

# KOHLER<sup>®</sup> Power Systems



## DESCRIPTIVE

- Mechanic governor
- Mechanically welded chassis with antivibration suspension
- Main line circuit breaker
- Radiator for core temperature of 48/50°C max with mechanical fan
- Protective grille for fan and rotating parts (CE option)
- 9 dB(A) silencer supplied separately
- Charger DC starting battery with electrolyte
- 12 V charge alternator and starter
- Delivered with oil and coolant -30°C
- Manual for use and installation

## 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.

## KK21M

Engine ref.	KDI2504TM-30
Alternator ref.	AT00630T
Performance class	G2

## GENERAL CHARACTERISTICS

Frequency (Hz)	50
Voltage (V)	230
Standard Control Panel	APM303
Optional control panel	DEC4000
Optional control panel	Basic terminal block

## POWER

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
230	21.5	21.5	19	19	93

## DIMENSIONS COMPACT VERSION

Length (mm)	1700
Width (mm)	896
Height (mm)	1255
Dry weight (kg)	629
Tank capacity (L)	100

## DIMENSIONS SOUNDPROOFED VERSION

Commercial reference of the enclosure	M127
Length (mm)	2080
Width (mm)	960
Height (mm)	1415
Dry weight (kg)	883
Tank capacity (L)	100
Acoustic pressure level @1m in dB(A)	75
Sound power level guaranteed (Lwa)	93
Acoustic pressure level @7m in dB(A)	63

**KK21M****ENGINE CHARACTERISTICS****GENERAL ENGINE DATA**

Engine brand	KOHLER DIESEL
Engine ref.	KDI2504TM-30
Air inlet system	Athmo
Cylinders configuration	L
Number of cylinders	4
Displacement (L)	2.48
Charge Air coolant	
Bore (mm) x Stroke (mm)	88.00 x 102.00
Compression ratio	18.5 : 1
Speed (RPM)	1500
Pistons speed (m/s)	5.10
Maximum stand-by power at rated RPM (kW)	31.00
Frequency regulation, steady state (%) +/-	2.5%
BMEP (bar)	9.09
Governor type	Mechanical

**COOLING SYSTEM**

Radiator & Engine capacity (L)	9.10
Max water temperature (°C)	110.00
Outlet water temperature (°C)	
Fan power (kW)	
Fan air flow w/o restriction (m <sup>3</sup> /s)	1.18
Available restriction on air flow (mm H <sub>2</sub> O)	
Type of coolant	Glycol-Ethylene
Thermostat modulating range HT (°C)	79-94

**EMISSIONS**

Emission PM (g/kW.h)	
Emission CO (g/kW.h)	
Emission HC+NO <sub>x</sub> (g/kWh)	
Emission HC (g/kW.h)	

**EXHAUST**

Exhaust gas temperature @ ESP 50Hz (°C)	455
Exhaust gas flow @ ESP 50 Hz (L/s)	103.00
Max. exhaust back pressure (mm H <sub>2</sub> O)	800

**FUEL**

Consumption @ 110% load (L/h)	
Consumption @ 100% load (L/h)	7.50
Consumption @ 75% load (L/h)	5.90
Consumption @ 50% load (L/h)	4.20
Maximum fuel pump flow (L/h)	55.00

**OIL**

Oil capacity (L)	11.50
Min. oil pressure (bar)	0.70
Max. oil pressure (bar)	
Oil consumption 100% load (L/h)	
Oil sump capacity (L)	

**HEAT BALANCE**

Heat rejection to exhaust (kW)	
Radiated heat to ambient (kW)	5.30
Heat rejection to coolant (kW)	24

**AIR INTAKE**

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

**GENERAL DATA**

Alternator ref.	AT00630T
Number of Phase	One phase
Power factor (Cos Phi)	0.8
Altitude (m)	0 to 1000
Overspeed (rpm)	2250
Number of pole4	
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 (%)	3,3
Total Harmonic Distortion, on load DHT (%)	2,1
Wave form : NEMA=TIF	<45
Wave form : CEI=FHT	<2
Number of bearing	1
Coupling	Direct
Voltage regulation at established rating (+/- %)	1.00
Recovery time (Delta U = 20% transient) (ms)	200
Indication of protection	IP 23
Technology	Without collar or brush

**OTHER DATA**

Continuous Nominal Rating 40°C (kVA)	21.5
Standby Rating 27°C (kVA)	19.0
Efficiencies 100% of load (%)	88.1
Air flow (m3/s)	0.088
Short circuit ratio (Kcc)	0.620
Direct axis synchro reactance unsaturated (Xd) (%)	169.1
Quadra axis synchro reactance unsaturated (Xq) (%)	72.8
Open circuit time constant (T'do) (ms)	930.00
Direct axis transient reactance saturated (X'd) (%)	13.4
Short circuit transient time constant (T'd) (ms)	46.000
Direct axis subtransient reactance saturated (X''d) (%)	7.7
Subtransient time constant (T''d) (ms)	12.000
Quadra axis subtransient reactance saturated (X''q) (%)	16.60
Subtransient time constant (T''q) (ms)	12.0
Zero sequence reactance unsaturated (Xo) (%)	2.870
Negative sequence reactance saturated (X2) (%)	11.50
Armature time constant (Ta) (ms)	11.000
No load excitation current (io) (A)	0.60
Full load excitation current (ic) (A)	1.96
Full load excitation voltage (uc) (V)	20.8
Engine start (Delta U = 20% perm. or 50% trans.) (kVA)	87.00
Transient dip (4/4 load) - PF : 0,8 AR (%)	14.40
No load losses (W)	785.00
Heat rejection (W)	3242.00
Unbalanced load acceptance ratio (%)	100

**DIMENSIONS**
**BASE AND CANOPY SPECIFICATIONS**

Commercial reference of the enclosure	M127 DW
Length (mm)	2160
Width (mm)	966
Height (mm)	1582
Dry weight (kg)	1066
Tank capacity (L)	230
Acoustic pressure level @1m in dB(A)	75
Sound power level guaranteed (Lwa)	93
Acoustic pressure level @7m in dB(A)	63

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.