

KOHLER®



R110C5

Engine ref.	4045HP551
Kohler Alternator description	KH00911T
Canopy	M5129
Performance class	G3

GENERAL CHARACTERISTICS

Frequency (Hz)	50 Hz
Voltage (V)	400/230
Standard Control Panel	APM403

DESCRIPTIVE

- Stage V 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 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.

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
400/230	88	110	80	100	159

LARGE AUTONOMY DIMENSIONS

Length (mm)	3160
Width (mm)	1191
Height (mm)	2231
Dry weight (kg)	2460
Tank capacity (L)	475

SMALL AUTONOMY DIMENSIONS

Length (mm)	3160
Width (mm)	1191
Height (mm)	2231
Dry weight (kg)	2340
Tank capacity (L)	365

SOUND LEVELS

Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	79
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	68
Sound power level guaranteed (Lwa) 50Hz (75% PRP) (Associated uncertainty)	97 (0.8)



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ENGINE CHARACTERISTICS

GENERAL ENGINE DATAS

Engine brand	JOHN DEERE
Engine ref.	4045HP551
Air inlet system	Turbo
Cylinder configuration	L
Number of cylinders	4
Displacement (l)	4.48
Charge Air coolant	Air/Air
Bore (mm) x Stroke (mm)	106 x 127
Compression ratio	17.1 : 1
Speed (RPM)	1500
Pistons speed (m/s)	6.35
Maximum stand-by power at rated RPM (kW)	103
BMEP @ PRP 50 Hz (bar)	16.80
Governor type	Electronic

COOLING SYSTEM

Radiator & Engine capacity (l)	26.30
Fan power 50Hz (kW)	7.20
Fan air flow w/o restriction (m ³ /s)	3.20
Type of coolant	Gencool

EMISSIONS

Emissions PM (g/kW.h)	0.00083
Emissions CO (g/kW.h)	0.006
Emissions NO _x (g/kW.h)	0.185
Emissions HC (g/kW.h)	0.018

DIESEL EXHAUST FLUID

DEF Tank Capacity (L)	56
Cons. @ ESP Max Power (l/h)	2.0
Cons. @ PRP Max Power (l/h)	1.8
Cons. @ 75% of PRP Power (l/h)	1.1
Cons. @ 50% of PRP Power (l/h)	0.8

EXHAUST

Exhaust gas temperature @ ESP 50Hz (°C)	523
Exhaust gas flow @ ESP 50Hz (l/s)	252
Max. exhaust back pressure (mm H ₂ O)	2448

FUEL

Fuel consumption @ ESP Max Power (l/h)	26.10
Fuel consumption @ PRP Max Power (l/h)	23.80
Fuel consumption @ 75% of PRP Power (l/h)	17.90
Fuel consumption @ 50% of PRP Power (l/h)	12.40
Maximum fuel pump flow (l/h)	61.40

OIL

Oil system capacity including filters (l)	14.80
Min. oil pressure (bar)	3.50
Max. oil pressure (bar)	3.90
Oil consumption 100% ESP 50Hz (l/h)	0.0690
Oil sump capacity (l)	12.20

HEAT BALANCE

Radiated heat to ambient (kW)	50
Heat rejection to coolant HT (kW)	50

AIR INTAKE

Max. intake restriction (mm H ₂ O)	638
Combustion air flow (l/s)	115

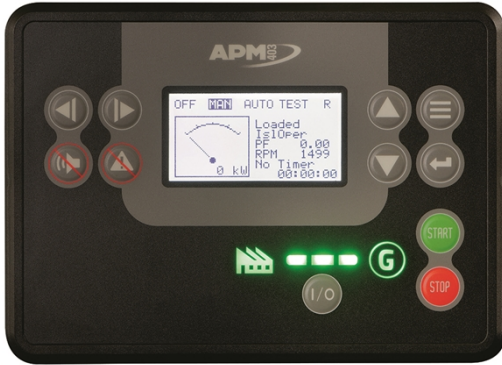


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ALTERNATOR CHARACTERISTICS

Kohler Alternator description	KH00911T	Continuous Nominal Rating 40°C (kVA)	100
Number of Phase	Three phase	Standby Rating 27°C (kVA)	110
Power factor (Cos Phi)	0.80	Efficiencies 100% of load (%)	92
Altitude (m)	0 à 1000	Air flow (m3/s)	0.25
Overspeed (rpm)	2250	Short circuit ratio (Kcc)	0.55
Number of pole	4	Direct axis synchro reactance unsaturated (Xd) (%)	287
Capacity for maintaining short circuit at 300% of rated current for 10 s	Yes	Quadra axis synchro reactance unsaturated (Xq) (%)	146
Insulation class	H	Open circuit time constant (T'do) (ms)	2211
T° class (H/125°), continuous 40°C	H / 125°K	Direct axis transient reactance saturated (X'd) (%)	12.90
T° class (H/163°C), standby 27°C	H / 163°K	Short circuit transient time constant (T'd) (ms)	100
AVR Regulation	Yes	Direct axis subtranscient reactance saturated (X''d) (%)	7.70
Total Harmonic Distortion in no-load DHT (%)	<2	Subtranscient time constant (T''d) (ms)	10
Total Harmonic Distortion, on linear load DHT (%)	<5	Quadra axis subtranscient reactance saturated (X''q) (%)	16.10
Wave form : NEMA=TIF	<50	Subtranscient time constant (T''q) (ms)	10
Wave form : CEI=FHT	<2	Zero sequence reactance unsaturated (Xo) (%)	0.50
Number of bearing	Single Bearing	Negative sequence reactance saturated (X2) (%)	11.95
Coupling	Direct	Armature time constant (Ta) (ms)	15
Voltage regulation at established rating (+/- %)	0.50	No load excitation current (io) (A)	0.94
Recovery time (Delta U = 20% transient) (ms)	500	Full load excitation current (ic) (A)	2.98
Indication of protection	IP 23	Full load excitation voltage (uc) (V)	23.20
Technology	Brushless	Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	333.49
		Transient dip (4/4 load) - PF : 0,8 AR (%)	11
		No load losses (W)	2396.28
		Heat rejected to ambient air (kW)	6.93
		Unbalanced load acceptance ratio (%)	100

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