



## Model 300 RD 300 kW Diesel Generator Set

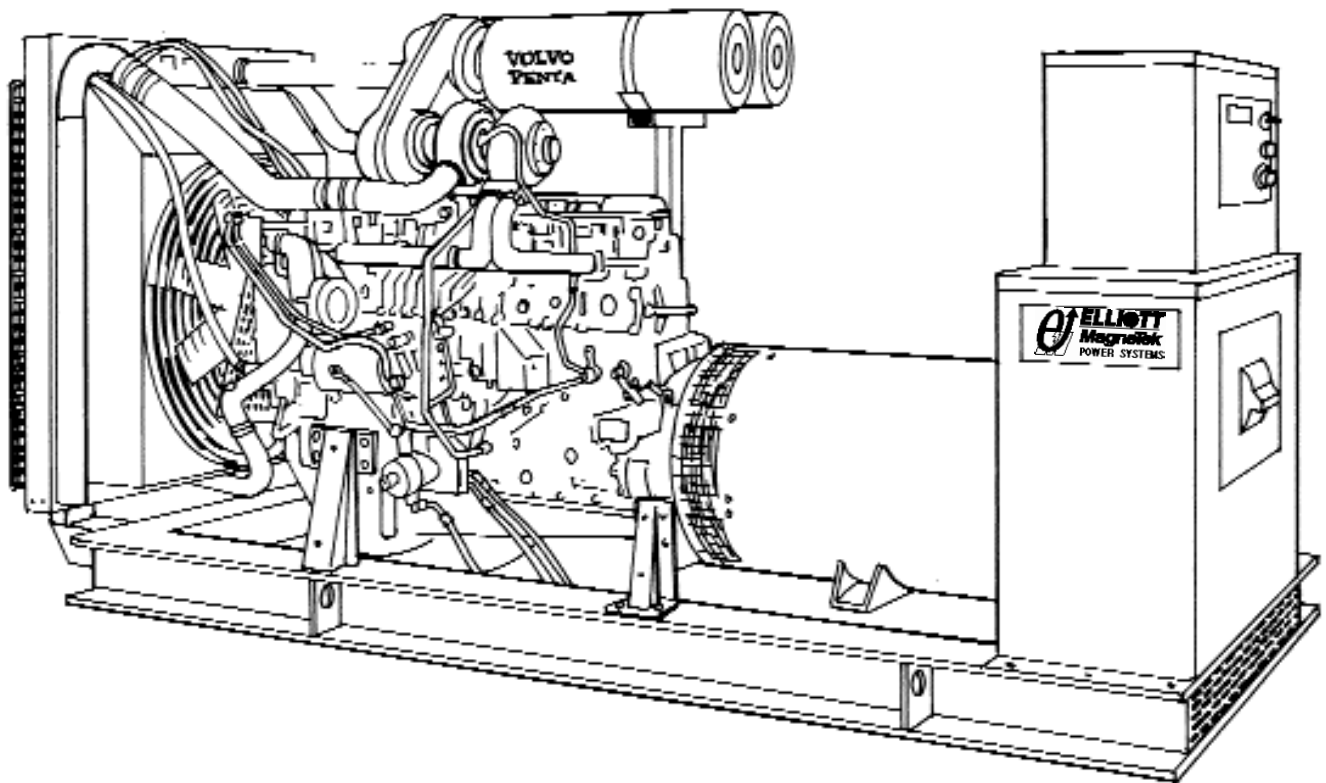
### Generator Set Rating

Three Phase	60 Hz kW/KVA	50 Hz kW/KVA
Continuous		
Standby 150°C	300/375	280/350
Prime Power 105°C	275/344	255/319
Single Phase	60 Hz kW/KVA	50 Hz kW/KVA
Continuous		
Standby 150°C	235/235	241/241
Prime Power 105°C	201/201	201/201

### 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	1042	110/190	1064
120/240	902	120/208	971
277/480	451	230/400	505
347/600	361	240/415	487

\*Single Phase

60 Hz Amperage		50 Hz Amperage	
120/240	979	110/220	1095

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 MTG49.

### Application and Performance Data

MagneTek Alternator Model MTG45 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 300 RD

## 300 kW Diesel Generator Set

### Engine Specifications

Manufacturer	Volvo	
Model	TWD 1231 GE	
Type	In line 4 Stroke	
Aspiration	Turbo/ Air to Air Inter cooled	
Cylinders	6	
Displacement	731 In <sup>3</sup> . (12 L)	
Bore and Stroke,	5.12 in x 5.91 in. (130 mm x 150 mm)	
Compression Ratio	14.0:1	
Minimum Ah. at 5°C	2 X 105	
RPM	<b>1800 rpm</b>	<b>1500 rpm</b>
BHP Minimum REQ'D		
at Rated kW	452	419
BMEP	272 psi	303 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

50.7 qt. (48 L)

Maximum restriction on discharge side of radiator

.5 In wc (125 Pa)

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

Coolant Flow

116 GPM  
(439 LPM)

101 GPM  
(382 LPM)

Heat Rejection

to Coolant at

Full Load

6480 Btu/min  
(683 MJ/min)

6030 Btu/min  
(636 MJ/min)

Heat Rejection

to Room at Rated

Full Load

1130 Btu/min  
(119 MJ/min)

1020 Btu/min  
(108 MJ/min)

### Air System

	<b>1800 rpm</b>	<b>1500 rpm</b>
Maximum		
Air Intake		
Restriction		20.1 In wc (5 kPa)
Radiator Cooling		
Air Flow	13985 cfm (395.8 m <sup>3</sup> /min)	11442 cfm (323.8 m <sup>3</sup> /min)
Combustion		
Air Flow	899 cfm (25.4 m <sup>3</sup> /min)	749 cfm (21.2 m <sup>3</sup> /min)
Generator		
Cooling		
Air Flow	3104 cfm (66.4 m <sup>3</sup> /min)	2587 cfm (55.4 m <sup>3</sup> /min)

### Exhaust System

Exhaust		
Outlet Size	3.25 in. dia. (8.25cm)	
Maximum Allowable Back Pressure	28.1 In wc (5.0 kPa) 20.1(5.0 kPa)	
Exhaust Gas Flow		
at Standby		
Rating	2296 cfm	2143 cfm
	(64.98 m <sup>3</sup> /min)	(60.65 m <sup>3</sup> /min)

Exhaust Temp at

Standby Rating

950°F  
(510°C)

1056°F  
(569°C)

### Fuel System

Consumption at Standby Rating:

Load	1800 RPM			
	kW	US gal/h	Litre/h	
1/4	75	6.1	20.3	
1/2	150	10.8	40.9	
3/4	225	15.7	59.4	
Full	300	20.6	78	
Load	1500 RPM			
	kW	US gal/h	Litre/h	
1/4	70	5.3	20.1	
1/2	140	9.8	37.1	
3/4	210	14.5	54.9	
Full	280	19.5	73.8	

Governor Type

Isochronous

Governor Regulation:

+/- .25% Steady State

### Generator

Manufacturer	MagneTek
Model	MTG45
Motor Starting KVA,	
240/480 Volt WYE at	
35% Voltage Dip,100%	
Voltage Recovery	790 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	2.90
Direct Axis		
Transient X'd	.305	.283
Direct Axis		
Subtransient X'd	.175	.162
Zero Sequence Xo	.0035	.0038

### Lubrication System

Engine Oil Capacity with Filters

10 US gal. (38L)

Oil Filter Type

Spin On

### Engine Exhaust Emissions Certification Values

Exhaust Emissions (g/bhp-hr.)

	*CARB	300RD
HC:	1	.4
CO:	8.5	.8
NOx:	6.9	6
PM:	.4	.1

### Smoke Opacity (%)

Acceleration	20	N/A
Lugging	15	4
Peak	50	N/A

\* California Air Resources Board Standards.

# Model 300 RD

## 300 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

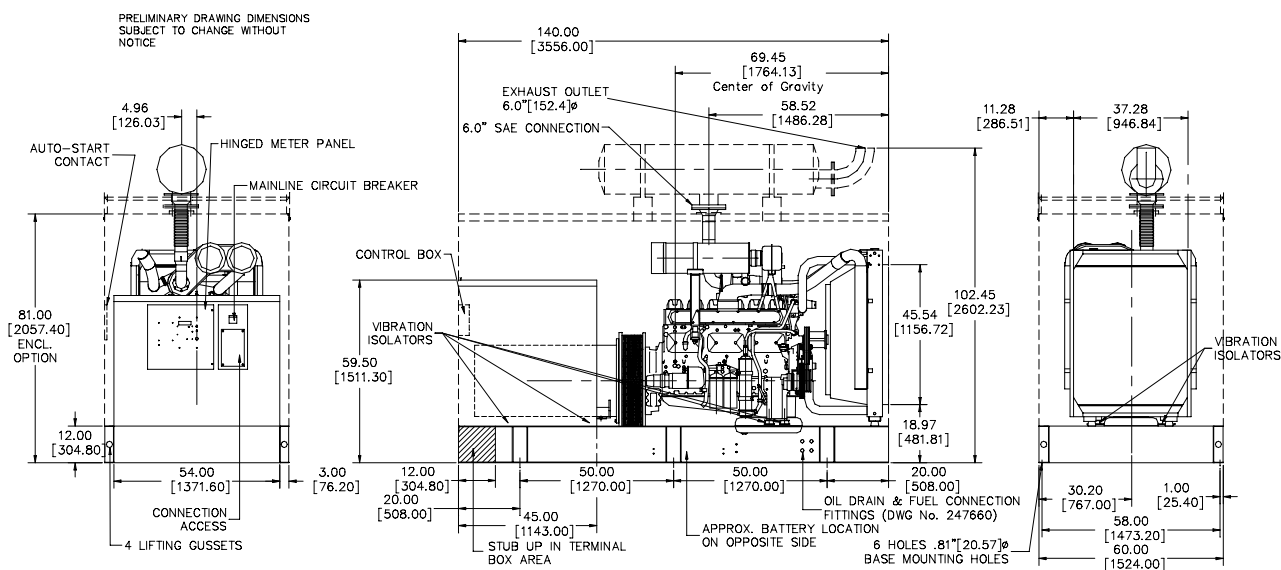
- \* Battery/Battery heater
- \* Battery charger
- \* Engine pre-heater
- \* Fuel/ water separator
- \* Isochronous governor

#### Generator Set

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

DOOR SWING—  
ENGINE DOOR: 28.750  
SECURITY DOOR: 26.250

OPEN DRY WEIGHT 5707 LBS (2589 KG)  
ENCL. DRY WEIGHT 6907 LBS (3133 KG)



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**Distributed by:**



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