

# KOHLER®



## DESCRIPTIVE

- Stage V engine
- Four-pole circuit breaker
- Connection terminal box rental type
- Containment fuel tank and large autonomy
- Forks and frame protection pads
- Inlet air preheating
- Battery isolating switch
- Oil drainage pump
- Heavy duty air filter with interchangeable cartridge
- Primary fuel filter
- Heat hand protections (EC standards)
- Mechanical governor
- Access door to the radiator

## 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 indoors, 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.

## R20C5

Engine ref.	KD11903M-EU5
Kohler Alternator description	KH00440T
Canopy	M3126
Performance class	G2

## GENERAL CHARACTERISTICS

Frequency (Hz)	50 Hz
Voltage (V)	400/230
Standard Control Panel	APM303
Optional control panel	APM403

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
400/230	16	20	14.6	18.2	29

## DIMENSIONS

Length (mm)	1850
Width (mm)	901
Height (mm)	1355
Dry weight (kg)	815
Tank capacity (L)	153

## SOUND LEVELS

Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	75
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	62
Sound power level guaranteed (Lwa) 50Hz (75% PRP)(Associated uncertainty)	92 (1.4)



## R20C5

### ENGINE CHARACTERISTICS

#### GENERAL ENGINE DATAS

Engine brand	KOHLER KDI
Engine ref.	KDI1903M-EU5
Air inlet system	Atmo
Cylinder configuration	L
Number of cylinders	3
Displacement (l)	1.86
Bore (mm) x Stroke (mm)	88 x 102
Compression ratio	18.5 : 1
Speed 50Hz (RPM)	1500
Pistons speed (m/s)	5.10
Maximum stand-by power at rated RPM (kW)	18
Frequency regulation, steady state (%) +/-	2.5%
BMEP @ PRP (bar)	7.40
Governor type	Mechanical

#### COOLING SYSTEM

Radiator & Engine capacity (l)	6.80
Fan power 50Hz (kW)	0.50
Fan air flow w/o restriction (m <sup>3</sup> /s)	0.63
Available restriction on air flow (mm H <sub>2</sub> O)	20
Type of coolant	Glycol-Ethylene

#### EXHAUST

Exhaust gas temperature @ ESP (°C)	540
Exhaust gas flow @ ESP (l/s)	54.90
Max. exhaust back pressure (mm H <sub>2</sub> O)	500

#### FUEL

Fuel consumption @ ESP Max Power (l/h)	5.10
Fuel consumption @ PRP Max Power (l/h)	4.80
Fuel consumption @ 75% of PRP Power (l/h)	3.70
Fuel consumption @ 50% of PRP Power (l/h)	2.60
Maximum fuel pump flow (l/h)	30

#### OIL

Oil system capacity including filters (l)	8.70
Min. oil pressure (bar)	1.50
Max. oil pressure (bar)	10
Oil consumption 100% ESP 50Hz (l/h)	0.01
Oil sump capacity (l)	8.50

#### HEAT BALANCE

Heat rejection to exhaust (kW)	13
Radiated heat to ambient (kW)	4
Heat rejection to coolant HT (kW)	17

#### AIR INTAKE

Max. intake restriction (mm H <sub>2</sub> O)	150
Combustion air flow (l/s)	18.70



## R20C5

### ALTERNATOR CHARACTERISTICS

Kohler Alternator description	KH00440T	Continuous Nominal Rating 40°C (kVA)	20
Number of Phase	Three phase	Standby Rating 27°C (kVA)	22
Power factor (Cos Phi)	0.80	Efficiencies 100% of load (%)	87.10
Altitude (m)	0 à 1000	Air flow (m3/s)	0.06
Overspeed (rpm)	2250	Short circuit ratio (Kcc)	0.6080
Number of pole	4	Direct axis synchro reactance unsaturated (Xd) (%)	193
Capacity for maintaining short circuit at 300% of rated current for 10 s	Yes	Quadra axis synchro reactance unsaturated (Xq) (%)	98
Insulation class	H	Open circuit time constant (T'do) (ms)	926
T° class (H/125K), continuous 40°C	H / 125°K	Direct axis transient reactance saturated (X'd) (%)	15.40
T° class (H/163K), standby 27°C	H / 163°K	Short circuit transient time constant (T'd) (ms)	74
AVR Regulation	Yes	Direct axis subtranscient reactance saturated (X''d) (%)	7.70
Total Harmonic Distortion in no-load DHT (%)	<3.5	Subtranscient time constant (T''d) (ms)	7
Total Harmonic Distortion, on linear load DHT (%)	<5	Quadra axis subtranscient reactance saturated (X''q) (%)	16.20
Wave form : NEMA=TIF	<50	Subtranscient time constant (T''q) (ms)	7
Wave form : CEI=FHT	<2	Zero sequence reactance unsaturated (Xo) (%)	0.60
Number of bearing	Single Bearing	Negative sequence reactance saturated (X2) (%)	12.01
Coupling	Direct	Armature time constant (Ta) (ms)	11
Voltage regulation at established rating (+/- %)	0.50	No load excitation current (io) (A)	0.98
Recovery time (Delta U = 20% transient) (ms)	500	Full load excitation current (ic) (A)	2.66
Indication of protection	IP 23	Full load excitation voltage (uc) (V)	17
Technology	Brushless	Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	61.37
		Transient dip (4/4 load) - PF : 0,8 AR (%)	11
		No load losses (W)	644.97
		Heat rejected to ambient air (kW)	2.35
		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:**

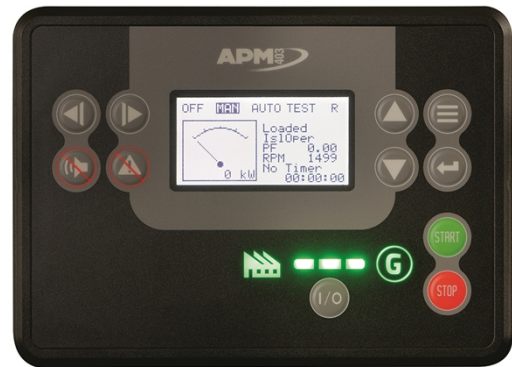
Overspeed, oil pressure, coolant temperatures, minimum and maximum voltage, minimum and maximum frequency  
(Maximum active power P<66kVA)

**Traceability:**

Stack of 12 stored events

For further information, please refer to the data sheet for the APM303.

APM403, basic generating set and power plant control



The APM403 is a versatile control unit which allows operation in manual or automatic mode

Measurements : voltage and current

kW/kWh/kVA power meters

Standard specifications: Voltmeter, Frequency meter.

Optional : Battery ammeter.

J1939 CAN ECU engine control

Alarms and faults: Oil pressure, Coolant temperature, Overspeed, Start-up failure, alternator min/max, Emergency stop button.

Engine parameters: Fuel level, hour counter, battery voltage.

Optional (standard at 24V): Oil pressure, water temperature.

Event log/ Management of the last 300 genset events.

Mains and genset protection

Clock management

USB connections, USB Host and PC,

Communications : RS485 INTERFACE

ModBUS protocol /SNMP

Optional : Ethernet, GPRS, remote control, 3G, 4G,

Websupervisor, SMS, E-mails