

On construction sites and mining operations, in agriculture and forestry, and in a wide range of industries, Cat® C18 ACERT™ Industrial Diesel Engines deliver the power, performance and durability to take on the biggest challenges. More importantly, they're backed by the world-class Cat dealer network ready to service and support every Cat® industrial engine. Industries and applications powered by C18 ACERT engines include: Agriculture, Ag Tractors, Aircraft Ground Support, Bore/Drill Rigs, Chippers/Grinders, Compactors/Rollers, Compressors, Construction, Cranes, Dredgers, Forestry, General Industrial, Hydraulic Power Units, Irrigation Equipment, Material Handling, Mining, Mobile Earthmoving Equipment, Paving Equipment, Pumps, Shovels/Draglines, Surface Hauling Equipment and Trenchers. This information about Emissions describes the particular rating's emissions technology. For more information about emissions certification, please contact your local Cat dealer.

Specifications

Power Rating		
Minimum Power	447 kW	600 bhp
Maximum Power	597 kW	800 bhp
Rated Speed	1800-1900	

Emission Standards	
Emissions	U.S. EPA Tier 4 Final Nonroad, EU Stage IV Nonroad, U.S. EPA Tier 4 Interim Nonroad Equivalent (Not Currently EPA Certified) and EU Stage IIIB Nonroad Equivalent (Non-Current for EU) Emission Standards. Designed to meet proposed EU Stage V Nonroad Emission Standards.

General	
Engine Configuration	In-Line 6, 4-Stroke-Cycle Diesel
Bore	145 mm (5.71 in)
Stroke	183 mm (7.2 in)
Displacement	18.1 L (1104.5 in ³)
Aspiration	Turbocharged-Aftercooled (TA) or Series Turbocharged Aftercooled (TTA)
Compression Ratio	16.0:1
Combustion System	Direct Injection
Rotation (from flywheel end)	Counterclockwise
Cooling System Capacity	26.9 L (28.4 qt)
Lube System (refill)	40-74 L (42-78 qt)

Engine Dimensions (Approximate. Final dimensions dependent on selected options)

Length	1438 mm (56.6 in)
Width	943-1132 mm (37.1-44.6 in)
Height	1239-1356 mm (48.8-53.4 in)
Weight - Net Dry (Basic Operating Engine Without Optional Attachments)	1580-1717 kg (3583-3785 lb)

Aftertreatment Dimensions (Approximate. Final dimensions dependent on selected options)

Length	1097-1153 mm (43-45.4 in)
Width	762-1112 mm (30-43.8 in)
Height	468-652 mm (18-25.7 in)
Weight	258-272 kg (569-600 lb)
Diameter	330.2-355.6 mm (13-14 in)

PETU Dimensions (Tier 4 Final, Stage IV Only)

Length	854 mm (33.6 in)
Width	287 mm (11.3 in)
Volume Capacity	48.4 L (51.1 qt)
Weight	19.42 kg (42.8 lb)
Height	551 mm (21.7 in)

Benefits and Features

Emissions

Ratings: 429-522 bkW (575-700 bhp) meet U.S. EPA Tier 4 Final, EU Stage IV emission standards. Designed to meet proposed EU Stage V emission standards (As of publishing date, Stage V regulations have not been finalized). U.S. EPA Tier 4 Interim, EU Stage IIIB configurations are also available using EPA or EU Flex Provisions.

Reliable, Quiet and Durable Power

World-class manufacturing capability and processes coupled with proven core engine designs assure reliability, quiet operation, and many hours of productive life.

High Performance

Simple and efficient turbocharger or series turbocharger for high power applications.

Fuel Efficiency

Fuel consumption optimized to match operating cycles of a wide range of equipment and applications while maintaining low operating costs.

Fuel & Oil

Tier 4 Interim or Tier 4 Final, Stage IIIB or Stage IV engines require Ultra Low Sulfur Diesel (ULSD) fuel containing a maximum of 10 ppm sulfur (EU) and 15 ppm sulfur (U.S.), and new oil formulations to support the new technology. Cat® engines are designed to accommodate B20 biofuel. Your Cat dealer can provide more information regarding fuel and oil.

Broad Application Range

Industry leading range of factory configurable ratings and options for agricultural, material handling, construction, mining, aircraft ground support, and other industrial applications.

Package Size

Exceptional power density enables standardization across numerous applications. Multiple installation options minimize total package size. Ideal for equipment with narrow engine compartments.

Low Cost Maintenance

Worldwide service delivers ease of maintenance and simplifies the servicing routine. If applicable, minimum 5000-hour diesel particulate filter (DPF) ash service interval enables low-cost maintenance. Capable of optimal oil change intervals of up to 500-hours, depending on rating, application, operating conditions, and maintenance practices. Engine B10 life up to 10000 hours for Tier 4 Final, Stage IV. The S-O-SSM program is available from your Cat dealer to determine oil change intervals and provide optimal performance.

Quality

Every Cat engine is manufactured to stringent quality standards in order to assure customer satisfaction.

World-class Product Support Offered Through Global Cat Dealer Network

- Scheduled maintenance, including SOSSM sample
- Customer Support Agreements (CSA)
- Caterpillar Extended Service Coverage (ESC)
- Superior dealer service network
- Extended dealer service network through the Cat Industrial Service Distributor (ISD) program

Tier 4 Interim, Stage IIIB Aftertreatment Features

Regeneration. Cat Regeneration System maximizes fuel efficiency during regeneration. Flexible regeneration options maximize uptime. **Mounting.** Remote installation options provide OEM flexibility for many applications, including horizontal and vertical mounting, with and without muffler. **Service.** Minimum 5000 hour DPF ash service interval.

Tier 4 Final, Stage IV Aftertreatment Features

Regeneration. Cat Regeneration System maximizes fuel efficiency during regeneration. Transparent regeneration maximizes uptime. Aftertreatment life is twice as long as engine rebuild **Mounting.** Remote installation options provide OEM flexibility for many applications, including horizontal and vertical mounting. **Service.** Minimum 5000 hour DPF ash service interval. PETU filter service is 5000 hours. PETU DEF capacity up to 48 liters (51 U.S. quarts)

Standard Equipment

Air Inlet System

- Turbocharged
- Air-to-Air Aftercooled
- Mid-mount turbocharged system with front and rear exhaust configurations (Tier 4 Final, Stage IV)



- Electronic control system
- Over-foam wiring harness
- Automatic altitude compensation
- Power compensated for fuel temperature
- Remote fan control
- Configurable software features
- Engine monitoring system SAE J1939 broadcast and control
- Integrated Electronic Control Unit (ECU)

Cooling System

- Thermostats and housing, vertical outlet
- Centrifugal water pump
- Guidance on cooling system design available through your dealer to ensure equipment reliability

Flywheels and Flywheel Housing

- Choice of SAE No. 0 or SAE No. 1 flywheel housing
- Available SAE No. 1 power take off with optional SAE A, SAE B or SAE C power take off drives. Engine power can also be taken from the front of the engine with optional attachments. (Tier 4 Final, Stage IV).

Fuel System

- MEUI injection
- Primary fuel filter
- Secondary fuel filters
- Fuel transfer pump
- Electronic fuel priming

Lube System

- Open crankcase ventilation system
- Oil cooler
- Oil filler
- Lube oil filter
- Oil dipstick
- Gear driven oil pump
- Choice of front, rear or center sumps
- Open crankcase ventilation system with fumes disposal (optional OCV filter system) (Tier 4 Final, Stage IV)

Power Take Off (PTO)

- SAE A, SAE B or SAE C power take off (PTO) drives. Engine power can also be taken from the front of the engine on some applications.

General

- Paint: Caterpillar yellow, with optional colors available at request

U.S. EPA Tier 4 Interim, EU Stage IIIB Aftertreatment / Clean Emissions Control Equipment

- Aftertreatment information applies to ratings from 429-522 kW (575-700 bhp)



- Cat Regeneration System
- Clean Emissions Module (CEM), consisting of Diesel Particulate Filter (DPF) and Diesel Oxidation Catalyst (DOC)
- NOx Reduction System (NRS)
- Flex pipe connection kit with 90° rotatable elbows to attach to Cat Regeneration System Inlet
- Available in 12 volt or 24 volt systems

U.S. EPA Tier 4 Final, EU Stage IV Aftertreatment/ Clean Emissions Control Equipment

- Aftertreatment information applies to ratings from 429-522 kW (575-700 bhp)
- Cat Regeneration System
- Clean Emissions Module (CEM), consisting of Diesel Particulate Filter (DPF) and Diesel Oxidation Catalyst (DOC)
- Aftertreatment Electronic Control Unit (ECU)
- NOx Reduction System (NRS)
- Pump Electronic Control Unit (PETU)
- Selective Catalytic Reduction (SCR)
- Available in 12V or 24V systems

The International System of Units (SI) is used in this publication. CAT, CATERPILLAR, their respective logos, ADEM, EUI, S•O•S, "Caterpillar Yellow" and the "Power Edge" trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.

447 kW (599 bhp) @ 1900 rpm

Rating Type: IND-A (CONTINUOUS) RATING

Emissions: EU Stage IIIB Nonroad Equivalent Emission Standards (Non-Current for EU)

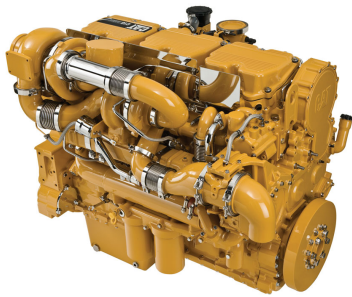


Image shown may not reflect actual configuration

C18 ACERT

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447 kW (599 bhp) @ 1900 rpm

	Metric	English
General Engine		
Power Rating	447 kW	599 hp
Number of Cylinders	6	
Bore	145 mm	5.7 in
Stroke	183 mm	7.2 in
Displacement	18.1 L	1106.0 cu in.
Compression Ratio	16.0 : 1	

RATING DEFINITIONS AND CONDITIONS

IND-A (CONTINUOUS) RATING: Continuous heavy duty service where the engine is operated at maximum power and speed up to 100% of the time without interruption or load cycling.

Diesel Engines — up to 7.1 liter All rating conditions are based on ISO/TR14396, inlet air standard conditions with a total barometric pressure of 100 kPa (29.5 in Hg), with a vapor pressure of 1 kPa (.295 in Hg), and 25°C (77°F). Performance measured using fuel to EPA specifications in 40 CFR Part 1065 and EU specifications in Directive 97/68/EC with a density of 0.845-0.850 kg/L @ 15°C (59°F) and fuel inlet temperature 40°C (104°F).

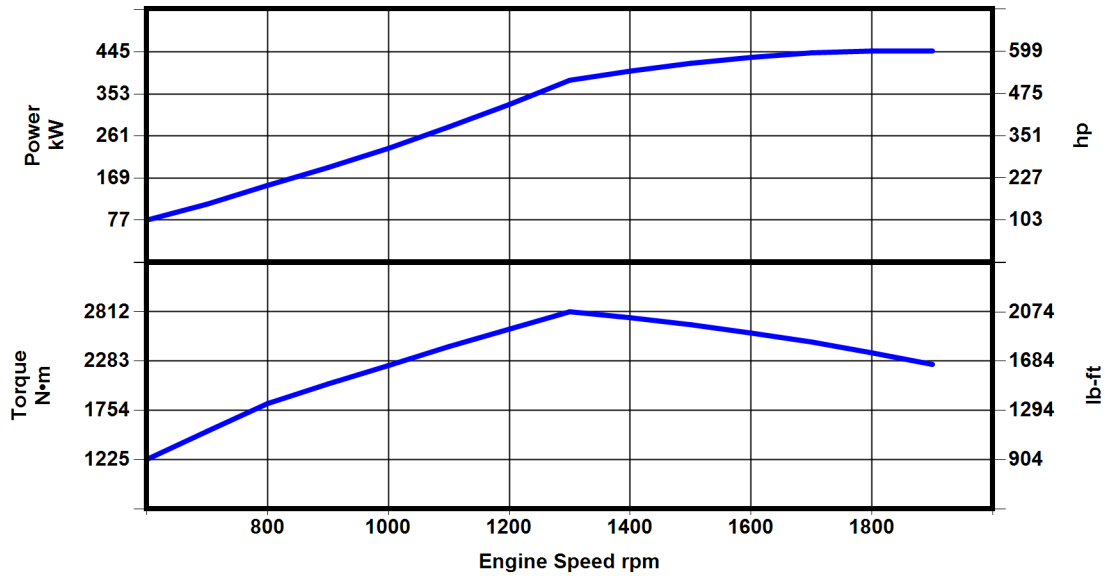
Diesel Engines — greater than 7.1 liter All rating conditions are based on SAE J1995, inlet air standard conditions of 99 kPa (29.31 in Hg) dry barometer and 25°C (77°F) temperature. Performance measured using a standard fuel with fuel gravity of 35° API having a lower heating value of 42,780 kJ/kg (18,390 btu/lb) when used at 29°C (84.2°F) with a density of 838.9 g/L.



447 bkW (599 bhp) @ 1900 rpm

Rating Type: IND-A (CONTINUOUS) RATING

Emissions: EU Stage IIIB Nonroad Equivalent Emission Standards (Non-Current for EU)



Engine Speed rpm	Engine Power bkW	Engine Power bhp	Torque N*m	Torque lb-ft
1900	447	599	2247	1657
1800	447	599	2371	1749
1700	443	594	2488	1835
1600	433	581	2584	1906
1500	420	563	2674	1972
1400	403	540	2749	2027
1300	383	514	2813	2075
1200	330	443	2626	1937
1100	281	377	2439	1799
1000	234	314	2235	1648
900	192	257	2037	1503
800	153	205	1826	1347
700	112	150	1528	1127
600	77	103	1225	904

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