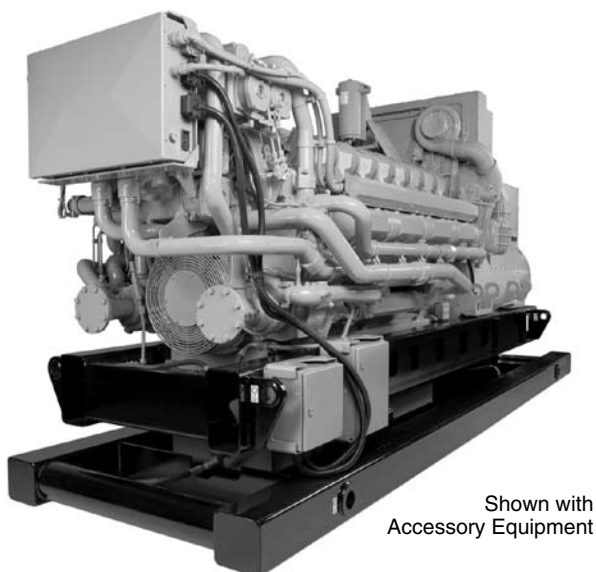




Shown with
Accessory Equipment

CAT® ENGINE SPECIFICATIONS

V-16, 4-Stroke-Cycle-Diesel

Emissions	EPA Non-road Tier 2, EPA Marine Tier 2, and IMO II compliant
Bore	175 mm (6.9 in.)
Stroke	220 mm (8.66 in.)
Displacement	84.67 L (5164 cu. in.)
Aspiration	Turbocharged-Aftercooled
Governor	Electronic
Cooling System	Remote Radiator
Rated Speed	1200 rpm
Module Weight, net dry (approx) ..	22 682 kg (50,005 lb)
Rotation (from flywheel end)	Counterclockwise
Refill Capacity	
Cooling System	305 L (80.6 U.S. gal)
Lube Oil System (refill)	946 L (250 U.S. gal)
Oil Change Interval	1000 hrs
Cat® Diesel Engine Oil 10W30 or 15W40 deep sump oil pan	
Flywheel and Flywheel Housing	SAE No. 00
Flywheel Teeth	183

FEATURES

Emissions

Meets EPA Non-Road Tier 2/Marine Tier 2/EU Non-Road Stage II emission requirements and compliant with IMO standards for off-shore applications. Tier 2 refers to EPA (U.S.) standards. Stage II refers to European standards.

Single Source Supplier

Caterpillar

- Casts engine blocks, heads, and flywheel housings
- Machines critical components
- Assembles complete engine

Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable product.

Factory-designed systems built at Cat ISO 9001:2000 certified facilities.

Testing

Prototype testing on every model:

- proves computer design
- verifies system torsional stability
- functionality tests every model

Every Cat engine is dynamometer tested under full load to ensure proper engine performance.

Unmatched Product Support Offered Through Worldwide Cat Dealer Network

More than 2,100 dealer outlets with Cat factory-trained dealer technicians service every aspect of your engine.

99.7% of parts orders filled within 24 hours worldwide.

Cat parts and labor warranty

Preventive maintenance agreements available for repair before failure.

S•O•SSM program matches your oil sample to Cat set standards to determine:

- internal engine component condition
- presence of unwanted fluids
- presence of combustion by-products

Web Site

For all your petroleum power requirements, visit www.cat-oilandgas.com.

STANDARD EQUIPMENT

Air Inlet System

Corrosion resistant separate circuit aftercooler core
Regular duty air cleaners with service indicator
Dual turbochargers

Communications

J1939 data link

Cooling System

Auxiliary low temperature coolant pump
Gear driven centrifugal high temperature coolant pump
Engine oil cooler
Electronic thermostats in both high and low temperature circuits

Engine Control System

Cat ADEM™ A4 engine control unit (ECU)
Cat common rail fuel system
Rigid wiring harness

Exhaust System

Dry gas-tight exhaust manifolds with thermo-laminated heat shields
Dual turbochargers with water-cooled bearings and thermo-laminated heat shields
Vertical exhaust outlet

Fuel System

Cat common rail fuel system with electronically controlled injectors
Four-micron rated fuel filters with service indicators
Electric fuel priming pump
Gear driven fuel transfer pump

Instrumentation

Engine oil pressure
Engine water temperature
Fuel pressure
System DC voltage
Available with optional thermo couple module
Fuel filter differential
Engine speed
Overspeed shutdown notification light with optional annunciator
Oil filter differential
Hour meter

Lube Oil System

Top mounted dual crankcase breathers
Oil filter with service indicators
Oil level gauge
Oil filler
Gear type oil pump
Deep sump oil pan

Protection System

ADEM A4 ECU monitoring system provides engine deration, alarm, or shutdown strategies to protect against adverse operating conditions. Selected parameters are customer programmable. Initially set as follows:

Safety shutoff protection — electrical:

- Oil pressure
- Water temperature
- Overspeed
- Crankcase pressure
- Aftercooler temperature
- Air inlet shutoff activated on overspeed or emergency stop
- Oil pressure and water temperature (non-redundant, uses OP and WT sensors)
- Overspeed (redundant and independent of engine governing system)

Alarms — electrical:

- ECU voltage
- Oil pressure
- Water temperature (low and high)
- Overspeed
- Crankcase pressure
- Aftercooler temperature
- Low water level (sensor is optional attachment)
- Air inlet restriction
- Exhaust stack temperature
- Filter differential pressure (oil and fuel)

Derate — electrical:

- High water temperature
- Crankcase pressure
- Aftercooler temperature
- Air inlet restriction
- Altitude
- Exhaust temperature

Alarm switches (oil pressure and water temperature), for connection to customer-supplied alarm panel

Starting System

Air starting motor — RH, 620 to 1034 kPa (90 to 150 psi)
Air silencer

General

Vibration damper and guard
Cat yellow paint

Additionally, the drilling modules include the following: (close-coupled two-bearing arrangements)

- Inner rail system
- Offshore oil field subbase
- Engine and generator mounting groups
- Engine and generator, three-point mounted to subbase
- Integral spring isolators with limit stop
- Lift provisions on base
- Oil drain extension
- Engine length drip pan with drain
- Torsional dampened driveline couplings
- Generators and radiators not included
- Standard base accepts Kato 6P6.6 close coupled generators
- Offshore electric drilling ratings include 10% overload capacity to meet most Marine Society approvals.
- Marine Society approval is for the auxiliary generator set service certification, manned engine room.

TECHNICAL DATA (PRELIMINARY)
C175-16 Engine — 1200 rpm

	Metric	English
Engine Power	1930 kW	2586 hp
BMEP @ Rated	2279 kPa	331 psi
BSFC @ Rated	191 g/kW-hr	0.313 lbs/bhp-hr
Fuel Rate @ Rated	6050 g/min	115 gal/hr
Total Fuel Rate with Bypass	7390 g/min	140 gal/hr
Maximum Allowable Fuel Temperature to Engine	70° C	158° F
Air Flow based on 25° C inlet temperature and 101.3 kPa inlet pressure	10,670 kg/hr	23,474 lbs/hr
	9042 m³/hr	5311 cfm
Maximum Allowable Air Temperature to Air Filters	45° C	113° F
Exhaust Flow based on 425° C stack temperature and 105 kPa stack pressure	11,305 kg/hr	24,923 lbs/hr
	21,585 m³/hr	12,704 cfm
Maximum Allowable Exhaust Backpressure	6.7 kPa	27 in. H ₂ O
SCAC Heat Rejection	210 kW	11,950 Btu/min
SCAC Return Temperature to Engine at 30°C Ambient	48° C	118° F
JW Heat Rejection	952 kW	54,140 Btu/min
Radiated Convective Heat Rejection	200 kW	11,374 Btu/min
SCAC Water Flow	875-1080 (min-max) L/min	231-285 (min-max) gpm
JW Flow	2000 L/min	528 gpm
JW Outlet Flange	152 mm ANSI/DIN	6 in. ANSI/DIN
JW Inlet Flange (pump)	152 mm ANSI/DIN	6 in. ANSI/DIN
Aftercooler Outlet Flange	76 mm ANSI/DIN	3 in. ANSI/DIN
Aftercooler Inlet Flange	152 mm ANSI/DIN	6 in. ANSI/DIN
Exhaust Outlet Flange (single)	356 mm w/406 mm adapter	356 mm w/406 mm adapter

TECHNICAL DATA

Cat Kato Drilling Generator

Specifications

Poles	6
Excitation	PMG
Pitch	0.778
Connection	Wye
Max. Overspeed (60 sec.)	125%
Number of Bearings	2
Number of Leads	6
Number of Terminals	4

Ratings

Power	1833.3 ekW
kVA	2619
pf	0.7
Voltage — L.L.	600 V
Voltage — L.N.	346 V
Current — L.L.	2520 A
Frequency	60 Hz
Speed	1200 rpm

Exciter Armature Data (at full load, 0.7 pf)

Voltage	192.0 V
Current	102.0 A

Temperature and Insulation Data

Ambient Temperature	50° C
Temperature Rise	90° C
Insulation Class	F
Insulation Resistance (as shipped)	100 Megaohms (at 40° C)

Resistances

Base Impedance	0.137 ohms
Stator (at 25° C)	0.001 ohms
Field (at 25° C)	1.30 ohms
Zero Sequence R0	0.00 ohms
Positive Sequence R1	0.00 ohms
Short Circuit Ratio	0.68

Fault Currents

Instantaneous 3-Ø symmetrical fault current	12,001 amps
Instantaneous L-N symmetrical fault current	13,747 amps
Instantaneous L-L symmetrical fault current	9489 amps

Efficiency and Heat Dissipation (per NEMA and IEC at 95°C)

Load PU	Kilowatts	Efficiency	Heat Rejection
0.25	458.3	90.9%	156,598 Btu/hr
0.50	916.7	94.3%	189,105 Btu/hr
0.75	1375.0	95.1%	241,795 Btu/hr
1.00	1833.3	94.8%	343,214 Btu/hr

Time Constants

OC Transient — Direct Axis	T'DO	2.955 sec.
SC Transient — Direct Axis	T'D	0.557 sec.
OC Subtransient — Direct Axis	T''DO	0.030 sec.
SC Subtransient — Direct Axis	T''D	0.022 sec.
OC Subtransient — Quadrature Axis	T''QO	0.015 sec.
SC Subtransient — Quadrature Axis	T''Q	0.004 sec.
Armature SC	TA	0.079 sec.

Reactances

		Saturated		Unsaturated	
		Per Unit	Ohms	Per Unit	Ohms
Subtransient — Direct Axis	X''D	0.210	0.0	0.250	0.0
Subtransient — Quadrature Axis	X''Q	0.280	0.0	0.330	0.0
Transient — Direct Axis	X'D	0.280	0.0	0.320	0.0
Transient — Quadrature Axis	X'Q	0.820	0.1	0.990	0.1
Synchronous — Direct Axis	XD	1.470	0.2	1.780	0.2
Synchronous — Quadrature Axis	XQ	0.820	0.1	0.990	0.1
Negative Sequence	X2	0.250	0.0	0.290	0.0
Zero Sequence	X0	0.090	0.0	0.110	0.0

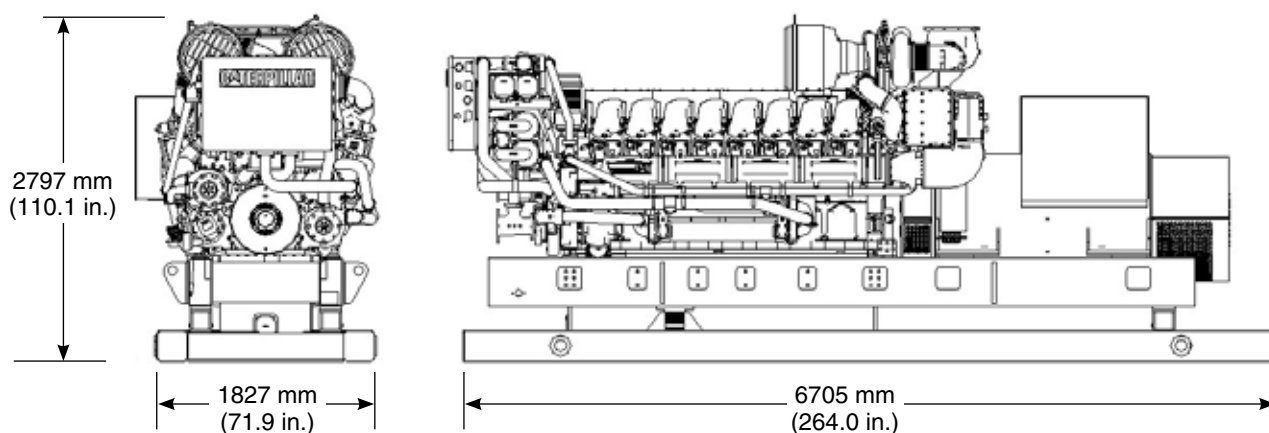
RATING DEFINITIONS AND CONDITIONS

Engine Performance is corrected to inlet air standard conditions of 99 kPa (29.31 in. Hg) dry barometer and 25°C (77°F) temperature. These values correspond to the standard atmospheric pressure and temperature as shown in SAE J1995.

Performance measured using a standard fuel with fuel gravity of 35 degrees API having a lower heating value of 42,780 kJ/kg (18,390 BTU/lb) when used at 29°C (84.2°F) where the density is 838.9 g/L (7.001 lb/U.S. gal).

The corrected performance values shown for Cat engines will approximate the values obtained when the observed performance data is corrected to SAE J1995, ISO 3046-2, ISO 8665, ISO 2288, ISO 9249, ISO 1585, EEC 80/1269, and DIN 70020 standard reference conditions.

DIMENSIONS



Package Dimensions		
Length	6705 mm	264.0 in.
Width	1827 mm	71.9 in.
Height	2797 mm	110.1 in.
Package Weight (dry)	24 312 kg	53,600 lb

Note: Do not use for installation design. See general dimension drawings for detail.