Industrial Diesel Generator Set – KD165
50 Hz

RATINGS 400 V - 50 Hz		
Standby	kVA	165
	kWe	132
Prime	kVA	150
	kWe	120

Benefits & features

KOHLER premium quality
- Design offices using the latest technical innovations
- Modern fully certified factories
- A cutting edge laboratory
- The generating set, its components and a wide range of options have been fully developed, prototype tested, factory built, and production tested

KOHLER premium performances
- Optimized and certified sound levels
- Reliable power, even in extreme conditions
- Optimized fuel consumption
- Compact footprint
- Best quality of electricity, high starting and loading capacity, according to ISO8528-5
- Robust base frames and high-quality enclosures
- Protection of installations and people
- Approved in line with the most stringent standards

Engines
- Premium level engines, in-house or from strong partners
- High power density, small footprint
- Low temperature starting capability
- Long maintenance interval

Alternator
- Provide industry leading motor starting capability
- Made in Europe
- Built with a class H insulation and IP23

Cooling
- A flexible solution using an electrical driven radiator fan
- Designed or optimized by KOHLER
- High temperature and altitude product capacity available

Base frame and enclosure
- High quality steel with enhanced corrosion resistance
- Highly durable QUALICOAT-certified epoxy paint
- Minimum 1000 hours of resistance to salt spray in accordance with ISO12944
- Ergonomic access to allow easy maintenance and connection of the generator
- Robust design optimized for transportation

GENERAL SPECIFICATIONS	
Engine brand	JOHN DEERE
Alternator commercial brand	KOHLER
Voltage (V)	400/230
Standard Control Panel	APM303
Optional control panel	APM403
Optional Control Panel	M80
Optional control panel	Terminal block
Type of Cooling	Mechanical driven fan
Performance class	G3

GENERATOR SETS RATINGS

				Standby Rating			Prime Rating	
	Voltage	PH	Hz	kWe	kVA	Amps	kWe	kVA
KD165	415/240	3	50	132	165	230	120	150
	400/230	3	50	132	165	238	120	150
	380/220	3	50	132	165	251	120	150
	240 TRI	3	50	132	165	397	120	150
	230 TRI	3	50	132	165	414	120	150
	220 TRI	3	50	132	165	433	120	150

DIMENSIONS COMPACT VERSION	
Length (mm)	2497
Width (mm)	1103
Height (mm)	1524
Tank capacity (L)	334
Dry weight (kg)	1375

DIMENSIONS SOUNDPROOFED VERSION	
Type soundproofing	M139
Length (mm)	3590
Width (mm)	1145
Height (mm)	1775
Tank capacity (L)	334
Dry weight (kg)	2065
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	81
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	70

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Engine

General	
Engine brand	JOHN DEERE
Engine ref.	6068HFG20-153 *
Air inlet system	Turbo
Cylinders configuration	L
Number of cylinders	6
Displacement (l)	6.72
Bore (mm) * Stroke (mm)	106 * 127
Compression ratio	
Speed (RPM)	1500
Maximum stand-by power at rated RPM (kW)	155
Charge Air coolant	Air/Air
Injection Type	Direct
Governor type	Mechanical
Air cleaner type, models	Dry

Fuel system	
Maximum fuel pump flow (l/h)	108
Max head on fuel return line (m)	1.20
Consumption with cooling system	
Consumption @ 100% load ESP (l/h)	37
Consumption @ 100% PRP load (l/h)	33.80
Consumption @ 75% PRP load (l/h)	26.10
Consumption @ 50% PRP load (l/h)	17.70

Emissions	
Emission PM (mg/Nm3) 5% O2	103.4
Emission CO (mg/Nm3) 5% O2	266
Emission NOx (mg/Nm3) 5% O2	3147
Emission HC (mg/Nm3) 5% O2	36.6

Lubrication System	
Oil system capacity including filters (l)	21.50
Min. oil pressure (bar)	1
Max. oil pressure (bar)	5
Oil sump capacity (l)	20.60
Oil consumption 100% ESP 50Hz (l/h)	0.0910

Air Intake system	
Max. intake restriction (mm H2O)	625
Intake air flow (l/s)	170

Exhaust system

	PRP	ESP
Heat rejection to exhaust (kW)		99
Exhaust gas temperature (°C)		555
Exhaust gas flow (L/s)		346.70
Max. exhaust back pressure (mm H2O)	750	

Cooling system	
Radiator & Engine capacity (l)	25.80
Fan power 50Hz (kW)	
Fan air flow w/o restriction (m3/s)	3.50
Available restriction on air flow (mm H2O)	20
Type of coolant	Glycol-Ethylene
Radiated heat to ambient (kW)	16
Heat rejection to coolant HT (kW)	55
Flow on the HT circuit at 0.7Bars pressure drop off engine (l/min)	144
Coolant capacity HT, engine only (l)	11.30
Max coolant temperature, Shutdown (°C)	105
Thermostat begin of opening HT (°C)	82
Thermostat end of opening HT (°C)	94

* Engine reference may be partially modified depending on genset application, options selected by the customer and lead time required.

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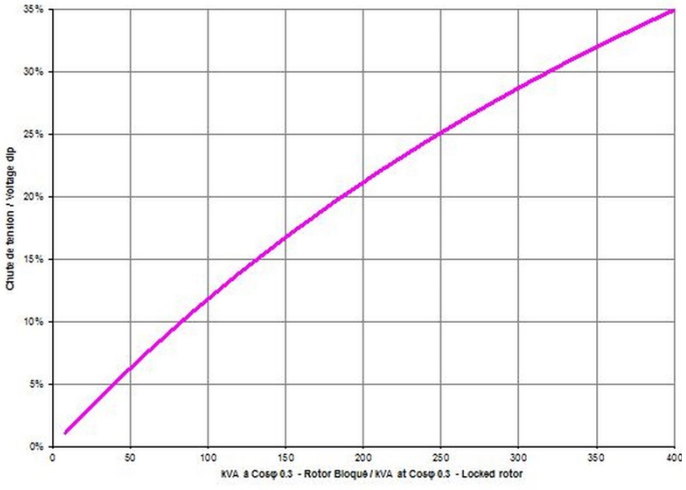
Alternator Specifications	
Alternator commercial brand	KOHLER
Alternator ref.	KH01191T
Number of pole	4
Number of bearing	Single Bearing
Technology	Brushless
Indication of protection	IP23
Insulation class	H
Number of wires	06
Capacity for maintaining short circuit at 3 In for 10 s	Yes
AVR Regulation	Yes
Coupling	Direct

Application data	
Overspeed (rpm)	2250
Power factor (Cos Phi)	0.80
Voltage regulation at established rating (+/- %)	0.50
Wave form : NEMA=TIF	<50
Wave form : CEI=FHT	<2
Total Harmonic Distortion in no-load DHT (%)	<3.5
Total Harmonic Distortion, on linear load DHT (%)	<5
Recovery time (Delta U = 20% transcient) (ms)	500

Performance datas	
Continuous Nominal Rating 40°C (kVA)	150
Unbalanced load acceptance ratio (%)	100

Peak motor starting (kVA) based on x% voltage dip power factor at 0.3



Alternator Standard Features

- All models are brushless, rotating-field alternators
- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting
- The AVR voltage regulator provides superior short circuit capability
- Self-ventilated and dip proof construction
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds
- Superior voltage waveform

Note: See Alternator Data Sheets for alternator application data and ratings, efficiency curves, voltage dip with motor starting curves, and short circuit decrement curves.

KOHLER®

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Dimensions compact version

Length (mm) * Width (mm) * Height (mm)	2497 * 1103 * 1524
Dry weight (kg)	1375
Tank capacity (L)	334

Dimensions soundproofed version

M139

Length (mm) * Width (mm) * Height (mm)	3590 * 1145 * 1775
Dry weight (kg)	2065
Tank capacity (L)	334
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	81
Measured acoustic power level (Lwa) 50Hz (75% PRP)	95
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	70

Dimensions DW compact version

Length (mm) * Width (mm) * Height (mm)	3560 * 1200 * 1820
Dry weight (kg)	1905
Tank capacity (L)	868

Dimensions DW soundproofed version

M139-DW

Length (mm) * Width (mm) * Height (mm)	3590 * 1200 * 2072
Dry weight (kg)	2590
Tank capacity (L)	868
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	81
Measured acoustic power level (Lwa) 50Hz (75% PRP)	95
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	70

Dimensions DW 48h soundproofed version

M139-DW48

Length (mm) * Width (mm) * Height (mm)	3590 * 1200 * 2242
Dry weight (kg)	2632
Tank capacity (L)	1790
Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	81
Measured acoustic power level (Lwa) 50Hz (75% PRP)	95
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	70

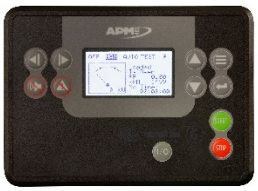
APM303

The APM303 is a versatile unit which can be operated in manual or automatic mode. It offers the following features:

- Measurements: phase-to-neutral and phase-to-phase voltages, fuel level (In option : active power currents, effective power, power factors, Kw/h energy meter, oil pressure and coolant temperature levels)
- Supervision: Modbus RTU communication on RS485
- Reports: (In option : 2 configurable reports)
- Safety features: Overspeed, oil pressure, coolant temperatures, minimum and maximum voltage, minimum and maximum frequency (Maximum active power P<66kVA)
- Traceability: Stack of 12 stored events

For further information, please refer to the data sheet for the APM303

APM403



BASIC GENERATING SET AND POWER PLANT CONTROL

The APM403 is a versatile control unit which allows operation in manual or automatic mode

- Measurements : voltage and current
- kW/kWh/kVA power meters
- Standard specifications: Voltmeter, Frequency meter.
- Optional : Battery ammeter.
- J1939 CAN ECU engine control
- Alarms and faults: Oil pressure, Coolant temperature, Overspeed, Start-up failure, alternator min/max, Emergency stop button.
- Engine parameters: Fuel level, hour counter, battery voltage.
- Optional (standard at 24V): Oil pressure, water temperature.
- Event log/ Management of the last 300 genset events.
- Mains and genset protection
- Clock management
- USB connections, USB Host and PC,
- Communications : RS485 INTERFACE
- ModBUS protocol /SNMP
- Optional : Ethernet, GPRS, remote control, 3G, 4G,
- Websupervisor, SMS, E-mails

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STANDARD SCOPE OF SUPPLY

All our gensets are fitted with:

- Industrial water cooled DIESEL engine
- Electric starter & charge alternator
- Standard air filter
- Schneider or ABB electric circuit breaker, adapted to the short-circuit current of the generating set
- Single bearing alternator IP 23 T° rise/ insulation to class H/H
- Welded steel base frame with 85% vibration attenuation mounts
- 4 lifting points on the chassis, lifting bar on the top included from 165 kVA ESP or optional
- highly durable QUALICOAT certified epoxy paint
- frame height optimized to allow it to be moved safely by forklift
- enclosure made of new high-quality European steel with enhanced corrosion resistance
- IP 64 locks, made from stainless materials
- enclosures and base frames tested and analyzed by the French Corrosion Institut
- 100% of tanks tested for permeability
- Personal protection ensured by protective grilles on hot and rotating parts
- Separate 9 dB(A) silencer
- Fuel tank welded inside the genset frame
- Retention bund included for gensets up to 110 kVA ESP
- Charged DC starting battery with electrolyte
- Emergency stop button on the outside
- Flexible fuel lines & lub oil drain cock
- Exhaust outlet with flexible and flanges
- User's manual (1 copy)
- Packing under plastic film
- Delivered with oil and antifreeze liquid

CODES AND STANDARDS

Engine-generators set is designed and manufactured in facilities certified to standards ISO9001:2015 & ISO14001:2015. The generator sets and its components are prototype-tested, factory built and production tested and are in compliance with the relevant standards:

- Machinery Directive 2006/42/EC of May 17th 2006
- EMC Directive2014/30/UE
- Safety objectives set out in the Low Voltage Directive 2014/35/UE
- EN ISO 8528-13, EN 60034-1, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 55011, EN 1679-1 et EN 60204-1

POWER RATINGS DEFINITION according to ISO8528-1 (2018-02 edition) and ISO-3046-1

Emergency Standby Power (ESP): The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Average load factor per 24 hours of operation is <70%.

Prime Power (PRP): At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour within 12 hour of operation. Average load factor per 24 hours of operation is <70%.

TERMS OF USE

According to the standard, the nominal power assigned by the genset is given for 25°C Air Intlet Temperature, of a barometric pressure of 100 kPA (100 m A.S.L), and 30% relative humidity. For particular conditions in your installation, refer to the derating table