



# Model 1500 RD 1500 kW Diesel Generator Set

## Generator Set Rating

Three Phase	60 Hz kW/KVA	50 Hz kW/KVA
Continuous		
Standby 130°C	1500/1875	1300/1625
Prime Power 105°C	1350/1687	1175/1468

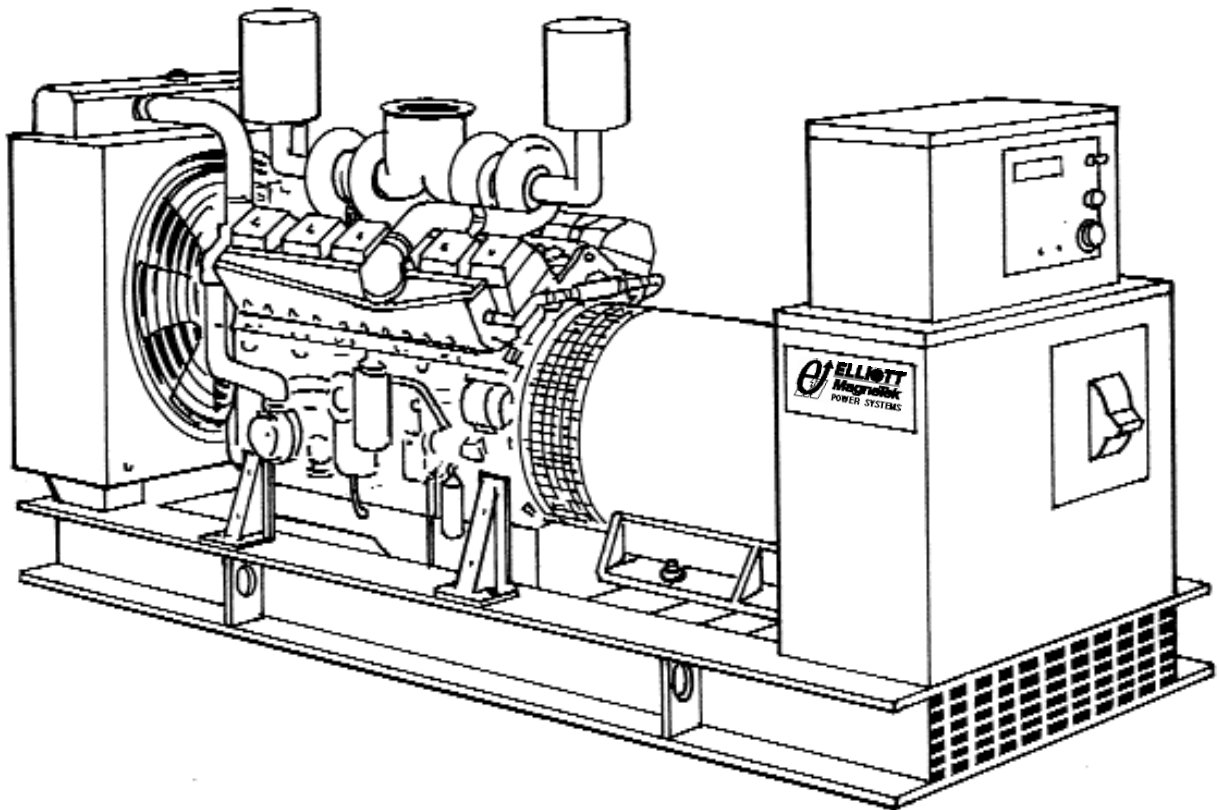
## Single Phase

Consult Factory

## 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 brushless alternator.
- \* Structural "C" channel 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 5204	110/190 4937
120/240 4510	120/208 4510
277/480 2255	230/400 2345

For other voltages, contact your EMPS distributor. All output amperage ratings listed above are at standby rating.

### Application and Performance Data

MagneTek Alternator Model MTG65 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 MTG85.

# Technical Specifications

## Model 1500 RD

### 1500 kW Diesel Generator Set

#### Engine Specifications

Manufacturer	Mitsubishi	
Model	S12R-PTAA2	
Type	4 Cycle Water Cooled	
Aspiration	Turbo-Charged/Air to Air Cooler	
Cylinders	60° V12	
Displacement	2992 In <sup>3</sup> . (49.03L)	
Bore and Stroke,	6.69 in x 7.09 in. (170 mm x 180 mm)	
Compression Ratio	13.5:1	
Minimum C.C.A. at 5°C	300 Ah	
RPM	<b>1800 rpm</b>	<b>1500 rpm</b>
BHP Minimum REQ'D		
at Rated kW	2094	1815
BMEP	307 psi	320 psi

#### Generator Set Deration Factors

Temperature:  
 4% for every 18° F above 104° F  
 4% for every 10°C above 40°C

Altitude  
 2.5% for every 383 feet above  
 4918 feet  
 2.5% for every 167 meters above  
 1499 meters

#### Cooling System

High Ambient 104°F (40°C) System  
 Coolant Capacity with Radiator  
 33 US gal. (125L)

Maximum restriction on discharge side of radiator  
 .4 In wc (99 Pa)

**1800 rpm**                      **1500 rpm**

Coolant Flow  
 489 GPM                      436 GPM  
 (1850 LPM)                      (1650 LPM)

Heat Rejection  
 to Coolant at  
 Full Load  
 47879 Btu/min                      41859 Btu/min  
 (5051 MJ/min)                      (4416 MJ/min)

Heat Rejection  
 to Room at Rated  
 Full Load  
 6840 Btu/min                      5980 Btu/min  
 (722 MJ/min)                      (631 MJ/min)

#### Air System

	<b>1800 rpm</b>	<b>1500 rpm</b>
Maximum		
Air Intake		
Restriction		25.0 In wc (6.2 kPa)
Radiator Cooling		
Air Flow	63558 cfm (1799 m <sup>3</sup> /min)	63558 cfm (1799 m <sup>3</sup> /min)
Combustion		
Air Flow	4837 cfm (137 m <sup>3</sup> /min)	4237 cfm (120 m <sup>3</sup> /min)
Generator		
Cooling		
Air Flow	5256 cfm (148.7 m <sup>3</sup> /min)	4380 cfm (124 m <sup>3</sup> /min)

#### Exhaust System

Exhaust  
 Outlet Size                      8.35 in. dia. (21.2cm)  
 Maximum Allowable Back Pressure  
 23.6 In wc (5.9 kPa)

Exhaust Gas Flow  
 at Standby  
 Rating                      12810 cfm                      11229 cfm  
    (383 m<sup>3</sup>/min)(318 m<sup>3</sup>/min)

Exhaust Temp at  
 Standby Rating  
 950°F                      1013°F  
 (510°C)                      (545°C)

#### Fuel System

Consumption at Standby Rating:

<b>Load</b>	<b>1800 RPM</b>		
	kW	US gal/h	Litre/h
1/4	375	25.8	97.7
1/2	750	51.5	194.4
3/4	1125	77.3	292.6
Full	1500	103.0	389.9

<b>Load</b>	<b>1500 RPM</b>		
	kW	US gal/h	Litre/h
1/4	300	21.4	81.0
1/2	600	42.7	161.6
3/4	900	64.2	243.0
Full	1200	85.5	323.7

**Governor Type**                      Electric  
**Governor Regulation:**                      +/- .25%

#### Generator

Manufacturer                      MagneTek  
 Model                      MTG65  
 Motor Starting KVA,  
 240/480 Volt WYE at  
 35% Voltage Dip, 100%  
 Voltage Recovery                      4221 SKVA

Maximum Motor  
 Starting KVA, 35% Voltage Dip  
 Oversized Generator  
 MTG85                      6704 SKVA

#### Reactances

	480 V	400 V
at 105°C rise	60Hz	50Hz
Synchronous Xd	3.107	3.33
Direct Axis		
Transient X'd	.227	.248
Direct Axis		
Subtransient X"d	.158	.175
Zero Sequence Xo	.0081	.0086

#### Lubrication System

Engine Oil Capacity with Filters  
 47.6 US gal. (180L)  
 Oil Filter Type                      Spin On

# Model 1500 RD 1500 kW Diesel 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
- \* Isochronous governor

### Generator Set

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

## Consult Factory for Current Drawing

58 Elliott Power Drive  
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**Distributed by:**



All specifications subject to change without notice. Printed in the USA

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