control and messenger display, user-configurable alarm and shutdown relay inputs
- *3GP control panel* – provides gas detection, supervisory safety system functionality, and overspeed shutdown control; allows operation without exhaust flame traps; includes start button, run/stop switch, emergency stop button, mounting locations for throttle control and messenger display; provides control panel for engine with up to 20 inputs and outputs; designed to give automatic shutdown in the event of engine overspeed, high exhaust gas temperature (200°C), high coolant temperature (100°C), low oil pressure, detection of hydrocarbon gas; additional I/O pressure and temp input switches available on request.

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

Starting System
Air and hydraulic starters available

PERFORMANCE DATA

Turbocharged-Aftercooled — 2100 rpm
DM9568-00

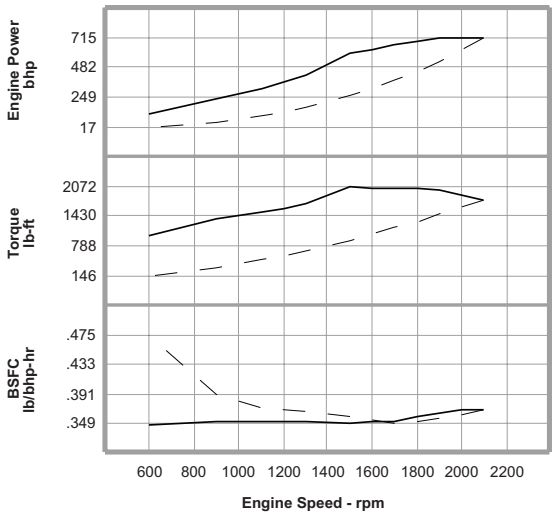


Metric | Maximum Power / Prop Demand | 533 bkW

Performance Data

	Engine Speed rpm	Engine Power bkW	Engine Torque N•m	BSFC g/bkW-hr	Fuel Rate L/hr
Maximum Power Data	2100	533.0	2424	223.9	142.3
	2000	533.0	2545	222.7	141.5
	1900	533.0	2679	220.1	139.8
	1800	515.1	2733	216.9	133.2
	1700	488.9	2746	213.8	124.6
	1600	462.2	2759	212.4	117.0
	1500	441.3	2809	212.1	111.6
	1300	316.5	2325	212.4	80.1
	1200	273.5	2176	212.8	69.4
	900	173.4	1840	212.7	44.0
	600	84.4	1343	210.3	21.2
Prop Demand Data	2100	533.0	2424	223.9	142.3
	2000	460.4	2198	219.4	120.4
	1900	394.8	1984	215.4	101.4
	1800	335.7	1781	212.5	85.0
	1700	282.8	1588	212.0	71.5
	1600	235.7	1407	214.5	60.3
	1500	194.2	1237	217.2	50.3
	1300	126.4	929	221.5	33.4
	1200	99.5	791	223.1	26.4
	900	42.0	445	237.5	11.9
	600	12.4	198	288.9	4.3

Cubic prop demand curve with 3.0 exponent for displacement hulls only.



English | Maximum Power / Prop Demand | 715 bhp

Performance Data

	Engine Speed rpm	Engine Power bhp	Engine Torque lb-ft	BSFC lb/bhp-hr	Fuel Rate gph
Maximum Power Data	2100	714.8	1788	.368	37.6
	2000	714.8	1877	.366	37.4
	1900	714.8	1976	.362	36.9
	1800	690.8	2016	.357	35.2
	1700	655.6	2025	.351	32.9
	1600	619.8	2035	.349	30.9
	1500	591.8	2072	.349	29.5
	1300	424.4	1715	.349	21.2
	1200	366.8	1605	.350	18.3
	900	232.5	1357	.350	11.6
	600	113.2	990	.346	5.6
Prop Demand Data	2100	714.8	1788	.368	37.6
	2000	617.4	1621	.361	31.8
	1900	529.4	1463	.354	26.8
	1800	450.2	1314	.349	22.5
	1700	379.2	1171	.349	18.9
	1600	316.1	1038	.353	15.9
	1500	260.4	912	.357	13.3
	1300	169.5	685	.364	8.8
	1200	133.4	583	.367	7.0
	900	56.3	328	.390	3.1
	600	16.6	146	.475	1.1

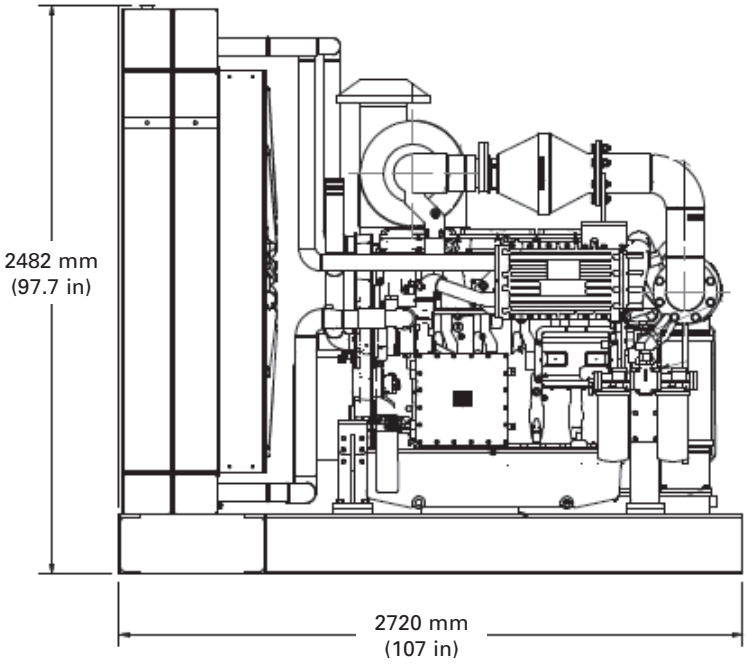
Power produced at the flywheel will be within standard tolerances up to 50°C (122°F) combustion air temperature measured at the air cleaner inlet, and fuel temperature up to 52°C (125°F) measured at the fuel filter base. Power rated in accordance with NMMA procedure as crankshaft power. Reduce crankshaft power by 3% for propeller shaft power.

For most current information, please refer to TMI.

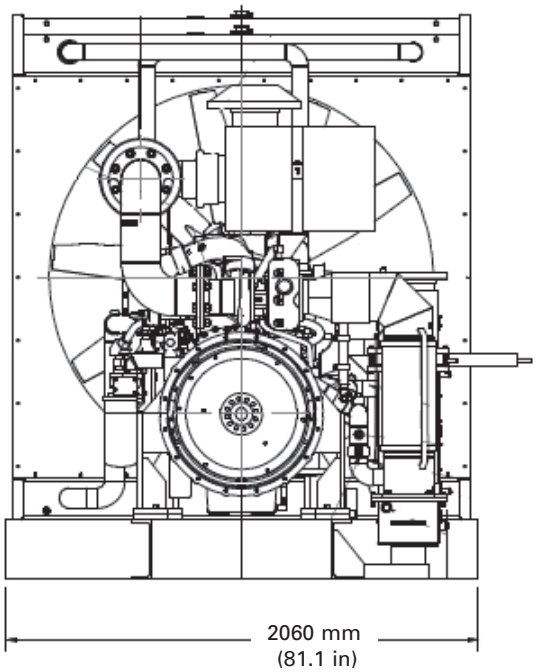
C18 ACERT™
Petroleum Engine
533 bkW/715 bhp @ 2100 rpm

DIMENSIONS

RIGHT SIDE VIEW



FRONT VIEW



DIMENSIONS*		
Length	mm (in)	2720 (107)
Width	mm (in)	2060 (81.1)
Height	mm (in)	2482 (97.7)
Shipping Weight	kg (lb)	3691 (8137)

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