



#### DESCRIPTIVE

- Stage 3a engine
- Four-pole circuit breaker
- Connection terminal box rental type
- Containment fuel tank and large autonomy
- Forks and frame protection pads
- Adjustable earth fault protection and earthing rod
- Inlet air preheating
- Battery isolating switch
- Oil drainage pump
- Heavy duty air filter with interchangeable cartridge
- Primary fuel filter
- Heat hand protections (EC standards)
- 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.

#### 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.

## R220C3

Engine ref.	6068HFS86
Kohler Alternator description	KH01220T
Canopy	M3226
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	176	220	160	200	318

#### LARGE AUTONOMY DIMENSIONS

Length (mm)	3520
Width (mm)	1190
Height (mm)	2120
Dry weight (kg)	2786,00
Tank capacity (L)	860,00

#### SMALL AUTONOMY DIMENSIONS

Length (mm)	3520
Width (mm)	1190
Height (mm)	1915
Dry weight (kg)	2746,00
Tank capacity (L)	377,00

#### SOUND LEVELS

Acoustic pressure level @1m in dB(A) 50Hz (75% PRP) (Associated uncertainty)	79 (0,70)
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP) (Associated uncertainty)	68
Sound power level guaranteed (Lwa) 50Hz (75% PRP)	97



## R220C3

### ENGINE CHARACTERISTICS

#### GENERAL ENGINE DATAS

Engine brand	JOHN DEERE
Engine ref.	6068HFS86
Air inlet system	Turbo
Cylinder configuration	L
Number of cylinders	6
Displacement (l)	6,72
Charge Air coolant	Air/Air
Bore (mm) x Stroke (mm)	106,00 x 127,0
Compression ratio	17 : 1
Speed 50Hz (RPM)	1500
Pistons speed (m/s)	6,35
Maximum stand-by power at rated RPM (kW)	202,0
Frequency regulation, steady state (%) +/-	0.25%
BMEP @ PRP (bar)	21,9
Governor type	Electronic

#### COOLING SYSTEM

Radiator & Engine capacity (l)	27,60
Fan power 50Hz (kW)	10,00
Fan air flow w/o restriction (m3/s)	4,90
Available restriction on air flow (mm H2O)	
Type of coolant	Glycol-Ethylene

#### EMISSIONS

Emission PM 50Hz (g/kW.h)	0,1000
Emission CO 50Hz (g/kW.h)	1,150
Emission THC+NOx (g/kWh)	3,680
Emission HC 50Hz (g/kW.h)	0,130

#### EXHAUST

Exhaust gas temperature @ ESP (°C)	548
Exhaust gas flow @ ESP (l/s)	502,0
Max. exhaust back pressure (mm H2O)	765

#### FUEL

Fuel consumption @ ESP Max Power (l/h)	49,1
Fuel consumption @ PRP Max Power (l/h)	46,0
Fuel consumption @ 75% of PRP Power (l/h)	37,6
Fuel consumption @ 50% of PRP Power (l/h)	26,1
Maximum fuel pump flow (l/h)	

#### OIL

Oil system capacity including filters (l)	32,00
Min. oil pressure (bar)	1,1
Max. oil pressure (bar)	3,8
Oil consumption 100% ESP 50Hz (l/h)	0,123
Oil sump capacity (l)	

#### HEAT BALANCE

Heat rejection to exhaust (kW)	112
Radiated heat to ambient (kW)	
Heat rejection to coolant HT (kW)	84

#### AIR INTAKE

Max. intake restriction (mm H2O)	637
Combustion air flow (l/s)	215,00

Kohler Alternator description	KH01220T	Continuous Nominal Rating 40°C (kVA)	200,0
Number of Phase	Three phase	Standby Rating 27°C (kVA)	220,0
Power factor (Cos Phi)	0,8	Efficiencies 100% of load (%)	92,5
Altitude (m)	0 à 1000	Air flow (m3/s)	0,480
Overspeed (rpm)	2250	Short circuit ratio (Kcc)	0,401
Number of pole	4	Direct axis synchro reactance unsaturated (Xd) (%)	339,0
Capacity for maintaining short circuit at 300% of rated current for 10 s	Yes	Quadra axis synchro reactance unsaturated (Xq) (%)	173,0
Insulation class	H	Open circuit time constant (T'do) (ms)	2351,00
T° class (H/125K), continuous 40°C	H / 125°K	Direct axis transient reactance saturated (X'd) (%)	14,4
T° class (H/163K), standby 27°C	H / 163°K	Short circuit transient time constant (T'd) (ms)	100,000
AVR Regulation	Yes	Direct axis subtransient reactance saturated (X''d) (%)	11,5
Total Harmonic Distortion in no-load DHT (%)	<2.5	Subtransient time constant (T''d) (ms)	10,000
Total Harmonic Distortion, on linear load DHT (%)	<2.5	Quadra axis subtransient reactance saturated (X''q) (%)	15,10
Wave form : NEMA=TIF	<50	Subtransient time constant (T''q) (ms)	10,0
Wave form : CEI=FHT	<2	Zero sequence reactance unsaturated (Xo) (%)	0,60
Number of bearing	Single Bearing	Negative sequence reactance saturated (X2) (%)	13,35
Coupling	Direct	Armature time constant (Ta) (ms)	15,000
Voltage regulation at established rating (+/- %)	0,50	No load excitation current (io) (A)	0,79
Recovery time (Delta U = 20% transient) (ms)	500	Full load excitation current (ic) (A)	3,03
Indication of protection	IP 23	Full load excitation voltage (uc) (V)	41,3
Technology	Brushless	Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	595,45
		Transient dip (4/4 load) - PF : 0,8 AR (%)	11,00
		No load losses (W)	3402,42
		Heat rejected to ambient air (kW)	12,90
		Unbalanced load acceptance ratio (%)	8

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

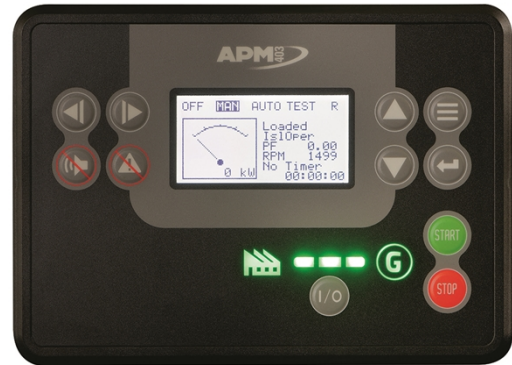
**Reports:**  
 (In option : 2 configurable reports)

**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