

# KOHLER®



## 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 Inlet 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.

## KD110

Engine ref.	4045HF120
Alternator ref.	KH00911T
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	88	110	80	100	153
400/230	88	110	80	100	159
380/220	88	110	80	100	167
200/115	88	110	80	100	318
240 TRI	88	110	80	100	265
230 TRI	88	110	80	100	276
220 TRI	88	110	80	100	289
220/127	79	99	72	90	260

## DIMENSIONS COMPACT VERSION

Length (mm)	1950
Width (mm)	1084
Height (mm)	1330
Dry weight (kg)	1187
Tank capacity (L)	190

## DIMENSIONS SOUNDPROOFED VERSION

Type soundproofing	M129
Length (mm)	2554
Width (mm)	1150
Height (mm)	1680
Dry weight (kg)	1587
Tank capacity (L)	190
Acoustic pressure level @1m in dB(A)	78
Sound power level guaranteed (Lwa)	95
Acoustic pressure level @7m in dB(A)	66

#### GENERAL ENGINE DATA

Engine brand	JOHN DEERE
Engine ref.	4045HF120
Air inlet system	Turbo
Cylinders configuration	L
Number of cylinders	4
Displacement (L)	4.48
Charge Air coolant	Air/Air DC
Bore (mm) x Stroke (mm)	106 x 127
Compression ratio	17 : 1
Speed (RPM)	1500
Pistons speed (m/s)	6.35
Maximum stand-by power at rated RPM (kW)	102
Frequency regulation, steady state (%) +/-	2.5%
BMEP (bar)	16.6
Governor type	Mechanical

#### COOLING SYSTEM

Radiator & Engine capacity (L)	20.2
Fan power (kW)	2.5
Fan air flow w/o restriction (m <sup>3</sup> /s)	3.7
Available restriction on air flow (mm H <sub>2</sub> O)	20
Type of coolant	Glycol-Ethylene

#### EMISSIONS

Emission PM (mg/Nm <sup>3</sup> ) 5% O <sub>2</sub>	100
Emission CO (mg/Nm <sup>3</sup> ) 5% O <sub>2</sub>	310
Emission HC+NO <sub>x</sub> (g/kWh)	0
Emission HC (mg/Nm <sup>3</sup> ) 5% O <sub>2</sub>	26

#### EXHAUST

Exhaust gas temperature @ ESP 50Hz (°C)	545
Exhaust gas flow @ ESP 50 Hz (L/s)	283
Max. exhaust back pressure (mm H <sub>2</sub> O)	750

#### FUEL

Consumption @ 110% load (L/h)	25.5
Consumption @ 100% load (L/h)	23.5
Consumption @ 75% load (L/h)	16.5
Consumption @ 50% load (L/h)	11.5
Maximum fuel pump flow (L/h)	108

#### OIL

Oil capacity (L)	13.5
Min. oil pressure (bar)	1
Max. oil pressure (bar)	5
Oil consumption 100% ESP (L/h)	0
Oil sump capacity (L)	12.5

#### HEAT BALANCE

Heat rejection to exhaust (kW)	64
Radiated heat to ambient (kW)	11
Heat rejection to coolant HT (kW)	36

#### AIR INTAKE

Max. intake restriction (mm H <sub>2</sub> O)	625
Intake air flow (L/s)	106

#### GENERAL DATA

Alternator ref.	KH00911T
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	No
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 (%)	<2
Total Harmonic Distortion, on linear load DHT (%)	<5
Wave form : NEMA=TIF	<50
Wave form : CEI=FHT	<2
Number of bearing	1
Coupling	Direct
Voltage regulation at established rating (+/- %)	0.5
Recovery time (Delta U = 20% transient) (ms)	500
Indication of protection	IP 23
Technology	Without collar or brush

#### OTHER DATA

Continuous Nominal Rating 40°C (kVA)	100
Standby Rating 27°C (kVA)	110
Efficiencies 100% of load (%)	91.9
Air flow (m3/s)	0.25
Short circuit ratio (Kcc)	0.55
Direct axis synchro reactance unsaturated (Xd) (%)	287
Quadra axis synchro reactance unsaturated (Xq) (%)	146
Open circuit time constant (T'do) (ms)	2211
Direct axis transient reactance saturated (X'd) (%)	12.9
Short circuit transient time constant (T'd) (ms)	100
Direct axis subtransient reactance saturated (X''d) (%)	7.7
Subtransient time constant (T''d) (ms)	10
Quadra axis subtransient reactance saturated (X''q) (%)	16.1
Subtransient time constant (T''q) (ms)	10
Zero sequence reactance unsaturated (Xo) (%)	0.5
Negative sequence reactance saturated (X2) (%)	11.95
Armature time constant (Ta) (ms)	15
No load excitation current (io) (A)	0.73
Full load excitation current (ic) (A)	2.31
Full load excitation voltage (uc) (V)	28.9
Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	263.35
Transient dip (4/4 load) - PF : 0,8 AR (%)	12
No load losses (W)	2357.21
Heat rejection (W)	6960.94
Unbalanced load acceptance ratio (%)	100

### DIMENSIONS

#### Dimensions soundproofed version

Type soundproofing	M129
Length (mm)	2554
Width (mm)	1150
Height (mm)	1680
Dry weight (kg)	1587
Tank capacity (L)	190
Acoustic pressure level @1m in dB(A)	78
Sound power level guaranteed (Lwa)	95
Acoustic pressure level @7m in dB(A)	66

#### Dimensions DW soundproofed version

Type soundproofing	M129 DW
Length (mm)	2602
Width (mm)	1150
Height (mm)	1900
Dry weight (kg)	2006
Tank capacity (L)	505
Acoustic pressure level @1m in dB(A)	77

#### Dimensions DW compact version

Type soundproofing	
Length (mm)	2602
Width (mm)	1150
Height (mm)	1684
Dry weight (kg)	1606
Tank capacity (L)	505
Acoustic pressure level @1m in dB(A)	
Sound power level guaranteed (Lwa)	
Acoustic pressure level @7m in dB(A)	

#### Dimensions DW 48h soundproofed version

Type soundproofing	M129 DW48
Length (mm)	2602
Width (mm)	1150
Height (mm)	1948
Dry weight (kg)	2012
Tank capacity (L)	825
Acoustic pressure level @1m in dB(A)	77

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

95  
66

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

95  
66

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.

## 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.