



R650C211

Engine ref.	TAD1642GE
Kohler Alternator description	#desc_altt#
Canopy	M230C
Performance class	G3

GENERAL CHARACTERISTICS

Frequency (Hz)	50 Hz
Voltage (V)	400/230

Standard Control Panel	APM403
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Full version

BASE ADDITIONNAL EQUIPMENTS

- ➡ Analog engine
- ➡ Connection terminal box rental type
- ➡ Four-pole circuit breaker
- ➡ Integrated ladder
- ➡ soundproofed enclosure dedicated to rental
- ➡ low fuel level alarm
- ➡ Easy access to the radiator
- ➡ Swing valve

ADDITIONAL EQUIPMENT - FULL

- ➡ #GEN_PLUS_AV_1_Valeur#
- ➡ #GEN_PLUS_AV_2_Valeur#
- ➡ #GEN_PLUS_AV_3_Valeur#
- ➡ #GEN_PLUS_AV_4_Valeur#
- ➡ #GEN_PLUS_AV_5_Valeur#
- ➡ #GEN_PLUS_AV_6_Valeur#
- ➡ #GEN_PLUS_AV_7_Valeur#
- ➡ #GEN_PLUS_AV_8_Valeur#
- ➡ #GEN_PLUS_AV_9_Valeur#
- ➡ #GEN_PLUS_AV_10_Valeur#
- ➡ #GEN_PLUS_AV_11_Valeur#
- ➡ #GEN_PLUS_AV_12_Valeur#
- ➡ #GEN_PLUS_AV_13_Valeur#
- ➡ #GEN_PLUS_AV_14_Valeur#
- ➡ #GEN_PLUS_AV_15_Valeur#

FULL VERSION DIMENSION

Length (mm)	5083
Width (mm)	1690
Height (mm)	2955
Dry weight (kg)	5910,00
Tank capacity (L)	
Autonomy @ 75% of load (h)	
Autonomy @ 50% of load (h)	

STANDARD VERSION DIMENSION

Length (mm)	5031
Width (mm)	1690
Height (mm)	2932
Dry weight (kg)	5300,00
Tank capacity (L)	610,00
Autonomy @ 75% of load (h)	
Autonomy @ 50% of load (h)	

SOUND LEVELS

Acoustic pressure level @1m in dB(A) 50Hz (75% PRP) (Associated uncertainty)	80 (0,70)
Acoustic pressure level @7m in dB(A) 50Hz (75% PRP) (Associated uncertainty)	70 (0,70)
Acoustic pressure level @15m in dB(A) 50Hz (75% PRP) (Associated uncertainty)	65 (0,70)

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.



R650C2

ENGINE CHARACTERISTICS

GENERAL ENGINE DATAS

Engine brand	VOLVO
Engine ref.	TAD1642GE
Air inlet system	Turbo
Cylinder configuration	L
Number of cylinders	6
Displacement (l)	16,12
Charge Air coolant	Air/Air
Bore (mm) x Stroke (mm)	144,00 x 165,0
Compression ratio	16.5 : 1
Speed 50Hz (RPM)	1500
Pistons speed (m/s)	8,25
Maximum stand-by power at rated RPM (kW)	565,0
Frequency regulation, steady state (%) +/-	0.25%
BMEP @ PRP (bar)	25,5
Governor type	Electronic

COOLING SYSTEM

Radiator & Engine capacity (l)	60,00
Fan power 50Hz (kW)	11,00
Fan air flow w/o restriction (m3/s)	10,00
Available restriction on air flow (mm H2O)	30,00
Type of coolant	Glycol-Ethylene

EMISSIONS

Emission PM 50Hz (g/kW.h)	0,1100
Emission CO 50Hz (g/kW.h)	0,670
Emission THC+NOx (g/kWh)	5,670
Emission HC 50Hz (g/kW.h)	0,250

EXHAUST

Exhaust gas temperature @ ESP (°C)	482
Exhaust gas flow @ ESP (l/s)	1708,0
Max. exhaust back pressure (mm H2O)	1000

FUEL

Fuel consumption @ ESP Max Power (l/h)	132,9
Fuel consumption @ PRP Max Power (l/h)	119,6
Fuel consumption @ 75% of PRP Power (l/h)	88,4
Fuel consumption @ 50% of PRP Power (l/h)	58,9
Maximum fuel pump flow (l/h)	180,0

OIL

Oil system capacity including filters (l)	48,00
Min. oil pressure (bar)	0,7
Max. oil pressure (bar)	6,5
Oil consumption 100% ESP 50Hz (l/h)	0,100
Oil sump capacity (l)	42,00

HEAT BALANCE

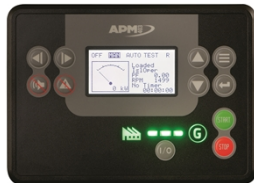
Heat rejection to exhaust (kW)	427
Radiated heat to ambient (kW)	20,0
Heat rejection to coolant HT (kW)	218

AIR INTAKE

Max. intake restriction (mm H2O)	500
Combustion air flow (l/s)	676,00

Kohler Alternator description	KH02880T	Continuous Nominal Rating 40°C (kVA)	600,0
Number of Phase	Three phase	Standby Rating 27°C (kVA)	660,0
Power factor (Cos Phi)	0,8	Efficiencies 100% of load (%)	94,5
Altitude (m)	0 à 1000	Air flow (m3/s)	0,900
Overspeed (rpm)	2250	Short circuit ratio (Kcc)	0,365
Number of pole	4	Direct axis synchro reactance unsaturated (Xd) (%)	330,0
Capacity for maintaining short circuit at 300% of rated current for 10 s	Yes	Quadra axis synchro reactance unsaturated (Xq) (%)	168,0
Insulation class	H	Open circuit time constant (T'do) (ms)	1997,00
T° class (H/125K), continuous 40°C	H / 125°K	Direct axis transient reactance saturated (X'd) (%)	16,5
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 subtranscient reactance saturated (X''d) (%)	11,5
Total Harmonic Distortion in no-load DHT (%)	<2	Subtranscient time constant (T''d) (ms)	10,000
Total Harmonic Distortion, on linear load DHT (%)	<2	Quadra axis subtranscient reactance saturated (X''q) (%)	15,20
Wave form : NEMA=TIF	<50	Subtranscient 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) (%)	13,43
Coupling	Direct	Armature time constant (Ta) (ms)	15,000
Voltage regulation at established rating (+/- %)	0,50	No load excitation current (io) (A)	0,92
Recovery time (Delta U = 20% transient) (ms)	500	Full load excitation current (ic) (A)	3,66
Indication of protection	IP 23	Full load excitation voltage (uc) (V)	62,1
Technology	Brushless	Engine start (Delta U = 20% perm. or 30% trans.) (kVA)	1144,84
		Transient dip (4/4 load) - PF : 0,8 AR (%)	13,00
		No load losses (W)	6794,24
		Heat rejected to ambient air (kW)	27,59
		Unbalanced load acceptance ratio (%)	8

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