Model 250 RN
250 kW Natural Gas Generator Set

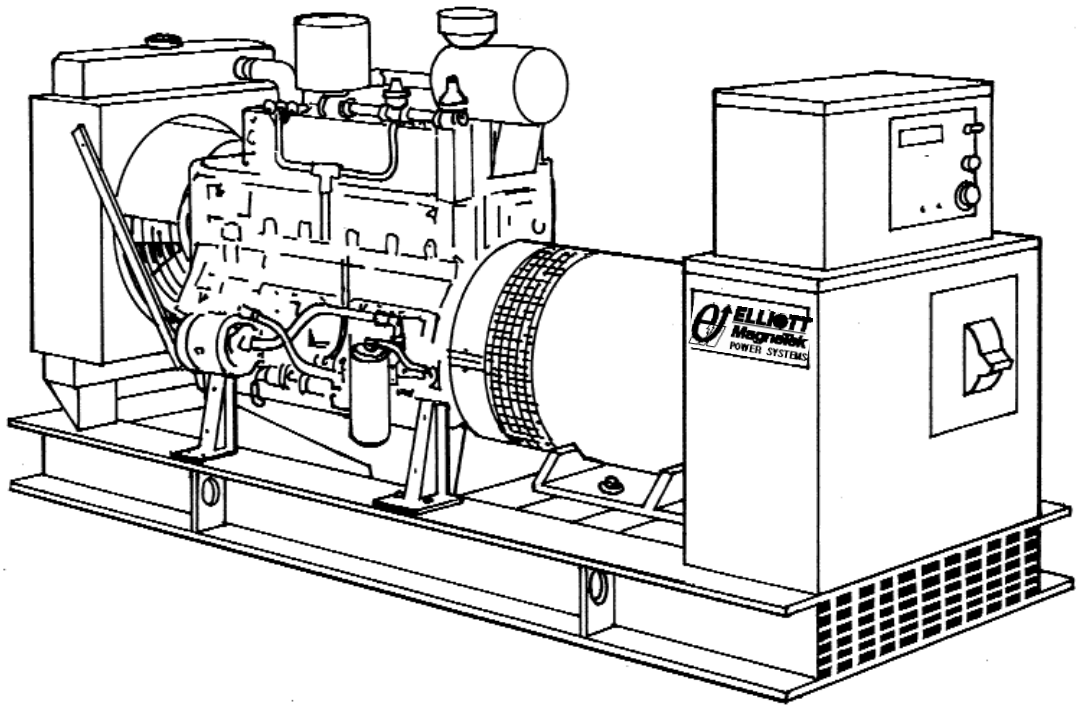
Generator Set Rating

Three Phase	60 Hz kW/KVA	50 Hz kW/KVA
Continuous		
Standby 150°C	250/313	240/300
Prime Power 105°C	210/263	200/250
Single Phase	60 Hz kW/KVA	50 Hz kW/KVA
Continuous		
Standby 150°C	188/188	174/174
Prime Power 105°C	161/161	151/151

Quality Power Producing Equipment

is our business at Elliott MagneTek Power Systems, Inc.. Our power systems offer solutions to requirements for reliable, quality electrical power.

- 100% full load tested.
- Performance supported by prototype testing.
- 12 lead re-connectable AC synchronous generators.
- Solid state automatic voltage regulator.
- 50 or 60 Hz operational.
- Standard Digital Control Panel meeting standards set by NFPA-110.



Product Features

System Reliability and Longevity
begin with design experience and integrity. EMPS was formed by two companies with over one hundred years experience producing state-of the-art power generation equipment. This experience is designed into our generator sets.

Single Source Responsibility:
Product service, support and parts available through EMPS network of distributors.

Accessories and Flexibility
are designed into EMPS' generator sets at the factory level to meet specific application needs.

Organizational Commitment
to innovative, leading edge technology and environmentally friendly electrical products and services.

Generator Set Design Features

Model 250 RN
250 kW NG Generator Set

Standard Equipment

* 4 Cycle engine.
* AC synchronous 12 lead re-connectable brushless alternator.
* Steel base with vibration isolators between engine, generator and base.
* Generator mounted terminal and meter /control box.
* Circuit breaker-mounting provisions.
* Connection area for main AC terminals and all control wiring
* 24 volt DC engine electrical system.
* 24 volt starter motor.
* Battery charging alternator.
* Battery rack and cables.
* Flexible fuel lines.
* Most metallic parts incorporate our powder paint primer base coat with UV inhibitive enamel top coat.
* Single stage dry type air cleaner.
* Corrosion resistant hardware.
* Oil drain extension plumbed to base rail for convenient connection.
* Microprocessor based auto start meter/ control panel.
* Digital read out control system rated to operate from -30º C to 75º C with the following standard displays, shown continuously:
  - ** Generator AC voltage.
  - ** AC amperage:
    - Phase 1-2
    - Phase 2-3
    - Phase 3-1
  - ** Frequency
  - ** Oil Pressure
  - ** Engine Temperature
  - ** Battery Voltage
  - ** Fuel Level (Diesel Only)
* The following can be displayed using the scroll lock function:
  - ** Run time
  - ** Safety set point for over speed
  - ** Over crank
  - ** High water temperature
  - ** Low oil pressure
* Voltage adjust rheostat
* Auto/off /run switch

Generator Specifications
Manufacturer: MagneTek
Insulation: The main stator, main rotor, exciter stator and exciter rotor are all insulated with Class H materials and rated Class F per NEMA MG1 -1.65 and 852757 definition. All materials are non-hygroscopic to prevent fungus growth. A polyester and epoxy combination offers maximum environmental protection.

Main Stator: 2/3 pitch and one slot skewing minimize voltage harmonics and meets telephone influence factor (TIF) per NEMA MG1-22.43. Twelve lead re-connectable design. Coated with anti-abrasive sealer.

Main Rotor: Four pole single piece lamination with full amortisseur windings and coil supports. Winding is precision wet layer wound with epoxy resin and dynamically balanced to two mil in two planes. Production over speed tested at 125% for 15 minutes. All materials are non-hygroscopic to prevent fungus growth.

Exciter: Brushless, three phase, six-pole rotor, and production over speed tested at 125% operating speed.

Rotating Diode: Sealed full wave with metal oxide surge suppressor

Bearing: Double-sealed, permanently lubricated, 50,000 hour B-10 life including magnetic pull.

Drive Coupling: Positive alignment, flexible drive discs.

Automatic Voltage Regulator Specifications
Operation: Volts per hertz, three phase sensing with overload and loss of sensing protection.

Construction: Solid state, modular: fully sealed and potted design provides component protection from corrosive environments and vibration.

Voltage Regulation: +/- 1% voltage regulation no load to full rated load: +/- 1/2% voltage regulation at steady state conditions.
Radio Interference (RFI): Integral filter provides suppression of conducted electromagnetic interference to levels meeting most commercial requirements.

Voltage Selections and Full Load Amperages at Standby Rating
Three Phase

60 Hz	Amperage	50 Hz	Amperage
120/208	867	110/190	912
120/240	751	120/208	833
277/480	376	230/400	433
347/600	300	240/415	417

*Single Phase

60 Hz	Amperage	50 Hz	Amperage
120/240	783	110/220	791

All voltages listed are available and/or re-connectable with the exception of the three phase, 60 Hz, 347/600 volt generator which is application specific. For other voltages, contact your EMPS distributor. All output amperage ratings listed above are at standby rating.

*Single Phase amperage based on standard generator and unity power factor. For full single phase output use generator model MTG48.

Application and Performance Data
MagneTek Alternator Model MTG43 is standard with this package. Larger generators may be required to meet certain application specific requirements such as Single Phase, Motor Starting and Non Linear Loads. The Maximum Generator rating available in this package is MTG52.

Technical Specifications

Model 250 RN
250 kW NG Generator Set

Engine Specifications

Manufacturer	Cummins
Model	GTA 14
Aspiration	Turbo/ After cooled
Cylinders	6
Displacement	855 In^3. (14 L)
Bore and Stroke,	5.5 in x 6 in. (140 mm x 152 mm)
Compression Ratio	11:1
Minimum C.C.A. at 5°C	900

RPM	**1800 rpm**	**1500 rpm**
BHP Minimum REQ"D at Rated kW	385	352
BMEP	198 psi	217 psi

Altitude and Ambient Temperatuire Requirements

The engine may be operated at the STANDBY RATING up to 3000 ft.(914m) altitude and 100°F (38°C) inlet air temperature and at the PRIME AND CONTINUOUS POWER RATING up to 5000 ft.(1524m) altitude and 100°F (38°C) inlet air temperature. For sustained operation at high load factor at higher altitudes and temperatures, please contact factory.

Cooling System

Coolant Capacity with Radiator 30.5 US Gal. (115.5 L)

Maximum restriction on discharge side of radiator 5 In wc (125 Pa)

	1800 rpm	**1500 rpm**
Coolant Flow	113 GPM (428 LPM)	103 GPM (390 LPM)
Heat Rejection to Coolant at Rated Full Load Nat. Gas	14308 Btu/min (1509 MJ/min)	13063 Btu/min (1378 MJ/min)
Heat Rejection to Room at Rated Full Load Nat. Gas	1615 Btu/min (170 MJ/min)	1474 Btu/min (156 MJ/min)
Heat Rejection to Charge Air Cooler at Rated Full Load Nat. Gas	1846 Btu/min (195 MJ/min)	1685 Btu/min (178 MJ/min)

Air System

	1800 rpm	**1500 rpm**
Maximum Air Intake Restriction	15 In wc (3.74 kPa)	14 In wc (3.49 kPa)
Radiator Cooling Air Flow	37000 cfm (1047 m^3/min)	33781 cfm (956 m^3/min)
Combustion Air Flow	854 cfm (24 m^3/min)	780 cfm (22 m^3/min)
Generator Cooling Air Flow	3104 cfm (87.8 m^3/min)	2834 cfm (80 m^3/min)

Exhaust System

Exhaust Manifold Outlet Size 4 in. dia. (102 cm)

Maximum Allowable Back Pressure 2 in. Hg

Exhaust Gas Flow at Standby Rating	2478 cfm (70 m^3/min)	2262 cfm (64 m^3/min)
Exhaust Temp at Standby Rating	1350°F (732°C)	1233°F (667°C)

Fuel System

Consumption at Standby Rating:

Load		**1800 RPM Natural Gas**
	kW	C.F.H.(Cu.M./Hr.)
1/4	63	1030 (29.1)
1/2	125	1720 (48.7)
3/4	188	2372 (67.1)
Full	250	3037(86.0)
Load		**1500 RPM Natural Gas**
	kW	C.F.H. (Cu.M./Hr.)
1/4	60	940 (26.6)
1/2	120	1570 (44.4)
3/4	180	2166 (61.3)
Full	240	2773 (78.5)

Governor Type Electronic

Governor Regulation: +/- .25 % Steady State

Generator

Manufacturer	MagneTek
Model	MTG43
Motor Starting KVA, 240/480 Volt WYE at 35% Voltage Dip,100% Voltage Recovery	599 SKVA
Maximum Motor Starting KVA, Oversized Generator MTG52	35% Voltage Dip 1262 SKVA

Reactances

	480 V 60Hz	400 V 50Hz
at 105°C rise		
Synchronous Xd	3.09	2.75
Direct Axis Transient X'd	.233	.207
Direct Axis Subtransient X"d	.154	.137
Negative Sequence X_2	.165	.147
Zero Sequence Xo	.0026	.0023

Lubrication System

Engine Oil Capacity with Filters 44qts. (41.6 L)

Oil Filter Type Spin On

Engine Exhaust Emissions

Per Cummins Emissions Data Sheet #ES2003A

	@MAX.	@CONT.
THC	3.22	2.5
NMHC	.67	.53
NEHC	.24	.18
NOX	14.44	16.22
CO	.86	.82
CO2	9.40%	9.60%
O2	4.20%	3.70%

Model 250 RN
250 kW NG Generator Set

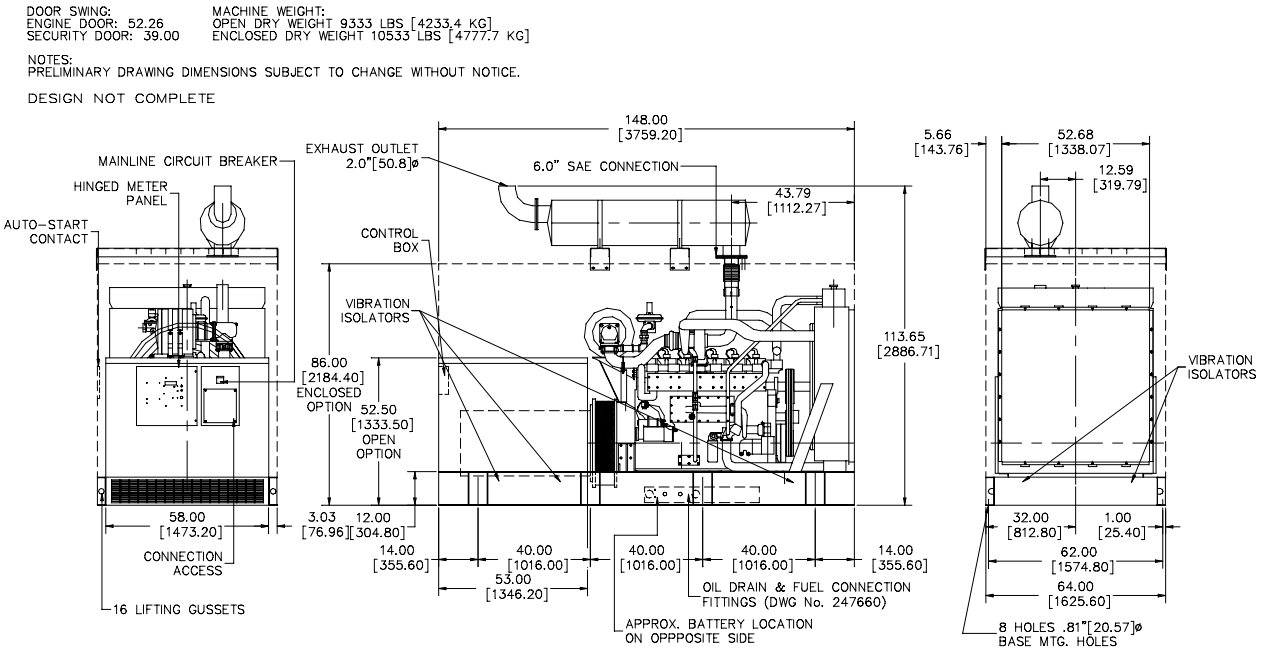
Options:

Generator
* Upsized
* Tropical winding protection
* Space heater
* Series boost
* UL listed mainline circuit breaker

Control
* Remote alarm annunciator
* Emergency stop
* Multi-point dry contact board.
* NFPA 110 Compliance
* Low Temperature Display Heater

Engine
* Battery/Battery heater
* Battery charger
* Engine pre-heater
* Fuel/ water separator

Generator Set
* EMPS automatic transfer switch
* Industrial silencer
* Residential silencer
* Critical silencer
* Weather protective enclosure
* Sound attenuation



58 Elliott Power Drive
P.O. Box 403
Lexington, TN 38351
Tel: 901-967-9393
Fax: 901-968-0161

Distributed by:

ELLIOTT MagneTek POWER SYSTEMS

Updated 2/00