KD22





Engine ref.	3029DFS29
Alternator ref.	KH00404T
Performance class	G3

GENERAL CHARACTERISTICS

Frequency (Hz)	50 Hz
Voltage (V)	400/230
Standard Control Panel	APM303
Optional control panel	DEC 4000
Optional control panel	M80
Optional control panel	NA

POWER

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
415/240	17.6	22	16	20	31
400/230	17.6	22	16	20	32
380/220	17.6	22	16	20	33
200/115	17.6	22	16	20	64
240 TRI	17.6	22	16	20	53
230 TRI	17.6	22	16	20	55
220 TRI	17.6	22	16	20	58

DIMENSIONS COMPACT VERSION

Length (mm)	1700
Width (mm)	896
Height (mm)	1221
Dry weight (kg)	750
Tank capacity (L)	100

DIMENSIONS SOUNDPROOFED VERSION

Type soundproofing	M127
Length (mm)	2080
Width (mm)	960
Height (mm)	1415
Dry weight (kg)	980
Tank capacity (L)	100
Acoustic pressure level @1m in dB(A)	75
Sound power level guaranteed (Lwa)	92
Acoustic pressure level @7m in dB(A)	62

DESCRIPTIVE

- 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
- 12 V charge alternator and starter
- Single-bearing alternator with insulation class H.
- Radiator for core temperature of 48/50°C max with mechanical fan
- Skid and vibration isolators.
- Dry type air filter.
- Main line circuit breaker.
- Microprocessor controller.
- 9 dB(A) silencer supplied separately
- Operation and installation literature.

POWER DEFINITION

PRP : Prime Power is available for an unlimited number of annual operating hours in variable load applications, in accordance with ISO 8528-1. ESP : The standby power rating is applicable for supplying emergency power in variable load applications in accordance with ISO 8528-1. Overload is not allowed.

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.

ASSOCIATED UNCERTAINTY

For the generating sets used indoor, where the acoustic pressure levels depends on the installation conditions, it is not possible to specify the ambient noise level in the exploitation and maintenance instructions . You will also find in our exploitation and maintenance instructions a warning concerning the air noise dangers and the need to implement appropriated preventive measures.

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ENGINE CHARACTERISTICS

GENERAL ENGINE DATA

Engine brand	JOHN DEERE
Engine ref.	3029DFS29
Air inlet system	Athmo
Cylinders configuration	L
Number of cylinders	3
Displacement (L)	2.91
Charge Air coolant	
Bore (mm) x Stroke (mm)	106 x 110
Compression ratio	17.2 : 1
Speed (RPM)	1500
Pistons speed (m/s)	5.5
Maximum stand-by power at rated RPM (kW)	31
Frequency regulation, steady state (%)	+/- 2.5%
BMEP (bar)	7.8
Governor type	Mechanical

COOLING SYSTEM

Radiator & Engine capacity (L)	16.1
Fan power (kW)	0.7
Fan air flow w/o restriction (m3/s)	1.74
Available restriction on air flow (mm H2O)	20
Type of coolant	Glycol-Ethylene

EMISSIONS

Emission PM (mg/Nm3) 5% O2	74
Emission CO (mg/Nm3) 5% O2	1165
Emission HC+NOx (g/kWh)	0
Emission HC (mg/Nm3) 5% O2	30

EXHAUST

Exhaust gas temperature @ ESP 50Hz (°C)	555
Exhaust gas flow @ ESP 50 Hz (L/s)	78
Max. exhaust back pressure (mm H2O)	625

FUEL

Consumption @ 110% load (L/h)	8.5
Consumption @ 100% load (L/h)	7
Consumption @ 75% load (L/h)	5
Consumption @ 50% load (L/h)	3.6
Maximum fuel pump flow (L/h)	111

OIL

Oil capacity (L)	6
Min. oil pressure (bar)	1
Max. oil pressure (bar)	5
Oil consumption 100% ESP (L/h)	0
Oil sump capacity (L)	5.3

HEAT BALANCE

Heat rejection to exhaust (kW)	31
Radiated heat to ambiant (kW)	6
Haet rejection to coolant HT (kW)	18

AIR INTAKE

Max. intake restriction (mm H2O)	300
Intake air flow (L/s)	28

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ALTERNATOR CHARACTERISTICS

GENERAL DATA

Alternator ref.	KH00404T
Number of Phase	Three phase
Power factor (Cos Phi)	0.8
Altitude (m)	0 à 1000
Overspeed (rpm)	2250
Number of pole	4
Capacity for maintaining short circuit at 3 In for 10 s	Yes
Insulation class	H
T° class (H/125°), continuous 40°C	H / 125°K
T° class (H/163°C), standby 27°C	H / 163°K
AVR Regulation	Yes
Total Harmonic Distortion in no-load DHT (%)	36
Total Harmonic Distortion, on linear load DHT (%)	20
Wave form : NEMA=TIF	<45
Wave form : CEI=FHT	<2
Number of bearing	1
Coupling	Direct
Voltage regulation at established rating (+/- %)	1
Recovery time (Delta U = 20% transcient) (ms)	200
Indication of protection	IP 23
Technology	Without collar or brush

OTHER DATA

Continuous Nominal Rating 40°C (kVA)	20
Standby Rating 27°C (kVA)	21.5
Efficiencies 100% of load (%)	87.4
Air flow (m3/s)	0.088
Short circuit ratio (Kcc)	0.64
Direct axis synchro reactance unsaturated (Xd) (%)	184.5
Quadra axis synchro reactance unsaturated (Xq) (%)	80
Open circuit time constant (T'do) (ms)	850
Direct axis transcient reactance saturated (X'd) (%)	14.6
Short circuit transcient time constant (T'd) (ms)	44
Direct axis subtranscient reactance saturated (X"d) (%)	8.4
Subtranscient time constant (T"d) (ms)	14
Quadra axis subtranscient reactance saturated (X"q) (%)	19.2
Subtranscient time constant (T"q) (ms)	10
Zero sequence reactance unsaturated (Xo) (%)	3.38
Negative sequence reactance saturated (X2) (%)	12.5
Armature time constant (Ta) (ms)	12
No load excitation current (io) (A)	0.5
Full load excitation current (ic) (A)	1.5
Full load excitation voltage (uc) (V)	15.9
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	63
Transcient dip (4/4 load) - PF : 0,8 AR (%)	14.1
No load losses (W)	550
Heat rejection (W)	2307
Unbalanced load acceptance ratio (%)	100

DIMENSIONS

Dimensions soundproofed version

Type soundproofing	M127
Length (mm)	2080
Width (mm)	960
Height (mm)	1415
Dry weight (kg)	980
Tank capacity (L)	100
Acoustic pressure level @1m in dB(A)	75
Sound power level guaranteed (Lwa)	92
Acoustic pressure level @7m in dB(A)	62

Dimensions DW compact version

Type soundproofing	
Length (mm)	2160
Width (mm)	966
Height (mm)	1388
Dry weight (kg)	932
Tank capacity (L)	230
Acoustic pressure level @1m in dB(A)	
Sound power level guaranteed (Lwa)	
Acoustic pressure level @7m in dB(A)	

Dimensions DW soundproofed version

Type soundproofing	M127 DW
Length (mm)	2160
Width (mm)	966
Height (mm)	1582
Dry weight (kg)	1160
Tank capacity (L)	230
Acoustic pressure level @1m in dB(A)	74

Dimensions DW 48h soundproofed version

Type soundproofing	M127 DW48
Length (mm)	2160
Width (mm)	966
Height (mm)	1631
Dry weight (kg)	1124
Tank capacity (L)	420
Acoustic pressure level @1m in dB(A)	74

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Sound power level guaranteed (Lwa)	92	Sound power level guaranteed (Lwa)	92
Acoustic pressure level @7m in dB(A)	62	Acoustic pressure level @7m in dB(A)	62

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CONTROL PANEL

APM303, comprehensive and simple



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.

DEC4000, ergonomic and user-friendly



The highly versatile DEC4000 control unit is complex yet accessible, thanks to the particular attention paid to optimising its ergonomics and ease of use. With its large display screen, buttons and scroll wheel, it places the accent on simplicity and communication.

It offers the following functions:

Electrical measurements: voltmeter, frequency meter, ammeter.

Engine parameters: working hours counter, oil pressure, coolant temperature, fuel level, engine speed, battery voltage.

Alarms and faults: oil pressure, coolant temperature, failure to start, overspeed, alternator min./max., battery voltage min./max., emergency stop, fuel level.

Ergonomics: wheel for navigating around the various menus.

Communication: remote control and operation software, USB connections, PC connection.

Automatic control: automatic start.

For more information on the product and its options, please refer to the sales documentation.

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M80, transfer of information



The M80 is a dual-function control unit. It can be used as a basic terminal block for connecting a control box and as an instrument panel with a direct read facility, with displays giving a global view of your generating set's basic parameters.

Offers the following functions:

Engine parameters: tachometer, working hours counter, coolant temperature indicator, oil pressure indicator, emergency stop button, customer connection terminal block, CE.

Basic terminal block



The control unit can be used as a basic terminal block for connecting a control box.

Offers the following functions:

emergency stop button, customer connection terminal block, CE.

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