

# KOHLER<sup>®</sup> Power Systems



## DESCRIPTIVE

- Four-pole circuit breaker
- Connection terminal box rental type
- Containment fuel tank and large autonomy
- Forks and frame protection pads
- Battery isolating switch
- Heavy duty air filter with interchangeable cartridge
- Access door to the radiator
- Electronic governor with speed adjustment

## 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.

## TERM 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.

## KR110RC

Engine type	4045HF120
Alternator type	AT00911T
Canopy type	M3129
Performance class	G3

## GENERAL CHARACTERISTICS

Frequency (Hz)	50
Voltage (V)	400/230
Max power ESP (kVA)	110
Max power ESP (kWe)	88
Max power PRP (kVA)	100
Max power PRP (kWe)	80
Intensity (A)	159
Standard control panel	APM303
Optional control panel	DEC4000

## LARGE AUTONOMY DIMENSIONS

Length (mm).	2860
Width (mm).	1191
Height (mm).	2000
Dry weight (kg).	2087
Tank capacity (L).	527
Autonomy @ 75% of load (h)	N/A
Autonomy @ 50% of load (h)	N/A

## SMALL AUTONOMY DIMENSIONS

Length (mm).	2860
Width (mm).	1191
Height (mm).	1850
Dry weight (kg).	1810
Tank capacity (L).	209
Autonomy @ 75% of load (h)	N/A
Autonomy @ 50% of load (h)	N/A

## SOUND LEVELS

Acoustic pressure level @1m in dB(A)	76 (0.7)
Acoustic pressure level @7m in dB(A)	65
Sound power level guaranteed (Lwa)	94

### KR110RC

### ENGINE SPECIFICATIONS

#### GENERAL ENGINE DATA

Engine model	JOHN DEERE
Engine type	4045TF120
Air inlet	Turbo
Cylinders arrangement	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)	100
Frequency regulation, steady state (%)	+/- 2.5%
BMEP (bar)	16.24
Governor type	Mechanical

#### COOLING SYSTEM

Radiator & Engine capacity (L)	20.2
Max water temperature (°C)	105
Outlet water temperature (°C)	93
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
Thermostat modulating range HT (°C)	82-94

#### 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)	N/A
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 50Hz (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% load (L/h)	0.024
Oil sump capacity (L)	12.5

#### HEAT BALANCE

Heat rejection to exhaust (kW)	64
Radiated heat to ambient (kW)	10.5
Heat rejection to coolant (kW)	36

#### AIR INTAKE

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

#### GENERAL DATA

Alternator type	AT00911T
Number of Phase	Three phase
Power factor (Cos Phi)	0.8
Altitude (m)	0 to 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, standby 27°C	H / 163°K
AVR Regulation	Yes
Total Harmonic Distortion in no-load DHT (%)	<3
Total Harmonic Distortion, on 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
Protection class	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 (%)	92.1
Air flow (m3/s)	0.25
Short circuit ratio (Kcc)	0.541
Direct axis synchro reactance unsaturated (Xd) (%)	287
Quadrature-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
Quadrature-axis subtransient reactance saturated (X''q) (%)	16.1
Subtransient time constant (T''q) (ms)	10
Zero sequence reactance unsaturated (Xo) (%)	0.3
Negative sequence reactance saturated (X2) (%)	11.95
Armature time constant (Ta) (ms)	15
No load excitation current (io) (A)	0.92
Full load excitation current (ic) (A)	2.93
Full load excitation voltage (uc) (V)	22.9
Engine start (Delta U = 20% perm. or 50% trans.) (kVA)	244.53
Transient dip (4/4 load) - PF : 0.8 AR (%)	9
No load losses (W)	2316.8
Heat rejection (W)	6837.93
Unbalanced load acceptance ratio (%)	100

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  $P < 66\text{kVA}$ )

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.

The DEC4000 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.

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