PRIME 2000 kVA
CONTINUOUS 1750 kVA

### Frequency (Hz) | Voltage (V) | Prime ekW (kVA) | Continuous ekW (kVA)
--- | --- | --- | ---
50 | 400/240 | 1600 (2000) | 1400 (1750)

### FEATURES

#### SINGLE SOURCE SUPPLIER
- Generator set manufactured in ISO 9001:2000 compliant facility
- Package factory designed and production tested
- Generator set and components meet or exceed the following specifications: AS1359, AS2789, BS4999, DIN6271, DIN6280, EGSA101P, JEM1359, IEC 34/1, ISO3046/1, ISO8528, NEMA MG1-22

#### WORLDWIDE PRODUCT SUPPORT
- Cat® dealers provide extensive post sale support including maintenance and repair agreements
- Supported 100% by your Cat dealer with warranty on parts and labor

#### RELIABLE, FUEL EFFICIENT DIESEL ENGINE
- The compact, four-stroke-cycle Cat 3516B turbocharged-aftercooled diesel engine combines durability while providing dependability and economy
- Stainless steel engine aftercooler core to extend component, oil, and overall engine life when using gaseous fuels with elevated H2S levels
- Fuel system operates on a variety of gaseous fuels
- Integral gas train, gas filter, and isolation valve
- Includes methane detection system and related safeties

#### CAT GENERATOR
- Cat SR4B 826 frame generator designed to match the performance and output characteristics of the Cat diesel engine
  - Double bearing, wye-connected, static regulated, brushless, permanent magnet excited

#### REDUCED ENVIRONMENTAL IMPACT
- 110% spill containment of onboard engine fluids
- Positive crankcase fumes ventilation

#### SOUND ATTENUATED CONTAINER
- Provides 9-high stack CSC rated enclosure for ease of transportation and protection
- Meets 75 dB(A) at 15 meters or below per SAE J1074 measurement procedure at prime rating

#### DYNAMIC GAS BLENDING (DGB) SYSTEM
- Requires gas inlet pressure range of 5-35 psi (34-241 kPa)
- Achieves up to 70% substitution, depending on gas quality, while maintaining diesel performance and safe engine operation
- Closed loop control system enables maximum substitution over the widest load range in the industry
- Maintains traditional diesel generator set power and transient response performance
- DGB system, when enabled, can automatically activate when gas supply is detected
- Accepts a wide range of gas quality and automatically adjusts to fuel quality changes, eliminating the need for field calibration
- Leverages current hardware from G3516 product line while minimizing changes to core diesel engine
- Fully integrated diesel and gas controls into single engine control unit with single point operation for generator set and DGB system

#### CAT COOLING SYSTEM
- Horizontally mounted radiator with vertical discharge with high efficiency fan
- Provides 43C (110F) ambient capability
- Variable frequency drive fan controls improve partial load fuel consumption

#### ON-PACKAGE PARALLELING CONTROL SYSTEM
- Provides auto paralleling using package mounted controls
- EMCP 4.3 offers engine and generator monitoring and protection, including DGB enable and substitution level set points
- AGC-4 provides paralleling, load sharing, VFD control, and primary generator protection

#### DIGITAL VOLTAGE REGULATOR (Cat DVR)
- 3 phase sensing and adjustable V/Hz regulation
- Provides precise control, excellent block loading, and constant voltage in the normal operating range
## FACTORY INSTALLED STANDARD EQUIPMENT

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>STANDARD EQUIPMENT</th>
</tr>
</thead>
</table>
| **Engine**              | Cat 3516B heavy duty flex fuel engine  
                           | Heavy duty, single element canister type air cleaner with service indicator  
                           | Fuel filters – primary and duplex secondary with integral water separator and change-over valve  
                           | Spin on, full flow oil filters with water cooled oil cooler. Requires API CF-4 lube oil  
                           | Stainless Steel Aftercooler core  
                           | Jacket water heater, 9kW, 400V, 50 Hz, 3-phase w/isolation valves  
                           | Fuel cooler and priming pump  
                           | Electronic ADEM™ A4 controls  
                           | Integrated Sensor Module (ISM) for combustion sensing and exhaust gas sensing  
                           | Dual 24V electric starting motors                                                                                                                                |
| **Generator**           | Double bearing SR-4B brushless, form wound, permanent magnet excited, three-phase with Cat digital voltage regulator (Cat DVR), space heater, 6-lead design, Class H insulation operating at Class F temperature for extended life, winding temperature detectors and anti-condensation space heaters (120/240V 1.2 kW). Generator equipped with System 4 insulation protection. |
| **Containerized Module**| 40’ ISO high cube container, 9-High stack CSC certified  
                           | Four (4) sound attenuated air intake louvers and 3 lockable personnel doors with panic release  
                           | Interior walls and ceilings insulated with 100 mm of acoustic paneling  
                           | Floor of container insulated with acoustic glass and covered with galvanized steel  
                           | Side bus bar access door, external access load connection bus bars  
                           | Shore power connection via distribution block connections for jacket water heater, battery charger, space heaters, and generator condensate heaters  
                           | Six (6) DC lights  
                           | 1,250 gal fuel tank, UL listed, double wall, >13 hr runtime @ Continuous rating  
                           | Lube oil level regulator with makeup tank  
                           | Sound attenuated 75 dBA(A) @ 15 m (50 ft)  
                           | Four (4) oversized maintenance-free batteries, battery rack and 20-Amp battery charger  
                           | Critical grade exhaust silencer with dual 2 m (6.5 ft.) exhaust stacks for increased site power density  
                           | Vibration isolators, stainless steel fastening hardware and hinges  
                           | External drain access to standard fluids  
                           | One 4.5 kg (10lb) carbon dioxide fire extinguisher  
                           | Standard Cat rental decals and painted standard Cat power module white  
                           | 110% spill containment system for on-board engine fluids  
                           | Methane Leak Detection                                                                                                                                               |
| **Gaseous Fuel System** | Low pressure regulator  
                           | Electronically actuated fuel control valve  
                           | Gaseous fuel heater  
                           | Electronically controlled gas shut-off valve  
                           | Gas induction nozzles  
                           | 1 micron gas fuel filter with dP sensors and isolation ball valve with 1” BSP drain plug for fluid build-up  
                           | CSA certified gas electronic components                                                                                                                                 |
| **Cooling**             | Standard cooling provides 43C (110F) ambient capability at 100% Prime  
                           | Horizontally mounted radiator with vertical air discharge  
                           | Variable frequency fan drive (VFD) for optimal partial load fuel consumption                                                                                                                                 |
| **Generator Controls and Protection** | Controls provide auto paralleling AGC-4 controller, voltage and frequency adjust, base load / PF / load sharing / synchronizer, auto start / stop control & generator CB control, SCADA Interface (Ethernet), fuel level indications & alarms, fuel tank fuel transfer control  
                           | EMCP 4.3 genset mounted controller  
                           | Automatic start/stop with cool down timer  
                           | Generator Protection features: 25, 32, 40, 50/51, 27/59, 81 O/U  
                           | Reverse compatibility for interface to legacy power modules  
                           | 3000A UL rated generator circuit breaker with LSIG trip unit w/ammeter  
                           | Multi-mode operation (island, multi-island and utility parallel), load sharing (multi-unit only)  
                           | Manual and automatic paralleling capability  
                           | Metering display: voltage, current, frequency, power factor, kW, WHM, kVAR, and synchroscope                                                                                       |
| **Quality**             | Factory testing of standard generator set and complete power module  
                           | UL, NEMA, ISO and IEEE standards  
                           | O&M manuals                                                                                                                                                           |
SPECIFICATIONS

GENERATOR
Frame Size .............................................. 826
Pitch .................................................. 0.6667
No. of poles .......................................... 4
Excitation ............................................. Static regulated brushless PM excited
Constructions ........................................ Double bearing, close coupled
Insulation .............................................. Class H
Enclosure ............................................. Drip proof IP22
Alignment ............................................. Pilot shaft
Overspeed capability – % of rated ................. 125% of rated
Voltage regulator ..................................... Less than ± 0.5% voltage gain
Adjustable to compensate for engine speed droop and line loss
Wave form deviation ................................. Less than 5% deviation
Telephone Influence Factor (TIF) ................... Less than 50
Harmonic Distortion (THD) ......................... Less than 5%

CAT 3516B FLEX-FUEL ENGINE
3516B, 4-Stroke diesel
Bore – mm (in) ........................................ 170 (6.7)
Stroke – mm (in) ....................................... 190 (7.5)
Displacement – L (cu in) ......................... 69 (4,210)
Compression ratio ................................... 15:1
Aspiration ............................................. TA
Fuel system ........................................... EUI
Governor type ......................................... Cat ADEM A4 Control System
Emissions ............................................. Non-Certified

TECHNICAL DATA*

<table>
<thead>
<tr>
<th>Generator Set Technical Data</th>
<th>Units</th>
<th>50 Hz</th>
<th>50 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Prime</td>
<td>Continuous</td>
</tr>
<tr>
<td>Power Rating</td>
<td>kW (kVA)</td>
<td>1600 (2000)</td>
<td>1400 (1750)</td>
</tr>
<tr>
<td>Lubricating System</td>
<td>L (US gal)</td>
<td>401.3 (106)</td>
<td></td>
</tr>
<tr>
<td>Total oil pan capacity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fuel System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generator set diesel fuel consumption**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100% Load</td>
<td>L/hr (gal/hr)</td>
<td>397.1 (104.9)</td>
<td>348.3 (92.0)</td>
</tr>
<tr>
<td>75% Load</td>
<td>L/hr (gal/hr)</td>
<td>300.9 (79.5)</td>
<td>266.9 (70.5)</td>
</tr>
<tr>
<td>50% Load</td>
<td>L/hr (gal/hr)</td>
<td>211.6 (55.9)</td>
<td>190.4 (50.3)</td>
</tr>
<tr>
<td>Fuel Tank Capacity</td>
<td>L (gal)</td>
<td>4,731</td>
<td>1,250</td>
</tr>
<tr>
<td>Max Rated Running Time</td>
<td>hours</td>
<td>&gt;11</td>
<td>&gt;13</td>
</tr>
<tr>
<td>Cooling System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Radiator Capacity</td>
<td>L (U.S. gal)</td>
<td>770 (203)</td>
<td></td>
</tr>
<tr>
<td>Air Requirements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combustion air flow</td>
<td>m³/min (cfm)</td>
<td>122 (4,320)</td>
<td>111 (3,918)</td>
</tr>
<tr>
<td>Maximum air cleaner restriction</td>
<td>kPa (in H2O)</td>
<td>6.2 (24.9)</td>
<td></td>
</tr>
<tr>
<td>Exhaust System</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exhaust Flow</td>
<td>m³/min (cfm)</td>
<td>321 (11,341)</td>
<td>286 (10,971)</td>
</tr>
<tr>
<td>Package Noise Rating @ 15m (50 ft.)</td>
<td>dBA</td>
<td>77</td>
<td>77</td>
</tr>
</tbody>
</table>

*Materials and specifications are subject to change without notice
**Data represented is at standard conditions
STANDARD FEATURES

EMCP 4.3 LOCAL CONTROL PANEL
- Generator mounted EMCP 4.3 provides power metering, protective relaying and engine and generator control and monitoring.
- Convenient service access for Cat service tools (not included).
- Integration with the Cat DVR provides enhanced system monitoring.
- Ability to view and reset diagnostics of all controls networked on J1939 datalink eliminates need for separate service tools for troubleshooting.
- Real-time clock allows for date and time-stamping of diagnostics and events.
- Customer communication through Modbus TCP.
- True RMS AC metering, 3 phase: L-L volts, L-N volts, Phase, Amps, Hz, ekW, kVA, kVAR, kWHr, % kW, PF.

EMCP 4.3 ENGINE OPERATOR INTERFACE
- Graphical display with positive image, transflective LCD, adjustable white backlight/contrast.
- Digital indication for:
  - RPM
  - Operating hours
  - Coolant Temperature
  - Gas Pressure
  - Gas Shutoff Valve status
  - - DC Volts
  - - Oil pressure
  - - Oil Temperature
  - - Gas Substitution %
  - - DGB Activation
- Two LED status indicators (1 red, 1 amber)
- Engine cool-down timer
- Engine cycle crank
- Three engine control keys and status indicators (Run/Auto/Stop).
- Lamp test and Alarm acknowledgement keys
- Warnings/shutdowns with indicating text for:
  - Low oil pressure
  - High Oil Temperature
  - Emergency stop
  - - Overspeed
  - - Overcrank
  - - AGC-4
- Emergency stop pushbutton
- Display navigation keys including two shortcut keys for Engine Parameters or Generator Parameters

CONTAINER
- 40’ ISO high cube container, CSC 9-High Stack Certified
- Painted standard Cat Power Module White per Caterpillar Specifications
- Standard air intake louvers
- Three (3) lockable personnel doors with panic release
- Fire extinguisher
- 110% spill containment system for on-board engine fluids

AGC-4/EMCP 4.3 PROTECTIVE RELAYING
- Generator protective features
  - 25 sync-check (AGC-4)
  - 32 rev. power (EMCP 4.3 and AGC-4)
  - 40 loss of excitation (Cat DVR and AGC-4 impedance based)
  - 50/51 Inst. and time overcurrent (GCB trip unit and AGC-4)
  - 47 Negative Voltage Sequence (AGC-4)
  - 46 Negative Sequence Current (AGC-4)
  - 27/59 phase under/over voltage (EMCP 4.3 and AGC-4)
  - 81O/U under/over frequency (EMCP 4.3 and AGC-4)
- Package mounted AGC-4 controls provides auto paralleling, CAN-bus, Ethernet communications, PWM and Analog outputs, and legacy analog load sharing (real and reactive)
- AGC-4 main display/ AOP secondary display

VOLTAGE REGULATION AND POWER FACTOR CONTROL CIRCUITRY
- Generator mounted automatic voltage regulator, microprocessor based.
- Manual raise/lower voltage adjust capability and VAR/power factor control circuitry, all via AGC-4, for maintaining constant generator power factor while paralleled with utility
- Includes RFI suppression, exciter limiter and exciter diode monitoring.

CURRENT TRANSFORMERS
- CT’s rated 3000:5 with secondaries wired to shorting terminal strips.

CIRCUIT BREAKER
- 3000A fixed type, 3 poles, genset mounted, electrically operated, insulated UL489 CB.
- Solid state trip unit for overload (time overcurrent) and fault (instantaneous) overcurrent protection. LSIG is standard.
- Includes DC shunt trip coil activated on any monitored engine or electrical fault, 100 KA-interrupting capacity at 480 VAC.
- Undervoltage Release 24vdc
- Optional External Ground fault sensing/trip (requires additional ground CT)
INTERNAL LIGHTING
- Six (6) internal 24VDC LED lights with timers located at the control area personnel door
- One (1) duplex service receptacle

BATTERY CHARGER AND BATTERIES
- 24 VDC/20A battery charger with float/equalize modes and charging ammeter
- Four oversized maintenance free batteries

EMERGENCY STOP PUSHBUTTON
- Single emergency stop pushbuttons (ESP) located on rear face of generator set controls area
- Emergency Stop pushbutton located on the container exterior at each personnel door (3)

EXHAUST SILENCER
- Critical grade, internally mounted, dual cylindrical exhaust silencers
- 2 m high vertical discharging exhaust stack located in radiator discharge area

FUEL TANK
- UL Listed 1250 gallon double walled tank
- Fuel solenoid valve system
- Triple fuel/water separators

MODES OF OPERATION
- Provides for single unit stand-alone operation, island mode paralleling and load sharing with other power modules, and single unit-to-utility mode paralleling for base load control (with open transition between paralleling modes)*
- Island mode paralleling features:
  - AGC-4 control allows single unit to connect to a dead bus
  - Auto synchronization (voltage & phase matching)
  - Load sharing (kW) analog signal (like units & legacy compatible)
  - Load sharing (kVAR) analog signal (like units only)
- Utility mode paralleling features:
  - Auto synchronization (voltage & phase matching)
  - Base-load control (selectable: programmable set-point or potentiometer adjust)
  - Soft load/unload (programmable, shared set-point)
  - Power Factor control (programmable set-point)

BUS BARS
- Three phase, plus full rated neutral, bus bars are tin-plated copper with NEMA standard hole pattern for connection of customer load cables and generator cables.
- Bus bars are sized for full load capacity of the generator set at 0.8 power factor.
- Includes ground bus, tin-plated copper, for connection to the generator frame ground and field ground cable.

AC DISTRIBUTION
- 3 phase, 400VAC, 50 Hz, 50 amp input which can be derived from either the Power Module main output bus (Internal) or customer supplied shore power (External) via selector switch.
- Onboard 50 Hz Transformer for the Power Module AC auxiliaries provides 240/120 VAC for all module accessories except Jacket water heater (400V). Includes controls to de-energize jacket water heaters and generator space heater when the engine is running

LUBE OIL MAKE-UP SYSTEM
- Includes oil pan-mounted oil level regulator and 114 L (30 gal) oil tank for maintaining oil pan levels in extended run applications. Oil tank can be remotely filled without shutting down the engine.

TRAILER (optional)
- Three axle with Anti-lock brake system
- Goodyear G314 295/75R225 Load Range G
RATING DEFINITIONS & CONDITIONS

**Prime** – Output available with varying load for an unlimited time. Average power output is 70% of the prime power rating. Typical peak demand of 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 ISO8258. Fuel stop power in accordance with ISO3046.

**Continuous** – Output available without varying load for an unlimited time. Average power output is 70 – 100% of the continuous power Rating. Typical peak demand is 100% of continuous rated ekW for 100% of the operating hours. Continuous power is in accordance with ISO8528. Fuel stop power is in accordance with ISO3036.

**Diesel Fuel** – Reference fuel is #2 distillate diesel with a 35 degree API gravity, lower heating value is 42,780 kJ/kg (18,390 Btu/lb) when used at 29°C (84.2°F), where the density is 838.9 g/L (7.00 lb/gal).

**Gaseous Fuel** – Reference natural gas has a lower heating value of 33.74 kJ/L (905 BTU/cu. ft.). Low energy ratings are based on 18.64 kW/L (500 BTU/cu. ft.) lower heating value gas. High energy gas ratings are based on 87.56 kJ/L (2350 BTU/cu. ft.) lower heating value gas.

WEIGHTS AND DIMENSIONS

<table>
<thead>
<tr>
<th>Model</th>
<th>Length (mm)</th>
<th>Width (mm)</th>
<th>Height (mm)</th>
<th>Weight with Lube oil and Coolant (lb)</th>
<th>Weight with Fuel, Lube oil and Coolant (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XQ2000 DGB w/o chassis</td>
<td>480 (12,192)</td>
<td>97.5 (2,438)</td>
<td>114 (2,896)</td>
<td>64,000 (29.021)</td>
<td>73,000 (33,106)</td>
</tr>
<tr>
<td>XQ2000 DGB w/ chassis</td>
<td>480 (12,192)</td>
<td>97.5 (2,438)</td>
<td>168 (4,267)</td>
<td>74,000 (33,638)</td>
<td>83,000 (37,841)</td>
</tr>
<tr>
<td>Center of gravity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x = +4,913 +/- 300 mm (from rear of container); y = +788 mm +/- 300 mm (from container floor); z = 0 +/- 150 mm (centerline)</td>
</tr>
</tbody>
</table>