

Model: 2000ROZD-4

KOHLER POWER SYSTEMS

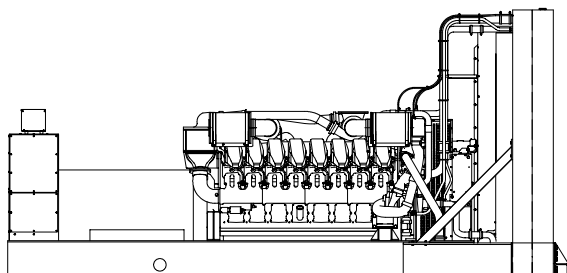
380-4160 V

4 Cycle Diesel



Ratings Range

		60 Hz	50 Hz
Standby:	kW	1590-2000	1500-1760
	kVA	1988-2500	1875-2200
Prime:	kW	1440-1820	1360-1600
	kVA	1800-2275	1700-2000



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.
- A UL-2200 listing is available on the 60 Hz generator set.
- 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).
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Generator features:
 - The brushless, rotating-field generator has broadrange reconnectability.
 - The pilot-excited, permanent-magnet generator (PMG) provides superior short-circuit capability.
- Other features:
 - Controllers are available for all applications. See controller features inside.
 - The low coolant level shutdown prevents overheating.
 - The generator set-to-skid mounting on 60 Hz models is direct mounting. The 50 Hz model mounting options include integral vibration isolation or direct mounting with spring isolators.
 - An electronic, isochronous governor delivers precise frequency regulation.
 - Electronic engine controls and a generator microprocessor controller combine to deliver one of the most advanced control systems in today's generator market.

Generator Ratings

Generator	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
7M4054	220/380	3	60	1590/1988	3020	1590/1988	3020	1440/1800	2735	1440/1800	2735
	240/416	3	60	1840/2300	3192	1840/2300	3192	1670/2088	2897	1670/2088	2897
	277/480	3	60	2000/2500	3007	2000/2500	3007	1820/2275	2736	1820/2275	2736
	220/380	3	50	1584/1980	3008	1528/1910	2902	1440/1800	2735	1392/1740	2644
	230/400	3	50	1628/2035	2937	1540/1925	2778	1480/1850	2670	1400/1750	2526
	240/416	3	50	1608/2010	2790	1500/1875	2602	1464/1830	2540	1360/1700	2359
7M4058	220/380	3	60	2000/2500	3798	1950/2438	3703	1820/2275	3457	1770/2213	3362
	240/416	3	60	2000/2500	3470	2000/2500	3470	1820/2275	3157	1820/2275	3157
	277/480	3	60	2000/2500	3007	2000/2500	3007	1820/2275	2736	1820/2275	2736
	220/380	3	50	1760/2200	3343	1744/2180	3312	1600/2000	3039	1584/1980	3008
	230/400	3	50	1760/2200	3175	1760/2200	3175	1600/2000	2887	1600/2000	2887
	240/416	3	50	1760/2200	3053	1760/2200	3053	1600/2000	2776	1600/2000	2776
7M4176	220/380	3	60	2000/2500	3798	2000/2500	3798	1820/2275	3457	1820/2275	3457
7M4292	347/600	3	60	2000/2500	2406	2000/2500	2406	1820/2275	2189	1820/2275	2189
7M4374	2400/4160	3	60	2000/2500	347	2000/2500	347	1820/2275	316	1820/2275	316
	1905/3300	3	50	1744/2180	381	1600/2000	350	1584/1980	346	1448/1810	317

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 1.5% per 305 m (1000 ft.) elevation above 1006 m (3300 ft.). Maximum altitude capability is 3048 m (10000 ft.) on 60 Hz and 3962 m (13000 ft.) on 50 Hz. **TEMPERATURE:** Derate 0.4% per 5.5°C (10°F) temperature above 25°C (77°F).

Alternator Specifications

Specifications	Generator
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% 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
One-step load acceptance at 60 Hz	100% of Rating
Peak motor starting kVA:	(35% dip for voltages below)
480 V, 416 V 7M4054 (4 bus bar) ..	7000 (60 Hz), 6600 (50 Hz)
480 V, 416 V 7M4058 (4 bus bar) ..	12500 (60 Hz), 8200 (50 Hz)
380 V 7M4176 (4 bus bar) ..	5400 (60 Hz)
600 V 7M4292 (4 bus bar) ..	4200 (60 Hz)
4160 V, 3300 V 7M4374 (6 lead)	6200 (60 Hz), 3750 (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 generator 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	60 Hz	50 Hz
Manufacturer	Detroit Diesel/MTU	
Engine: model	16V4000 (T163-7K36)	16V4000 (T163-7K16)
Engine: type	4-Cycle, Turbocharged, Intercooled	
Cylinder arrangement	16V	
Displacement, L (cu. in.)	65 (3967)	
Bore and stroke, mm (in.)	165 (6.5) x 190 (7.5)	
Compression ratio	13.7:1	
Piston speed, m/sec. (ft./min.)	11.4 (2244)	9.5 (1870)
Main bearings: quantity, type	—	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	2190 (2935)	1940 (2600)
Cylinder head material	Cast Iron	
Crankshaft material	Forged Steel	
Valve (exhaust) material	High Alloy Steel	
Governor: type, make/model	DDEC 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 flow at rated kW, m ³ /min. (cfm)	465 (16400)	362 (12780)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	441 (825)	503 (937)
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):		
Qty., CCA rating above 0°C (32°F)		4, 950
Qty., CCA rating below 0°C (32°F)		8, 1250
Battery voltage (DC)		12

Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	25 (1.0)	
Fuel return line, min. ID, mm (in.)	19 (0.75)	
Max. lift, engine-driven fuel pump, m (ft.)	—	
Max. fuel flow, Lph (gph)	1134 (300)	1140 (302)
Max. fuel pump restriction with new/used filter, kPa (in. Hg)	20 (6)/41 (12)	
Fuel filter	2, Secondary	
Recommended fuel	#2 Diesel	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	230 (243)	
Oil pan capacity with filter, L (qt.)	250 (264)	
Oil filter: quantity, type	4, Spin-On	
Oil cooler	Water-Cooled	

Application Data

Cooling (Standard Radiator)

Cooling System	60 Hz	50 Hz
Ambient temperature, °C (°F)	40 (105)	50 (122)
Engine jacket water capacity, L (gal.)	151 (40)	
Radiator system capacity, including engine, L (gal.)	565 (150)	
Engine jacket water flow, Lpm (gpm)	1669 (441)	1420 (375)
Charge cooler water flow, Lpm (gpm)	647 (171)	606 (160)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	702 (39920)	667 (37960)
Heat rejected to charge cooling water at rated kW, dry exhaust, and at innercooler coolant inlet temperature <57°C (135°F), kW (Btu/min.)	655 (37275)	425 (24180)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	1880 (74)	
Fan, kWm (HP)	72 (97)	86 (115)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)	

Cooling (Optional Systems)

Remote Radiator System*	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:	Class 150 ANSI Flange	
Water inlet, mm (in.)	191 (7.5) Bolt Circle	
Water 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 ₂ O)	149 (50)	

City Water Cooling (CWC) System	60 Hz	50 Hz
Exhaust manifold type	Dry	
Connection sizes:		
Water inlet, mm (in.)		*
Water outlet, mm (in.)		*

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

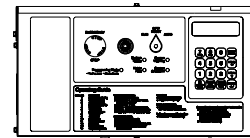
Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m ³ /min. (scfm)†	2040 (72000)	2100 (74400)
Cooling air required for gen. set 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)	632 (22400)	595 (21000)
Combustion air, m ³ /min. (cfm)	189 (6660)	138 (4873)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	77 (4403)	69 (3900)
Generator, kW (Btu/min.)	94 (5370)	93 (5270)

† Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption	60 Hz	50 Hz
Diesel, Lph (gph) at % load	Standby Rating	
100%	508.8(134.5)	442.9(117.0)
75%	375.1 (99.1)	333.5 (88.1)
50%	260.4 (68.8)	226.4 (59.8)
25%	142.7 (37.7)	122.3 (32.3)
Diesel, Lph (gph) at % load	Prime Rating	
100%	455.0(120.2)	402.0(106.2)
75%	343.7 (90.8)	303.2 (80.1)
50%	239.2 (63.2)	207.1 (54.7)
25%	132.1 (34.9)	112.4 (29.7)

Controllers



Available Controllers

Decision-Maker™ 550 Controller

Audiovisual annunciation with NFPA 110 Level 1 capability. Programmable microprocessor logic and digital display features. Generator 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.

Decision-Maker™ 3+, 7-Light Controller

Audiovisual annunciation with NFPA 110 Level 2 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.

Engine Gauge Box for Paralleling Switchgear

Generator set-to-switchgear interface for paralleling switchgear applications. Engine gauges and emergency stop switch features. 12- or 24-volt engine electrical system capability. Refer to G6-32 for additional controller features and accessories.

Standard Features and Accessories

Additional Standard Features

- Alternator Protection (standard with Decision-Maker™ 550)
- Electronic, Isochronous Governor
- Oil Drain Extension
- Operation and Installation Literature
- Pilot-Excited, Permanent-Magnet Generator (PMG)

Accessories

Open Unit

- Exhaust Silencer, Critical (60 Hz kits: PA-361608, PA-361625)
- Exhaust Silencer, Critical (50 Hz kits: PA-361609, PA-361617)
- Exhaust Silencer, Hospital (60 Hz kits: PA-361612, PA-361627)
- Exhaust Silencer, Hospital (50 Hz kits: PA-361610, PA-361626)
- Exhaust Silencer, Industrial (60 Hz kits: PA-361615, PA-361629)
- Exhaust Silencer, Industrial (50 Hz kits: PA-361616, PA-361623)
- Exhaust Silencer, Residential (60 Hz kits: PA-361613, PA-361628)
- Exhaust Silencer, Residential (50 Hz kits: PA-361614, PA-361621)
- Flexible Exhaust Connector, Stainless Steel

Cooling System

- Block Heater
- City Water Cooling
- 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 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 (not available with Decision-Maker™ 550)
- Integral Vibration Isolation Mounting (50 Hz)
- Direct Mounting (50 Hz)
- Spring Isolators (50/60 Hz)

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
- Overhaul Literature Kit

Controller (Decision-Maker™ 550 and Decision-Maker™ 3+)

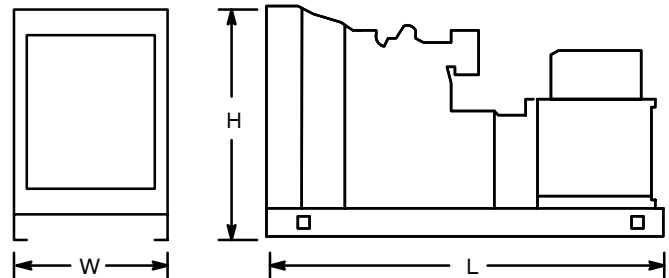
- Common Failure Relay Kit
- Communication Products and PC Software (Decision-Maker™ 550 controller only)
- Controller Cable, 12 m (40 ft.)
- Customer Connection Kit
- Dry Contact Kit (isolated alarm)
- Engine Prealarm Sender Kit
- Prime Power Switch
- Remote Annunciator Panel
- Remote Audiovisual Alarm Panel
- Remote Emergency Stop Kit
- Run Relay Kit

Miscellaneous Accessories

- _____
- _____
- _____
- _____

Weights and Dimensions

Overall Size, L x W x H, mm (in.): 6196 x 2431 x 2972
 (243.94 x 95.69 x 117.00)
 Weight (radiator model), wet, kg (lb.): 15876 (35000)



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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