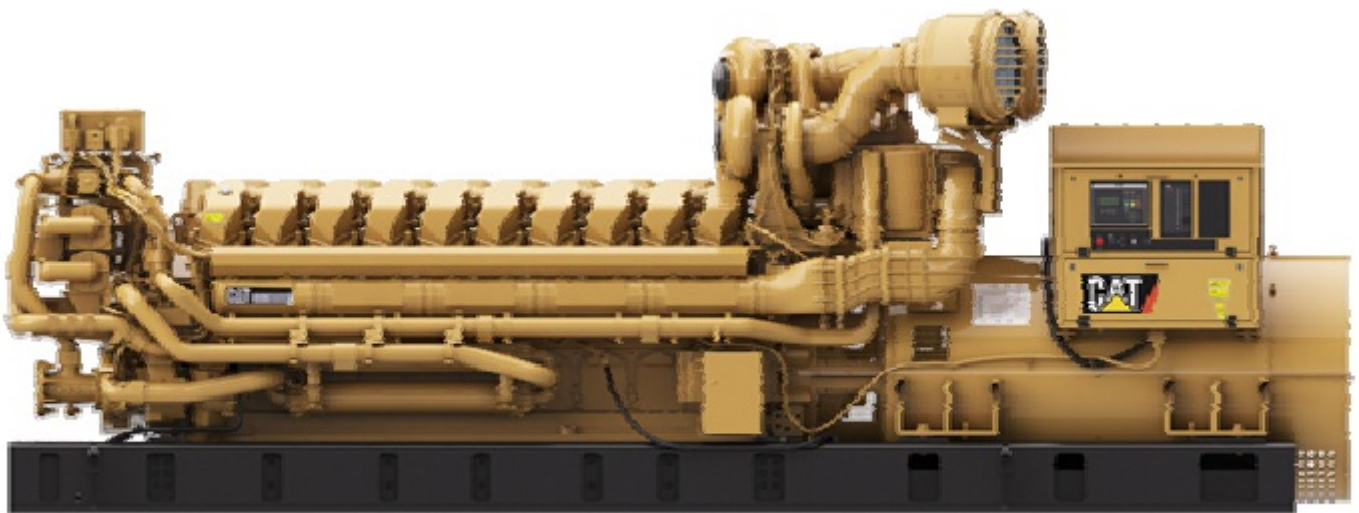


ژنراتور : Caterpillar

موتور دیزل : Caterpillar

Standby		Prime		دیزل ژنراتور
KVA	KW	KVA	KW	
4000	3200	3636	2910	



موتور دیزل		
Manufacturer	Caterpillar	تولید کننده
Model	C175-20	مدل
Number of cylinders	20	تعداد سیلندر ها
Cylinder arrangement	vertical	آرایش سیلندر ها
Displacement , Liters	105.8	جا به جایی
Bore × Stroke , mm	175× 220	قطر سیلندر × کورس پیستون
Compression Ratio	15.3:1	نسبت تراکم
Aspiration	Turbocharged Aftercooled	سیستم تنفس
Gross engine power, kWb	2910	قدرت نافالص موتور
Fan Power, kWm	3200	قدرت فن
Combustion air flow, m ³ /min	267	جریان هوای احتراق
Exhaust gas temp.(after turbo) , °C	421.7 °	دمای گاز خروجی از اگزوز
Exhaust gas flow (after turbo) , m ³ /min	652.1	جریان هوای خروجی از اگزوز

ژنراتور

Manufacturer	Caterpillar	تولید کننده
Standby power at rated voltage ,KVA	4000	توان standby در ولتاژ نامی
Efficiency, %	90.1	راندمان
Power factor	0.8	ضریب قدرت
Phase	3	فاز
Frequency, Hz	50	فرکانس
Speed, Rpm	1500	سرعت
Voltage, V	380	ولتاژ
Excitation	PM	سیستم تمریک
Voltage Regulator	Three phase sensing	رگولاتور ولتاژ
Voltage Regulation, %	Less than +/- 1/2%	تنظیم ولتاژ
Over speed, Rpm	2250	مداکثر سرعت مجاز
Insulation class	H	کلاس عایق
Connection	Terminal strip connection	اتصال
Protection class	IP23	کلاس حفاظتی

DIESEL GENERATOR SET

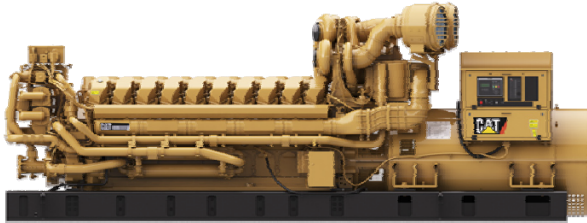


Image shown may not reflect actual package

STANDBY 3200 ekW 4000 kVA 50 Hz 1500 rpm 3300 Volts

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

FUEL/EMISSIONS STRATEGY

- Low BSFC

DESIGN CRITERIA

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

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 1600 dealer branch stores operating in 200 countries.
- The Cat[®] S•O•SSM program effectively detects internal engine component condition, even the presence of unwanted fluids and combustion by products.

CAT C175-20 DIESEL ENGINE

- Reliable, rugged, durable design
- Four-stroke diesel engine combines consistent performance and excellent fuel economy with minimum weight

CAT SR5 GENERATOR

- Designed to match performance and output characteristics of Cat diesel engines
- Single point access to accessory connections

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

STANDBY 3200 kW 4000 kVA

50 Hz 1500 rpm 3300 Volts



FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

System	Standard	Optional
Air Inlet	<ul style="list-style-type: none">• Air cleaner, 4 x single element canister with service indicator(s)• Plug group for air inlet shut-off	<input type="checkbox"/> Air cleaner, 4 x dual element with service indicator(s) <input type="checkbox"/> Air inlet adapters
Cooling	<ul style="list-style-type: none">• SCAC cooling• Jacket water and AC inlet/outlet flanges	<input type="checkbox"/> Remote horizontal SCAC radiator <input type="checkbox"/> Remote fuel cooler <input type="checkbox"/> Low coolant level sensor (for remote radiators)
Exhaust	<ul style="list-style-type: none">• Dry exhaust manifold• Bolted flange (ANSI 8" & DIN 200) with bellow for each turbo (qty 4)	<input type="checkbox"/> Engine Exhaust Temperature Module <input type="checkbox"/> Mufflers (15 dBA, 25 dBA, or 40 dBA) <input type="checkbox"/> Dual 20" or single 24" vertical exhaust collector <input type="checkbox"/> Weld flanges: ANSI 20" and ANSI 24"
Crankcase Systems	<ul style="list-style-type: none">• Open crankcase ventilation	<input type="checkbox"/> Crankcase explosion relief valve
Fuel	<ul style="list-style-type: none">• Primary fuel filter with water separator• Secondary fuel filters (engine mounted)	
Generator SR5	<ul style="list-style-type: none">• 3 phase brushless, salient pole• Space heater kit• IEC platinum stator RTD's• Cat digital voltage regulator (CDVR)	<input type="checkbox"/> Oversize generators <input type="checkbox"/> Power connection arrangement
Governor	<ul style="list-style-type: none">• ADEM™ A4	<input type="checkbox"/> Redundant shutdown
Control Panels	<ul style="list-style-type: none">• EMCP 4.2 Genset Controller	<input type="checkbox"/> Local & remote annunciator modules <input type="checkbox"/> Discrete I/O module <input type="checkbox"/> Generator temperature monitoring & protection <input type="checkbox"/> Remote monitoring <input type="checkbox"/> Load share module
Lube	<ul style="list-style-type: none">• Lubricating oil• Oil filter, filler and dipstick• Oil drain line with valves• Fumes disposal• Gear type lube oil pump• Integral lube oil cooler• Electric prelube pumps	
Mounting	<ul style="list-style-type: none">• Rails-engine / generator• Rubber anti-vibration mounts (shipped loose)	<input type="checkbox"/> Spring type linear vibration isolators <input type="checkbox"/> IBC vibration isolators
Starting / Charging	<ul style="list-style-type: none">• Dual 24 volt electric starting motors• Batteries with rack and cables• Battery disconnect switch	<input type="checkbox"/> Oversized battery set <input type="checkbox"/> 75 amp charging alternator <input type="checkbox"/> Battery chargers (20, 35 or 50 Amp) <input type="checkbox"/> Jacket water heater <input type="checkbox"/> Redundant Electric Starter
General	<ul style="list-style-type: none">• RH service (Except LH Service Oil Filter)• Paint - Caterpillar Yellow with high gloss black rails• SAE standard rotation• Flywheel and flywheel housing - SAE No. 00	<input type="checkbox"/> Barring group- manual or air powered <input type="checkbox"/> Factory test reports

SPECIFICATIONS

CAT GENERATOR

Frame	3055
Excitation	PM
Pitch.....	0.6667
Number of poles.....	4
Number of bearings	2
Number of Leads.....	6
Insulation	Class F
IP rating	Drip proof IP23
Over speed capability - % of rated.....	125%
Wave form deviation.....	3 %
Voltage regulator.....	3 phase sensing with selectable V/Hz regulation
Telephone Influence Factor	Less than 50
Harmonic Distortion	Less than 5%

CAT DIESEL ENGINE

C175-20 SCAC, V-20, 4 stroke, water-cooled diesel

Bore	175.00 mm (6.89 in)
Stroke	220.00 mm (8.66in)
Displacement	105.8 L (6456.31 in ³)
Compression ratio.....	15.3:1
Aspiration.....	TA
Fuel system.....	Common Rail
Governor Type.....	ADEM™ A4

CAT EMCP 4 CONTROL PANELS

EMCP 4 controls including:

- Run / Auto / Stop Control
- Speed Adjust
- Voltage Adjust
- Engine Cycle Crank
- Emergency stop pushbutton

EMCP 4.2 controller features:

- 24-volt DC operation
- Environmental sealed front face
- Text alarm/event descriptions
- True RMS AC metering, 3-phase, ±1% accuracy.

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)
- Power Factor (per phase & average)
- kW (per phase, average & percent)
- kVA (per phase, average & percent)
- kVAr (per phase, average & percent)
- kW-hr (total)
- kVAr-hr (total)

Warning/shutdown with common LED indication of shutdowns for:

- 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)
- Reverse Reactive Power (kVAr) (32RV)
- Overcurrent (50/51)

Communications

- Customer data link (Modbus RTU)
- Accessory module data link
- Serial annunciator module data link
- 6 programmable digital inputs
- 6 programmable relay outputs (Form A)
- 2 programmable relay outputs (Form C)
- 2 programmable digital outputs

STANDBY 3200 ekW 4000 kVA

50 Hz 1500 rpm 3300 Volts



Technical Data

Open Generator Set - 1500 rpm/50 Hz/3300 Volts	DM8940	
Low BSFC		
Generator Set Package Performance		
Genset Power rating @ 0.8 pf	4000 kVA	
Genset Power Rating without fan	3200 ekW	
Fuel Consumption		
100% Load with fan	787.2 L/hr	208.0 Gal/hr
75% Load with fan	586.3 L/hr	154.9 Gal/hr
50% Load with fan	409.5 L/hr	108.2 Gal/hr
Inlet Air		
Combustion air inlet flow rate	267.0 m ³ /min	9429 cfm
Exhaust System		
Exhaust stack gas temperature (engine out)	421.7 °C	791 °F
Exhaust gas flow rate	652.1 m ³ /min	23028 cfm
Exhaust system backpressure (maximum allowable)	6.7 kPA	26.9 in water
Heat Rejection		
Heat rejection to coolant (total)	1614 kW	91754 Btu/min
Heat rejection to exhaust (total)	2763 kW	157080 Btu/min
Heat rejection to aftercooler	373 kW	21186 Btu/min
Heat rejection to atmosphere from engine	248 kW	14093 Btu/min
Heat rejection to atmosphere from generator	140 kW	7969 Btu/min
Alternator		
Motor starting capability @30% voltage dip	7904 skVA	
Frame	3055	
Temperature Rise	130 °C	234 °F
Lube System		
Sump refill with filter	675 L	178.3 gal
Emissions (Nominal)²		
NOx g/hp-hr	7.87 g/hp-hr	
CO g/hp-hr	0.13 g/hp-hr	
HC g/hp-hr	0.05 g/hp-hr	
PM g/hp-hr	0.01 g/hp-hr	

Note: This generator set is not offered with an engine driven radiator. Addition of an engine driven fan will reduce the output below the nameplate rating.

¹ Some packages may have oversized generators with a different temperature rise and motor starting characteristics. Generator temperature rise is based on a 40 degree C ambient per NEMA MG1-32.

² 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. Emissions values are tailpipe out with aftertreatment installed. Values shown as zero may be greater than zero but were below the detection level of the equipment used at the time of measurement.

STANDBY 3200 ekW 4000 kVA

50 Hz 1500 rpm 3300 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

Standby - Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby power rating. Typical operation is 200 hours per year, with maximum expected usage of 500 hours per year. Standby power in accordance with ISO8528. Fuel stop power in accordance with ISO3046. Standby ambients shown indicate ambient temperature at 100% load which results in a coolant top tank temperature just below the shutdown 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 Caterpillar representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

STANDBY 3200 eKW 4000 kVA

50 Hz 1500 rpm 3300 Volts



DIMENSIONS

Package Dimensions		
Length	6719 mm	267.5 in
Width	2377 mm	93.6 in
Height	2556 mm	100.6 in

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions.

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Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication.

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