

راد دیزل نمایندگی ژنراتور کاترپیلار

021-58437

www.raddiesel.ir

| موتور دیزل | | |
|--|-----------------------------|---------------------------|
| Manufacturer | Caterpillar | تولید کننده |
| Model | 3516B TA | مدل |
| Number of cylinders | 12 | تعداد سیلندر ها |
| Cylinder arrangement | vertical | آرایش سیلندر ها |
| Displacement , Liters | 69.00 | جا به جایی |
| Bore × Stroke , mm | 170× 190 | قطر سیلندر × کورس پیستون |
| Compression Ratio | 14.0:1 | نسبت تراکم |
| Aspiration | Turbocharged Aftercooled | سیستم تنفس |
| Gross engine power, kWb | 1636 | قدرت نافالص موتور |
| Fan Power, kWm | 1800 | قدرت فن |
| Combustion air flow, m ³ /min | 135.2 | جریان هوای احتراق |
| Exhaust gas temp.(after turbo) , °C | 538.5 ° | دمای گاز خروجی از اگزوز |
| Exhaust gas flow (after turbo) , m ³ /min | 383.9 | جریان هوای خروجی از اگزوز |



ژنراتور

| | | |
|-------------------------------------|---------------------------|----------------------------|
| Manufacturer | Caterpillar | تولید کننده |
| Standby power at rated voltage ,KVA | 2250 | توان standby در ولتاژ نامی |
| Efficiency, % | 89.6 | راندمان |
| Power factor | 0.8 | ضریب قدرت |
| Phase | 3 | فاز |
| Frequency, Hz | 50 | فرکانس |
| Speed, Rpm | 1500 | سرعت |
| Voltage, V | 380 | ولتاژ |
| Excitation | Permanent Magnet | 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 |

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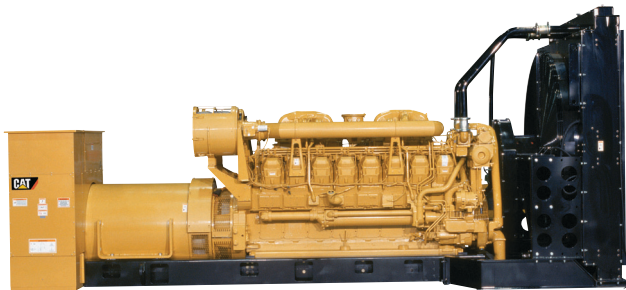


Image shown may not reflect actual package.

STANDBY

1800 e kW 2250 kVA
50 Hz 1500 rpm 11 000
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 Emissions

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 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® 3516B TA DIESEL ENGINE

- 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

CAT HV GENERATOR

- Matched to the performance and output characteristics of Cat engines
- Single point access to accessory connections
- UL 1446 Recognized Class F 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

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FACTORY INSTALLED STANDARD & OPTIONAL EQUIPMENT

| System | Standard | Optional |
|-------------------|---|--|
| Air Inlet | <ul style="list-style-type: none">• Single element canister type air cleaner• Service indicator | <ul style="list-style-type: none"><input type="checkbox"/> Dual element & heavy duty air cleaners<input type="checkbox"/> Air inlet adapters & shut-off |
| Cooling | <ul style="list-style-type: none">• Radiator with guard• Coolant drain line with valve• Fan and belt guards• Cat® Extended Life Coolant* | <ul style="list-style-type: none"><input type="checkbox"/> Radiator duct flange<input type="checkbox"/> Jacket water heater |
| Exhaust | <ul style="list-style-type: none">• Dry exhaust manifold• Flanged faced outlets | <ul style="list-style-type: none"><input type="checkbox"/> Mufflers and Silencers<input type="checkbox"/> Stainless steel exhaust flex fittings<input type="checkbox"/> Elbows, flanges, expanders & Y adapters |
| Fuel | <ul style="list-style-type: none">• Secondary fuel filters• Fuel priming pump• Flexible fuel lines• Fuel cooler* | <ul style="list-style-type: none"><input type="checkbox"/> Water separator<input type="checkbox"/> Duplex fuel filter |
| Generator | <ul style="list-style-type: none">• Class F insulation• Cat digital voltage regulator (CDVR) with kVAR/PF control, 3-phase sensing• Winding temperature detectors• Anti-condensation space heaters | <ul style="list-style-type: none"><input type="checkbox"/> Oversized generators<input type="checkbox"/> Cross current compensation transformer<input type="checkbox"/> Bearing temperature detectors |
| Power Termination | <ul style="list-style-type: none">• Bus bar (NEMA mechanical lug holes)• Right hand cable entry• Top or bottom cable entry | <ul style="list-style-type: none"><input type="checkbox"/> Left hand cable entry |
| Governor | <ul style="list-style-type: none">• ADEM™ 3 | <ul style="list-style-type: none"><input type="checkbox"/> Load share module |
| Control Panels | <ul style="list-style-type: none">• EMCP 4.2• User Interface panel (UIP) - wall mounted• AC & DC customer wiring area (right side)• Emergency stop pushbutton | <ul style="list-style-type: none"><input type="checkbox"/> Option for right or left mount UIP<input type="checkbox"/> Local & remote annunciator modules<input type="checkbox"/> Digital I/O Module<input type="checkbox"/> Generator temperature monitoring & protection<input type="checkbox"/> Remote monitoring software |
| Lube | <ul style="list-style-type: none">• Lubricating oil and filter• Oil drain line with valves• Fumes disposal• Gear type lube oil pump | <ul style="list-style-type: none"><input type="checkbox"/> Oil level regulator<input type="checkbox"/> Deep sump oil pan<input type="checkbox"/> Electric & air prelube pumps<input type="checkbox"/> Manual prelube with sump pump<input type="checkbox"/> Duplex oil filter |
| Mounting | <ul style="list-style-type: none">• Rails - Engine / generator / radiator mounting• Rubber anti-vibration mounts (shipped loose) | <ul style="list-style-type: none"><input type="checkbox"/> Isolator removal<input type="checkbox"/> Spring-type vibration isolator (shipped loose)<input type="checkbox"/> IBC Isolators |

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50 Hz 1500 rpm 11 000 Volts



SPECIFICATIONS

CAT GENERATOR

Cat HV Generator
Frame size..... 2760
Excitation..... Permanent Magnet
Pitch..... 0.6670
Number of poles..... 4
Number of bearings..... 2
Number of Leads..... 006
Insulation..... Class H with tropicalization and antiabrasion
Insulation..... Class F with tropicalization and antiabrasion
- Consult your Caterpillar dealer for available voltages
IP Rating..... IP23
Alignment..... Closed Coupled
Overspeed capability..... 125
Wave form Deviation (Line to Line)..... 002.00
Voltage regulator..... 3 Phase sensing with volts/Hz
Voltage regulation..... Less than +/- 1/2% (steady state)
Less than +/- 1% (no load to full load)
Telephone influence factor..... Less than 50
Harmonic Distortion..... Less than 5%

CAT DIESEL ENGINE

3516B TA, V-16, 4-Stroke Water-cooled Diesel
Bore..... 170.00 mm (6.69 in)
Stroke..... 190.00 mm (7.48 in)
Displacement..... 69.00 L (4210.64 in³)
Compression Ratio..... 14.0:1
Aspiration..... TA
Fuel System..... Electronic unit injection
Governor Type..... ADEM3

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)
- kW, kVA, kVAR, kW-hr, %kW, PF

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)
- Reverse reactive power (kVAR) (32RV)
- Overcurrent (50/51)

Communications:

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

Compatible with the following:

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

STANDBY 1800 ekW 2250 kVA

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TECHNICAL DATA

| Open Generator Set - - 1500 rpm/50 Hz/11 000 Volts | DM7945 | |
|---|---|--|
| Low Emissions | | |
| Coolant to aftercooler Coolant to aftercooler temp max | 90 ° C | 194 ° F |
| Generator Set Package Performance Genset Power rating @ 0.8 pf Genset Power rating with fan | 2250 kVA 1800 ekW | |
| Fuel Consumption 100% load with fan 75% load with fan 50% load with fan | 469.8 L/hr 348.5 L/hr 240.8 L/hr | 124.1 Gal/hr 92.1 Gal/hr 63.6 Gal/hr |
| Cooling System¹ Air flow (max @ rated speed for radiator arrangement) Engine Coolant capacity with radiator/exp. tank Engine coolant capacity Radiator coolant capacity | 1543 m ³ /min 382.0 L 233.0 L 149.0 L | 54491 cfm 100.9 gal 61.6 gal 39.4 gal |
| Inlet Air Combustion air inlet flow rate | 135.2 m ³ /min | 4774.5 cfm |
| Exhaust System Exhaust stack gas temperature Exhaust gas flow rate Exhaust flange size (internal diameter) Exhaust system backpressure (maximum allowable) | 538.5 ° C 383.9 m ³ /min 203.2 mm 6.7 kPa | 1001.3 ° F 13557.3 cfm 8.0 in 26.9 in. water |
| Heat Rejection Heat rejection to coolant (total) Heat rejection to exhaust (total) Heat rejection to aftercooler Heat rejection to atmosphere from engine Heat rejection to atmosphere from generator | 742 kW 1819 kW 341 kW 166 kW 78.9 kW | 42197 Btu/min 103446 Btu/min 19393 Btu/min 9440 Btu/min 4487.0 Btu/min |
| Alternator² Motor starting capability @ 30% voltage dip Frame Temperature Rise | 4399 skVA 2760 130 ° C | 234 ° F |
| Lube System Sump refill with filter | 401.3 L | 106.0 gal |
| Emissions (Nominal)³ NOx mg/nm ³ CO mg/nm ³ HC mg/nm ³ PM mg/nm ³ | 3374.9 mg/nm ³ 168.0 mg/nm ³ 58.6 mg/nm ³ 22.8 mg/nm ³ | |

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.

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.

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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 Cat representative for details. For information regarding Low Sulfur fuel and Biodiesel capability, please consult your Cat dealer.

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DIMENSIONS

| Package Dimensions | | |
|--------------------|-----------|-----------|
| Length | 6335.0 mm | 249.41 in |
| Width | 2286.0 mm | 90 in |
| Height | 2342.0 mm | 92.2 in |
| Weight | 15 128 kg | 33,351 lb |

NOTE: For reference only - do not use for installation design. Please contact your local dealer for exact weight and dimensions. (General Dimension Drawing #2748730).

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