DIESEL GENERATOR SET





Image shown may not reflect actual package.

PRIME 545 ekW 681 kVA 60 Hz 1800 rpm 480 Volts

Caterpillar is leading the power generation marketplace with Power Solutions engineered to deliver unmatched flexibility, expandability, reliability, and cost-effectiveness.

FEATURES

FUEL/EMISSIONS STRATEGY

Low Fuel consumption

DESIGN CRITERIA

 The generator set accepts 100% rated load in one step per NFPA 110 and meets ISO 8528-5 transient response.

UL 2200 / CSA - Optional

- UL 2200 listed packages
- CSA Certified
 Certain restrictions may apply.
 Consult with your Cat® Dealer.

FULL RANGE OF ATTACHMENTS

- Wide range of bolt-on system expansion attachments, factory designed and tested
- Flexible packaging options for easy and cost effective installation

SINGLE-SOURCE SUPPLIER

Fully prototype tested with certified torsional vibration analysis available

WORLDWIDE PRODUCT SUPPORT

- Cat dealers provide extensive post sale support including maintenance and repair agreements
- Cat dealers have over 1,800 dealer branch stores operating in 200 countries
- The Cat® S•O•SSM program cost effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by-products

CAT ® C18 ATAAC DIESEL ENGINE

- Utilizes ACERT™ Technology
- Reliable, rugged, durable design
- Field-proven in thousands of applications worldwide
- Four-stroke-cycle diesel engine combines consistent performance and excellent fuel economy with minimum weight
- Electronic controlled governor

CAT GENERATOR

- Matched to the performance and output characteristics of Cat engines
- Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time
- UL 1446 Recognized Class H insulation

CAT EMCP 4 CONTROL PANELS

- Simple user friendly interface and navigation
- Scalable system to meet a wide range of customer needs
- Integrated Control System and Communications Gateway

60 Hz 1800 rpm 480 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

Air Inlet Oisposable Air Filter Service indicator (I) Single element air filter Ocoling Padiator package mounted Ocolant level sight gauge Ocolant level sight gauge Ocolant drain line with valve Fan and belt guards Ory exhaust manifold Stanless stell exhaust flac Coolant* Exhaust Dry exhaust manifold Integral single wall fuel tank base Primary fuel filter with integral water separator Secondary fuel filters Fuel Integral single wall fuel tank base Primary fuel filter with integral water separator Secondary fuel filters Feel priming pump Integral exhaust flag outles Fuel cooler integral with cooling system* Feel foul five lines Not included with packages without radiators Generator Class H insulation Internal excited (IE) Class H temperature rise R450 voltage regulator with single phase sensing and load adjustment IP23 Protection Power Termination Power Center houses EMCP controller and power/control terminations (rear mounted) Circit breaker, IEC compliant, 34 pole (100% rated) Segregated low voltage wiring termination panel IP22 protection Soltom cable entry Control Panels Centrol Panels Lube Lube Lube Lubricating oil Oil drain line with valve Oil filter and dipstick Fumes disposal Lube Integral para With valve Oil filter and dipstick Fumes disposal Lube Voltagria para with valve Oil filter and dipstick Fumes disposal Lube Voltagria para land thank base Integral Dual Wall Bhr tank base* Integral Dual Wall Bhr tank base	System	Standard	Optional
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Control Panels Cont			
Coolant drain line with valve			
Exhaust - Card® Extended Life Coolant* Exhaust - Dry exhaust manifold - Stainless steel exhaust flex fittings with split-cuff - Exhaust flange outlets Fuel - Integral single wall fuel tank base - Primary fuel filter with integral water separator - Secondary fuel filter with integral water separator - Secondary fuel filters - Fuel priming pump - Engine fuel transfer pump - Fuel cooler integral with cooling system* - Foxible fuel lines - Not incuded with packages without radiators Generator - Class H insulation - Internal excited (IE) - Class H temperature rise - R450 voltage regulator with single phase sensing and load adjustment - IP23 Protection - Power Termination - Power Center houses EMCP controller and power/control terminations (rear mounted) - Circit breaker, IEC compliant, 3-4 pole (100% rated) - Segregated low voltage wiring termination panel - Regulation - Bottom cable entry Governor - ADEM™ A4 Control Panels - EMCP 4.1 (mounted in Power Center) - Speed adjustment - Voltage in the standard protection - Did drain line with valves - Oil filter and dipstick - Fumes disposal - Lube oil level indicator - Oil cooler Mounting - Later - Later - Valved Mala - Valved Wall Shr tank base - Linear vibration isolation - 24 volt, 45 amp pharging alternator I J Jacket water heater - Valved with starting motor - I J Jacket water heater - Valved with starting motor - I J Jacket water heater - Valved with valves - I J Jacket water heater - Valved with valves - I J Jacket water heater - Valved with valves - I J Jacket water heater - Valved with valves - I J Jacket water heater - Valved with valves - I J Jacket water heater - Valved with valves - I J Jacket water heater - Valved with valves - Valved with		Coolant drain line with valve	
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• 24 volt, 45 amp charging alternator [] Battery disconnect switch			~
• 24 volt, 45 amp charging alternator [] Battery disconnect switch	Starting/Charging	• 24 volt starting motor	[] Jacket water heater
			[] Battery disconnect switch
			[] Battery charger 5 amp

60 Hz 1800 rpm 480 Volts



SPECIFICATIONS

CAT GENERATOR

Frame size	LC7024F
Excitation	Internal Excitation
Pitch	0.6667
Number of poles	4
Number of bearings	Single bearing
Number of Leads	012
InsulationUL 1446 Re	cognized Class H with
tropicalization and antiabrasion - Consult your Caterpillar dealer for	available voltages
IP Rating	Drip Proof IP23
Alignment	Pilot Shaft
Overspeed capability	125
Wave form Deviation (Line to Line)	2%
Voltage Regulator	. Single Phase Sensing
Voltage regulationLess than	+/- 1/2% (steady state)
Less than +/- ½% (w/ 3% speed cha	nge)

CAT DIESEL ENGINE

C18 ATAAC, I-6, 4-Stroke Water-cooled Diesel						
Bore						
Stroke		183.00 mm	(7.2 in)			
Displacement		18.13 L (110	6.36 in³)			
Compression Ratio		14.5:1				
Aspiration		Air-to-Air After	cooled			
Fuel System		. E <mark>lectronic</mark> unit ii	njection			
Governor Type	Caterpill	lar ADEM control	system			

CAT EMCP 4 SERIES CONTROLS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed and Voltage Adjust
- Engine Cycle Crank
- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions

Digital indication for:

- RPM
- DC volts
- Operating hours
- Oil pressure (psi, kPa or bar)
- Coolant temperature
- Volts (L-L & L-N), frequency (Hz)
- Amps (per phase & average)
- ekW, kVA, kVAR, kW-hr, %kW, PF (4.2 only)

Warning/shutdown with common LED indication of:

- Low oil pressure
- High coolant temperature
- Overspeed
- Emergency stop
- Failure to start (overcrank)
- Low coolant temperature
- Low coolant level

Programmable protective relaying functions:

- Generator phase sequence
- Over/Under voltage (27/59)
- Over/Under Frequency (81 o/u)
- Reverse Power (kW) (32) (4.2 only)
- Reverse reactive power (kVAr) (32RV)
- Overcurrent (50/51)

Communications:

- Four digital inputs (4.1)
- Six digital inputs (4.2 only)
- Four relay outputs (Form A)
- Two relay outputs (Form C)
- Two digital outputs
- Customer data link (Modbus RTU) (4.2 only)
- Accessory module data link (4.2 only)
- Serial annunciator module data link (4.2 only)
- Emergency stop pushbutton

Compatible with the following:

- Digital I/O module
- Local Annunciator
- Remote CAN annunciator
- Remote serial annunciator

60 Hz 1800 rpm 480 Volts



TECHNICAL DATA

Open Generator Set 1800 rpm/60 Hz/480 Volts		DM9833	
Low Fuel Consumption			
Generator Set Package Performance			
Genset Power rating @ 0.8 pf	681.25 kVA		
Genset Power rating with fan	545 ekW		
Fuel Consumption			
100% load with fan	150.5 L/hr	39.8 Gal/hr	
75% load with fan	111.1 L/hr	29.3 Gal/hr	
50% load with fan	76.6 L/hr	20.2 Gal/hr	
Cooling System ¹			
Air flow restriction (system)	0.12 kPa	0.48 in. water	
Air flow (max @ rated speed for radiator arrangement)	481 m³/min	16986 cfm	
Engine Coolant capacity with radiator/exp. tank	54.8 L	14.5 gal	
Engine coolant capacity	20.8 L	5.5 gal	
Radiator coolant capacity	34.0 L	9.0 gal	
Inlet Air			
Combustion air inlet flow rate	46.0 m³/min	1624.5 cfm	
Exhaust System			
Exhaust stack gas temperature	495.5 ° C	923.9 ° F	
Exhaust gas flow rate	125.0 m³/min	4414.3 cfm	
Exhaust flange size (internal diameter)	203 mm	8 in	
Exhaust system backpressure (maximum allowable)	10.0 kPa	40.2 in. water	
Heat Rejection			
Heat rejection to coolant (total)	174 kW	9895 Btu/min	
Heat rejection to exhaust (total)	546 kW	31051 Btu/min	
Heat rejection to aftercooler	133 kW	7564 Btu/min	
Heat rejection to atmosphere from engine	139 kW	7905 Btu/min	
Heat rejection to atmosphere from generator	36.0 kW	2047.3 Btu/min	
Alternator ²			
Motor starting capability @ 30% voltage dip	1633 skVA	T (1)	
Frame	LC7024F	CIL	
Temperatu <mark>re Ris</mark> e	125 ° C	225 ° F	
Lube System	TOTKI		
Sump refill with filter	38.0 L	10.0 gal	
Emissions (Nominal) ³	UP		
NOx g/hp-hr	4.97 g/hp-hr		
CO g/hp-hr	.16 g/hp-hr		
HC g/hp-hr	.01 g/hp-hr		
PM g/hp-hr	.013 g/hp-hr		

¹ For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory. ² Generator temperature rise is based on a 40° C (104° F) ambient per NEMA MG1-32. Some packages may have oversized generators with a different temperature rise and motor starting characteristics.

³ Emissions data measurement procedures are consistent with those described in EPA CFR 40 Part 89, Subpart D & E and ISO8178-1 for measuring HC, CO, PM, NOx. Data shown is based on steady state operating conditions of 77°F, 28.42 in HG and number 2 diesel fuel with 35° API and LHV of 18,390 btu/lb. The nominal emissions data shown is subject to instrumentation, measurement, facility and engine to engine variations. Emissions data is based on 100% load and thus cannot be used to compare to EPA regulations which use values based on a weighted cycle.

60 Hz 1800 rpm 480 Volts



RATING DEFINITIONS AND CONDITIONS

Meets or Exceeds International Specifications: AS1359, CSA, IEC60034-1, ISO3046, ISO8528, NEMA MG 1-22, NEMA MG 1-33, UL508A, 72/23/EEC, 98/37/EC, 2004/108/EC

Prime - Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand is 100% of prime rated ekW with 10% overload capability for emergency use for a maximum of 1 hour in 12. Overload operation cannot exceed 25 hours per year. Prime power in accordance with ISO3046. Prime ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just below the alarm temperature.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions. Fuel rates are based on fuel oil of 35° API [16° C (60° F)] gravity having an LHV of 42 780 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.). Additional ratings may be available for specific customer requirements, contact your Cat representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

