

# KOHLER®



## R50C5

Engine ref.	KDI2504TCR-EU5
Kohler Alternator description	KH00810T
Canopy	M3128
Performance class	G3

### GENERAL CHARACTERISTICS

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

Voltage	ESP		PRP		Standby Amps
	kWe	kVA	kWe	kVA	
400/230	40	50	36	45	72

### DESCRIPTIVE

- Stage V engine
- Four-pole circuit breaker
- Connection terminal box rental type
- Containment fuel tank and large autonomy
- Forks and frame protection pads
- Residual Current Device 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)

### DIMENSIONS

Length (mm)	2545
Width (mm)	1150
Height (mm)	1824
Dry weight (kg)	1550
Tank capacity (L)	390

### SOUND LEVELS

Acoustic pressure level @1m in dB(A) 50Hz (75% PRP)	79
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP)	67
Sound power level guaranteed (Lwa) 50Hz (75% PRP)(Associated uncertainty)	96 (0.1)

### 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.



## R50C5

### ENGINE CHARACTERISTICS

#### GENERAL ENGINE DATAS

Engine brand	KOHLER KDI
Engine ref.	KDI2504TCR-
Air inlet system	EU5 Turbo
Cylinders configuration	L
Number of cylinders	4
Displacement (l)	2.48
Bore (mm) x Stroke (mm)	88 x 102
Compression ratio	17.4 : 1
Speed (RPM)	1500
Pistons speed (m/s)	5.10
Maximum stand-by power at rated RPM (kW)	47.10
Frequency regulation, steady state (%)	< 5%
BMEP @ PRP 50 Hz (bar)	13.80
Governor type	Electronic

#### COOLING SYSTEM

Radiator & Engine capacity (l)	12
Fan power 50Hz (kW)	2
Available restriction on air flow (mm H2O)	20
Type of coolant	Glycol-Ethylene

#### EXHAUST

Exhaust gas temperature @ ESP 50Hz (°C)	600
Exhaust gas flow @ ESP 50Hz (l/s)	136
Max. exhaust back pressure (mm H2O)	764

#### FUEL

Fuel consumption @ ESP Max Power (l/h)	12.40
Fuel consumption @ PRP Max Power (l/h)	11
Fuel consumption @ 75% of PRP Power (l/h)	8.80
Fuel consumption @ 50% of PRP Power (l/h)	5.80
fuel pump flow (l/h)	25

#### OIL

Oil system capacity including filters (l)	11.50
Oil consumption 100% ESP 50Hz (l/h)	0.01

#### HEAT BALANCE

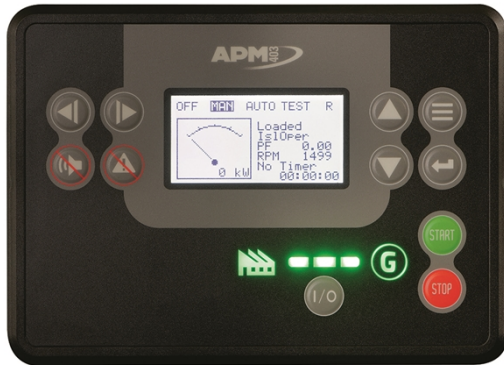
Heat rejection to exhaust (kW)	37
Radiated heat to ambient (kW)	3
Heat rejection to coolant HT (kW)	35

#### AIR INTAKE

Max. intake restriction (mm H2O)	300
Intake air flow (l/s)	45

Alternator ref.	KH00810T	Continuous Nominal Rating 40°C (kVA)	60
Number of Phase	Three phase	Standby Rating 27°C (kVA)	66
Power factor (Cos Phi)	0.80	Efficiencies 100% of load (%)	90.30
Altitude (m)	0 à 1000	Air flow (m3/s)	0.10
Overspeed (rpm)	2250	Short circuit ratio (Kcc)	0.4360
Number of pole	4	Direct axis synchro reactance unsaturated (Xd) (%)	283
Capacity for maintaining short circuit at 3 In for 10 s	Yes	Quadra axis synchro reactance unsaturated (Xq) (%)	144
Insulation class	H	Open circuit time constant (T'do) (ms)	962
T° class (H/125°), continuous 40°C	H / 125°K	Direct axis transient reactance saturated (X'd) (%)	14.70
T° class (H/163°C), standby 27°C	H / 163°K	Short circuit transient time constant (T'd) (ms)	50
AVR Regulation	Yes	Direct axis subtransient reactance saturated (X''d) (%)	7.30
Total Harmonic Distortion in no-load DHT (%)	<2	Subtransient time constant (T''d) (ms)	5
Total Harmonic Distortion, on linear load DHT (%)	<4	Quadra axis subtransient reactance saturated (X''q) (%)	10.50
Wave form : NEMA=TIF	<50	Subtransient time constant (T''q) (ms)	5
Wave form : CEI=FHT	<2	Zero sequence reactance unsaturated (Xo) (%)	0.60
Number of bearing	Single Bearing	Negative sequence reactance saturated (X2) (%)	8.93
Coupling	Direct	Armature time constant (Ta) (ms)	8
Voltage regulation at established rating (+/- %)	0.50	No load excitation current (io) (A)	0.77
Recovery time (Delta U = 20% transient) (ms)	500	Full load excitation current (ic) (A)	3.18
Indication of protection	IP 23	Full load excitation voltage (uc) (V)	21.30
Technology	Brushless	Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	119.61
		Transient dip (4/4 load) - PF : 0,8 AR (%)	13
		No load losses (W)	1119.51
		Heat rejection (W)	5134.28
		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