

Model 250 RD 250 kW Diesel Generator Set

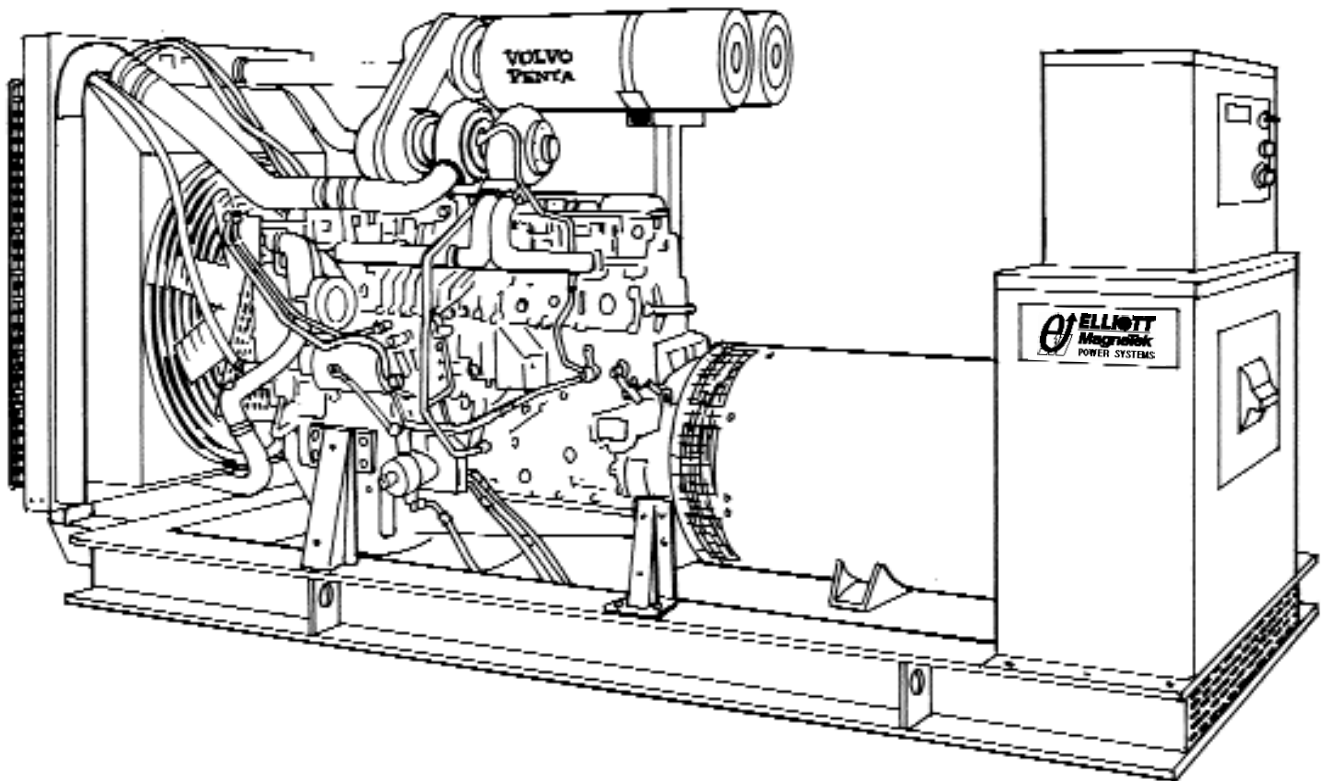
Generator Set Rating

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

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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 -30° C to 75° 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

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Engine Specifications

Manufacturer	Volvo	
Model	TAD 1030 GE	
Type	In line 4 Stroke	
Aspiration	Turbo/ Air to Air Inter cooled	
Cylinders	6	
Displacement	586 In ³ . (9.6 L)	
Bore and Stroke,	4.75 in x 5.51 in. (120.65 mm x 140 mm)	
Compression Ratio	15:1	
Minimum Ah. at 5°C	2 X 88	
RPM	1800 rpm	1500 rpm
BHP Minimum REQ'D		
at Rated kW	378	360
BMEP	284 psi	324 psi

Generator Set Deration Factors

Temperature:
1.5% for every 10° F above 104° F
1.5% for every 5.5°C above 40°C

Altitude
6% for every 1650 feet above
3300 feet
6% for every 503 meters above
1006 meters

Cooling System

High Ambient 104°F (40°C) System
Coolant Capacity with Radiator
39.4 qt. (37.3 L)

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

1800 rpm **1500 rpm**

Coolant Flow	91.9 GPM (347.8 LPM)	76 GPM (287.7 LPM)
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Heat Rejection to Coolant at Full Load	6540 Btu/min (690 MJ/min)	5970 Btu/min (629 MJ/min)
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Heat Rejection to Room at Rated Full Load	970 Btu/min (102 MJ/min)	910 Btu/min (96 MJ/min)
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Air System

	1800 rpm	1500 rpm
Maximum Air Intake Restriction		20.1 In wc (5 kPa)
Radiator Cooling Air Flow	773 cfm (21.9 m ³ /min)	600 cfm (17.0 m ³ /min)
Combustion Air Flow	870 cfm (24.6 m ³ /min)	696 cfm (19.7 m ³ /min)
Generator Cooling Air Flow	3104 cfm (87.8 m ³ /min)	2587 cfm (73.2 m ³ /min)

Exhaust System

Exhaust Outlet Size 3.1 in. dia. (7.87cm)
Maximum Allowable Back Pressure
28.1 In wc (5.0 kPa) 20.1(5.0 kPa)
Exhaust Gas Flow at Standby Rating
2246 cfm 2041 cfm
(63.6 m³/min) (57.8 m³/min)

Exhaust Temp at Standby Rating
915°F (491°C) 1985°F (529°C)

Fuel System

Consumption at Standby Rating:

Load	1800 RPM		
	kW	US gal/h	Litre/h
1/4	63	5.35	20.25
1/2	125	9.3	35.21
3/4	188	13.7	51.9
Full	250	18.6	70.41

Load	1500 RPM		
	kW	US gal/h	Litre/h
1/4	60	4.8	18.17
1/2	120	8.7	32.93
3/4	180	12.9	48.83
Full	240	17.4	65.87

Governor Type Isochronous
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, 35% Voltage Dip Oversized Generator MTG52 1262 SKVA

Reactances

	480 V	400 V
at 105°C rise	60Hz	50Hz
Synchronous Xd	3.13	3.0
Direct Axis Transient X'd	.313	.301
Direct Axis Subtransient X"d	.184	.177
Zero Sequence Xo	.0038	.0036

Lubrication System

Engine Oil Capacity with Filters 14 US gal. (36L)
Oil Filter Type Spin On

Engine Exhaust Emissions Certification Values

Exhaust Emissions (g/bhp-hr.)	*CARB	250RD
HC:	1	.4
CO:	8.5	.8
NOx:	6.9	5.3
PM:	.4	.1

Smoke Opacity (%)

Acceleration	20	N/A
Lugging	15	2
Peak	50	N/A

* California Air Resources Board Standards.

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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

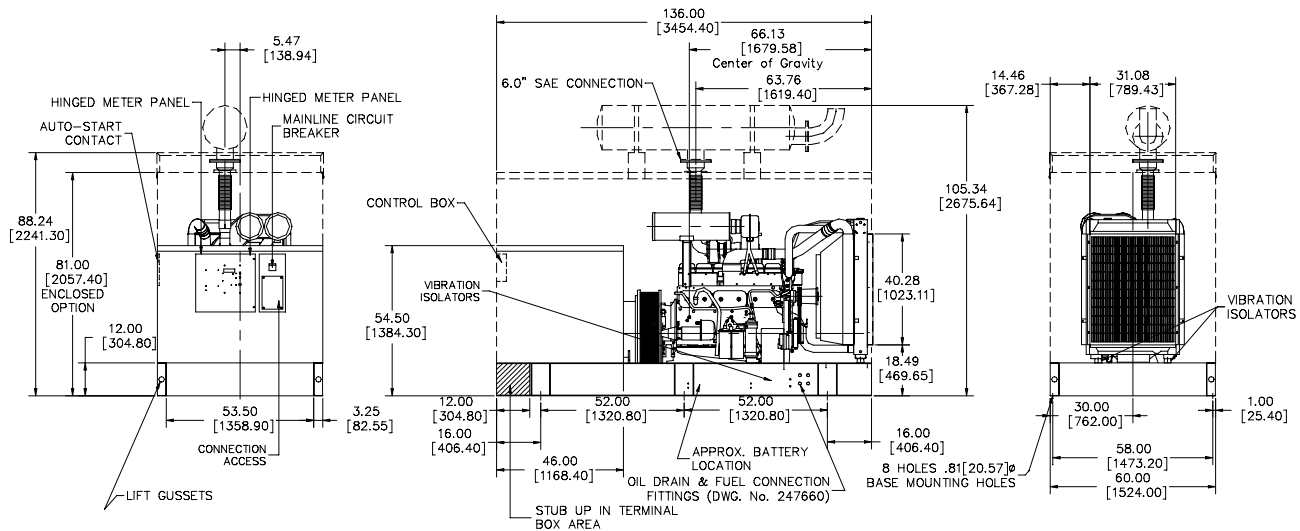
- * Battery/Battery heater
- * Battery charger
- * Engine pre-heater
- * Fuel/ water separator
- * Isochronous governor

Generator Set

- * EMPS automatic transfer switch
- * Industrial silencer
- * Residential silencer
- * Critical silencer
- * Weather protective enclosure
- * Sound attenuation
- * Sub-base fuel tank

DOOR SWING-
ENGINE DOOR: 28.750 OPEN DRY WEIGHT 5011 LBS (2273 KG)
SECURITY DOOR: 26.250 ENCL. DRY WEIGHT 6161 LBS (2795 KG)

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CHANGE WITHOUT NOTICE.



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