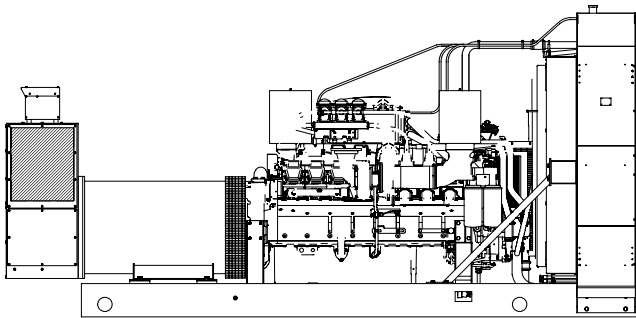




Ratings Range

60 Hz

Standby:	kW	945-1000
	kVA	1181-1250
Prime:	kW	860-910
	kVA	1075-1138



Standard Features

- Your DDC/MTU Power Generation product distributor provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- At 60 Hz, the generator set accepts rated load in one step.
- The generator set complies with ISO 8528-5, Class G3, requirements for transient performance.
- The 60 Hz generator set engine is certified by the Environmental Protection Agency (EPA) to conform to Tier 2 nonroad emissions regulations.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Alternator features:
 - The pilot-excited, permanent-magnet (PM) alternator provides superior short-circuit capability.
 - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
 - Controllers are available for all applications. See controller features inside.
 - The low coolant level shutdown prevents overheating (standard on radiator models only).
 - The generator set-to-skid mounting options are either integral vibration isolation or direct mounting with spring isolators.
 - An electronic, isochronous governor delivers precise frequency regulation.
 - Electronic engine controls and a generator set microprocessor controller combine to deliver one of the most advanced control systems in today's market.

Generator Set Ratings

Alternator	Voltage	Ph	Hz	150°C Rise Standby Rating		130°C Rise Standby Rating		125°C Rise Prime Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps	kW/kVA	Amps
5M4044	240/416	3	60	1000/1250	1735	975/1219	1691	910/1138	1579	890/1113	1544
	277/480	3	60	1000/1250	1504	1000/1250	1504	910/1138	1368	910/1138	1368
7M4046	220/380	3	60	945/1181	1795	945/1181	1795	860/1075	1633	860/1075	1633
	240/416	3	60	1000/1250	1735	1000/1250	1735	910/1138	1579	910/1138	1579
7M4170	277/480	3	60	1000/1250	1504	1000/1250	1504	910/1138	1368	910/1138	1368
	220/380	3	60	1000/1250	1899	1000/1250	1899	910/1138	1728	910/1138	1728
7M4282	347/600	3	60	1000/1250	1203	1000/1250	1203	910/1138	1095	910/1138	1095
7M4284	347/600	3	60	1000/1250	1203	1000/1250	1203	910/1138	1095	910/1138	1095

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. **GENERAL GUIDELINES FOR DERATION:** *Altitude:* Derate 1.0% per 100 m (328 ft.) elevation above 400 m (1312 ft.). *Temperature:* Derate 3.0% per 5.0°C (9°F) temperature above 40°C (104°F).

Alternator Specifications

Specifications	Alternator
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet Pilot Exciter
Voltage regulator	Solid-State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H, Synthetic, Nonhygroscopic
Temperature rise	130°C, 150°C Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Rotor balancing	125%
Voltage regulation, no-load to full-load (with < 0.5% drift due to temp. variation)	3-Phase Sensing, ±0.25%
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V 5M4044 (4 bus bar)	3900
480 V 7M4046 (4 bus bar)	3900
380 V 7M4170 (4 bus bar)	2600
600 V 7M4282 (4 bus bar)	1850
600 V 7M4284 (4 bus bar)	3200

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof 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	
Manufacturer	Detroit Diesel/MTU
Engine: model	16V2000 G84 R163-8A36
Engine: type	4-Cycle, Turbocharged, Intercooled
Cylinder arrangement	16-V
Displacement, L (cu. in.)	31.84 (1943)
Bore and stroke, mm (in.)	130 x 150 (5.12 x 5.91)
Compression ratio	16.0:1
Piston speed, m/min. (ft./min.)	540 (1772)
Main bearings: quantity, 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
Valve (exhaust) material	Austenitic Steel
Governor: type, make/model	ADEC Electronic Control
Frequency regulation, no-load to-full load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust flow at rated kW, m ³ /min. (cfm)	210 (7416)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	560 (1040)
Maximum allowable back pressure, kPa (in. Hg)	8.5 (2.5)
Exh. outlet size at eng. hookup, mm (in.)	See ADV drawing

Engine Electrical

Engine Electrical System		
Battery charging alternator:		
Ground (negative/positive)		Negative
Volts (DC)		24
Ampere rating		70
Starter motor rated voltage (DC)		24
Battery, recommended cold cranking amps (CCA):		
Qty., CCA rating each		Two, 1150
Battery voltage (DC)		12

Fuel

Fuel System		
Fuel supply line, min. ID, mm (in.)		12 (0.5)
Fuel return line, min. ID, mm (in.)		6 (0.25)
Max. fuel flow, Lph (gph)		480 (127)
Min./max. fuel pressure at engine supply connection, kPa (in. Hg)		-30/50 (-8.8/14.8)
Fuel filter: quantity, type		1, Secondary
Recommended fuel		#2 Diesel

Lubrication

Lubricating System		
Type		Full Pressure
Oil pan capacity dipstick mark max., L (qt.)		88 (93)
Oil pan capacity, initial filling, L (qt.)		102 (108)
Oil filter: quantity, type		2, Cartridge
Oil cooler		Water-Cooled

Application Data

Cooling

Radiator System	
Ambient temperature, standby rating, °C (°F)	40 (104)
Engine water capacity, L (gal.)	150 (40)
Radiator system capacity, including engine, L (gal.)	291 (77)
Engine jacket water flow, Lpm (gpm)	833 (220)
Charge cooler water flow, Lpm (gpm)	258 (68)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	440 (25022)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	290 (16492)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	1524 (60)
Fan, kWm (HP)	43 (58)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

High Ambient Radiator System	
Ambient temperature, °C (°F)	50 (122)
Engine jacket water capacity, L (gal.)	150 (40)
Radiator system capacity, including engine, L (gal.)	341 (90)
Engine jacket water flow, Lpm (gpm)	833 (220)
Charge cooler water flow, Lpm (gpm)	258 (68)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	440 (25022)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	290 (16492)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	1524 (60)
Fan, kWm (HP)	63 (84)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

Remote Radiator System*	
Exhaust manifold type	Dry
Connection sizes:	
Water inlet/outlet, mm (in.)	77 (3)
Intercooler inlet/outlet, mm (in.)	51 (2)
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.

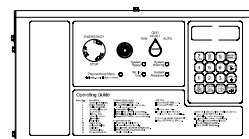
Operation Requirements

Air Requirements	
Radiator-cooled cooling air, m ³ /min. (scfm) †	1161 (41000)
High ambient radiator-cooled cooling air, m ³ /min. (scfm) †	1334 (47100)
Cooling air required for generator set when equipped with city water cooling or remote radiator, based on 14°C (25°F) rise, m ³ /min. (scfm) †	391 (13800)
Combustion air, m ³ /min. (cfm)	81 (2860)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	45 (2559)
Alternator, kW (Btu/min.)	64 (3640)

† Air density = 1.20 kg/m³ (0.075 lbm/ft.³)

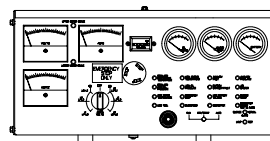
Fuel Consumption	
Diesel, Lph (gph) at % load	Standby Rating
100%	269.9 (71.3)
75%	211.3 (55.8)
50%	139.5 (36.9)
25%	77.3 (20.4)
Diesel, Lph (gph) at % load	Prime Rating
100%	248.8 (65.7)
75%	195.5 (51.7)
50%	127.4 (33.6)
25%	71.5 (18.9)

Controllers



Digital 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Safeguard circuit protection standard. 12- or 24-volt engine electrical system capability. Remote start, remote annunciation, and remote communication options. Refer to M6-46 for additional controller features and accessories.



Microprocessor-Plus, 16-Light Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Microprocessor logic, AC meters, and engine gauge features. 12- or 24-volt engine electrical system capability. Remote start, prime power, and remote annunciation options. Refer to M6-30 for additional controller features and accessories.

Additional Standard Features

- Alternator Protection (standard with 550 controller)
- Oil Drain Extension
- Operation and Installation Literature
- Radiator Duct Flange

Available Accessories

Open Unit

- Exhaust Silencer, Critical (kits: PA-354880-SD qty. 2, or PA-354898-SD qty. 1)
- Exhaust Silencer, Hospital (kits: PA-354905-SD qty. 2, PA-361619-SD qty. 1, or PA-354912-SD qty. 1)
- Flexible Exhaust Connector, Stainless Steel

Cooling System

- Block Heater
- High Ambient Radiator
- Remote Radiator Cooling

Fuel System

- Flexible Fuel Lines
- Fuel Filter
- Fuel Pressure Gauge

Electrical System

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

Engine and Alternator

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Alternator Strip Heater
- Bus Bar Kits (standard on 7M alternators, 380-600 volt only)
- Direct Mounting
- Integral Vibration Isolation Mounting
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)
- NFPA 110 Literature
- Optional Alternators
- Rated Power Factor Testing
- Safeguard Breaker (not available with 550 controller)
- Spring Isolators

Paralleling System

- Reactive Droop Compensator
- Remote Speed Adjust Control
- Voltage Adjust Control
- Voltage Regulator Relocation Kit

Maintenance

- General Maintenance Literature Kit
- Overhaul Literature Kit
- Production Literature Kit

Controller

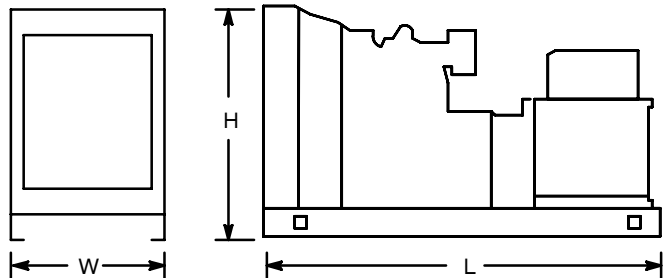
- Common Failure Relay Kit
- Communication Products and PC Software (550 controller only)
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Prime Power Switch (550 controller only)
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- Remote Mounting Cable
- Run Relay Kit

Miscellaneous Accessories

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, max., L x W x H, mm (in.): 4863 x 1853 x 2365
 (191.5 x 73.0 x 93.1)
 Weight, radiator model, max. wet, kg (lb.): 7348 (16200)



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

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