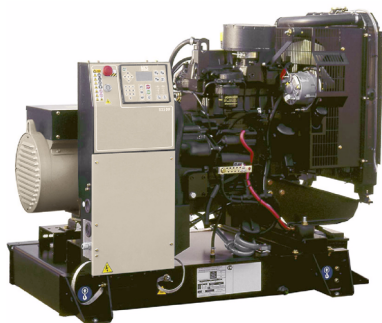




**Ratings Range**

		KD24M 50 Hz	
Standby:	kW	24	
	kVA	24	
Prime:	kW	22	
	kVA	22	



With Available Enclosure Accessory

**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 one-year limited warranty covers all systems and components.
- John Deere engine with 12-volt battery charging alternator.
- Mecc Alte single-bearing alternator with insulation class H.
- Unit-mounted radiator with 50°C (122°F) ambient air capability.
- Skid and vibration isolators.
- Subbase fuel tank, 100 L (26.4 gal.).
- Dry type air filter.
- Main line circuit breaker.
- Microprocessor controller.
- Battery, battery rack, and cables.
- Industrial exhaust silencer (loose).
- Operation and installation literature.

**Generator Set Ratings**

Alternator	Voltage	Ph	Hz	Standby Rating		Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
	110/220	1	50	24/24	109	22/22	100
ECO32-3S	115/230	1	50	24/24	104	22/22	96
	120/240	1	50	24/24	100	22/22	92

**RATINGS:** All single-phase units are rated at 1.0 power factor. See TIB-109 for generator set derate tables. Obtain the technical information bulletin (TIB-101) on ratings guidelines for the complete ratings definitions.

**PRP:** Prime power is available for an unlimited number of annual operating hours in variable load applications in accordance with ISO-8528/1.

A 10% overload capability is available for a period of 1 hour within a 12-hour period of operating in accordance with ISO-3046/1.

**ESP:** The emergency standby power rating is applicable for supplying emergency power in variable load applications in accordance with ISO-8528/1. Overload is not allowed. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

# Alternator Specifications

- NEMA-MG21, UTE NF C51.111, VDE 0530, BS 4999, CSA standards compliance for temperature rise and motor starting.
- Sustained short-circuit current greater than 300% of the rated current for up to 10 seconds.
- Self-ventilated and dripproof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

## Specifications

Ratings voltage	230 V, 50 Hz
Standby rating @ 27°C, kVA	—
Prime rating @ 40°C, kVA	26.5
Efficiency @ full load	90%
Air flow, m <sup>3</sup> /min. (cfm)	11.8 (417)
Direct axis subtransient reactance (X <sup>"</sup> d)	—

Specifications	Alternator
Manufacturer	Mecc Alte
Type	4-Pole, Rotating-Field
Exciter type	Brushless
Leads: quantity, type	12, Reconnectable
Voltage regulator	Solid State
Insulation:	NEMA MG1
Material	Class H
Bearing: quantity, type	1, Sealed
Coupling	Direct
Voltage regulation, no-load to full-load	±1%

## Application Data

### Engine

Engine Specifications	
Manufacturer	John Deere
Engine model	3029DF120
Engine type	4-Cycle, Naturally Aspirated
Cylinder arrangement	3 Inline
Displacement, L (cu. in.)	2.9 (177)
Bore and stroke, mm (in.)	106 x 110 (4.2 x 4.3)
Compression ratio	17.8:1
Piston speed, m/min. (ft./min.)	330 (1080)
Rated rpm	1500
Max. power at rated rpm, kWm (BHP)	29.7 (40)
Valve material:	
Intake	Chromium-Silicon Steel
Exhaust	Stainless Steel
Governor type	Mechanical
Frequency regulation, no-load to full-load	ISO 5%
Frequency regulation, steady state	±2.5%
Air cleaner type, all models	Dry

### Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m <sup>3</sup> /min. (cfm)	4.7 (165)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	555 (1031)
Maximum allowable back pressure, kPa (in. Hg)	6.2 (1.8)
Exhaust outlet size at engine hookup, mm (in.)	60.5 (2.38)

### Engine Electrical

Engine Electrical System	
Battery charging alternator:	12 Volt
Ground (negative/positive)	Negative
Volts (DC)	12
Starter motor rated voltage (DC)	12
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each	One, 680
Battery voltage (DC)	12

### Fuel

Fuel System	
Max. fuel flow, Lph (gph)	111 (29.3)
Fuel prime pump	Manual
Recommended fuel	#2 Diesel
Fuel tank capacity, L (gal.)	100 (26.4)

### Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	5.3 (5.6)
Oil pan capacity with filter, L (qt.)	6.0 (6.4)

### Cooling

Radiator System	
Ambient temperature, °C (°F)	50 (122)
Radiator system capacity, including engine, L (gal.)	16.1 (4.3)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	18 (1023)
Water pump type	Centrifugal
Fan, kWm (HP)	1.5 (2.0)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H <sub>2</sub> O)	0.2 (0.8)

# Application Data

## Operation Requirements

### Air Requirements

Radiator-cooled cooling air, m <sup>3</sup> /min. (scfm) *	104 (3687)
Combustion air, m <sup>3</sup> /min. (cfm)	1.7 (59)
* Air density = 1.20 kg/m <sup>3</sup> (0.075 lbf/ft <sup>3</sup> )	

### Fuel Consumption

Diesel, Lph (gph) at % load	Standby Rating
110% (standby rating)	8.3 (2.2)

Diesel, Lph (gph) at % load	Prime Rating
100% (of the prime rating)	6.8 (1.8)
75% (of the prime rating)	5.2 (1.4)
50% (of the prime rating)	3.6 (1.0)

## Controllers



### Decision-Maker™ 1000

#### Automation

- Test LEDs
- Voltage and speed stabilization

#### Engine Parameters

- Engine speed indication (with LCD message)
- Battery voltage indication (with LCD message)
- Elapsed hour meter (with LCD message)
- Fuel solenoid control
- Starter control

#### Measurements

- Frequency, Hz (with LCD message)

#### Operation and/or Safety Lights

- Oil pressure fault
- Water temperature fault
- Fail to start fault
- Overspeed fault ( $\geq 60$  kVA)
- Set ready for load
- Charging alternator fault
- General alarm
- General fault
- Panel lamp
- Emergency stop fault

#### Safety Devices

- Overspeed fault
- Automatic standby

#### Miscellaneous

- Fault reset



### Decision-Maker™ 4000

#### Standard Features

- Large LCD display panel
- Unique control wheel for system access
- User buttons for start, stop, menu, and escape
- Emergency stop button
- On/off key switch
- Panel-mounted battery fuse
- Panel-mounted USB ports for PC access and software upgrades
- Password-protected access to control parameters
- Upgradeable software for future enhancements
- Easy upgrade from Decision-Maker™ 1000

#### LCD Panel Features

- 600 x 800 resolution
- Multiple lines of text or graphic display
- Icons for quick identification of system status
- Five languages: English, French, German, Portuguese, and Spanish

#### Communication Features

- Engine communication via CANbus
- Modbus communication via RS-485 or Ethernet
- PC and flash drive connections via USB

#### Functions

- View and adjust system operation parameters
- View system faults

#### Viewable/Selectable Parameters (may require optional module)

- Voltage: phase-to-neutral, total voltage
- Current
- Frequency
- Power (active/reactive/apparent)
- Power factor
- Engine speed
- Oil pressure
- Coolant temperature
- Battery voltage
- Fuel level (%)
- Time delays

#### Viewable Faults (over 60 individual faults are monitored) including:

- Alternator protection
- Circuit breaker and ground fault protection
- Communication and engine ECM monitoring
- Cooling air monitoring
- Electrical charging system
- Engine cooling system
- Engine lube system
- Fuel system
- Generator set status

## Available Accessories

### Enclosed Unit

- Sound Enclosure M127, 68 dB(A) @ 7 m (23 ft.), Standby (with enclosed critical silencer)

### Open Unit

- Exhaust Silencer, Critical 40 dB(A) Reduction
- Exhaust Silencer, Residential 29 dB(A) Reduction
- Extension, 40 cm (16 in.)
- Flexible Exhaust Connector
- Protection Mesh

### Cooling System

- Block Heater [recommended for ambient temperatures below 0°C (32°F)]
- Radiator Core Guard

### Decision-Maker™ 1000 Controller

- Alarm Horn
- Analog Indicator
- Differential Protection with Time and Sensitivity Adjustment
- Differential Triggering Fault
- External ATS Position
- External Starting Order
- Line Voltages, Volts Indicator
- Overload or Short-Circuit Fault
- Permanent Insulation Controller
- Phase Currents, Amps Indicator
- Plug Preheating
- Plug Preheating Control
- Remote Start Capability
- Single Voltages, Volts Indicator
- Utility Sensing, 3-Phase
- Water Preheating Control

### Decision-Maker™ 4000 Controller

- Alternator Protection
- Audible Alarm Module
- Five Expandable Modules with Four Inputs/Six Outputs Each
- Network Modules (RTC and GSM modems and ethernet router)
- NFPA-110 Module
- Remote Annunciator
- Voltage/Speed Adjustment Module
- WinTelys Software

### Fuel System

- Automatic Fuel Tank Fill Kit
- Subbase Fuel Tank with Secondary Containment Basin
- Subbase Fuel Tank Leak Alarm
- Water Separator Fuel Filter

### Electrical System

- Battery Charger, Equalize/Float Type
- Battery Isolator Switch

### Engine and Alternator

- Air Cleaner, Heavy Duty (with air restriction indicator)
- Electronic Isochronous Governor
- Lube Oil Drain Pump

### Miscellaneous Accessories

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

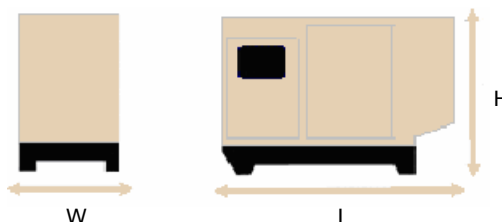
## Dimensions and Weights

### Open Model



Overall Size, L x W x H, mm (in.): 1700 x 896 x 1221 (67 x 35 x 48)  
 Weight, wet, kg (lb.): 910 (2006)

### With Available Enclosure Accessory



Overall Size, L x W x H, mm (in.): 2080 x 904 x 1415 (82 x 36 x 56)  
 Weight, wet, kg (lb.): 1130 (2491)

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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