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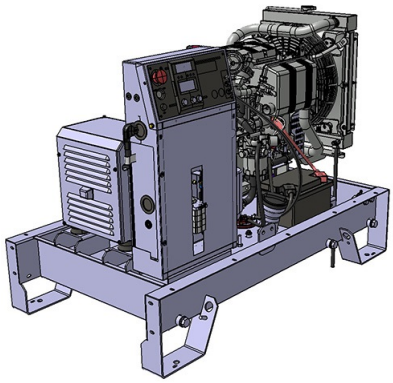
KOHLER Power Systems



KK9

Engine ref.	KDW1003
Alternator ref.	AT00260T
Performance class	G2

GENERAL CHARACTERISTICS

Frequency (Hz)	50
Voltage (V)	400/230
Standard Control Panel	APM303
Optional control panel	DEC4000
Optional control panel	Basic terminal block

POWER

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
240 TRI	7.1	8.9	6.5	8.1	21
230 TRI	7.1	8.9	6.5	8.1	22
220 TRI	7.1	8.9	6.5	8.1	23
220/127	7.1	8.9	6.5	8.1	23
415/240	7.1	8.9	6.5	8.1	12
400/230	7.1	8.9	6.5	8.1	13
380/220	7.1	8.9	6.5	8.1	14

DIMENSIONS COMPACT VERSION

Length (mm)	1220
Width (mm)	700
Height (mm)	920
Dry weight (kg)	290
Tank capacity (L)	50

DIMENSIONS SOUNDPROOFED VERSION

Commercial reference of the enclosure	M125
Length (mm)	1482
Width (mm)	760
Height (mm)	1030
Dry weight (kg)	390
Tank capacity (L)	50
Acoustic pressure level @1m in dB(A)	67
Sound power level guaranteed (Lwa)	83
Acoustic pressure level @7m in dB(A)	54

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	KOHLER DIESEL
Engine ref.	KDW1003
Air inlet system	Athmo
Cylinders configuration	L
Number of cylinders	3
Displacement (L)	1.03
Charge Air coolant	
Bore (mm) x Stroke (mm)	75.00 x 77.60
Compression ratio	22,8 : 1
Speed (RPM)	1500
Pistons speed (m/s)	3.88
Maximum stand-by power at rated RPM (kW)	8.50
Frequency regulation, steady state (%)	+/- 2.5%
BMEP (bar)	5.99
Governor type	Mechanical

COOLING SYSTEM

Radiator & Engine capacity (L)	4.50
Max water temperature (°C)	110.00
Outlet water temperature (°C)	
Fan power (kW)	0.15
Fan air flow w/o restriction (m3/s)	0.85
Available restriction on air flow (mm H2O)	
Type of coolant	Glycol-Ethylene
Thermostat modulating range HT (°C)	80

EMISSIONS

Emission PM (g/kW.h)
Emission CO (g/kW.h)
Emission HC+NOx (g/kWh)
Emission HC (g/kW.h)

EXHAUST

Exhaust gas temperature @ ESP 50Hz (°C)	440
Exhaust gas flow @ ESP 50 Hz (L/s)	30.70
Max. exhaust back pressure (mm H2O)	750

FUEL

Consumption @ 110% load (L/h)	2.72
Consumption @ 100% load (L/h)	2.50
Consumption @ 75% load (L/h)	1.90
Consumption @ 50% load (L/h)	1.26
Maximum fuel pump flow (L/h)	50.00

OIL

Oil capacity (L)	2.40
Min. oil pressure (bar)	1.40
Max. oil pressure (bar)	7.00
Oil consumption 100% load (L/h)	
Oil sump capacity (L)	2.3

HEAT BALANCE

Heat rejection to exhaust (kW)	9
Radiated heat to ambiant (kW)	1.30
Haet rejection to coolant (kW)	8,5

AIR INTAKE

Max. intake restriction (mm H2O)	200
Intake air flow (L/s)	12.80

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ALTERNATOR CHARACTERISTICS

GENERAL DATA

Alternator ref.	AT00260T
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 (%)	2,7
Total Harmonic Distortion, on load DHT (%)	2,8
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% transcient) (ms)	200
Indication of protection	IP 23
Technology	Without collar or brush

OTHER DATA

Continuous Nominal Rating 40°C (kVA)	8.0
Standby Rating 27°C (kVA)	8.8
Efficiencies 100% of load (%)	83.7
Air flow (m3/s)	0.058
Short circuit ratio (Kcc)	0.800
Direct axis synchro reactance unsaturated (Xd) (%)	186.6
Quadra axis synchro reactance unsaturated (Xq) (%)	61.6
Open circuit time constant (T'do) (ms)	730.00
Direct axis transcient reactance saturated (X'd) (%)	14.3
Short circuit transcient time constant (T'd) (ms)	17.000
Direct axis subtranscient reactance saturated (X"d) (%)	10.3
Subtranscient time constant (T"d) (ms)	11.000
Quadra axis subtranscient reactance saturated (X"q) (%)	56.00
Subtranscient time constant (T"q) (ms)	8.0
Zero sequence reactance unsaturated (Xo) (%)	5.800
Negative sequence reactance saturated (X2) (%)	14.10
Armature time constant (Ta) (ms)	12.000
No load excitation current (io) (A)	0.29
Full load excitation current (ic) (A)	0.80
Full load excitation voltage (uc) (V)	12.6
Engine start (Delta U = 20% perm. or 50% trans.) (kVA)	26.00
Transcient dip (4/4 load) - PF : 0,8 AR (%)	14.17
No load losses (W)	285.00
Heat rejection (W)	1246.00
Unbalanced load acceptance ratio (%)	100

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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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