

**Caterpillar : ژنراتور**

**Caterpillar : موتور دیزل**

| Standby |     | Prime |     | دیزل ژنراتور |
|---------|-----|-------|-----|--------------|
| KVA     | KW  | KVA   | KW  |              |
| 605     | 484 | 550   | 440 |              |



| موتور دیزل   |                        |                           |
|--|------------------------|---------------------------|
| Manufacturer   | Caterpillar            | تولید کننده               |
| Model  | C18 ATAAC              | مدل                       |
| Number of cylinders                                  | 6                      | تعداد سیلندر ها           |
| Cylinder arrangement                                 | Liner                  | آرایش سیلندر ها           |
| Displacement , Liters                                | 18.13                  | جا به جایی                |
| Bore × Stroke , mm                                   | 145× 183               | قطر سیلندر × کورس پیستون  |
| Compression Ratio                                    | 14.5:1                 | نسبت تراکم                |
| Aspiration   | Air-to-Air Aftercooled | سیستم تنفس                |
| Gross engine power, kWb                              | 440                    | قدرت نافالص موتور         |
| Fan Power, kWm                                       | 484                    | قدرت فن                   |
| Combustion air flow, m <sup>3</sup> /min             | 31.6                   | جریان هوای احتراق         |
| Exhaust gas temp.(after turbo) , °C                  | 553.8 °                | دمای گاز خروجی از اگزوز   |
| Exhaust gas flow (after turbo) , m <sup>3</sup> /min | 92.1                   | جریان هوای خروجی از اگزوز |

### ژنراتور

|                                     |                                      |                            |
|-------------------------------------|--------------------------------------|----------------------------|
| Manufacturer                        | Caterpillar                          | تولید کننده                |
| Standby power at rated voltage ,KVA | 605                                  | توان standby در ولتاژ نامی |
| Efficiency, %                       | 89.3                                 | راندمان                    |
| Power factor                        | 0.8                                  | ضریب قدرت                  |
| Phase                               | 3                                    | فاز                        |
| Frequency, Hz                       | 50                                   | فرکانس                     |
| Speed, Rpm                          | 1500                                 | سرعت                       |
| Voltage, V                          | 380                                  | ولتاژ                      |
| Excitation                          | Internal Excitation                  | سیستم تمریک                |
| Voltage Regulator                   | Three phase sensing                  | رگولاتور ولتاژ             |
| Voltage Regulation, %               | Less than +/- 1/2%<br>(steady state) | تنظیم ولتاژ                |
| Over speed, Rpm                     | 2250                                 | مداکثر سرعت مجاز           |
| Insulation class                    | H                                    | کلاس عایق                  |
| Connection                          | Terminal strip<br>connection         | اتصال                      |
| Protection class                    | IP23                                 | کلاس حفاظتی                |



Image shown may not reflect actual package.

## STANDBY 484 kW 605 kVA 50 Hz 1500 rpm 400 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

#### 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•S<sup>SM</sup> 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

# STANDBY 484 ekW 605 kVA

50 Hz 1500 rpm 400 Volts



## FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

| System            | Standard   | Optional  |
|-------------------|--|---|
| Air Inlet         | • Air cleaner  |   |
| Cooling           | • Package mounted radiator   |   |
| Exhaust           | • Exhaust flange outlet  | <input type="checkbox"/> Industrial <input type="checkbox"/> Residential <input type="checkbox"/> Critical Mufflers   |
| Fuel              | • Primary fuel filter with integral water separator<br>• Secondary fuel filters<br>• Fuel priming pump   |   |
| Generator         | • Matched to the performance and output characteristics of Cat engines<br>• Load adjustment module provides engine relief upon load impact and improves load acceptance and recovery time<br>• IP23 protection | <input type="checkbox"/> Oversize and premium generators<br><input type="checkbox"/> Permanent magnet excitation (PMG)<br><input type="checkbox"/> Internal excited (IE)<br><input type="checkbox"/> Anti-condensation space heaters  |
| Power Termination | • Bus bar  | <input type="checkbox"/> Circuit breakers, UL listed<br><input type="checkbox"/> Circuit breakers, IEC compliant  |
| Control Panel     | • EMCP 4 Genset Controller   | <input type="checkbox"/> EMCP 4.2<br><input type="checkbox"/> EMCP 4.3<br><input type="checkbox"/> EMCP 4.4<br><input type="checkbox"/> Local and remote annunciator modules<br><input type="checkbox"/> Load share module<br><input type="checkbox"/> Digital I/O module<br><input type="checkbox"/> Remote monitoring software  |
| Mounting          | • Rubber vibration isolators   |   |
| Starting/Charging | • 24 volt starting motor<br>• Batteries  | <input type="checkbox"/> Battery chargers<br><input type="checkbox"/> Oversize batteries<br><input type="checkbox"/> Jacket water heater<br><input type="checkbox"/> Heavy duty starting system<br><input type="checkbox"/> Charging alternator   |
| General           | • Paint - Caterpillar Yellow except rails and radiators gloss black  | The following options are based on regional and product configuration:<br><input type="checkbox"/> Seismic Certification per Applicable Building Codes: IBC 2000, IBC 2003, IBC 2006, IBC 2009, CBC 2007<br><input type="checkbox"/> UL 2200 package<br><input type="checkbox"/> EU Certificate of Conformance (CE)<br><input type="checkbox"/> CSA Certification<br><input type="checkbox"/> EEC Declaration of Conformity<br><input type="checkbox"/> Narrow, wide or skid base<br><input type="checkbox"/> Sound attenuated, weather protective or high ambient weather protective enclosures<br><input type="checkbox"/> Single or dual wall integral fuel tanks<br><input type="checkbox"/> Single or dual wall sub-base fuel tanks<br><input type="checkbox"/> Integral & sub-base UL listed dual wall fuel tanks<br><input type="checkbox"/> Automatic transfer switches (ATS) |

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## 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  
Insulation..... UL 1446 Recognized Class H with tropicalization and antiabrasion  
- Consult your Caterpillar dealer for available voltages  
IP Rating..... Drip Proof IP23  
Alignment..... Pilot Shaft  
Overspeed capability..... 150  
Wave form Deviation (Line to Line)..... 2%  
Voltage regulator..... Three phase sensing  
Voltage regulation..... Less than +/- 1/2% (steady state)  
Less than +/- 1/2% (w/ 3% speed change)

### CAT DIESEL ENGINE

C18 ATAAC, I-6, 4-Stroke Water-cooled Diesel  
Bore..... 145.00 mm (5.71 in)  
Stroke..... 183.00 mm (7.2 in)  
Displacement..... 18.13 L (1106.36 in<sup>3</sup>)  
Compression Ratio..... 14.5:1  
Aspiration..... Air-to-Air Aftercooled  
Fuel System..... Electronic unit injection  
Governor Type..... Caterpillar 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

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## TECHNICAL DATA

| Open Generator Set - - 1500 rpm/50 Hz/400 Volts       | DM9820                    |                |
|---|---------------------------|----------------|
| <b>Low Fuel Consumption</b>                           |                           |                |
| <b>Generator Set Package Performance</b>              |                           |                |
| Genset Power rating @ 0.8 pf                          | 605 kVA                   |                |
| Genset Power rating with fan                          | 484 ekW                   |                |
| <b>Fuel Consumption</b>                               |                           |                |
| 100% load with fan                                    | 122.7 L/hr                | 32.4 Gal/hr    |
| 75% load with fan                                     | 92.0 L/hr                 | 24.3 Gal/hr    |
| 50% load with fan                                     | 64.0 L/hr                 | 16.9 Gal/hr    |
| <b>Cooling System<sup>1</sup></b>                     |                           |                |
| Air flow restriction (system)                         | 0.12 kPa                  | 0.48 in. water |
| Air flow (max @ rated speed for radiator arrangement) | 373 m <sup>3</sup> /min   | 13172 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        |
| <b>Inlet Air</b>                                      |                           |                |
| Combustion air inlet flow rate                        | 31.6 m <sup>3</sup> /min  | 1115.9 cfm     |
| <b>Exhaust System</b>                                 |                           |                |
| Exhaust stack gas temperature                         | 553.8 ° C                 | 1028.8 ° F     |
| Exhaust gas flow rate                                 | 92.1 m <sup>3</sup> /min  | 3252.5 cfm     |
| Exhaust flange size (internal diameter)               | 203 mm                    | 8 in           |
| Exhaust system backpressure (maximum allowable)       | 10.0 kPa                  | 40.2 in. water |
| <b>Heat Rejection</b>                                 |                           |                |
| Heat rejection to coolant (total)                     | 157 kW                    | 8929 Btu/min   |
| Heat rejection to exhaust (total)                     | 449 kW                    | 25535 Btu/min  |
| Heat rejection to aftercooler                         | 76 kW                     | 4322 Btu/min   |
| Heat rejection to atmosphere from engine              | 84 kW                     | 4777 Btu/min   |
| Heat rejection to atmosphere from generator           | 34.2 kW                   | 1944.9 Btu/min |
| <b>Alternator<sup>2</sup></b>                         |                           |                |
| Motor starting capability @ 30% voltage dip           | 1376 skVA                 |                |
| Frame   | LC7024F                   |                |
| Temperature Rise                                      | 130 ° C                   | 234 ° F        |
| <b>Lube System</b>                                    |                           |                |
| Sump refill with filter                               | 38.0 L                    | 10.0 gal       |
| <b>Emissions (Nominal)<sup>3</sup></b>                |                           |                |
| NOx mg/nm <sup>3</sup>                                | 3762.8 mg/nm <sup>3</sup> |                |
| CO mg/nm <sup>3</sup>                                 | 656.7 mg/nm <sup>3</sup>  |                |
| HC mg/nm <sup>3</sup>                                 | 3.2 mg/nm <sup>3</sup>    |                |
| PM mg/nm <sup>3</sup>                                 | 12.6 mg/nm <sup>3</sup>   |                |

<sup>1</sup> For ambient and altitude capabilities consult your Cat dealer. Air flow restriction (system) is added to existing restriction from factory.

<sup>2</sup> 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.

<sup>3</sup> 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.

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50 Hz 1500 rpm 400 Volts



## RATING DEFINITIONS AND CONDITIONS

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**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.

**Ratings** are based on SAE J1349 standard conditions. These ratings also apply at ISO3046 standard conditions.



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## DIMENSIONS

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| Package Dimensions |   |
|--------------------|---|
| Length             | Information not available at this time. |
| Width              |   |
| Height             |   |

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #3619111).

Performance No.: DM9820

Feature Code: C18DF1X

Gen. Arr. Number: 3921383

Source: Brasil

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21375794

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