



Demanding conditions, applications and environments make the Cat® C7.1 ACERT engines the perfect solution for your severe duty equipment. With decades of diesel engine innovation and expertise behind these engines, they deliver the low operating costs and legendary Cat reliability and durability that give you a powerful advantage. 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 C7.1 ACERT engines include: Agriculture, Ag Tractors, Aircraft Ground Support, Bore/Drill Rigs, Chippers/Grinders, Combines/Harvesters, Compactors/Rollers, Compressors, Construction, Cranes, Crushers, Feller Bunchers, Forestry, Forklifts, General Industrial, Hydraulic Power Units, Irrigation Equipment, Loaders/Forwarders, Material Handling, Mining, Mobile Earthmoving Equipment, Mobile Sweepers, Paving Equipment, Pumps, Skidders, Specialty Ag Equipment, Sprayers, Trenchers and Underground Mining Equipment. Cat® C7.1 ACERT™ Industrial Diesel Engines, with ratings: 140-225 bkW (187.7-301.8 bhp) @ 2200 rpm, meet U.S. EPA Tier 4 Interim, EU Stage IIIB emission standards. Ratings: 116-225 bkW (156-302 bhp) @ 2200 rpm are designed to meet U.S. EPA Tier 4 Final, EU Stage IV emission standards. 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	116 bkW	156 BHP
Maximum Power	225 bkW	302 BHP
Rated Speed	2200 rpm	

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

General	
Engine Configuration	In-Line 6, 4-Stroke-Cycle Diesel
Bore	105 mm (4.1 in)
Stroke	135 mm (5.3 in)
Displacement	7 L (427.7 in³)

Aspiration	Turbocharged-Aftercooled (TA) or Series Turbocharged Aftercooled (TTA)
Compression Ratio	16.5:1
Combustion System	Direct Injection
Rotation from Flywheel End	Counterclockwise
Cooling System - Capacity	15.2 L (16 qt)
Lube System - Refill	13-16 L (13.7-16.9 U.S. qts)

Engine Dimensions - Approximate	
Height	907 mm (35.7 in)
Length	1063.7 mm (41.9 in)
Weight - Net Dry - Basic Operating Engine Without Optional Attachments	715 kg (1576 lb)
Width	753-820.2 mm (29.6-32.3 in)

Aftertreatment Dimensions - Approximate	
Diameter	287-337.8 mm (11.3-13.3 in)
Height	468-643.9 mm (18.4-25.3 in)
Length	771-918.7 mm (30.4-36.2 in)
Weight	90-134 kg (198-295.4 lb)
Width	714.4-793 mm (28.1-31.2 in)

## Benefits and Features

### 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

Series turbocharging with smart wastegate available on specific ratings for fast response, high power, and increased torque.

### 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 15 ppm sulfur, 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. Hydraulic tappets, multi-vee belts, minimum 5000-hour diesel particulate filter (DPF) ash service interval and 500-hour oil change intervals enable low-cost maintenance. Many service items have a choice of location on either side of the engine to enable choice of service access. 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 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

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### Tier 4 Interim, Stage IIIB Aftertreatment Features

**Regeneration.** Cat Regeneration System maximizes fuel efficiency during regeneration. **Mounting.** Remote installation options provide OEM flexibility for many applications. **Service.** Minimum 5000 hour DPF ash service interval.

### Tier 4 Final, Stage IV Aftertreatment Features

**Regeneration.** The DOC/SCR modular design offers a simple, compact package while providing high levels of performance. A DOC/DPF/SCR option is available for higher power machines. While in use, both DOC/SCR and DOC/DPF/SCR systems offer transparent operation to the user. **Mounting.** Extensive range of inlets and outlets, as well as remote and on-engine installations, provide flexibility for many installations. **Service.** Both DOC/SCR and DOC/DPF/SCR systems are service-free for the emissions life of the engine. Available in 12V or 24V systems

## Standard Equipment

### Air Inlet

- Standard air cleaners

### Control System

- Full electronic control system, all connectors and wiring looms waterproof and designed to withstand harsh off-highway environments
- Flexible and configurable software features and well-supported SAE J1939 CAN bus enables highly integrated machines

### Cooling System

- Top tank temperature 108° C (226° F) as standard to minimize cooling pack size
- 50:50 water glycol mix
- Guidance on cooling system design available through your dealer to ensure equipment reliability

#### **Flywheels and Flywheel Housing**

- Wide choice of drivetrain interfaces, including SAE No. 1, SAE No. 2, and SAE No. 3 configurations

#### **Fuel System**

- Electronic high pressure common rail
- ACERT™ Technology
- Innovative filter design to ensure maximum protection of the engine

#### **Lube System**

- Wide choice of sumps for different 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**

- Clean Emissions Module (CEM), consisting of Diesel Particulate Filter (DPF) and Diesel Oxidation Catalyst (DOC)
- NOx Reduction System (NRS)
- 3" flex pipe connection kit with straight, 45°, and 90° options for flexibility

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

- Clean Emissions Module (CEM), consisting of Diesel Particulate Filter (DPF) and Diesel Oxidation Catalyst (DOC)
- NOx Reduction System (NRS)
- Selective Catalytic Reduction (SCR)
- 3" flex pipe connection with straight, 45°, and 90° options for flexibility

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.