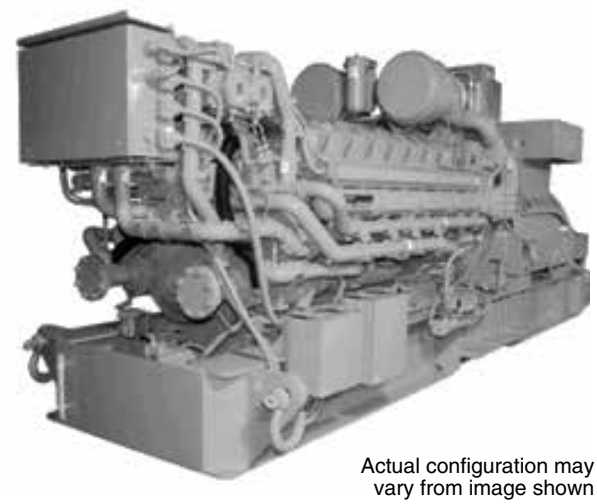
C175-16 Offshore Generator Set

2300 ekW (2875 kVA)
2418 bkW (3243 bhp)
50 Hz (1500 rpm)



Actual configuration may vary from image shown

CAT® GENERATOR SET SPECIFICATIONS

V-16, 4-Stroke-Cycle-Diesel

Emissions	IMO Tier II/EPA Marine Tier 2
Bore	175 mm (6.89 in)
Stroke	220 mm (8.66 in)
Displacement	85 L (5167 in^3)
Aspiration	Turbocharged/2-stage Aftercooled
Fuel System	Common Rail/EUI™
Engine Control	Dual ADEM™ A5
Instrumentation	LECP II/III (Cat® Alarm and Protection System optional)
Oil Change Interval	1000 hours

FEATURES

Product Design
- Industry-leading power density for growing offshore power demands
- IMO Tier II emissions compliant
- High pressure electronic unit injection maximizes fuel efficiency, performance, while maintaining emission standards
- Dual ADEM A5 redundant engine control
- Cat® alarm and protection system provides the latest technology in generator set control, protection, and operator interface
- MCS type approval
- Low smoke zero halogen wiring harness compliant with IEC 61892-3 Section 7.4.7.2

Ease of Installation
- Package design provides single-lift installation to reduce shipyard installation complexity

Custom Packaging

For any petroleum application, trust Caterpillar to meet your project needs with custom factory generator sets and mechanical packages. Cat engines, generators, controls, radiators, and transmissions can be custom designed and matched in collaboration with our local dealers to create unique solutions. Custom packages are globally supported and are covered by a one-year warranty after startup.

Full Range of Attachments

Large variety of factory-installed attachments increases application flexibility and reduces installation time.

Testing
- Every unit is full-load tested to ensure proper package performance
- Full range of factory tests and reports are available including performance, torsional-vibration analysis, fuel consumption, engine, and generator special tests

Unmatched Product Support Offered Through the Worldwide Cat Dealer Network
- More than 2,200 dealer outlets
- Cat factory-trained dealer technicians service every aspect of your Cat product
- Caterpillar parts and labor warranty
- Preventive maintenance agreements available for repair before failure.
- S•O•S℠ program matches your oil sample to Caterpillar set standards to determine:
  - Internal engine component condition
  - Presence of unwanted fluids
  - Presence of combustion by-products
  - Site-specific oil change interval

Over 80 Years of Engine Manufacturing Experience

Ownership of these manufacturing processes enables Caterpillar to produce high quality, dependable products.
- Cast engine blocks, heads, cylinder liners, and flywheel housings
- Machine critical components
- Assemble complete engine

Web Site

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

LEHW0151-05

CONFIGURATION

Air Inlet System
Standard
- Dual turbochargers
- Corrosion-resistant aftercooler core
- Air cleaners — single or dual element

Optional
- Air cleaner service indicator
- Air shutoff

Exhaust System
Standard
- Dry exhaust manifolds with thermo-laminated heat shields
- Dual turbochargers with water-cooled bearings and thermo-laminated heat shields
- Vertical exhaust outlet
- Flange and exhaust expanders
- 358 to 406 mm (14 to 16 in) or
- 358 to 460 mm (14 to 18 in) or
- 358 to 508 mm (14 to 20 in)

Cooling System
Standard
- Separate-circuit-aftercooler (SCAC) and jacket water (JW) circuit cooling system
- Gear-driven centrifugal pumps, one for each circuit
- SCAC electronic thermostat, outlet-controlled with aftercooler inlet temperature sensing
- JW electronic thermostat, outlet-controlled with outlet temperature sensing
- Engine oil cooler in JW circuit

Optional
- 9 kW, 240V, 60 hz jacket water heater
- Custom jacket water heater

Fuel System
Standard
- Cat common rail high-pressure fuel system with electronically controlled unit injectors
- Duplex primary fuel filter with water separator
- Duplex secondary/tertiary fuel filters
- Electric fuel priming pump
- Gear-driven low pressure transfer pump
- Gear-driven high pressure fuel pump
- Double-walled high pressure fuel lines
- Fuel pressure, temperature, and leak detection sensors

Lubrication System
Standard
- Engine-driven, gear-type oil pump
- Integral lube oil cooler
- Front-mounted oil drain lines and valve
- Oil sampling valve
- Filler and dipstick
- Four-canister simplex oil filter
- Prelube pump — electric, air, or custom
- Fumes disposal with crankcase breathers
- Crankcase explosion relief valves
- 15 degree (static) tilt capability

Optional
- Four canister duplex oil filter
- Centrifugal oil filters
- 25 degree (static) tilt capability

Engine Control and Protection
Standard
- Dual ADEM A5 engine control unit (ECU) for redundancy
- Dual engine control module (ECU) and sensors provide redundancy
- Software monitors engine parameters and performs alarm, derate, and shutdown functions
- Rigid wiring harness
- Large Engine Control Panel II (LECP II)

Optional
- Cat Alarm and Protection System
- Communication module A6N1P
- Direct-rack control
- Thermocouples
- Metal particle detector
- SOLAS spray shielding
- Oil mist detector

Mounting

Generator
Custom generator

Flywheel and Coupling
Standard
- Flywheel housing, SAE No. 00
- Flywheel, SAE No. 00
- ABS certified, non-certified, or custom-coupling and coupling mounting

Starting System
Standard
- Turbine air starter or
- Dual electric starting motors or
- Air and electric starting motors (redundant)

General
Standard
- Power distribution box — 24V or custom
- 20A battery charger
- Cat yellow paint
- Offshore oil field sub-base
- Integral spring isolators with limit stop
- Lift provisions on base
- Oil drain extension
- Engine length drip pan with drain
- Torsional dampened driveline couplings

Optional
- TVA report
- Special tests
- Project-specific installation drawings
- P&ID-electrical drawings
- Spare parts kit
- Barring group
- Engine lifting group
- Custom generators and radiators

INSTRUMENTATION FEATURES

Large Engine Control Panel II (LECP II) - Std

- Local Start/Stop/Throttle Control/ E-stop
- Remote Throttle ready
- Off/Local/Remote Switch
- Engine Parameters and Diagnostics
- Full color 5.7" display (Touchscreen)
- J1939, Modbus TCP (Ethernet), and RTU (RS485) communication
- Switches
    - Crank Override
    - Manual Start
    - Manual Prelube
- Options
    - MCS Approved Ethernet Switch
    - Telematics
    - Direct Rack (Aux only)

Large Engine Control Panel III (LECP III) - Optional

- Cat Alarm and Protection Panel
- MCS Approved
- Local Start/Stop/Throttle Control
- Remote Throttle ready
- Off/Local/Remote Switch
- Provides Diagnostics
- Full color 5.7" display
- J1939, Modbus TCP (Ethernet), and RTU (RS485) communication
- Shutdowns (SDU 410)
    - Coolant Temp
    - Oil Pressure
    - Overspeed
    - Estop
    - Oil Mist Detection
- Switches
    - Manual start
    - Crank override
    - Manual prelube
    - Crank inhibit
- Options
    - MCS Approved Ethernet Switch
    - Telematics
    - OMD Override Switch
    - Red/Yellow Alarm Beacon
    - Direct Rack (Aux only)

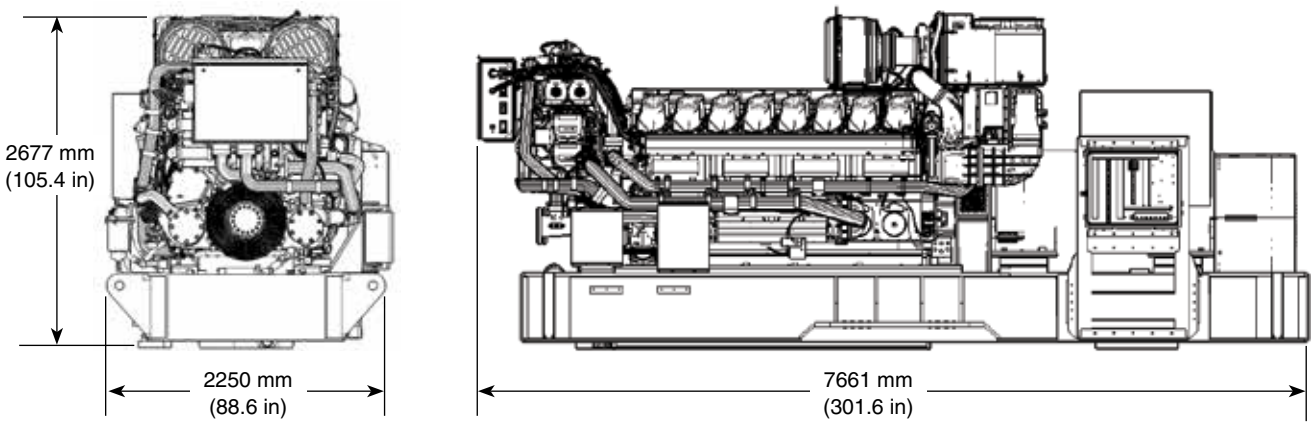
TECHNICAL DATA

C175-16 Offshore Generator Set — 1500 rpm

	Units	DM9508
Generator Set Data		
Rated power*	ekW	2300
kVA rating*	kVA	2875
Rated power factor*		0.8
Frequency	Hz	50
Engine Data		
Engine power	bkW (bhp)	2,418 (3243)
Engine speed	rpm	1500
Maximum ambient temperature without derate	°C (°F)	50 (122)
BMEP @ rated	kPa (psi)	2284 (331)
BSFC @ 100% load	g/bkW-hr (lb/bhp-hr)	201.9 (0.332)
BSFC @ 75% load	g/bkW-hr (lb/bhp-hr)	208.3 (0.343)
BSFC @ 50% load	g/bkW-hr (lb/bhp-hr)	210.2 (0.346)
BSFC @ 25% load	g/bkW-hr (lb/bhp-hr)	236.3 (0.389)
Fuel consumption @ rated (nominal)	L/hr (gal/hr)	582 (154)
Air flow rate (@ 25°C, 101.3 kPa)	m^3/min (ft^3/min)	194 (6850)
Inlet manifold pressure	kPa (psi)	252 (36.5)
Inlet manifold temperature	°C (°F)	50.5 (123)
Aftercooler water temperature	°C (°F)	46 (115)
Jacket water temperature	°C (°F)	99 (210)
Exhaust stack temperature	°C (°F)	475 (888)
Exhaust flow rate (@ stack temp, 101.3 kPa)	m^3/min (ft^3/min)	518 (18,300)
Separate circuit afercooler heat rejection @ rated	kW (Btu/min)	252 (14,331)
Separate circuit afercooler water flow @ rated	L/min (gal/min)	1080 (285)
Jacket water heat rejection @ rated	kW (Btu/min)	1313 (74,668)
Jacket water flow @ rated	L/min (gal/min)	2000 (528)
Radiated/convective heat rejection @ rated	kW (Btu/min)	209 (11,885)
Lube oil system capacity	L (gal)	946 (250)
Engine coolant capacity (JW)	L (gal)	305 (81)
Engine coolant capacity (AC)	L (gal)	42 (11)
Oil change interval	Hours	1000

*Custom generator, rating assumes 95% generator efficiency and 0.8 power factor

OFFSHORE GENERATOR SET



Module Dimensions		
Length	7661 mm	301.6 in
Width	2250 mm	88.6 in
Height	2677 mm	105.4 in
Module Weight (dry)*	29 710 kg	65,500 lb

Note: Dimensions are dependent on generator and options. See general dimension drawings for details.

***** Weight includes engine, generator, base, and coupling. Weight may vary depending upon individual configuration.

RATING DEFINITIONS AND CONDITIONS

Prime-offshore Rating – Prime rating with 10% overload capability for MCS certification. Output available with varying load for an unlimited time. Prime power in accordance with ISO8528. Typical load factor 60-70%. No limit in hours/year.

Fuel Consumption – 5% tolerance and based on fuel oil of 35° API [16°C (60°F)] gravity having an LHV of 52 780 kJ/kg (18,390 Btu/lb) when used at 29°C (85°F) and weighing 838.9 g/liter (7.001 lbs/U.S. gal). Fuel consumption is shown with all engine-driven oil, fuel, and water pumps.