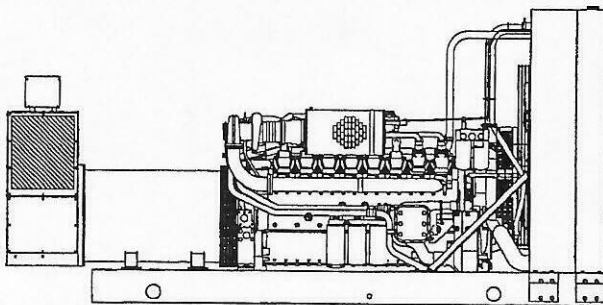




Ratings Range

60 Hz

Standby: kW 945-1020
kVA 1181-1275



Standard Features

- Spectrum® product distributors provide one-source responsibility for the generating system and accessories.
- The generator set and components are prototype tested, factory built, and production tested.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Generator features:
 - Brushless, rotating-field generator has broadrange reconnectability.
 - Pilot-excited, permanent magnet generator (PMG) provides superior short-circuit capability.
- Other features:
 - Controllers are available to meet all applications. See controller features inside.
 - Low coolant level shutdown protects the generator set from overheating.
 - Electronic, isochronous governor provides precise frequency regulation.
 - Electronic engine controls and a generator microprocessor controller combine to make one of the most advanced control systems in today's generator market.

Generator Ratings



Generator	Voltage	PH	Hz	150°C Rise Standby Rating kW/kVA	130°C Rise Standby Rating kW/kVA	125°C Rise Prime Rating kW/kVA	105°C Rise Prime Rating kW/kVA
5M4044	240/416	3	60	1010/1263	975/1219	—	—
	277/480	3	60	1020/1275	1020/1275	—	—
	220/380	3	60	945/1181	945/1181	—	—
7M4046	240/416	3	60	1010/1263	1010/1263	—	—
	277/480	3	60	1020/1275	1020/1275	—	—
7M4170	220/380	3	60	1010/1263	1010/1263	—	—
7M4282	347/600	3	60	1000/1250	1000/1250	—	—
7M4284	347/600	3	60	1010/1263	1010/1263	—	—

RATINGS: All three-phase units are rated at 0.8 power factor. **Standby Ratings:** Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. **Prime Power Ratings:** Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. Obtain the technical information bulletin (TIS-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. **NOTE:** Inherent engine design and/or electronic engine controls prevent engine speed/generator set frequency conversion on this model. **GENERAL GUIDELINES FOR DERATION:** **Altitude:** Derate 1.5% per 305 m (1000 ft.) elevation above 1006 m (3300 ft.). Maximum altitude capability is 2288 m (7500 ft.) on 60 Hz. **Temperature:** Derate 0.4% per 5.5°C (10°F) temperature above 25°C (77°F).

Alternator Specifications

Type	4-Pole, Rotating Field
Exciter type	Brushless Permanent Magnet Pilot Exciter
Voltage regulator	Solid State, Volts/Hz
Insulation: NEMA MG1-1.66,	
Material	Class H, Synthetic, Nonhygroscopic
Temperature rise	130°C, 150°C Standby
Bearing: number, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Rotor balancing	125% 60 Hz, 150% 50 Hz
Voltage regulation, no load to full load (with <0.5% drift due to temp. variation)	±0.25%
Unbalanced load capability	100% of rated standby current
Peak motor starting kVA:	(35% dip for voltages below)
480 V	5M4044 (4 bus bar) .. 3900 (60 Hz)
480 V	7M4046 (4 bus bar) .. 3900 (60 Hz)
380 V	7M4170 (4 bus bar) .. 2500 (60 Hz)
600 V	7M4282 (4 bus bar) .. 1850 (60 Hz)
600 V	7M4284 (4 bus bar) .. 3200 (60 Hz)

- Compliance with NEMA, IEEE, and ANSI standards for temperature rise.
- Transient performance meets the requirements of ISO 8528-5, Class G3.
- Sustained short-circuit current of up to 300% of rated current for up to 10 seconds.
- Sustained short-circuit capability enables downstream circuit breakers to trip without collapsing the generator field.
- Self-ventilation and drip-proof construction.
- Superior voltage waveform from two-thirds pitch windings and skewed stator.
- Digital solid-state, volts-per-hertz voltage regulator with ±0.25% no-load to full-load regulation.
- Brushless alternator with brushless pilot exciter for excellent load response.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Detroit Diesel/MTU	
Engine: model	16V2000 G81 R163-7K06	—
Engine: type	4-Cycle, Turbocharged	
Cylinder head arrangement	16-V	
Displacement, L (cu. in.)	31.9 (1944)	
Bore and stroke, mm (in.)	130 (5.12) x 150 (5.91)	
Compression ratio	14.5:1	—
Piston speed, m/sec. (ft./min.)	9.0 (1772)	—
Main bearings: number, type	9, Precision Half Shells	
Rated rpm	1800	—
Max. power at rated rpm, kWm (BHP)	1115 (1495)	—
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Governor: type, make/model	DDEC Electronic Control	
Frequency regulation, no load to full load	Isochronous	
Frequency regulation, steady state	±0.25%	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m³/min. (cfm)	249 (8780)	—
Exhaust temperature at rated kW, dry exhaust, °C (°F)	546 (1015)	—
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	—
Exhaust outlet size at engine hookup, mm (in.)	See ADV drawing	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	24	
Ampere rating	70	
Starter motor rated voltage (DC)	24	
Recommended battery cold cranking amps (CCA) rating	950 above 0°C (32°F) 1250 below 0°C (32°F)	
Quantity of batteries	2 above 0°C (32°F) 4 below 0°C (32°F)	
Battery voltage (DC)	12	

Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	19 (0.75)	
Fuel return line, min. ID, mm (in.)	19 (0.75)	
Max. lift, engine-driven fuel pump, m (ft.)	2.1 (6.8)	
Max. fuel flow, Lph (gph)	1422 (376)	—
Max. fuel pump restriction with new/used filter, kPa (in. Hg)	20 (6)/41 (12)	
Fuel filter	2, Primary/Secondary	
Recommended fuel	#2 Diesel	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qts.)	96.5 (102)	
Oil pan capacity with filter, L (qts.)	107.9 (114)	
Oil filter: quantity, type	3, Cartridge	
Oil cooler	Water-Cooled	

Application Data

Controllers

Available Cooling Systems

Cooling System	60 Hz	50 Hz
Ambient temperature °C (°F)	40 (104)	—
Engine jacket water capacity, L (gal.)	76 (20)	—
Radiator system capacity, including engine, L (gal.)	261 (69)	—
Engine jacket water flow, Lpm (gpm)	1192 (315)	—
Charge cooler water flow, Lpm (gpm)	432 (114)	—
Heat rejected to cooling water at rated kW, dry exhaust kW (Btu/min.)	402 (22865)	—
Heat rejected to charge cooling water at rated kW, dry exhaust kW (Btu/min.)	272 (15440)	—
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1372 (54)	—
Fan kWm (HP)	42 (56)	—
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

Remote Radiator System*	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:		
Water inlet, mm (in.)	102 (4)	—
Water outlet, mm (in.)	(2) 77 (3)	—
Intercooler inlet/outlet, mm (in.)	44.5 (1.75)	—
Static head allowable above engine, kPa (ft. H ₂ O)	149 (50)	

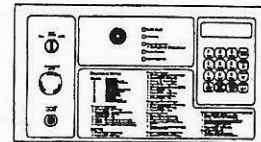
* Contact your local distributor for cooling system options and specifications based on your specific requirements.

Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm)†	1116 (39400)	—
Cooling air required for genset when equipped with CWC or remote radiator, based on 14°C (25°F) rise and ambient temp. of 29°C (85°F), m ³ /min. (cfm)	682 (24100)	—
Combustion air, m ³ /min. (cfm)	87 (3075)	—
Heat rejected to ambient air:		
Engine kW (Btu/min.)	132 (7490)	—
Generator kW (Btu/min.)	84 (3050)	—

† Air density = 0.075 lbm/ft³ or 1.20 kg/m³

Fuel Consumption	60 Hz	50 Hz
Diesel, Lph (gph) at % load	Standby Rating	
100%	277.0 (73.2)	—
75%	202.3 (53.4)	—
50%	138.9 (36.7)	—
25%	77.5 (20.5)	—



Available Controllers

Digital Controller

Audio/visual annunciation with NFPA 110, Level 1 capability
Programmable microprocessor logic with digital display
Compatible with 12-volt or 24-volt engine electrical systems
Remote start, prime power, remote annunciation, and remote communication capability

Microprocessor-Plus, 16-Light Controller

Audio/visual annunciation with NFPA 110, Level 1 capability
Microprocessor logic with AC meters and engine gauges
Compatible with 12-volt or 24-volt engine electrical systems
Remote start, prime power, and remote annunciation capability

Microprocessor-Plus, 7-Light Controller

Audio/visual annunciation with NFPA 110, Level 2 capability
Microprocessor logic with AC meters and engine gauges
Compatible with 12-volt or 24-volt engine electrical systems
Remote start, prime power, and remote annunciation capability

Engine Gauge Box Controller for Paralleling Switchgear

Interfaces between generator set and switchgear for paralleling switchgear applications

Engine gauges with emergency stop switch

Compatible with 12-volt or 24-volt engine electrical systems

NOTE: See the respective controller spec sheet for additional controller features and accessories.



Standard Features and Accessories

Additional Standard Features

- Electronic, Isochronous Governor
- Oil Drain Extension
- Operation and Installation Literature
- Pilot-Excited Permanent Magnet Generator (PMG)

Accessories

Open Unit

- ☒ Exhaust Silencer, Critical or Residential
- ☒ Flexible Exhaust Connector, Stainless Steel

Cooling System

- ☒ Block Heater
- ☐ High Ambient Radiator
- ☒ Radiator Duct Flange
- ☐ Remote Radiator Cooling

Fuel System

- ☐ Day Tanks
- ☒ Flexible Fuel Lines
- ☒ Fuel Filter
- ☐ Fuel Pressure Gauge

Electrical System

- ☒ Battery
- ☒ Battery Charger, Equalize/Float Type
- ☐ Battery Charger, Trickle Type
- ☐ Battery Heater
- ☐ Battery Rack and Cables

Engine and Generator

- ☐ Air Cleaner, Heavy Duty
- ☒ Air Cleaner Restriction Indicator
- ☐ Bus Bar Kits (standard on 7M generators, 380-600 volt only)
- ☒ Generator Strip Heater
- ☐ Line Circuit Breaker (NEMA type 1 enclosure)
- ☒ Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)
- ☐ NFPA 110 Literature
- ☐ Optional Generators
- ☐ Rated Power Factor Testing
- ☒ Safeguard Breaker
- ☒ Spring Isolators

Paralleling System

- ☐ Load-sharing Module
- ☐ Reactive Droop Compensator
- ☐ Remote Speed Adjust Potentiometer/Electronic Governor
- ☐ Voltage Adjust Potentiometer
- ☐ Voltage Regulator Relocation Kit

Maintenance

- ☒ General Maintenance Literature Kit
- ☐ Maintenance Kit (includes air, oil, and fuel filters)
- ☐ Overhaul Literature Kit
- ☐ Production Literature Kit

Controller (Digital and Microprocessor-Plus)

- ☐ Common Failure Relay Kit

- ☒ Communication Products and PC Software (Digital controller only)
- ☐ Controller Cable, 12 m (40 ft.)
- ☐ Customer Connection Kit
- ☒ Dry Contact Kit (isolated alarm)
- ☒ Engine Prealarm Sender Kit
- ☐ Prime Power Switch (Digital controller only)
- ☒ Remote Annunciator Panel
- ☐ Remote Audio/Visual Alarm Panel
- ☒ Remote Emergency Stop Kit
- ☐ Run Relay Kit

Miscellaneous Accessories

- ☐
- ☐
- ☐
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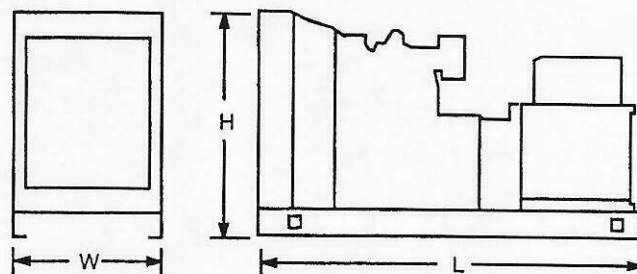
WEIGHTS AND DIMENSIONS

Overall Size (max.), L x W x H, mm (in.):

60 Hz: 4721 x 1996 x 2302 (185.90 x 78.58 x 90.63)

Weight (max.) (Radiator Model), wet kg (lbs.):

60 Hz: 7200 (15873)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

DISTRIBUTED BY:

* DIMENSIONS & WEIGHTS DO
NOT INCLUDE ENCLOSURE
OR FUEL TANK OR FUEL