



# Model 1200 RD 1200 kW Diesel Generator Set

## Generator Set Rating

| Three Phase       | 60 Hz<br>kW/KVA | 50 Hz<br>kW/KVA |
|-------------------|-----------------|-----------------|
| Continuous        |                 |                 |
| Standby 130°C     | 1200/1500       | 1125/1406       |
| Prime Power 105°C | 1094/1367       | 1037/1296       |

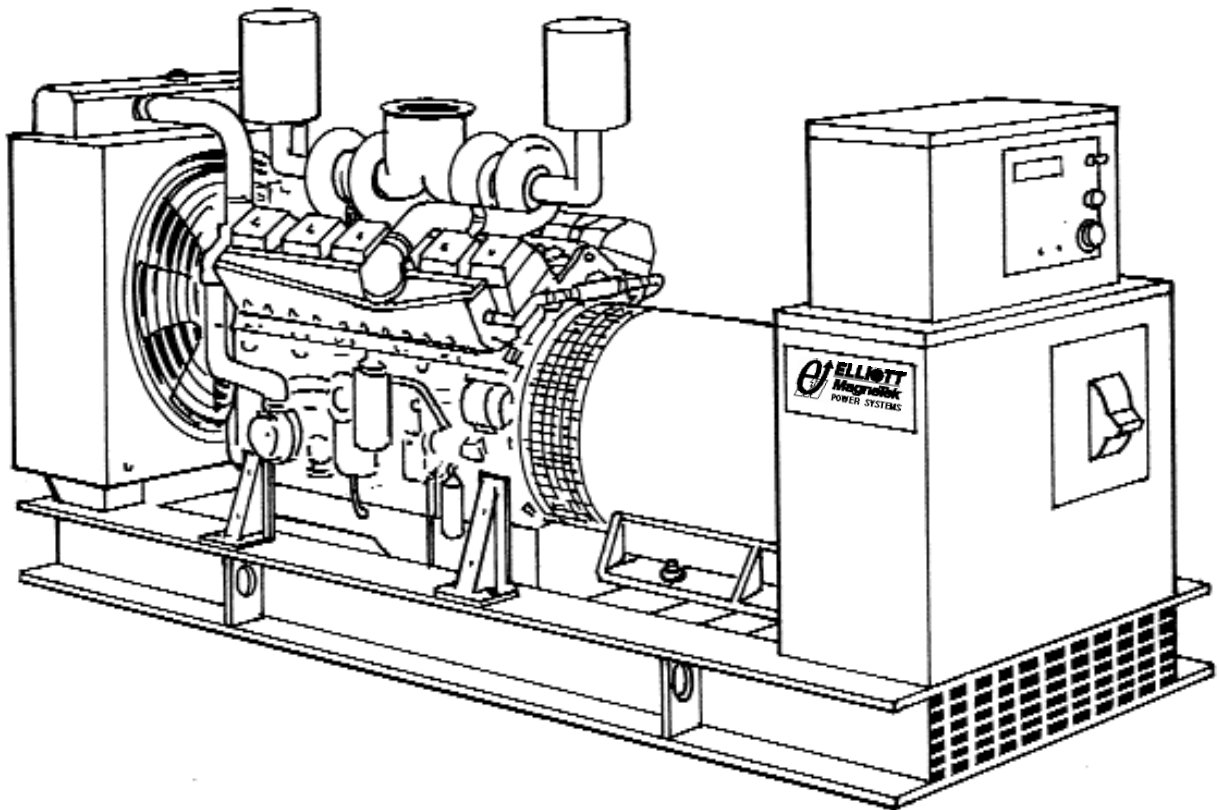
## Single Phase

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 4163   | 110/190 4273   |
| 120/240 3608   | 120/208 3903   |
| 277/480 1804   | 230/400 2029   |

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

### Application and Performance Data

MagneTek Alternator Model MTG63 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 MTG84.

# Technical Specifications

## Model 1200 RD 1200 kW Diesel Generator Set

### Engine Specifications

|                       |  |                 |
|-----------------------|--|-----------------|
| Manufacturer          | Mitsubishi                                     |                 |
| Model                 | S12R-PTA                                       |                 |
| Type                  | 4 Cycle, Water Cooled                          |                 |
| Aspiration            | Turbo/ Aftercooler<br>(Jacket water to cooler) |                 |
| Cylinders             | 60° V12  |                 |
| Displacement          | 2992 In <sup>3</sup> . (49.03L)                |                 |
| Bore and Stroke,      | 6.69 in x 7.09 in.<br>(170 mm x 180 mm)        |                 |
| Compression Ratio     | 14.0:1   |                 |
| 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           | 1675   | 1571            |
| BMEP                  | 246 psi  | 231 psi         |

### Generator Set Deration Factors

|                                 |  |
|---------------------------------|--|
| Temperature:                    |  |
| 4% for every 18° F above 104° F |  |
| 4% for every 10°C above 40°C    |  |
| Altitude                        |  |
| 1% for every 328 feet above     |  |
| 4921 feet                       |  |
| 1% for every 100 meters above   |  |
| 1500 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)

|   | <b>1800 rpm</b>                | <b>1500 rpm</b>                |
|---|--------------------------------|--------------------------------|
| Coolant Flow                                    |                                |                                |
| 489 GPM<br>(1850 LPM)                           | 436 GPM<br>(1650 LPM)          |                                |
| Heat Rejection<br>to Coolant at<br>Full Load    | 45504 Btu/min<br>(4800 MJ/min) | 40943 Btu/min<br>(4319 MJ/min) |
| Heat Rejection<br>to Room at Rated<br>Full Load | 5460 Btu/min<br>(576 MJ/min)   | 4913 Btu/min<br>(518 MJ/min)   |

### Air System

|                                      | <b>1800 rpm</b>                         | <b>1500 rpm</b>                         |
|--------------------------------------|---|---|
| Maximum<br>Air Intake<br>Restriction |   | 25.0 In wc<br>(6.2 kPa)                 |
| Radiator Cooling<br>Air Flow         | 63558 cfm<br>(1799 m <sup>3</sup> /min) | 63558 cfm<br>(1799 m <sup>3</sup> /min) |
| Combustion<br>Air Flow               | 3849 cfm<br>(109 m <sup>3</sup> /min)   | 3460 cfm<br>(98 m <sup>3</sup> /min)    |
| Generator<br>Cooling<br>Air Flow     | 5256 cfm<br>(148.7 m <sup>3</sup> /min) | 4380 cfm<br>(73.2 m <sup>3</sup> /min)  |

### Exhaust System

|  |  |                                       |
|--|--|---------------------------------------|
| Exhaust<br>Outlet Size                   | 8.35 in. dia. (21.2cm)                 |                                       |
| Maximum Allowable Back Pressure          | 23.6 In wc (5.9 kPa)                   |                                       |
| Exhaust Gas Flow<br>at Standby<br>Rating | 10240 cfm<br>(290 m <sup>3</sup> /min) | 9216 cfm<br>(261 m <sup>3</sup> /min) |
| Exhaust Temp at<br>Standby Rating        | 1060°F<br>(571°C)                      | 1060°F<br>(571°C)                     |

### Fuel System

Consumption at Standby Rating:

| Load | <b>1800 RPM</b> |          |         |
|------|-----------------|----------|---------|
|      | kW              | US gal/h | Litre/h |
| 1/4  | 300             | 19.7     | 74.6    |
| 1/2  | 600             | 39.4     | 149.1   |
| 3/4  | 900             | 59.1     | 223.7   |
| Full | 1200            | 78.8     | 298.3   |
| Load | <b>1500 RPM</b> |          |         |
|      | kW              | US gal/h | Litre/h |
| 1/4  | 250             | 16.4     | 62.1    |
| 1/2  | 500             | 32.7     | 123.8   |
| 3/4  | 750             | 49.1     | 185.9   |
| Full | 1000            | 65.4     | 247.6   |

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

### Generator

|   |           |
|---|-----------|
| Manufacturer  | MagneTek  |
| Model   | MTG63     |
| Motor Starting KVA,<br>240/480 Volt WYE at<br>35% Voltage Dip, 100%<br>Voltage Recovery | 3947 SKVA |
| Maximum Motor<br>Starting KVA, 35% Voltage Dip<br>Oversized Generator<br>MTG84          | 6289 SKVA |

### Reactances

|                                 |       |       |
|---------------------------------|-------|-------|
|                                 | 480 V | 400 V |
| at 105°C rise                   | 60Hz  | 50Hz  |
| Synchronous Xd                  | 2.78  | 2.66  |
| Direct Axis<br>Transient X'd    | .195  | .188  |
| Direct Axis<br>Subtransient X'd | .132  | .127  |
| Zero Sequence Xo                | .0082 | .0078 |

### Lubrication System

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

# Model 1200 RD 1200 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 Design

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**Distributed by:**



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