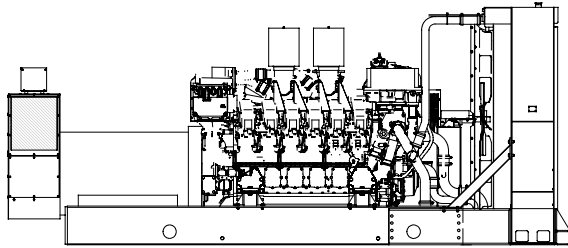




**Ratings Range**

	60 Hz	50 Hz
<b>Standby: kW</b>	1160-1560	1200-1448
<b>kVA</b>	1450-1950	1500-1810
<b>Prime: kW</b>	1050-1400	1088-1312
<b>kVA</b>	1313-1750	1360-1640



**Standard Features**

- Kohler Co. 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 on most voltages up to 600 volts.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- 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.
  - Additional alternator voltages are available including 12.47 kV, 13.2 kV, and 13.8 kV medium voltages. Contact your local distributor for more detailed information.
- Other features:
  - Controllers are available for all applications. See controller features inside.
  - The generator set-to-skid mounting options are either integral vibration isolation or direct mounting with spring isolators.
  - Electronic engine controls manage the engine.

**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
7M4050	220/380	3	60	1160/1450	2203	1160/1450	2203	1050/1313	1994	1050/1313	1994
	240/416	3	60	1410/1763	2446	1370/1713	2377	1340/1675	2325	1270/1588	2203
	277/480	3	60	1520/1900	2285	1500/1875	2255	1380/1725	2075	1360/1700	2045
	220/380	3	50	1248/1560	2370	1200/1500	2279	1168/1460	2218	1088/1360	2066
	230/400	3	50	1308/1635	2360	1248/1560	2252	1240/1550	2237	1160/1450	2093
7M4052	240/416	3	50	1308/1635	2269	1228/1535	2130	1228/1535	2130	1144/1430	1985
	220/380	3	60	1480/1850	2811	1480/1850	2811	1340/1675	2545	1340/1675	2545
	240/416	3	60	1560/1950	2706	1560/1950	2706	1400/1750	2429	1400/1750	2429
	277/480	3	60	1560/1950	2345	1560/1950	2345	1400/1750	2105	1400/1750	2105
	220/380	3	50	1448/1810	2750	1420/1775	2697	1312/1640	2492	1292/1615	2454
7M4174	230/400	3	50	1448/1810	2750	1348/1685	2560	1312/1640	2367	1240/1550	2237
	240/416	3	50	1380/1725	2621	1280/1600	2431	1280/1600	2221	1200/1500	2082
	220/380	3	60	1560/1950	2963	1560/1950	2963	1400/1750	2659	1400/1750	2659
7M4176	220/380	3	60	1560/1950	2963	1560/1950	2963	1400/1750	2659	1400/1750	2659
7M4290	347/600	3	60	1560/1950	1876	1560/1950	1876	1400/1750	1684	1400/1750	1684
7M4368	2400/4160	3	60	1560/1950	271	1560/1950	271	1400/1750	243	1400/1750	243
	1905/3300	3	50	1428/1785	312	1320/1650	289	1304/1630	285	1200/1500	262
7M4370	2400/4160	3	60	1560/1950	271	1560/1950	271	1400/1750	243	1400/1750	243
	1905/3300	3	50	1448/1810	317	1448/1810	317	1312/1640	287	1312/1640	287

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 (TIB-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% per 100 m (328 ft.) elevation above 400 m (1312 ft.). *TEMPERATURE:* Derate 2.0% per 5°C (9°F) temperature above 40°C (104°F).

# Alternator Specifications

Specifications	Alternator
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Permanent-Magnet
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 at 60 Hz	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
7M4050 (4 bus bar)	4500 (60 Hz)    3700 (50 Hz)
7M4052 (4 bus bar)	5500 (60 Hz)    4600 (50 Hz)
7M4174 (4 bus bar)	4200 (60 Hz)    — (50 Hz)
7M4176 (4 bus bar)	5400 (60 Hz)    — (50 Hz)
7M4290 (4 bus bar)	5700 (60 Hz)    — (50 Hz)
7M4368 (6 lead)	4900 (60 Hz)    2900 (50 Hz)
7M4370 (6 lead)	5500 (60 Hz)    3050 (50 Hz)

- 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 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	12V4000G43 (T123-8A36)	12V4000G23 (T123-8A35)
Engine type	4-Cycle, Turbocharged, Intercooled	
Cylinder arrangement	12V	
Displacement, L (cu. in.)	57.2 (3491)	
Bore and stroke, mm (in.)	170 x 210 (6.7 x 8.3)	
Compression ratio	16.5:1	
Piston speed, m/min. (ft./min.)	756 (2480)	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	1736 (2328)	1575 (2112)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve (exhaust) material	High Alloy 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	60 Hz	50 Hz
Exhaust manifold type	Dry	
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	342 (12078)	270 (9535)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	435 (815)	440 (824)
Maximum allowable back pressure, kPa (in. Hg)	5.1 (1.5)	
Exhaust outlet size at engine hookup, mm (in.)	2 @ 254 (10)	

### 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)		Dual, 24
Battery, recommended cold cranking amps (CCA):		
Quantity, CCA rating each		Four, 1150
Battery voltage (DC)		12

### Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	20 (0.79)	
Fuel return line, min. ID, mm (in.)	20 (0.79)	
Max. fuel flow, Lph (gph)	720 (190)	
Min./max. fuel pressure at engine supply connection, kPa (in. Hg)	-10/50 (-3/14.8)	
Fuel filter	One, Secondary	
Recommended fuel	#2 Diesel	

### Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, dipstick mark max., L (qt.)	200 (211)	
Engine oil capacity, initial filling, L (qt.)	260 (275)	
Oil filter: quantity, type	4, Spin-On	
Oil cooler	Water-Cooled	

# Application Data

## Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)*	40 (104)	45 (113)
Engine water capacity, L (gal.)	200 (53)	
Radiator system capacity, including engine, L (gal.)	560 (148)	
Engine jacket water flow, Lpm (gpm)	1117 (295)	933 (247)
Charge cooler water flow, Lpm (gpm)	583 (154)	500 (132)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	640 (36396)	580 (33013)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	440 (25022)	260 (14799)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1829 (72)	
Fan, kWm (HP)	57 (76)	55 (73)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

High Ambient Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F)*	50 (122)	
Engine water capacity, L (gal.)	200 (53)	
Radiator system capacity, including engine, L (gal.)	738 (195)	
Engine jacket water flow, Lpm (gpm)	1117 (295)	933 (247)
Charge cooler water flow, Lpm (gpm)	583 (154)	500 (132)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	640 (36396)	580 (33013)
Heat rejected to charge cooling water at rated kW, dry exhaust, kW (Btu/min.)	440 (25022)	260 (14799)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	2743 (108)	
Fan, kWm (HP)	43 (57)	37 (50)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.125 (0.5)	

\* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F).

Remote Radiator System†	60 Hz	50 Hz
Connection sizes:	Class 150 ANSI Flange	
Water inlet/outlet, mm (in.)	191 (7.5) Bolt Circle	
Intercooler inlet/outlet, mm (in.)	152 (6.0) Bolt Circle	
Static head allowable above engine, kPa (ft. H <sub>2</sub> O)	149 (50)	

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

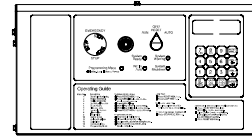
# Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	1795 (63400)	1379 (48700)
High ambient radiator-cooled cooling air, m <sup>3</sup> /min. (scfm)‡	2622 (92600)	2549 (90000)
Cooling air required for generator set when equipped with CWC or remote radiator, based on 14°C (25°F) rise, m <sup>3</sup> /min. (scfm)‡	544 (19200)	
Combustion air, m <sup>3</sup> /min. (cfm)	144 (5085)	108 (3814)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	75 (4265)	
Alternator, kW (Btu/min.)	77 (4379)	

‡ Air density = 1.20 kg/m<sup>3</sup> (0.075 lbm/ft<sup>3</sup>).

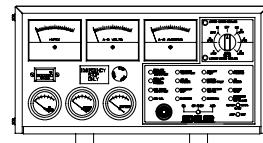
Fuel Consumption	60 Hz	50 Hz
<b>Diesel, Lph (gph) at % load</b>	<b>Standby Rating</b>	
100%	422.2 (111.5)	351.5 (92.8)
75%	324.3 (85.7)	270.6 (71.5)
50%	226.5 (59.8)	186.0 (49.1)
25%	130.1 (34.4)	106.0 (28.0)
<b>Diesel, Lph (gph) at % load</b>	<b>Prime Rating</b>	
100%	367.9 (97.2)	317.0 (83.7)
75%	286.7 (75.7)	245.2 (64.8)
50%	201.0 (53.1)	170.2 (45.0)
25%	118.4 (31.3)	98.5 (26.0)

## Controllers



### Decision-Maker® 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Alternator safeguard circuit protection. 12- or 24-volt engine electrical system capability. Remote start, remote annunciation, and remote communication options. Refer to G6-46 for additional controller features and accessories.



### Decision-Maker® 3+, 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 G6-30 for additional controller features and accessories.

## Additional Standard Features

- Alternator Protection (standard with 550 controller)
- Alternator Strip Heater (standard on 3300 volt and above)
- Oil Drain Extension
- Operation and Installation Literature

## Available Options

### Approvals and Listings

- CSA Approval
- UL 2200 Listing (available on most models up to 600 volt)

### Enclosed Unit

- Sound Enclosure/Fuel Tank Package
- Weather Enclosure/Fuel Tank Package

### Open Unit

- Exhaust Silencer, Critical (60 Hz kit: PA-361617)
- Exhaust Silencer, Hospital (60 Hz kit: PA-361626)
- Flexible Exhaust Connector, Stainless Steel

### Fuel System

- Flexible Fuel Lines
- Fuel/Water Separator

### Controller

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

### Cooling System

- Block Heater; Recommended for Ambient Temperatures Below 15°C (60°F)
- High Ambient Radiator
- Remote Radiator Cooling Setup

### Electrical System

- Alternator Strip Heater (available up to 600 volt)
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Battery Rack and Cables
- Bus Bar (standard on 7M alternators, 380-600 volt only)
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)
- Safeguard Breaker (16-light controller)

### Paralleling System

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

### Miscellaneous

- Air Cleaner, Heavy Duty
- Air Cleaner Restriction Indicator
- Engine Fluids (oil and coolant) Added
- Integral Vibration Isolation Mounting
- Rated Power Factor Testing
- Spring Isolators

### Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

### Warranty

- 2-Year Basic
- 2-Year Prime
- 5-Year Basic
- 5-Year Comprehensive
- 10-Year Major Components

### Other Options

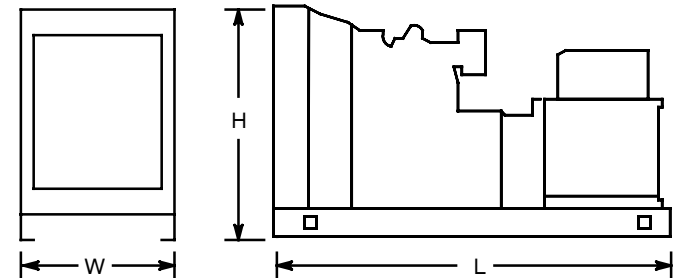
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## Dimensions and Weights

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

All alt. except 7M4176 5955 x 2232 x 2538 (234.45 x 87.88 x 99.92)  
 7M4176 alt. 6120 x 2232 x 2538 (240.95 x 87.88 x 99.92)

Weight (radiator model), wet, max., kg (lb.): 14061 (31000)



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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